Jp2g Consultants Inc.
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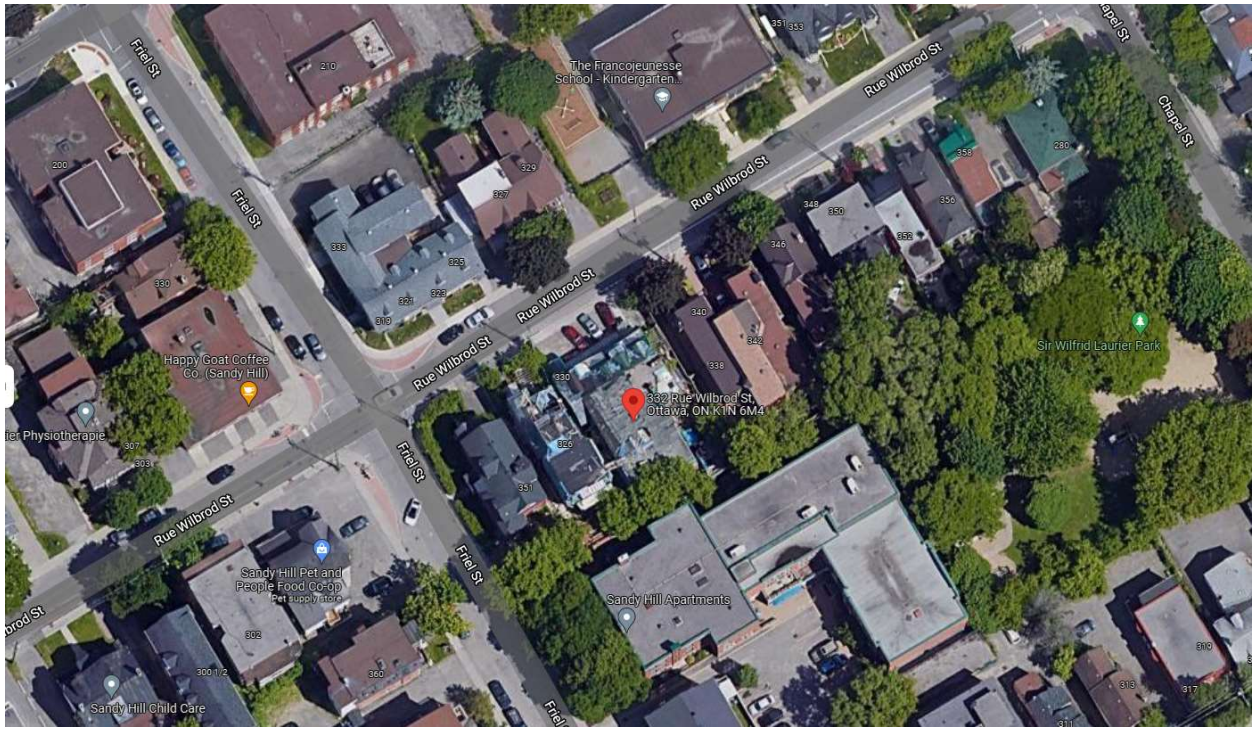
Project No. 21-1062A

Site Servicing and Stormwater Management Report

Wilbrod Street Apartment Complex

326-332 Wilbrod St, Ottawa, Ontario



Prepared for

Dolyn Developments Inc. and Dolyn Construction Ltd.
888 Lady Ellen Place, Unit #1
Ottawa, Ontario, K1Z 5L5

SUBMISSION Rev 3 Nov 28, 2022

Table of Contents

1 Introduction

Jp2g Consultants Inc. was retained by Dolyn Developments Inc. and Dolyn Construction Ltd. to complete a Site Servicing and Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for a new apartment complex development located at the southeast corner of Friel Street and Wilbrod Street Ottawa, ON.

The site is approximately **0.090 ha** in size and is bound by Wilbrod Street on the north property limit. The proposed development includes the construction of a new **470 m^2** Four-storey apartment unit with a mechanical basement, and associated parking and landscaped areas.

A Pre-Consultation meeting was held with City of Ottawa staff on November 22, 2021, to determine the project constraints and requirements. The following report details the site servicing & stormwater management calculations used for capacity, water quantity and quality control in accordance with the City of Ottawa's requirements.

1.1 Design Drawings

The following reference civil design drawings are included.

- C1 – Site Servicing Plan
- C2 – Grading Plan
- Figure 1 – Pre-Development Storm Drainage Areas
- Figure 2 – Post-Development Storm Drainage Areas

1.2 Design Population

The estimated population for the proposed development is as follows using the general population densities in accordance to Table 4.2 from the City of Ottawa Sewer Design Guidelines:

Table 1: Design Population

Apartment Unit Type		Design Population (persons)
1 Bedroom / Bachelor Apartment Units (1.4 persons per unit)	2 Bedroom Apartment Units (2.1 persons per unit)	
14	26	75

2 Objective

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

The stormwater management plan is to control post-development peak flows to pre-determined levels, and detain onsite, stormwater up to and including the 100-year storm event with a 25% increase of rainfall intensity (hereby referred to as 100-year* storm event) without affecting adjacent lands.

3 Stormwater Management

3.1 Pre-Development Conditions

The existing site consists of two developed residential and commercial parcels. The parcels are bounded by existing residential units on all sides.

3.2 Allowable Release Rate

Allowable release rate was calculated in conjunction with the City of Ottawa requirements. The site's release rate was determined using a c-value of 0.5, and the 5-year storm intensity. Therefore, the site will be restricted to an allowable release rate of $Q_{allowable}$ **= 13.0 l/s,** for all storms up to and including the 100-year storm. Detailed calculations can be seen in **Appendix B**.

3.3 Post-Development Conditions

The proposed site development includes a new apartment building, asphalt parking, hard surface walkways and landscaped areas. Site storm drainage will be conveyed through the new on-site storm sewer and connect to the existing **375mm** storm sewer on Wilbrod Street. Flows will be managed to limit the 100-year post-development flow rate to the pre-development 5-year release rate identified in section 3.2.

The site development area is approximately **0.090 ha** with a post-development average weighted run-off coefficient of **C = 0.75** and **C = 0.84** for the 5-year and 100-year* storm events, respectively. Refer to calculations in **Appendix B**. Stormwater management techniques are required to reduce peak flows from the area, given that post-development peak flows will exceed the pre-development allowable release rate of **13.0 l/s**.

3.4 Storm Sewer Pipe Design

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

3.5 Stormwater Quality Control

No stormwater quality control will be provided for this development.

3.6 Stormwater Quantity Control

Drainage area B3, North and West property frontage will flow uncontrolled. Refer to **Figure 2**.

Table 2: Allowable Release Rate Breakdown

ID	Description	Flows	
		5-Year Event	100-Year Event
	Allowable Release Rate (Section 3.2)	**13.0 L/s**	**13.0 L/s**
1.2.1	Uncontrolled flow	**2.8 L/s**	**5.5 L/s**
1.2.2	Net-allowable release rate	**10.1 L/s**	**7.5 L/s***

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

To meet the net-allowable release rate, flows will be detained on the building roof by installing parabolic weirs, (Watts Drainage Adjustable Flow Control for Roof Drains, or equivalent approved product), at all roof drains limiting the total flow from the roof to **1.3 L/s** for both the **5-year and 100-year**. On-site storage requirements for the roof were calculated to be **9m^3** for the 5-year storm event and **22m^3** for the 100-year storm event. The maximum available storage for the roof was calculated to be **24m^3** based on a maximum ponding depth of 150mm. Refer to **Appendix F** product data sheets.

A Tempest LMF (vortex) inlet control device will be installed at CB-1 to restrict the flow rate through the parking lot to **6.2 L/s**, refer to **Appendix F** product data sheets. On-site storage requirements for the parking lot were calculated to be **1m^3** for the 100-year storm event and **2m^3** for the 100-year + 20% stress test event. The maximum ponding depth for the parking area is 0.12m, which is in conjunction with the 350mm City of Ottawa requirements. In the event the capacity of this system is exceeded, emergency runoff will overflow north through the side access entrance to Wilbrod Street.

4 Sanitary Servicing

A new **200mm** sanitary sewer conveying flows from the new building will connect to the existing **600mm** will be constructed by others on Wilbrod Street. Refer to drawing **C1 – Site Servicing Plan**.

Based on the existing commercial and residential building on-site, pre-development peak sanitary flow for the site is calculated to be **0.11 L/s**. Post-development peak sanitary flow for the site is calculated to be **1.00 l/s**. The new **200mm** sanitary sewers at minimum **1.0%** slope will have a full flow capacity of **32.8 l/s**. The sanitary demand was calculated based on the *City of Ottawa Sewer Design Guidelines 2012* and *Technical Bulletins 2018.* Refer to **Appendix C** for full calculations.

There will be a small sanitary demand increase out letting into the municipal **600mm** sanitary sewer for post-development conditions.

5 Water

A **150mm** watermain will service the new building and connect to the existing **300mm** watermain on Wilbrod Street.

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

Existing Development Calculations:
Cumulative Maximum Daily Demand: 0.03 l/s + 0.09 L/s = **0.12 L/s**

Cumulative Maximum Hour Demand: 0.06 l/s + 0.16 L/s = **0.22 L/s**

See calculation breakdown below.

Commercial Parcel

- Gross Commercial Area = 0.06 hectares
- Maximum Day Factor = 1.5
- Maximum Hour Factor = 1.8
- Average daily demand for commercial = 28,000 L/ha/day
- Day = 8 hours

Average Daily Demand: $\frac{28{,}000\ \text{L/ha/day} \times 0.06\ \text{ha}}{8\ \text{hrs/day} \times 3600\ \text{s/hr}} = 0.06\ \text{L/s}$

Maximum Daily Demand: 0.06 L/s x 1.5 = 0.09 L/s
Maximum Hour Demand: 0.09 L/s x 1.8 = 0.16 L/s

Residential Parcel

- Average daily demand = 280 l/capita/day
- Operational Hours = 24 hours
- Maximum occupancy = 4 persons (residents)
- Maximum Day Factor = 2.5
- Maximum Hour Factor = 2.2

Average Daily Demand: $\frac{280\ \text{l/capita/day} \times 4\ \text{residents}}{24\ \text{hrs/day} \times 3600\ \text{s/hr}} = 0.013\ \text{l/s}$

Maximum Daily Demand: 0.013 l/s x 2.5 = 0.03 l/s
Maximum Hour Demand: 0.03 l/s x 2.2 = 0.06 l/s

New Development Calculations:

- Average daily demand = 280 l/capita/day
- Operational Hours = 24 hours
- Maximum occupancy = 75 persons (residents)
- Maximum Day Factor = 2.5
- Maximum Hour Factor = 2.2

Average Daily Demand: $\frac{280 \text{ l/capita/day} \times 75 \text{ residents}}{24 \text{ hrs/day} \times 3600 \text{ s/hr}} = 0.24 \text{ l/s}$

Maximum Daily Demand: 0.24 l/s x 2.5 = 0.60 l/s
Maximum Hour Demand: 0.6 l/s x 2.2 = 1.32 l/s

There will be a small water demand increase drawing from the municipal **300mm** watermain for post-development conditions.

5.1 Fire Flow Demand

Based on the Fire Underwriters Survey Method, the fire flow demand for the new development is calculated to be:

Fire Flow Demand: **133.3 l/s** (Refer to Appendix D– Fire Flow Calculations).

There is one (1) fire hydrant across the street on Wilbrod within 45.0m and three (3) fire hydrants along Wilbrod Street and Friel Street within 75.0m to 150.0m from the subject property. All fire hydrants are class AA and provide a cumulative fire flow contribution of **158.33 L/s** which is based on Table 1 of Appendix I in Technical Bulletin ISTB-2018-02. The new building will also be equipped with an automatic sprinkler system.

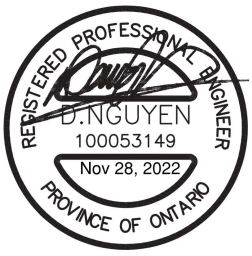
As a result, the available fire flow contribution meets the fire flow demand of the new development.

Boundary conditions have been received from the City. Pressure check was performed and found ok, pressure check details are available in Appendix G.

End of Site Servicing and Stormwater Management Report.

Please contact the undersigned should you require any clarification.

Prepared By:



David Nguyen, P. Eng.
Principal | Operations Manager
DavidN@jp2g.com
613-828-7800

Appendix A - Drawings and Figures

LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- SA — EXISTING SANITARY SEWER
- ST — EXISTING STORM SEWER
- W — EXISTING WATERMAIN
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN
- EXISTING WATERMAIN VALVE
- EXISTING FIRE HYDRANT
- OHW — EXISTING OVERHEAD WIRES
- P — P — EXISTING UNDERGROUND UTILITY
- G — G — EXISTING UNDERGROUND GASMAIN
- SA — NEW SANITARY SEWER
- ST — NEW STORM SEWER
- W — NEW WATERMAIN
- DC — DEPRESSED CURB
- FENCE REFER TO LANDSCAPING
- NEW FOUNDATION DRAIN
- CB-# — NEW CATCHBASIN
- SAMH-# — NEW SANITARY MANHOLE
- STMH-# — NEW STORM MANHOLE
- WV — NEW WATER VALVE
- NEW INLET CONTROL DEVICE
- RD — NEW ROOF DRAIN
- SC — NEW SCUPPER
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- PROPOSED PEDESTRIAN PAVING
- PROPOSED PLANTING BED
- PROPOSED INSULATION

GENERAL NOTES

1. DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
4. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
5. CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
6. CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.

