

Site Servicing & Stormwater Management Report Konson Warehouse – 1485 Upper Canada Street, Ottawa, ON.

Client: Dolyn Construction Ltd.

Project Number: OTT-22023462-A0

Application Stage: Site Plan Control

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Date Submitted: April 11, 2023 Revised: September 12, 2023

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Date Submitted: April 11, 2023 Revised: September 12, 2023 Alam Ansari, M.Sc., P. Eng. Director of Operations, Eastern Ontario Infrastructure Services

Legal Notification

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EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

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1 Introduction

EXP Services Inc. (EXP) was retained by Dolyn Construction Ltd. to provide Site Servicing and Stormwater Management report for Konson Warehouse in the Kanata West Business Park located in Ottawa, ON.

The site is 1.84 hectares and located within the Kanata West Business Park (KWBP) – Phase 5. The site is bound by Upper Canada Street along the north and west property line, Campeau Drive along the south property line and commercial lots along the east property line. Refer to Figure A1 in Appendix A for the site location.

This servicing design report will address the Servicing requirements for the proposed development including the domestic and fire water, sanitary and storm servicing. The report will also cover the storm water management requirements and proposed methods to meet those requirements.

2 Existing Conditions

The subject property is currently vacant, with some vegetation and construction debris on it. The topography of the site is fairly flat, gradually sloping to the northeast towards the neighboring properties.

The existing municipal infrastructure present within the City ROW were installed during Phase 4 and Phase 5 construction of the Kanata West Business Park as part of the plan of subdivision. There are no known services or infrastructure within the property. The existing municipal infrastructure near the property within Upper Canada Street and Campeau Drive are noted below:

• Upper Canada Street:

o <u>Storm:</u>

- 975mm Ø Concrete Storm Sewer
- 1050mm Ø Concrete Storm Sewer
- 1650mm Ø Concrete Storm Sewer

o Sanitary:

.

250mm Ø PVC Sanitary Sewer

o Water:

- 200mm Ø PVC Watermain
- 250mm Ø PVC Watermain
- Campeau Drive:

o <u>Storm:</u>

- 825mm Ø Concrete Storm Sewer
- 900mm Ø Concrete Storm Sewer
- Sanitary:
 - 250mm Ø PVC Sanitary Sewer

o Water:

300mm Ø PVC Watermain



3 References

Various documents were referred to in preparing the current report including:

- Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa (Guidelines) including:
 - Technical Bulletin ISDTB-2012-4 (20 June 2012)
 - Technical Bulletin ISDTB-2014-01 (05 February 2014)
 - Technical Bulletin PIEDTB-2016-01 (September 6, 2016)
 - Technical Bulletin ISDTB-2018-01 (21 March 2018)
 - Technical Bulletin ISDTB-2018-04 (27 June 2018)
 - Technical Bulletin ISDTB-2019-02 (08 July 2019)
- Ottawa Design Guidelines Water Distribution, July 2010 (WDG001), including:
 - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
 - Technical Bulletin ISTB-2018-02 (21 March 2018)
 - Technical Bulletin ISTB-2021-03 (18 August, 2021)
- Ontario Ministry of Transportation (MTO) Drainage Manual, 1995-1997
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Chapter 7 National Engineering Handbook, United States Department of Agriculture (USDA), January 2009)
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020
- Ontario Building Code 2012, Ministry of Municipal Affairs and Housing
- Design Brief Kanata West Business Park Phase 5 prepared by IBI Group, dated October 2019.
- Geotechnical Investigation Report 1485 Upper Canada Street prepared by Paterson Group, dated January 2023.



4 Watermain Design

4.1 Required Fire Flow

The fire flow demand calculations were prepared based on the Fire Underwriters Survey (FUS, 2020) criteria. The construction type for the proposed warehouse building is classified as non-combustible. The building will have a fully supervised sprinkler system and combustible contents. The required fire flow was determined to be 183.3 L/s (11,000 L/min). Refer to Appendix B for detailed fire flow demand calculations.

4.2 Watermain Design

The domestic water demands for the proposed building were calculated as per the City of Ottawa Water Design Guidelines (July 2010). The proposed development is considered as light-industrial building. Therefore, an average demand of 35,000 L/gross ha/day was used. The peaking factors were considered as 1.5 and 1.8 for the max. day and peak hour demands, respectively. Refer to Appendix B for detailed calculations. The proposed building's domestic demands were as follows:

Light Industrial Water Demands:

Average daily demand = 0.74 L/s Maximum daily demand = 1.12 L/s Maximum hourly daily demand = 2.01 L/s

There is an existing 250mm diameter municipal watermain on Upper Canada Street. The estimated average daily demand of the proposed development is greater than 50 m³/day. Therefore, two water services of 150mm and 200mm diameter separated by an isolation valve are proposed to service the proposed development for domestic and sprinkler demands. The proposed water services are to be connected to the 250mm diameter municipal watermain on Upper Canada Street. A fire hydrant is also proposed to feed from the 200mm diameter water service within the property. This hydrant is location within 45m distance from the proposed fire department hose connection.

4.3 Pressure Check

The City of Ottawa provided boundary conditions based on the above noted domestic and fire flow demands at the connection point to the municipal water main on Upper Canada Street. These boundary conditions indicate that the minimum and maximum pressure in the existing municipal 250mm diameter watermain at the connection point on Upper Canada Street are 72.1 psi (497.37 kPa) and 78.1 psi (538.57 kPa), respectively. In addition, the residual pressure of 41.1 psi (283.51 kPa) was indicated by the city during max day + fire flow demand of 184.5 L/s. Based on this, a 150mm diameter water service connection would supply the average day, max day and peak hour demand of 0.74 L/sec, 1.12 L/sec and 2.01 L/sec at 78.0 psi, 72.0 psi and 72.0 psi residual pressures at the building finished floor elevation, respectively. The residual water pressures in the proposed water service are greater than the minimum requirement of 20psi (140kPa) and less than the maximum allowable limit of 80 psi.