EROSION AND SEDIMENT CONTROL NOTES

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

DRAWING NOTES

01 CONNECT NEW WATER SERVICE TO EXISTING 305mm DUCTILE IRON WATERMAIN. APPROXIMATE TOP OF EXISTING WATERMAIN ELEVATION: 67.63. CONTRACTOR TO HYDROVAC TO CONFIRM OBVERT PRIOR TO CONSTRUCTION. WATER CONNECTIONS BY CITY; EXCAVATION, BACKFILLING AND REINSTATEMENT BY THE CONTRACTOR. CONTRACTOR TO COORDINATE WITH CITY OF OTTAWA FORCES.

02 SUPPLY AND INSTALL NEW 150mm Ø PVC DR18 WATER MAIN SERVICE, MINIMUM 2.4m COVER, PROVIDE HL40 THERMAL INSULATION IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL W22 WHERE 2.4m COVER CANNOT BE MET. COORDINATE NEW WATER SERVICE CONNECTION WITH MECHANICAL PLANS.

03 SUPPLY AND INSTALL NEW WATERMAIN VERTICAL BENDS AND INSULATION TO CROSS UNDER EXISTING 375mm CONCRETE STORM SEWER IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL W25.

04 CONNECT TO EXISTING 600mm CONCRETE SANITARY SEWER WITH NEW VERTICAL RISER IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL S11. PROVIDE WATERTIGHT CONNECTION. APPROXIMATE CONNECTION INVERT: 65.52. CONTRACTOR TO CONFIRM EXISTING SANITARY SEWER INVERTS PRIOR TO CONSTRUCTION.

05 CONNECT TO EXISTING 375mm CONCRETE STORM SEWER WITH NEW VERTICAL RISE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL S11. PROVIDE WATERTIGHT CONNECTION. APPROXIMATE CONNECTION INVERT: 67.53. CONTRACTOR TO CONFIRM MUNICIPAL STORM SEWER INVERTS PRIOR TO CONSTRUCTION.

06 CONNECT SERVICES TO INTERIOR PLUMBING 1.0m FROM BUILDING FOUNDATION. PERIMETER FOUNDATION DRAIN TO BE CONNECTED TO NEW STORM SEWER SERVICE. REFER TO MECHANICAL AND ARCHITECTURAL PLANS. CONNECTION ELEVATIONS:

- STORM INVERT: 68.15
- SANITARY INVERT: 68.65
- WATERMAIN OBVERT: 68.00

07 SUPPLY AND INSTALL BACKFLOW VALVES ON SANITARY AND STORM BUILDING CONNECTION AS PER CITY OF OTTAWA STANDARD DETAILS S14, AND ONE OF S14.1 OR S14.2.

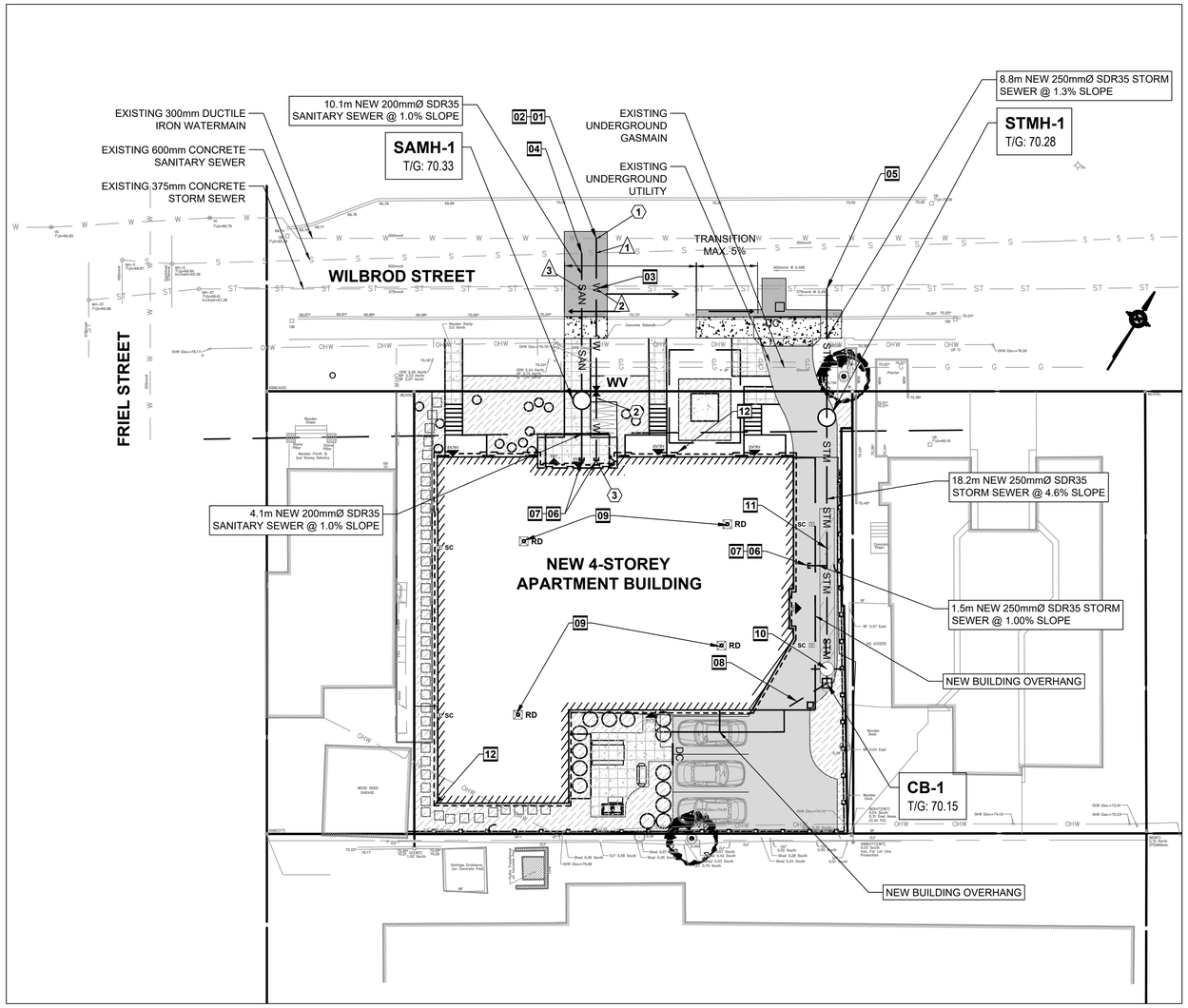
08 INSTALL 3.0m LONG 100mm Ø PERFORATED SUBDRAIN WRAPPED IN GEOTEXTILE SOCK EXTENDING FROM CB/CBMH AT PAVEMENT SUBGRADE LEVEL. PROVIDE WATERTIGHT CONNECTION.

09 SUPPLY AND INSTALL WATTS ADJUSTABLE ACCUTROL WEIR ROOF DRAINS WITH WEIR OPENING IN THE CLOSED POSITION. MAXIMUM DISCHARGE 1.3 l/s TOTAL. REFER TO MECHANICAL FOR SPECIFIC WEIR SETTINGS

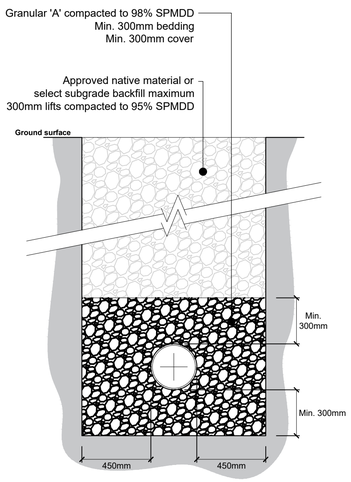
10 INSTALL TEMPEST LMF ICD TYPE 75 AT CB-1 OUTLET. MAXIMUM DISCHARGE 6.2 l/s AT 1.63M HEAD.

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

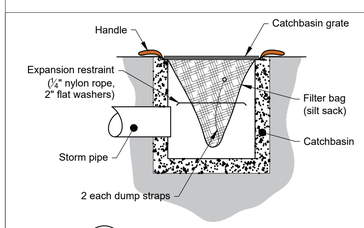
12 PERIMETER FOUNDATION DRAIN (REFER TO MECHANICAL) CONNECTED TO BUILDING SUMP PIT.



Note:
1. Install new clay seals at 50m intervals as per City of Ottawa standard detail S8. Clay seal to be compacted to 95% SPMDD



1 / C1 **Standard Trench Detail**
Scale: **As shown**



2 / C1 **Catchbasin Filter Bag / Insert**
Scale: **Not to scale**

MANHOLE AND CATCHBASIN SCHEDULE

STRUCTURE ID	TOP OF FRAME ELEVATION (m)	PIPE INVERT ELEVATION (m)	STRUCTURE DIAMETER (mm) / OPSD No.	FRAME (OPSD / CITY OF OTTAWA STANDARD)
SAMH-1	70.33	68.61 SW / 68.59 NE	1200 / 701.010	S25 / S24
STMH-1	70.28	67.64 NW / 67.69 SE	1200 / 701.010	S25 / S24.1
CB-1	70.15	68.52 NW	600 x 600 / 705.010	S25 / S19

CROSSING TABLE

LOCATION	OVER / UNDER	INVERT	OBVERT	CLEARANCE (m)
1	NEW WATERMAIN / EXISTING SANITARY SEWER	67.53	65.82	1.71
2	EXISTING STORM SEWER / NEW WATERMAIN	67.70	67.20	0.50
3	NEW SANITARY SEWER / EXISTING STORM SEWER	68.52	68.18	0.34

WATER SERVICE TABLE

ID	DESCRIPTION	FINISHED GRADE (m)	T/O WATERMAIN (m)
1	MUNICIPAL CONNECTION	70.03	67.63
2	VALVE BOX	70.33	67.93
3	BUILDING CONNECTION	70.40	68.00

NOTE: PROVIDE MINIMUM 2.4m COVER OVER T/O WATERMAIN TO FINISHED GRADE. WHERE MINIMUM COVER CANNOT BE MET, PROVIDE THERMAL INSULATION HL40.

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No.	DESCRIPTION	YYYY-MM-DD
3	SITE PLAN CONTROL REV 3	2022-11-28
2	SITE PLAN CONTROL REV 2	2022-08-23
1	SITE PLAN CONTROL	2022-03-09

client

DOLYN CONSTRUCTION LTD.

project

WILBROD APT. BUILDING

326-330 WILBROD STREET, OTTAWA, ON.

seal

REGISTERED PROFESSIONAL ENGINEER
D.NGUYEN
100053149
Nov 28, 2022
PROVINCE OF ONTARIO

drawing title

SITE SERVICING, EROSION AND SEDIMENT CONTROL PLAN

scale: As shown	drawn by: ZB
date	checked by: DN
project number	drawing number: **C1**

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

revision

D07-12-22-0049

LEGEND

PROPERTY LINE	
EXISTING BUILDING	
SA	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATERMAIN
DC	DEPRESSED CURB
FENCE REFER TO LANDSCAPING	
EXISTING SANITARY MANHOLE	
EXISTING STORM MANHOLE	
EXISTING CATCHBASIN	
EXISTING WATERMAIN VALVE	
EXISTING FIRE HYDRANT	
OHW	EXISTING OVERHEAD WIRES
P	EXISTING UNDERGROUND UTILITY
G	EXISTING UNDERGROUND GASMAIN
CB-#	NEW CATCHBASIN
CBMH-#	NEW CATCHBASIN MANHOLE
SAMH-#	NEW SANITARY MANHOLE
STMH-#	NEW STORM MANHOLE
WV	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
RD	NEW ROOF DRAIN
SC	NEW SCUPPER
	NEW LIGHT DUTY ASPHALT
	NEW HEAVY DUTY ASPHALT
	NEW CONCRETE SIDEWALK
	PROPOSED PEDESTRIAN PAVING
	PROPOSED PLANTING BED
70.74	NEW GRADE
2.0%	NEW SLOPE
XX.XX	EXISTING GRADE

DRAWING NOTES

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

02 NEW BARRIER CURB AS PER CITY OF OTTAWA STANDARD DETAIL SC1.1.

03 PROTECT EXISTING CONCRETE SIDEWALK DURING CONSTRUCTION.

04 NEW CONCRETE SIDEWALK COMPLETE WITH REINFORCING MESH 150mm X 150mm, MW9.1 X MW9.1 COMPLETE WITH EXPANSION JOINT PER CITY OF OTTAWA STANDARD DETAIL SC5.

05 REMOVE EXISTING DEPRESSED SIDEWALK AND REINSTATE WITH NEW 150mm RAISED SIDEWALK TO CITY STANDARDS.

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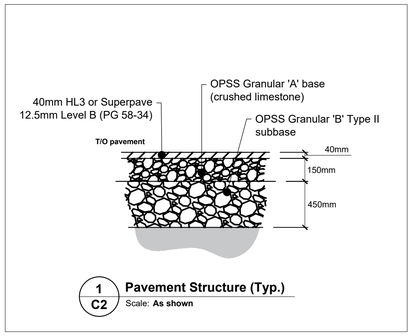
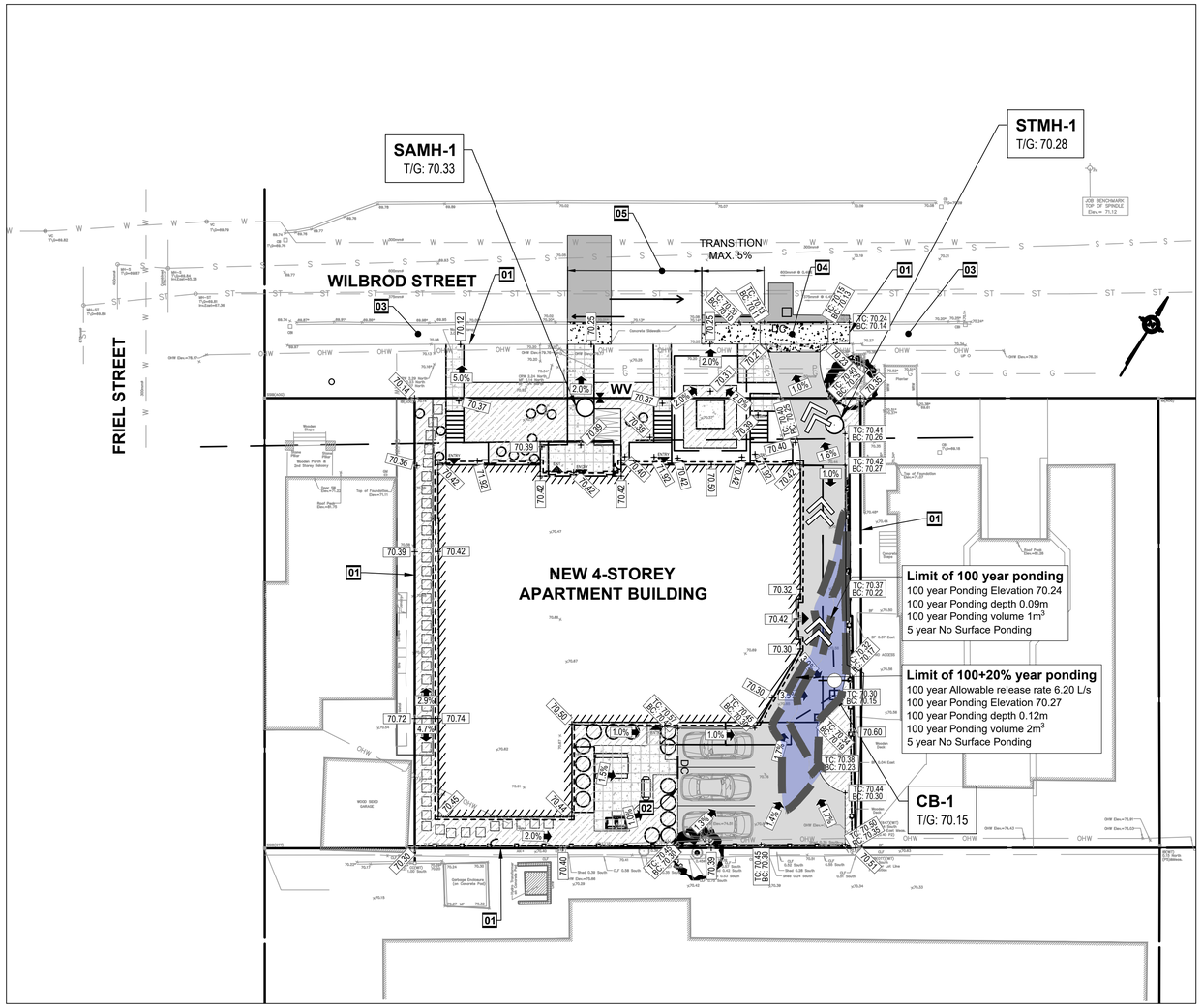
7. ALL PRIVATE ACCESSES TO ROADS SHALL COMPLY WITH THE CITY'S PRIVATE APPROACH BY-LAW NO. 2003-447 AS AMENDED, OR AS APPROVED THROUGH THE SITE PLAN CONTROL PROCESS.
8. NO PRIVATE APPROACH SHALL BE CONSTRUCTED WITHIN 0.3 METRES OF ANY ADJACENT PROPERTY MEASURED AT THE HIGHWAY LINE, AND AT THE CURB LINE OR ROADWAY EDGE.



1 / C2 **Pavement Structure (Typ.)**
Scale: **As shown**



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drawing title
GRADING AND DRAINAGE PLAN

scale: As shown	drawn by: ZB
date:	checked by: DN
project number:	drawing number: **C2**

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DO NOT SCALE DRAWINGS.

revision

D07-12-22-0049

DRAINAGE AREA ID

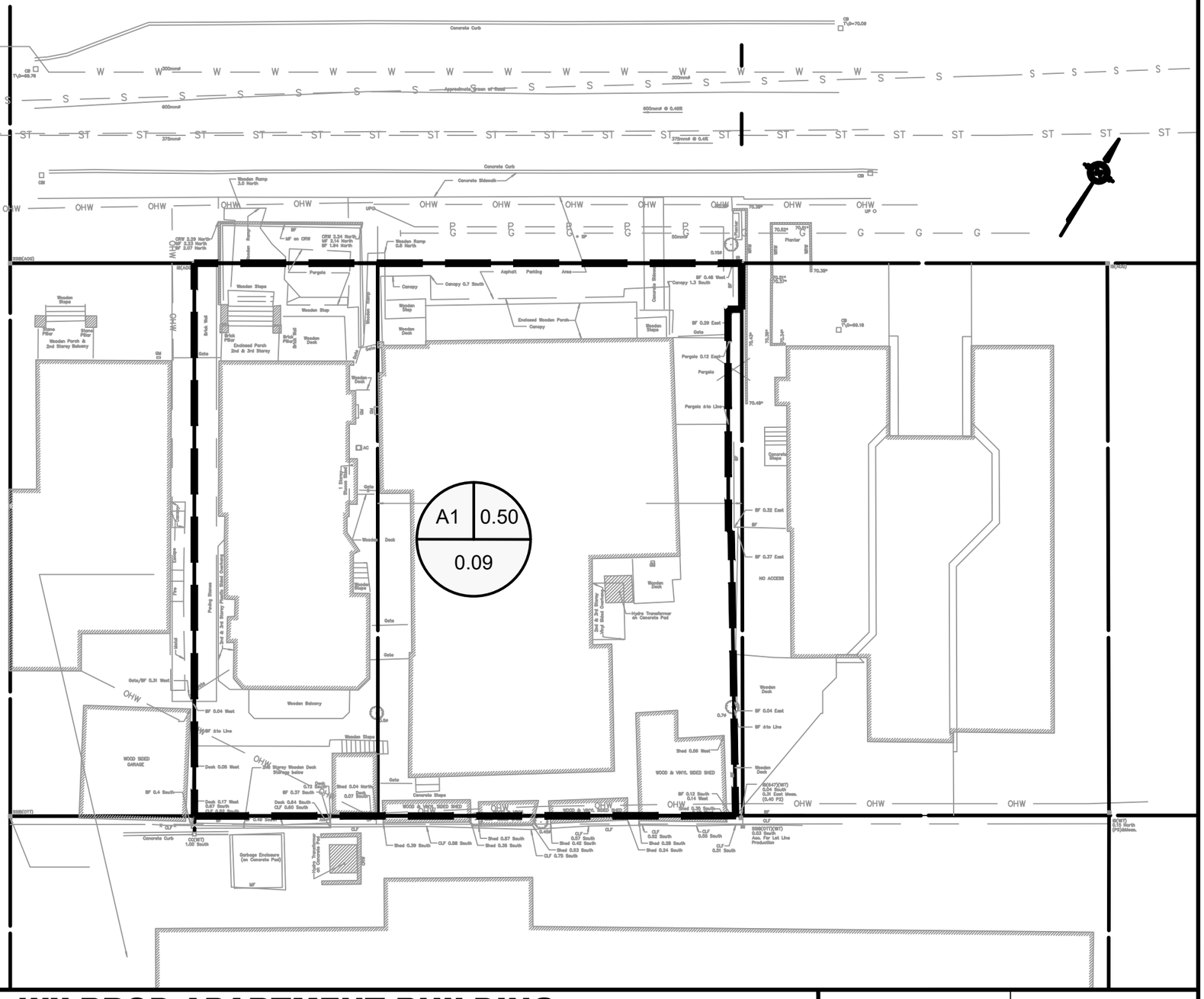
WEIGHTED RUNOFF COEFFICIENT

A | 0.44

0.579

DRAINAGE AREA HECTARES

DRAINAGE AREA LIMIT



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

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

WILBROD APARTMENT BUILDING

326-330 WILBROD STREET, OTTAWA, ONTARIO

~

FIGURE 1 - PRE-DEVELOPMENT DRAINAGE AREA

DESIGNED: ZB		PROJECT No.: 21-1062A
DRAFTED: ZB		REVISION DATE:
CHECKED: DN	APPROVED: DN	REVISION No.: .
SCALE: 1:250		

DWG NAME: J:\1-MULTIDISCIPLINE\2021\21-1062A - DOLYN - WILBROD STREET APARTMENT COMPLEX\05 DRAWINGS\1 ONGOING\21-1092A.DRAINAGE AREAS - ZACH.DWG LAYOUT: FIG.1 PRE SAVED ON Wednesday, November 9, 2022

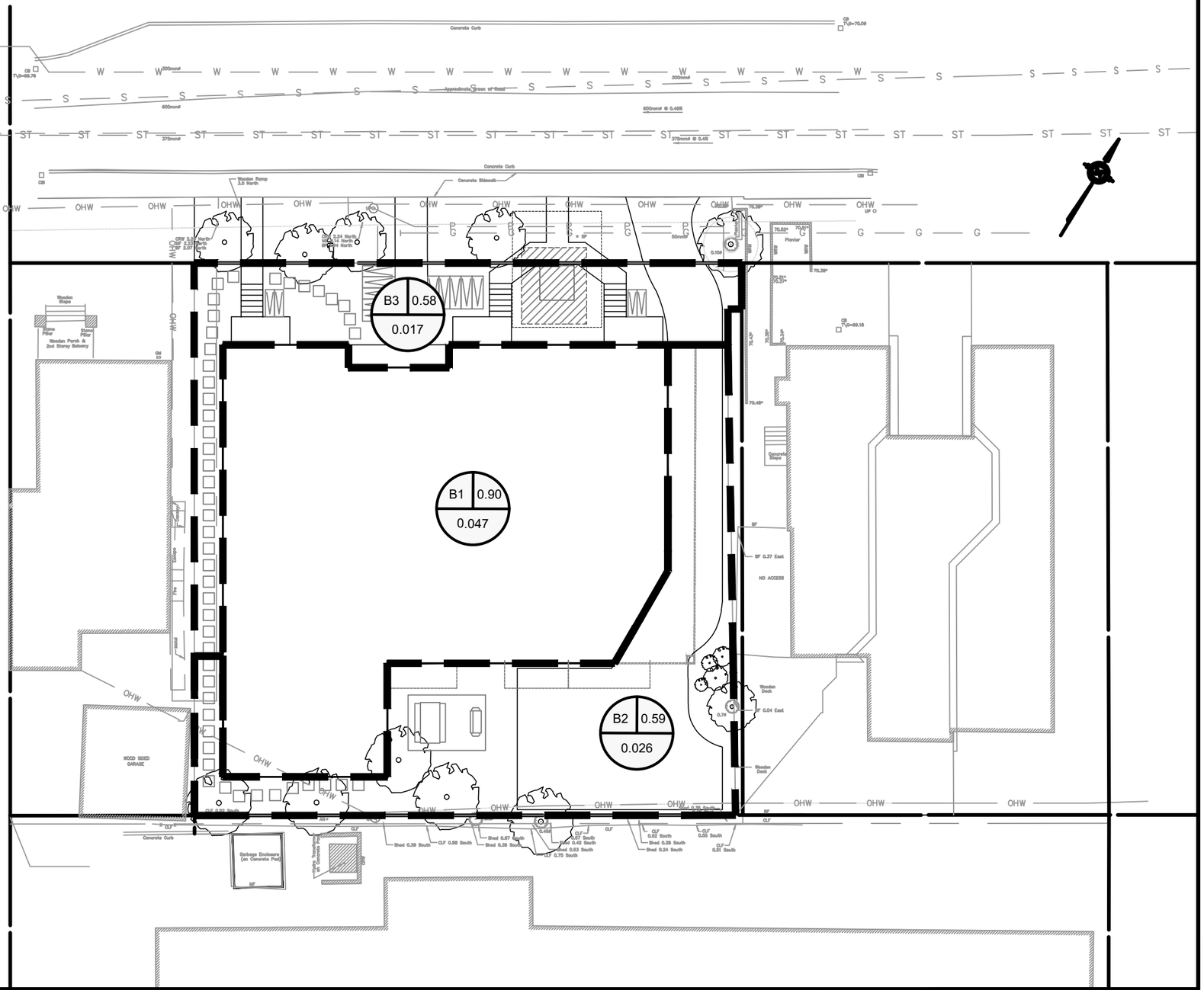
DRAINAGE AREA ID

A | 0.44
0.579

WEIGHTED RUNOFF COEFFICIENT

DRAINAGE AREA HECTARES

DRAINAGE AREA LIMIT



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~

FIGURE 2 - POST-DEVELOPMENT DRAINAGE AREA

DESIGNED: ZB		PROJECT No.: 21-1062A
DRAFTED: ZB		REVISION DATE:
CHECKED: DN	APPROVED: DN	REVISION No.: .
SCALE: 1:250		

DWG NAME: J:\1-MULTIDISCIPLINE\2021\21-1062A - DOLYN - WILBROD STREET APARTMENT COMPLEX\05 DRAWINGS\1 ONGOING\21-1092A.DRAINAGE AREAS - ZACH.DWG LAYOUT: FIG.2 POST SAVED ON Wednesday, November 9, 2022

Appendix B - Stormwater Management Calculations

Appendix B - Storm Sewer Design Sheet

B.1.1 - Allowable release rate

ID	Description	Type	Areas (m^2) $C_{0.90}$	Areas (m^2) $C_{0.20}$	Total (m^2)	$C_{pre\text{-}5\text{-}yr}$	$C_{pre\text{-}100\text{-}yr}$*
A	Property Grounds	uncontrolled	807	90	897	0.50	
			807	**90**	**897**		

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

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

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

104.2 mm/hr

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

178.6 mm/hr

Using the Rational Method, the maximum allowable release rate is therefore:

Total Area, A = **0.09** ha

5-year Runoff coefficient, **C** = **0.50**

Estimated time of concentration, t_c = **10.0** minutes

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

104.2 mm/hr

$Q_{allowable}$ = ***2.78 C x i x A***

$Q_{allowable\ (5\text{-}year)}$ = **13.0** l/s ①

B.1.2 - Post-development release rate

ID	Description	Type	Areas (m^2) $C_{0.90}$	Areas (m^2) $C_{0.20}$	Total (m^2)	$C_{post\text{-}5\text{-}yr}$	$C_{post\text{-}100\text{-}yr}$*
B1	Building Roof	controlled	470	0	470	0.90	1.00
B2	Parking Lot and Side Access	controlled	144	114	258	0.59	0.67
B3	North and West Property Frontage	uncontrolled	92	77	169	0.58	0.66
			706	**191**	**897**	**0.75**	**0.84**
	**including 25% increase as per City of Ottawa Sewer Design Guidelines*		(A)	(B)	©	(D)	(E)

Calculations for post-development runoff coefficient

$C_{post\text{-}5\text{-}yr\ (col.\ D)}$ = (column A * 0.9 + column B * 0.2) / column C

$C_{post\text{-}100\text{-}yr\ (col.\ E)}$ = (column A * 1.0 + column B * 0.2*1.25) / column C

Note: 0.90 x 1.25 = 1.125, use max. 1.0

Calculations for average weighted runoff coefficient

$C_{post\text{-}5\text{-}yr}$ = 0.75

$C_{post\text{-}100\text{-}yr}$ = 0.84

B.1.2.1 - Uncontrolled overland surface flow

Total uncontrolled area (B3) **0.017** ha

5-year Runoff coefficient **0.58**

100-year Runoff coefficient **0.66**

Uncontrolled Release Rate 5-year **2.8** l/s ②

Uncontrolled Release Rate 100-year **5.5** l/s ④

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

$Q_{net\text{-}allowable\ 5\text{-}year}$ = **10.1** l/s ③ = ①-②

*$Q_{net\text{-}allowable\ 100\text{-}year}$ = **7.5** l/s ⑤ = ①-④ * Must be controlled to net-allowable 100-year

B.1.3 - Post-development onsite storage

B.1.3.1 - Estimated Roof detention (B1)

Total controlled area	**0.047**	ha
5-year Runoff coefficient	**0.90**	
100-year Runoff coefficient	**1.00**	
Release rate	**1.3**	l/s

Table 1.3.1a - 5-year estimated detention

	Time (minutes)	$i_{5\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{allowable}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
	10	104.2	12.3	1.3	11.0	6.6
	15	83.6	9.8	1.3	8.6	7.7
	20	70.3	8.3	1.3	7.0	8.4
	25	60.9	7.2	1.3	5.9	8.9
	30	53.9	6.3	1.3	5.1	9.1
	35	48.5	5.7	1.3	4.4	9.3
	40	44.2	5.2	1.3	3.9	9.4
	45	40.6	4.8	1.3	3.5	9.5
	50	37.7	4.4	1.3	3.2	9.5
peak V_{stored} →	55	35.1	4.1	1.3	2.9	9.5
	60	32.9	3.9	1.3	2.6	9.4

Therefore **10** m^3 estimated detention

Table 1.3.1b - 100-year estimated detention

	Time (min)	$i_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{allowable}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
	10	178.6	23.3	1.3	22.1	13.2
	15	142.9	18.7	1.3	17.4	15.7
	20	120.0	15.7	1.3	14.4	17.3
	25	103.8	13.6	1.3	12.3	18.5
	30	91.9	12.0	1.3	10.7	19.3
	35	82.6	10.8	1.3	9.5	20.0
	40	75.1	9.8	1.3	8.6	20.5
	45	69.1	9.0	1.3	7.8	21.0
	50	64.0	8.4	1.3	7.1	21.3
	55	59.6	7.8	1.3	6.5	21.6
peak V_{stored} →	60	55.9	7.3	1.3	6.0	21.8

Therefore **22** m^3 estimated detention

B.1.3.1 - Estimated Parking Lot Detention (B2)

Total controlled area	**0.026**	ha
5-year Runoff coefficient	**0.59**	
100-year Runoff coefficient	**0.67**	
Release rate	**6.2**	l/s

Table 1.3.1a - 5-year estimated detention

	Time (minutes)	$i_{5\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{allowable}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
peak V_{stored} →	10	104.2	4.4	6.2	-1.8	-1.1
	15	83.6	3.5	6.2	-2.7	-2.4
	20	70.3	3.0	6.2	-3.2	-3.9
	25	60.9	2.6	6.2	-3.6	-5.4
	30	53.9	2.3	6.2	-3.9	-7.0
	35	48.5	2.1	6.2	-4.1	-8.7
	40	44.2	1.9	6.2	-4.3	-10.4
	45	40.6	1.7	6.2	-4.5	-12.1
	50	37.7	1.6	6.2	-4.6	-13.8

55	35.1	1.5	6.2	-4.7	-15.5
60	32.9	1.4	6.2	-4.8	-17.3

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

Table 1.3.1b - 100-year estimated detention

	Time (min)	$i_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{allowable}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
peak V_{stored} →	10	178.6	8.6	6.2	2.4	1.4
	15	142.9	6.9	6.2	0.7	0.6
	20	120.0	5.8	6.2	-0.4	-0.5
	25	103.8	5.0	6.2	-1.2	-1.8
	30	91.9	4.4	6.2	-1.8	-3.2
	35	82.6	4.0	6.2	-2.2	-4.7
	40	75.1	3.6	6.2	-2.6	-6.2
	45	69.1	3.3	6.2	-2.9	-7.8
	50	64.0	3.1	6.2	-3.1	-9.4
	55	59.6	2.9	6.2	-3.3	-11.0
	60	55.9	2.7	6.2	-3.5	-12.7

Therefore **1** m^3 estimated detention

Table 1.3.1b - 100-year + 20% estimated detention

	Time (min)	$i_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{allowable}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
peak V_{stored} →	10	214.3	10.3	6.2	4.1	2.4
	15	171.5	8.2	6.2	2.0	1.8
	20	143.9	6.9	6.2	0.7	0.8
	25	124.6	6.0	6.2	-0.2	-0.3
	30	110.2	5.3	6.2	-0.9	-1.6
	35	99.1	4.8	6.2	-1.4	-3.0
	40	90.2	4.3	6.2	-1.9	-4.5
	45	82.9	4.0	6.2	-2.2	-6.0
	50	76.7	3.7	6.2	-2.5	-7.6
	55	71.5	3.4	6.2	-2.8	-9.1
	60	67.1	3.2	6.2	-3.0	-10.7

Therefore **2** m^3 estimated detention

B.1.4 - Site storage

	5-year required (m3)	100-year required (m3)	Ponding depth (m)	Ponding area (m2)	Max available (m3)
Roof Detention (B1)	**10**	**22**	0.15	470	**24**
CB-1 Parking Lot 100 year ponding (B2)	**-1**	**1**	0.09	20	**1**

	5-year required (m3)	100-year +20% required (m3)	Ponding depth (m)	Ponding area (m2)	Max available (m3)
Roof Detention (B1)	**10**	**N/A**	0.15	470	**24**
CB-1 Parking Lot 100 year + 20% ponding (B2)	**-1**	**2**	0.12	41	**2**

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STORM SEWER DESIGN SHEET

LOCATION					CONTRIBUTING AREA								FLOW					STORM SEWER DESIGN								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	29	30	31	32
Note	FROM	TO	AREA ID	SEWER TYPE (Lateral or Trunk)	HARD AREA (A1) (ha)	HARD RUNOFF COEFF. (C1) (--)	SOFT AREA (A2) (ha)	SOFT RUNOFF COEFF. (C2) (--)	TOTAL AREA (A3) (ha)	WEIGHTED RUNOFF COEFF. (C3) (--)	SECTION (A3*C3) (ha)	ACC. SECTION (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY 5-YR (I) (mm/hr)	RAINFALL INTENSITY 100-YR (I) (mm/hr)	FLOW 5-YR (L/s)	FLOW 100-YR (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	FULL FLOW vs. ACTUAL FLOW (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)	FALL IN PIPE SECTION (m)	COMMENTS
Parking Lot	CB-1	STMH-1	B2	Trunk	0.01	0.90	0.01	0.20	0.03	0.59	0.015	0.015	10.00	104.193	178.559	4.41	6.20	18.2	4.60%	250	127.54	3%	2.60	0.12	10.12	0.84	
School Roof	Roof	Lateral Con.	B1	Lateral	0.05	0.90	0.00	0.20	0.05	0.90	0.042	0.058	10.00	104.193	178.559	1.30	1.30	1.5	1.00%	250	59.47	2%	1.21	0.02	10.02	0.02	
Municipal Connection	STMH-1	Municipal Con.		Trunk	0.01	0.90	0.01	0.20	0.02	0.58	0.010	0.067	10.12	103.580	177.499	5.71	7.50	8.8	1.30%	250	67.80	8%	1.38	0.11	10.22	0.11	

Notes:
Rainfall Data Source: Ottawa CDA RCS 5 Year
Mannings, n = 0.013

Designed By: Z.B
Checked By: D.N.

Appendix C - Sanitary Servicing Calculations

Wilbrod Street Apartment Complex

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Appendix C - Sanitary Sewer Design Sheet

Definitions
Manning's Coefficient (n) = 0.013

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

Design Parameters*
1) Average Daily Flow = 280 L/p/day
2) Commercial/Institutional Flow = 28,000 L/ha/day
3) Maximum Residential Peak Factor = 4
4) Commercial/Institutional Peak Factor = 1.50
5) Extraneous Flow = 0.33L/s/ha
6) Minimum Velocity = 0.76 m/s

C.1.1 - Pre-Development Flow

Location			Residential Flow							Commercial Flow			Infiltration Flow			Total Flow	
						Cumulative		Average Flow	Peak Flow	Area (ha)		Peak Flow	Area (ha)		Inf. Flow	Average Flow	Peak Flow
Note	From	To	Area (ha)	Units	Population	Area	Population	(l/s)	(l/s)	Individual	Cumulative	(l/s)	Individual	Cumulative	(l/s)	(l/s)	(l/s)
Existing Buildings	Ex.	Municipal Con.	0.03	1	4	0.03	4	0.01	0.05	0.060	0.060	0.03	0.09	0.09	0.03	0.07	0.11

C.1.2 - Post Development Flow

Location			Residential Flow							Infiltration Flow			Total Flow		Sewer Data			
						Cumulative		Average Flow	Peak Flow	Area (ha)		Inf. Flow	Average Flow	Peak Flow	Dia.	Slope	Capacity	Utilization
Note	From	To	Area (ha)	Units	Population	Area	Population	(l/s)	(l/s)	Individual	Cumulative	(l/s)	(l/s)	(l/s)	(mm)		(full) (l/s)	(%)
Apartment	Apartment	SAMH-1	0.09	40	72	0.09	75	0.24	0.97	0.09	0.09	0.03	0.27	1.00	200	1.00%	32.8	3.1
Municipal Connection	SAMH-1	Municipal Con.	0.09	0	72	0.09	75	0.24	0.97	0.09	0.09	0.03	0.27	1.00	200	1.00%	32.8	3.1

* City of Ottawa Sewer Design Guidelines, Section 4 - Sanitary Sewer Systems

Appendix D - Fire Flow Demand Calculations

New Wilbrod Apartment Complex

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Appendix D- Fire Flow Demand Requirements

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

Fire Flow Formula

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

Designed ZB
Checked AS
Dwg. Reference C1
Jp2g project No 21-1062A

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

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

A = Total floor area in square metres

New School Building

Design Parameters*

Type of Building Construction =	Type II (Noncombustible)
Floor Area*** =	470.0 m^2
Occupany and Contents Class	Limited combustible
Sprinkler System =	Automatic sprinkler system conforming to NFPA 13 with standard water supply and full supervision
Sprinkler Building Coverage =	Complete building coverage
Factor of Building Coverage X =	
Number of Storeys =	4

Exposure Parameters*

	North	East	South	West	
Separation Distance (m) =	25.0	6.2	8.2	2.8	meters
Length of Exposed Wall =	24.5	12.4	8.8	15	meters
Length-Height Factor =	98.0	24.8	26.4	37.5	

				Adjustments (increases or decreases)											
Building Construction	**Floor Area*** **	**Coefficient**	**A**	**B = A +/- %**		**C = B x %**		**D = B x %**						**Final Adjusted Fire Flow**	**Final Adjusted Fire Flow**
			Fire Flow (F)	**Occupancy**		**Sprinkler**		**Exposure*** **							
Type II (Noncombustible)	**(m^2)**		**(L/min)**	**%**	**Adjusted Fire Flow(s) (L/min)**	**%**	**Fire Adjustment Flow(s) (L/min)**	**North**	**East**	**South**	**West**	**Total Exposure**	**Fire Adjustment Flow(s) (L/min)**	**E = B - C + D** (L/min)"	(L/s)
	1,880.0	0.8	8,000.0	-0.15	6,800.0	50%	3,400.0	9%	17%	17%	23%	66%	4,488.0	8,000.0	133.3

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

From: David Nguyen
Sent: Monday, October 24, 2022 11:39 AM
To: Zachary Bauman
Subject: FW: FW: Message from "ricoh-imc3000"

David Nguyen, P.Eng. ing.
Principal | Operations Manager
Jp2g Consultants Inc.

Email: davidn@jp2g.com | Web: www.jp2g.com
T: 613.828.7800 | C: 613.220.6454
1150 Morrison Drive, Suite 410, Ottawa, Ontario, K2H 8S9

From: Alastair Whitewolf <alastair@rjhill.ca>
Sent: October 19, 2022 8:52 AM
To: David Nguyen <DavidN@jp2g.com>
Cc: Rosaline Hill <rosaline@rjhill.ca>; Alastair Whitewolf <alastair@rjhill.ca>; Doug Burnside <doug@dolyn.com>
Subject: Re: FW: Message from "ricoh-imc3000"

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

Hi David,
We are 'type II non-combustible construction'.
Cheers.

Alastair Whitewolf | B.A. DIP. AT
Rosaline J. Hill Architect Inc.
613-890-0435 | alastair@rjhill.ca | www.rjhill.ca
414 Churchill Avenue North, Ottawa ON, K1Z 5C6

On Wed, Oct 19, 2022 at 8:47 AM David Nguyen <DavidN@jp2g.com> wrote:

Good morning Rosaline,
I believe the architect needs to confirm the Construction Type, which determines the Coefficient we use in the fire flow formula.

Can you confirm Construction Type? See below and attached references for your use.

of buildings, Fire Underwriters Survey uses the following base formula:

$$RFF = 220C\sqrt{A}$$

Where:

RFF	= the Required Fire Flow in litres per minutes (LPM)
C	= the Construction Coefficient is related to the type of construction of the building
A	= the Total Effective Floor Area (effective building area) in square metres of the building

The following Construction Types and Coefficients are used in the required fire flow formula:

C	=	1.5 for **Type V** Wood Frame Construction
	=	0.8 for **Type IV-A** Mass Timber Construction
	=	0.9 for **Type IV-B** Mass Timber Construction
	=	1.0 for **Type IV-C** Mass Timber Construction
	=	1.5 for **Type IV-D** Mass Timber Construction
	=	1.0 for **Type III** Ordinary Construction
	=	0.8 for **Type II** Noncombustible Construction
	=	0.6 for **Type I** Fire Resistive Construction

David Nguyen, P.Eng. ing.

Principal | Operations Manager

Jp2g Consultants Inc.

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

T: 613.828.7800 | C: 613.220.6454

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

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From: Rosaline Hill <rosaline@rjhill.ca>
Sent: October 18, 2022 6:00 PM
To: Doug Burnside <doug@dolyn.com>
Cc: Alastair Whitewolf <alastair@rjhill.ca>; David Nguyen <DavidN@jp2g.com>
Subject: Re: FW: Message from "ricoh-imc3000"

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

Hi Doug,

We have never provided a letter about Fire Flow. I'm sorry, but I don't know what John is asking for. You'll have to ask him for more information.

Rosaline Hill | *B.E.S., B.Arch., OAA, MRAIC*

Rosaline J. Hill Architect Inc.

613-853-2822 | rosaline@rjhill.ca | www.rjhill.ca

414 Churchill Avenue North, Ottawa ON, K1Z 5C6

2022 HOUSING DESIGN AWARDS GOHBA FINALIST

I am a Member of the RAIC | IRAC 2022 Je suis membre de L'IRAC | RAIC

On Tue, Oct 18, 2022 at 3:40 PM Doug Burnside <doug@dolyn.com> wrote:

> Hi Alastair and Rosaline,
> The Flow Test certificate is attached.
> I do not know what John Wu is referring to in the letter "using 0.8...", It bears little resemblance to the PSI and GMP rates that are usually relied upon.
> I guess you just append it to your own letter and submit.
> Regards,
> DB
>
> Douglas W. Burnside
> President
>
> Dolyn Construction Ltd. and Dolyn Developments Inc.
> 1-888 Lady Ellen Place
> Ottawa, ON K1Z 5L5
> T. 613.224.7268 F. 613.224.0579
> www.dolyn.com
>
> -----Original Message-----
> From: printer@dolyn.com <printer@dolyn.com>
> Sent: Tuesday, October 18, 2022 3:36 PM
> To: Doug Burnside <doug@dolyn.com>
> Subject: Message from "ricoh-imc3000"
>
> This E-mail was sent from "ricoh-imc3000" (IM C3000).
>
> Scan Date: 10.18.2022 15:36:14 (-0400)
> Queries to: printer@dolyn.com

Appendix E - Pre-Consultation & Development Servicing Study Checklist

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

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

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

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

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

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

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

Meeting Date: November 22, 2021

Application Type: *Site Plan Control, Zoning*

File Lead (Assigned Planner): Jessica Button

Infrastructure Approvals Project Manager: John Wu

Site Address (Municipal Address): 326 Wilbrod

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

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

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

Description:

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

Authority to Request a Design Brief:

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

Preparation:

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

When Required:

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

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

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

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

Contents for Design Brief Submissions:

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

** A Scoped Design Brief is composed of:*

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

SECTION 1 Note: This section can be combined with the Planning Rationale.

Application Submission:

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

Response to City Documents:

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

Context Plan:

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

SECTION 2

TO BE CONSOLIDATED INTO COMBINED PLANNING RATIONALE and DESIGN BRIEF

Design Proposal:

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

Massing and Scale

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

Public Realm

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

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

Building Design

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

Low-Rise Proposed

Sustainability

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

Heritage

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

Additional Contents:

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

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

Submission Requirements

- Six hard copies and one digital copy

Appendix F - Roof Drain Product Data Sheet

Adjustable Accutrol Weir

Tag: _____

Adjustable Flow Control for Roof Drains

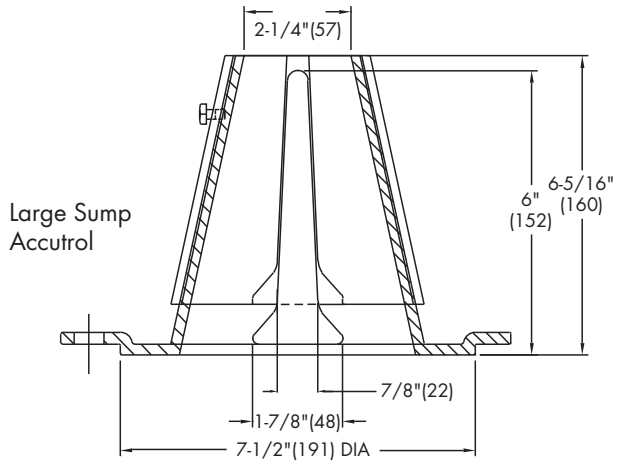
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

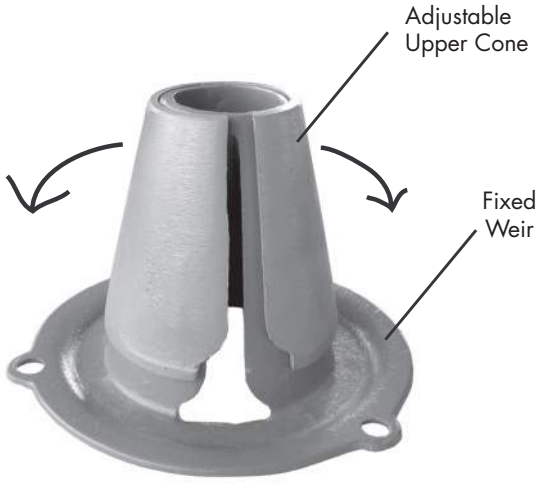
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

5 GPM * 4 Roof Drains = 20 GPM at 6" head

Job Name _____ Contractor _____

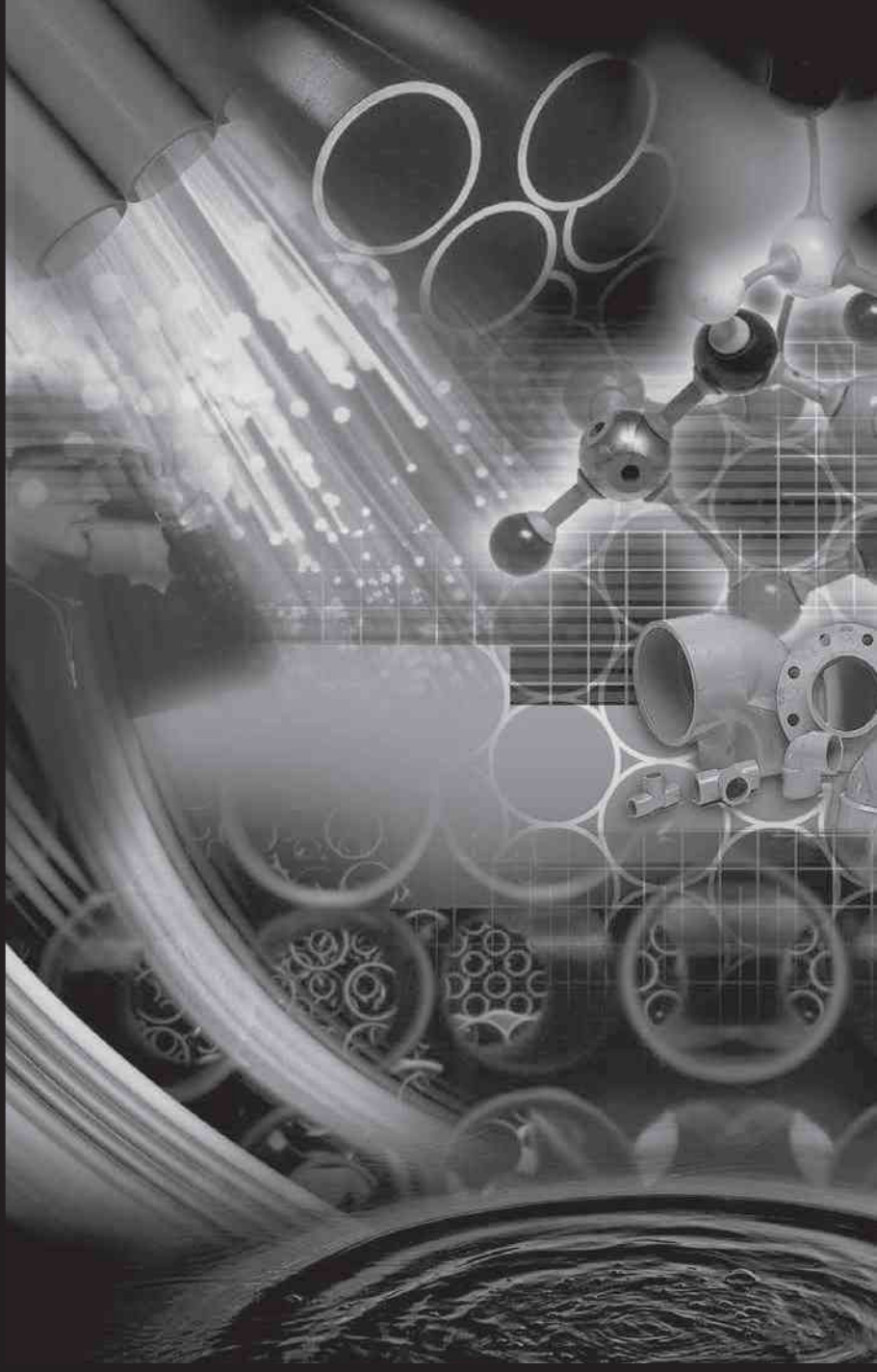
Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • Watts.com

A Watts Water Technologies Company

Volume III: TEMPEST INLET CONTROL DEVICES



Municipal Technical Manual Series

SECOND EDITION

LMF (Low to Medium Flow) ICD

HF (High Flow) ICD

MHF (Medium to High Flow) ICD

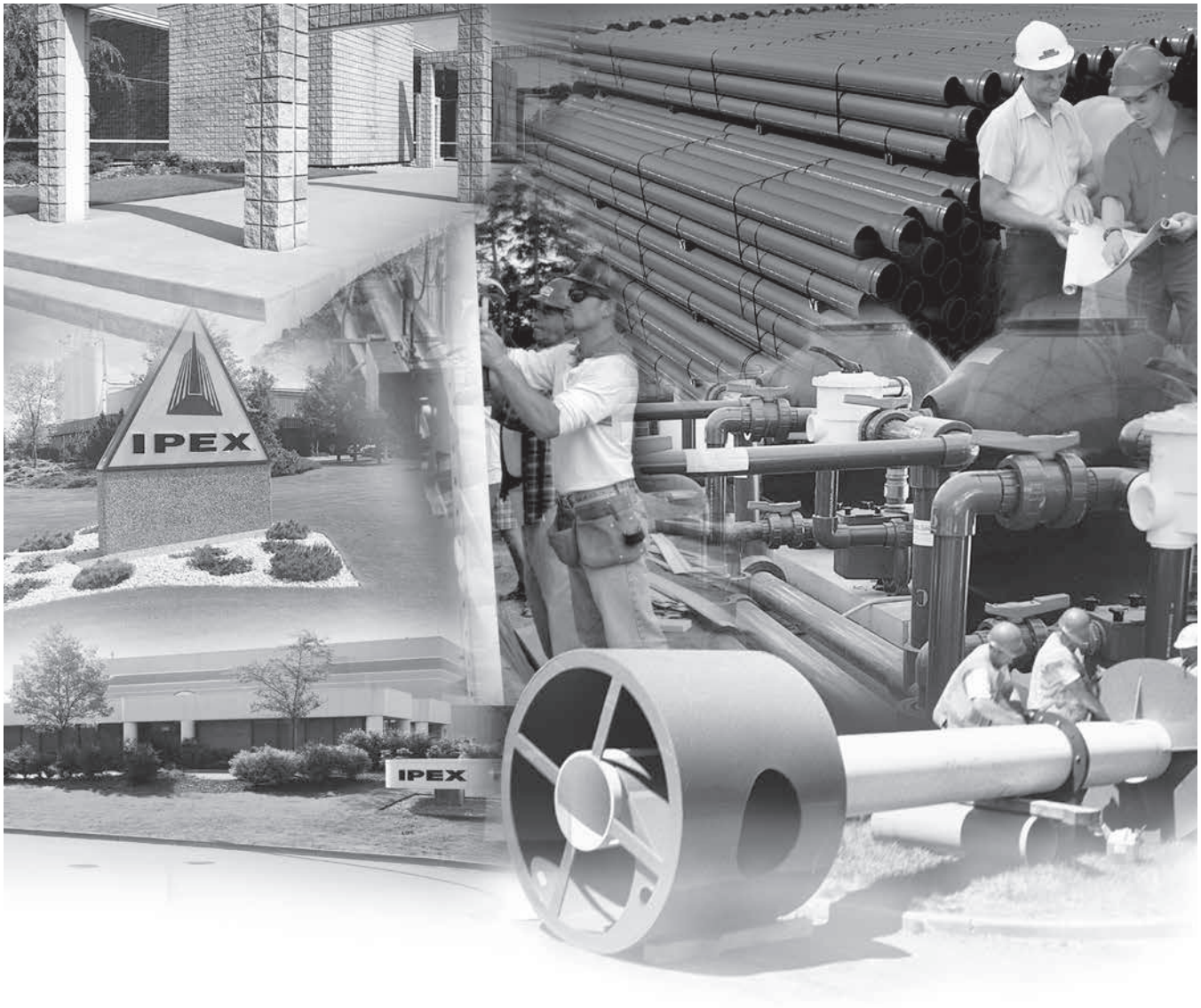
IPEX
by aliaxis

IPEX Tempest™ Inlet Control Devices

Municipal Technical Manual Series

Vol. I, 2nd Edition

For information contact: IPEX, Marketing,
1425 North Service Road East, Oakville, Ontario, Canada, L6H 1A7



ABOUT IPEX

At IPEX, we have been manufacturing non-metallic pipe and fittings since 1951. We formulate our own compounds and maintain strict quality control during production. Our products are made available for customers thanks to a network of regional stocking locations throughout North America. We offer a wide variety of systems including complete lines of piping, fittings, valves and custom-fabricated items.

More importantly, we are committed to meeting our customers' needs. As a leader in the plastic piping industry, IPEX continually develops new products, modernizes manufacturing facilities and acquires innovative process technology. In addition, our staff take pride in their work, making available to customers their extensive thermoplastic knowledge and field experience. IPEX personnel are committed to improving the safety, reliability and performance of thermoplastic materials. We are involved in several standards committees and are members of and/or comply with the organizations listed on this page.

For specific details about any IPEX product, contact our customer service department.

CONTENTS

PRODUCT INFORMATION: TEMPEST LOW, MEDIUM FLOW (LMF) ICD

Purpose

To control the amount of storm water runoff entering a sewer system by allowing a specified flow volume out of a catch basin or manhole at a specified head. This approach conserves pipe capacity so that catch basins downstream do not become uncontrollably surcharged, which can lead to basement floods, flash floods and combined sewer overflows.

Product Description

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

Available in 14 preset flow curves, the LMF ICD has the ability to provide flow rates: 2lps – 17lps (31gpm – 270gpm)

Product Function

The LMF ICD vortex flow action allows the LMF ICD to provide a narrower flow curve using a larger orifice than a conventional orifice plate ICD, making it less likely to clog. When comparing flows at the same head level, the LMF ICD has the ability to restrict more flow than a conventional ICD during a rain event, preserving greater sewer capacity.

Product Construction

Constructed from durable PVC, the LMF ICD is light weight 8.9 Kg (19.7 lbs).

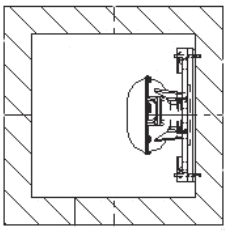
Product Applications

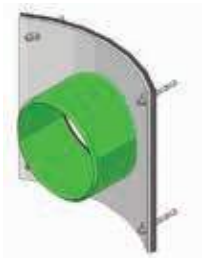
Will accommodate both square and round applications:

Square Application

Round Application

Universal Mounting Plate





+

Spigot CB Wall Plate

=

Universal Mounting Plate Hub Adapter

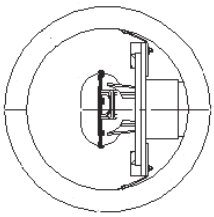


Chart 1: LMF 14 Preset Flow Curves

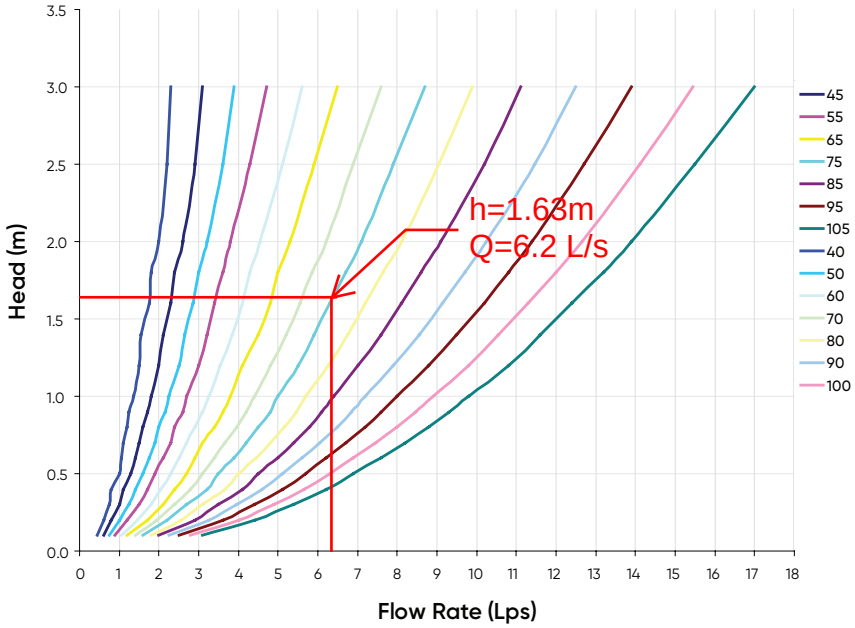
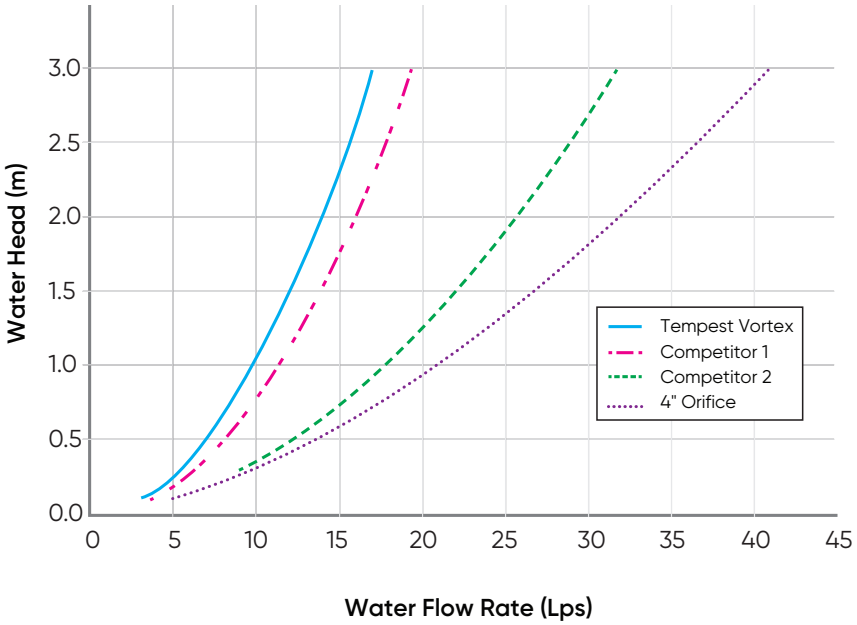


Chart 2: LMF Flow vs. ICD Alternatives



PRODUCT INSTALLATION

Instructions to assemble a TEMPEST LMF ICD into a Square Catch Basin:

STEPS:

1. Materials and tooling verification:
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level, and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers, (4) nuts, universal mounting plate, ICD device.
2. Use the mounting wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a minimum of 1-1/2" depth up to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the universal mounting plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the wall mounting plate and the catch basin wall.
6. From the ground above using a reach bar, lower the ICD device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the universal mounting plate and has created a seal.

⚠ WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut down the pipe flush to the catch basin wall.
- Call your IPEX representative for more information or if you have any questions about our products.

Instructions to assemble a TEMPEST LMF ICD into a Round Catch Basin:

STEPS:

1. Materials and tooling verification.
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers and (4) nuts, spigot CB wall plate, universal mounting plate hub adapter, ICD device.
2. Use the spigot catch basin wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a depth between 1-1/2" to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the CB spigot wall plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the spigot wall plate and the catch basin wall.
6. Apply solvent cement on the hub of the universal mounting plate, hub adapter and the spigot of the CB wall plate, then slide the hub over the spigot. Make sure the universal mounting plate is at the horizontal and its hub is completely inserted onto the spigot. Normally, the corners of the universal mounting plate hub adapter should touch the catch basin wall.
7. From ground above using a reach bar, lower the ICD device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the mounting plate and has created a seal.

⚠ WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut back the pipe flush to the catch basin wall.
- The solvent cement which is used in this installation is to be approved for PVC.
- The solvent cement should not be used below 0°C (32°F) or in a high humidity environment. Refer to the IPEX solvent cement guide to confirm the required curing time or visit the IPEX Online Solvent Cement Training Course available at ipexna.com.
- Call your IPEX representative for more information or if you have any questions about our products.

NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT TECHNICAL SPECIFICATION

General

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

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

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

ICD's shall have no moving parts.

Materials

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

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

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

All hardware will be made from 304 stainless steel.

Dimensioning

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

Installation

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

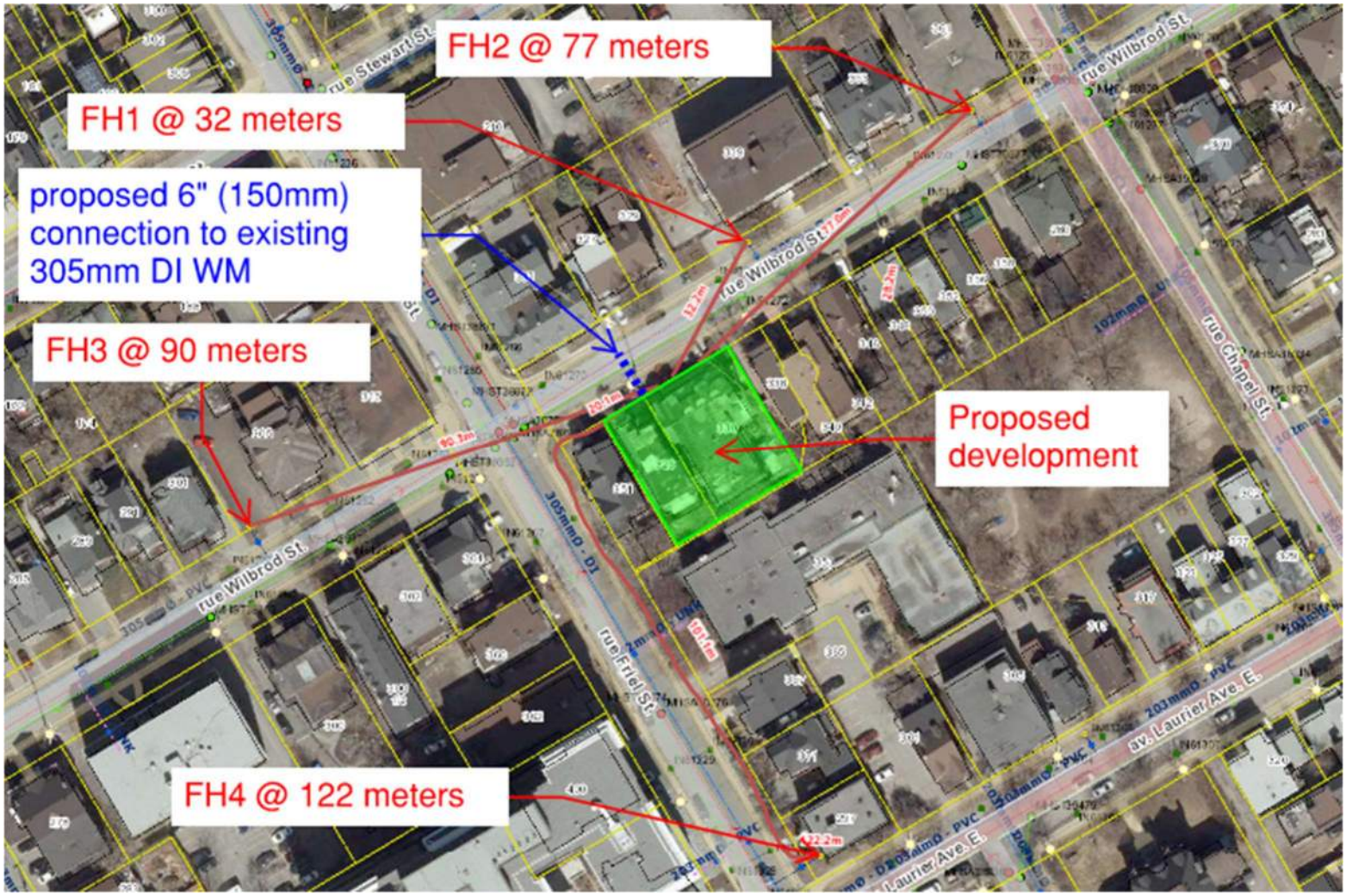
Appendix G - Boundary Conditions

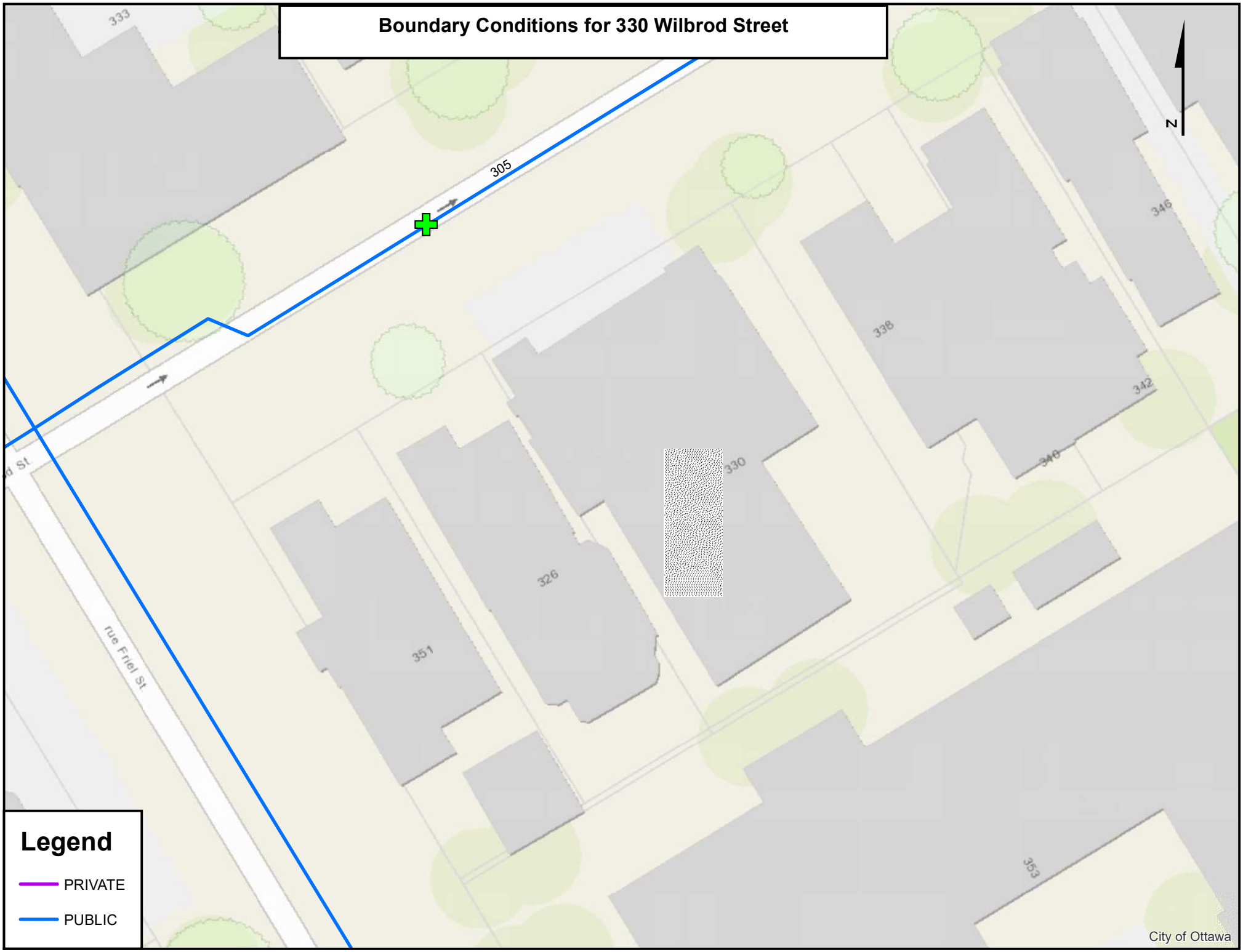
Request for Boundary Conditions
326-330 Wilbrod Street

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	14.5	0.24
Maximum Daily Demand	36	0.60
Peak Hour	80	1.32
Fire Flow Demand	8,000	133.3

Location, proposed connection & Near by Hydrants Distribution




Boundary Conditions for 330 Wilbrod Street
N
333
305
346
338
342
348
330
326
351
rue Friel St
353
Legend
PRIVATE
PUBLIC
City of Ottawa

Ali Sammour

From: Wu, John <John.Wu@ottawa.ca>
Sent: September 12, 2022 11:59 AM
To: Ali Sammour
Subject: RE: 326-330 Wilbrod Street / File # D02-02-22-0027/D07-12-22-0049 / Jp2g Ref# 21-1062A

****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 330 Wilbrod Street (zone 1W) assumed to be connected to the 305 mm watermain on Wilbrod Street (see attached PDF for location).

Both Connections:

Minimum HGL: 106.1 m

Maximum HGL: 115.4 m

Max Day + Fire Flow (133 L/s): 107.1 m

John

Existing Water Boundary Conditions: 326-300 Wilbrod St.

Water Demands

Average Daily Demand:	0.24	l/s
Maximum Daily Demand:	0.60	l/s
Maximum Hour Demand:	1.32	l/s
Fire Flow Demand:	133.30	l/s
Maximum Daily + Fire Flow Demand:	133.90	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	15.3	m
Basement Mech.room Elevation:	67.31	
Pavement (R.O.W.) Elevation:	70.05	

Boundary Conditions

	m	
Max. HGL:	115.4	m
Min HGL:	106.1	m
Max. Day + Fire:	107.1	m

Boundary Condition Check

Check water pressure at municipal connection:

Min. HGL - Pavement elevation =	36.05	m	
=	51.26	psi*	***Normal operating pressure ranges between 345 kPa (50 psi) and 552 kPa (80 psi) under a condition of maximum daily flow as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**
=	353.44	kPa*	

Pressure at municipal connection — OK

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

Min. HGL - Basement Mech.room Elevation - Friction Loss** =	38.79	m	****Friction loss calculated using the Hazen-Williams Equation**
=	55.16	psi***	*****Under maximum hourly demand conditions the pressures shall not be less than 276 kPa (40 psi) as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**
=	380.30	kPa***	

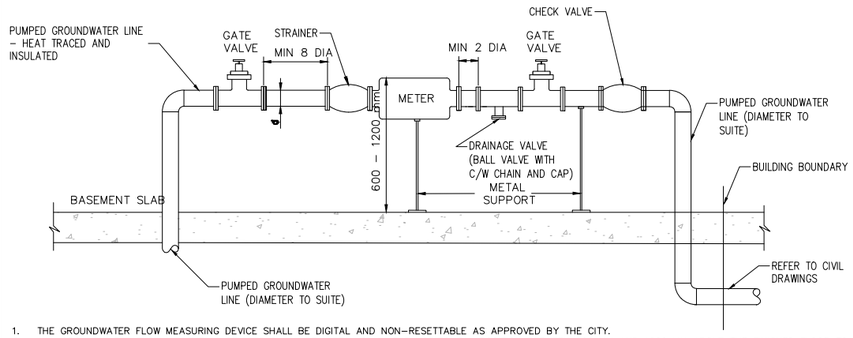
Pressure at building connection (at max. hour demand) — OK

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

Min. HGL - Basement Mech.room Elevation - Friction Loss** =	35.97	m	****Friction loss calculated using the Hazen-Williams Equation**
=	51.14	psi****	******Under maximum day and fire flow demand conditions the residual pressure at any point in the system shall not be less than 140 kPa (20 psi) as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**
=	352.63	kPa****	

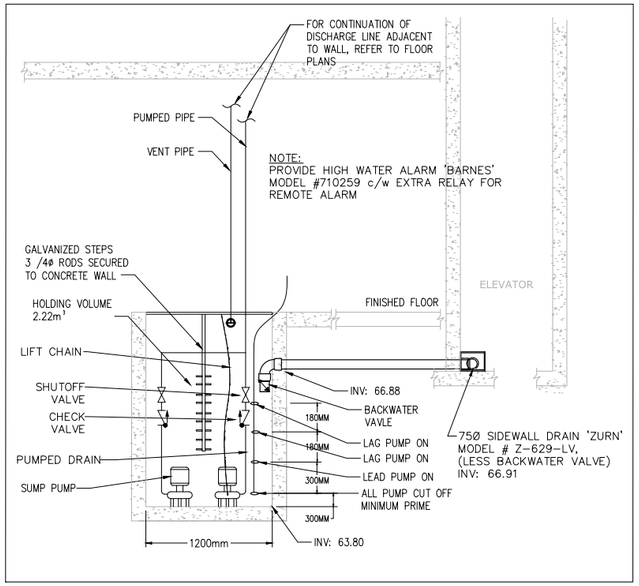
Pressure at building connection (at max. day + fire demand) — OK

Appendix H - Mechanical Drawings

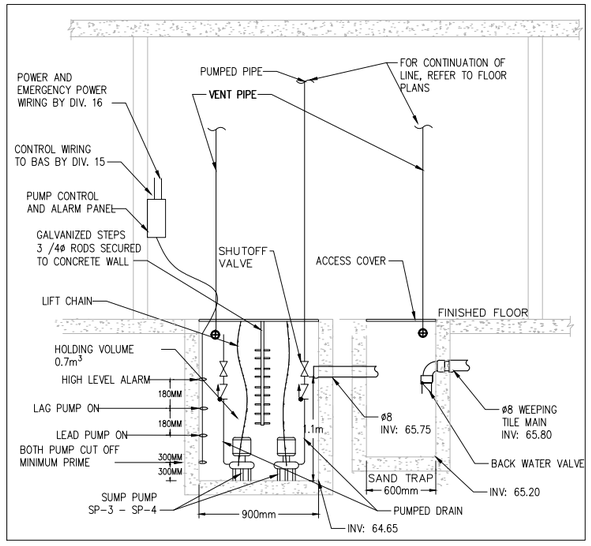


1. THE GROUNDWATER FLOW MEASURING DEVICE SHALL BE DIGITAL AND NON–RESETTABLE AS APPROVED BY THE CITY.
2. ALL GROUNDWATER FLOW MEASURING DEVICES SHALL BE INSTALLED IN THE HORIZONTAL POSITION BETWEEN 600 MM AND 1200 MM ABOVE THE FINISHED FLOOR TO THE TOP OF FLOW METER.
3. GROUNDWATER FLOW MEASURING DEVICES SHALL BE INSTALLED WITH A MINIMUM 1500 MM UNOBSTRUCTED CLEARANCE IN FRONT OF THE DEVICE TO THE NEAREST WALL AND 600 MM UNOBSTRUCTED CLEARANCE BEHIND THE DEVICE TO THE NEAREST WALL.
4. GROUNDWATER FLOW MEASURING DEVICES SHALL BE INSTALLED WITH A MINIMUM 1200 MM UNOBSTRUCTED WORKING SPACE ABOVE THE DEVICE
5. ALL PIPING SHALL BE FULLY SUPPORTED FROM THE FLOOR, AND SUCH SUPPORT SHALL BE SUITABLE FOR THAT PURPOSE AND SHALL BE SUPPLIED AND INSTALLED BY THE PROPERTY OWNER OF THE TIME OF THE INSTALLATION OF THE GROUNDWATER FLOW MEASURING DEVICE.
6. ALL VALVES AND BENDS SHALL BE FLANGED OR SOLDER TYPE. ACID CORE TYPE SOLDER IS NOT PERMITTED.
7. ALL PIPING, INCLUDING BENDS AND VALVES, SHALL BE THE SAME DIAMETER AS THE PUMPED GROUNDWATER LINE.
8. AFTER THE GROUNDWATER FLOW MEASURING DEVICE IS INSTALLED, THE DRAINAGE VALVE SHALL REMAIN CLOSED AT ALL TIMES.
9. ALL VALVES SHALL HAVE A HANDLE SHOWING THE OPEN AND CLOSE DIRECTIONS
10. ONLY GATE VALVES SHALL BE PERMITTED FOR INLET AND OUTLET VALVES. NO BALL VALVES OR BUTTERFLY VALVES SHALL BE PERMITTED. VALVES SHALL BE DESIGNED FOR A MINIMUM COLD WATER WORKING PRESSURE OF 1035 KPA.
11. DRAINAGE VALVE SHALL BE A BRASS BALL VALVE WITH A BRASS CAP AND CHAIN.
12. AN APPROVED STRAINER SHALL BE SUPPLIED BY THE PROPERTY OWNER AND SHALL BE BOLTED TO THE UPSTREAM SIDE OF THE GROUNDWATER FLOW MEASURING DEVICE.
13. WITH THE EXCEPTION OF ITEMS 14 AND 15 HEREIN, ALL GROUNDWATER FLOW MEASURING DEVICE INSTALLATIONS SHALL BE ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, UNLESS THE MANUFACTURER'S INSTALLATION INSTRUCTION CALL FOR GREATER LENGTHS.
14. THE MINIMUM DISTANCE BETWEEN THE FLANGE ON THE OUTLET SIDE OF THE INLET VALVE AND THE FLANGE ON THE INLET SIDE OF THE STRAINER SHALL BE NO LESS THAN A MINIMUM OF EIGHT (8) DIAMETERS. NO BENDS OR OTHER FITTINGS SHALL BE ALLOW IN THIS PIPE SECTION.
15. THE MINIMUM DISTANCE BETWEEN THE FLANGE ON THE OUTLET SIDE OF THE GROUNDWATER FLOW MEASURING DEVICE AND THE INLET SIDE OF THE DRAINAGE VALVE SHALL BE NO LESS THAN A MINIMUM OF TWO (2) PIPE DIAMETERS. NO BENDS OR OTHER FITTINGS SHALL BE ALLOW IN THIS PIPE SECTION.
16. ALL VALVES SHALL BE CONFIGURED SUCH THAT THEIR HANDLES SHALL NOT INTERFERE WITH EACH OTHER AND ALL VALVES SHALL BE READILY ACCESSIBLE FOR OPERATION, REPAIR, OR REPLACEMENT.
17. ANY INSULATION PLACED ON OR AROUND ANY GROUDWATER FLOW MEASURING DEVICE SHALL BE ESILY REMOVABLE AND REPLACEABLE AND SHALL NOT CONTAIN ASBESTOS OR ANY OTHER TOXIC OR HAZARDOUS MATERIALS. SUCH INSULATION SHALL NOT COVER OR OBSTRUCT THE GROUNDWATER FLOW MEASURING DEVICE REGISTER(S). THE CITY SHALL NOT BE RESPONSIBLE FOR ANY DAMAGE TO SUCH INSTALLATION DURING ANY REMOVAL OR REPLACEMENT OF SUCH INSULATION.
18. THE PUMPED GROUNDWATER LINE SHALL BE FLUSHED PRIOR TO AND AFTER THE INSTALLATION OF THE GROUNDWATER FLOW MEASURING DEVICE.
19. FOR REMOTE READOUT DEVICE WIRE AND CONDUIT INSTALLATION, REFER TO CITY SPECIFICATIONS.

01 M-04 GROUNDWATER FLOW MEASURING DEVICE PIPING LAYOUT
N.T.S.



02 M-04 ELEVATOR SUMP PIT
N.T.S.



03 M-04 WEEPING TILE SUMP PUMP DETAIL
N.T.S.

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PROJECT NORTH

2	ISSUED FOR PRICING	2022-05-16
1	ISSUED FOR COORDINATION	2022-04-08
ISSUE	DESCRIPTION	DATE

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND PROMPTLY REPORT ALL ERRORS AND/OR OMISSIONS TO THE CONSULTANT BEFORE WORK COMMENCES.

ALL WORK IS TO FOLLOW THE OBC 2012 AND ANY OTHER APPLICABLE CODES AND REGULATIONS.

DO NOT SCALE DRAWINGS.

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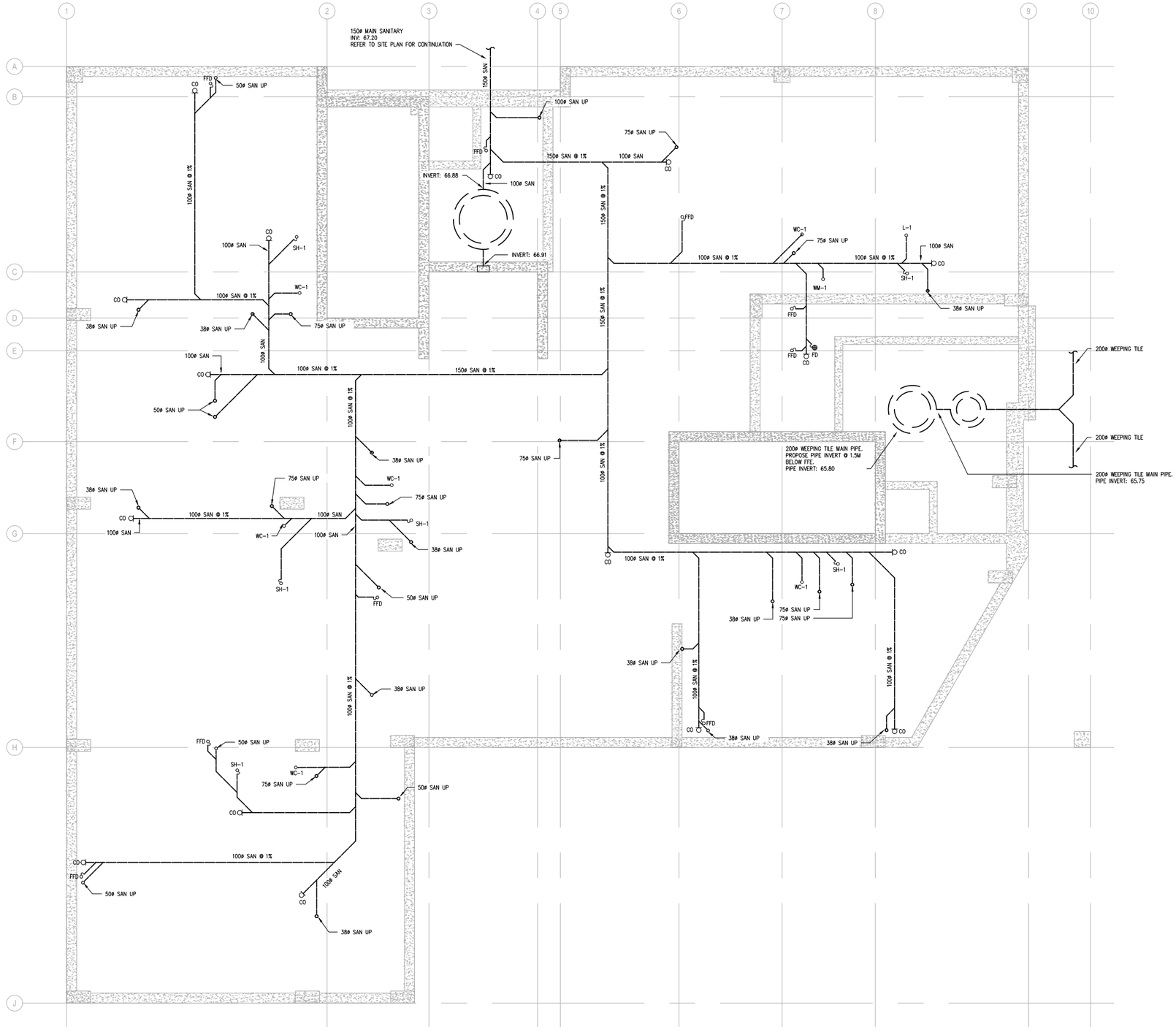
PROJECT
WILBROD APARTMENT BUILDING
326-330 WILBROD ST.
OTTAWA, ON

DRAWING
MECHANICAL DETAILS

PROJECT No: MRK-21021130-A0	REVISION:
DRAWN: V.H.	DATE: MAY 2022
APPROVED: B.BROWN	SCALE: AS SHOWN
DRAWING No: M05	



GENERAL NOTES

1. ALL CUTTING AND PATCHING OF FLOORS AND WALLS BY THIS CONTRACTOR.
2. SUPPLY AND INSTALL PIPE SLEEVES FOR PIPES PASSING THROUGH EXISTING WALLS OR FLOORS.
3. COORDINATE PIPE RUNS WITH SHEETMETAL AND ELECTRICAL DIVISIONS.
4. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED.
5. ENSURE MATERIALS AND INSTALLATION ARE COMPLIANT WITH ONTARIO BUILDING CODE REQUIREMENTS.
6. REFER TO DETAILS AND SPECIFICATIONS FOR EQUIPMENT & DUCTWORK INSTALLATION REQUIREMENTS.

MECHANICAL – UNDER SLAB – PLUMBING & DRAINAGE PLAN
SCALE – 1:50

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PROJECT NORTH

ISSUE	DESCRIPTION	DATE
2	ISSUED FOR PRICING	2022-05-16
1	ISSUED FOR COORDINATION	2022-04-08

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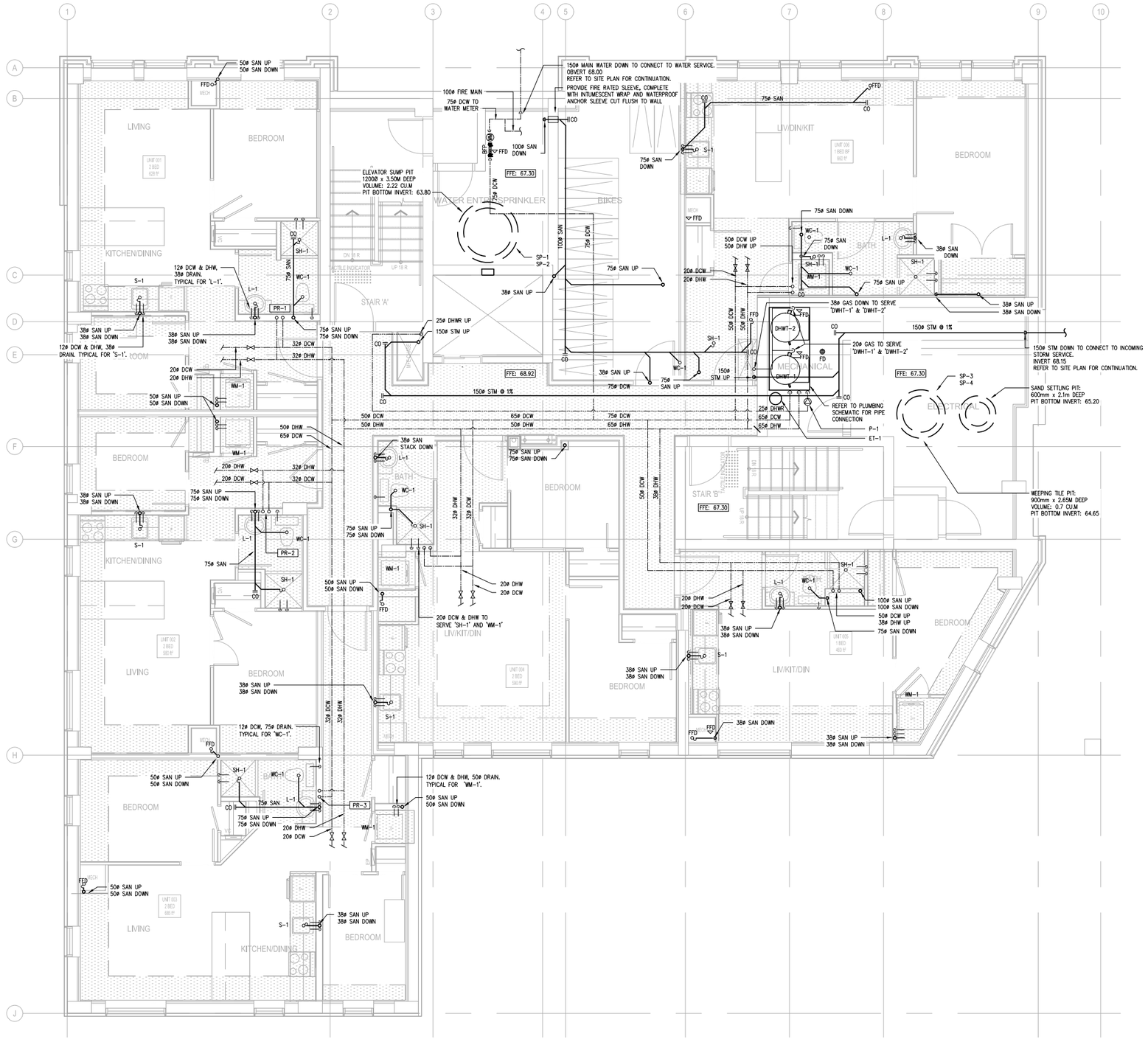
326-330 WILBROD ST.
OTTAWA, ON

DRAWING
MECHANICAL PLAN
UNDER SLAB
PLUMBING & DRAINAGE

PROJECT No: MRK-21021130-A0	REVISION:
DRAWN: V.H.	DATE: MAY 2022
APPROVED: B.BROWN	SCALE: AS SHOWN
DRAWING No: M06	



MECHANICAL – BASEMENT – PLUMBING & DRAINAGE PLAN

SCALE – 1:50

GENERAL NOTES

1. ALL CUTTING AND PATCHING OF FLOORS AND WALLS BY THIS CONTRACTOR.
2. SUPPLY AND INSTALL PIPE SLEEVES FOR PIPES PASSING THROUGH EXISTING WALLS OR FLOORS.
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CLIENT

PROJECT NORTH

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PROJECT

WILBROD APARTMENT BUILDING
326-330 WILBROD ST.
OTTAWA, ON

DRAWING

MECHANICAL PLAN
BASEMENT
PLUMBING & DRAINAGE

PROJECT No: MRK-21021130-A0	REVISION:
DRAWN: V.H.	DATE: MAY 2022
APPROVED: B.BROWN	SCALE: AS SHOWN
DRAWING No: M07	