Moreover, the proposed 150mm and 200mm dia. water services would supply total ±45 L/sec flow at ±1 psi head loss. A typical sprinkler system for the building of this size and magnitude requires 65 psi residual pressure at the building FFE. Based on the boundary conditions received form the City, it is assumed that flows greater than 45 L/sec would be available in 250mm municipal watermain on Upper Canada Street at ±66 psi residual pressure. Therefore, a sprinkler designer would have to confirm if the flow and pressure noted above are sufficient for the sprinkler system and suggest a booster pump accordingly.



Based on the above noted analysis, the existing water supply system and the proposed services will have adequate capacity to meet the domestic and fire demands for the proposed building. Refer to Appendix B for detailed calculations.

4.4 Review of Hydrant Spacing

A review of the hydrant spacing was completed to ensure compliance with Appendix I of Technical Bulletin ISTB-2018-02. As per Section 3 of Appendix I all hydrants within 150 meters were reviewed to assess the total possible contribution of flow from these contributing hydrants. For each hydrant, the distance to the proposed building was determined to arrive at the contribution of fire flow. A review of the available fire hydrant within 150m distance along the fire route from the building was carried out which is summarized in the table below.

Hydrant #	Location	City / Private	Color Code	Distance from the Building (m)	Fire Flow Contribution for Class AA Hydrant (L/min)
348017H119	UPPER CANADA STREET	CITY	BLUE	139	3,800
348017H120	UPPER CANADA STREET	CITY	BLUE	53	5,700
348017H121	UPPER CANADA STREET	CITY	BLUE	77	3,800
348017H122	UPPER CANADA STREET	CITY	BLUE	118	3,800
348017H083	UPPER CANADA STREET	CITY	BLUE	63	5,700
348017H082	CAMPEAU DRIVE	CITY	BLUE	84	3,800
348017H081	CAMPEAU DRIVE	CITY	BLUE	57	5,700
348017H080	CAMPEAU DRIVE	CITY	BLUE	70	5,700
348017H092	-	CITY	BLUE	73	5,700
				Total:	43,700

 Table 4-1: Summary of Nearby Municipal Hydrants

As noted in the table above, there are total nine (9) accessible fire hydrants within 150m distance along a fire route which equates to a total accessible fire flow of 43,700 L/min. This is well above the required fire flow of 11.000 L/min.

Based on the boundary conditions received from the city and review of the available municipal hydrants as noted above, the proposed development can be serviced for the required fire flow without any issues.

5 Sanitary Sewer Design

5.1 Peak Design Flow

There is an existing municipal 250mm diameter sanitary sewer on Upper Canada Street flowing towards Campeau Drive from north to south. The anticipated peak sanitary flows from the proposed industrial site have been calculated as per the City of Ottawa Sewer Design Guidelines (October 2012). The anticipated peak sanitary flows are calculated as follows:



Design Flows

Institutional Design Flow:	35,000 L/gross ha/day
Development Area:	1.84 hectares
Peak Factor:	1.5
Extraneous Flow:	0.33 L/s/ha
Peak Design Flow:	=(35,000L/ha/day)(1.84 ha)(1.5)(1/86400)+(1.84ha)(0.33L/s/ha)
	=1.72 L/s

The proposed building at 1485 Upper Canada Street will be serviced by a new 200mm diameter sanitary service installed at a minimum slope of 2.0%. At this slope, the 200mm diameter sanitary services will have a capacity of 47.1 L/s and a full flow velocity of 1.72 m/s, which will be sufficient to service proposed development. Refer to the sanitary sewer design sheet in Appendix C and the Site Servicing plan (dwg #C101 and #C102) in Appendix F for further details.

6 Stormwater Management

6.1 Storm Design Criteria

The storm sewer system was designed in conformance with the City of Ottawa Sewer Design Guidelines (October 2012). The stormwater servicing design criteria for the proposed development are as follows:

- The proposed on-site storm sewer network / minor system is designed using Rational Method and Manning's Equation to convey runoff under free flow conditions for the 5-year return period.
- Post-development peak run-ff during 100-year storm event to be controlled to 408 L/sec and during 5-year storm to be controlled to 388 L/sec as identified in the Kanata West Business Park Design Brief prepared by IBI Group, dated October 2019.
- Maximum allowable ponding depth is 300 mm for surface ponding and 150mm for roof ponding.
- Flows from storm events greater than 100-year return period to be directed overland, away from the building towards the Upper Canada Street and Campeau Drive.
- Minimum freeboard of 300mm between the 100-year overland spill elevation and finished floor elevation. Minimum freeboard of 150mm between the 100-year overland spill elevation and lowest grades against the building foundation.
- Annual infiltration target of 73 mm for groundwater recharge as noted by MVCA in the preconsultation meeting notes.
- Quality control criteria of 80% TSS removal as noted by MVCA in the pre-consultation meeting notes. Thermal mitigation is required as Feedmill Creek is a coolwater watercourse.

6.2 Pre-Development Conditions

The 1.84-hectare site at 1485 Upper Canada Street is currently a vacant land covered with minor vegetations and some construction debris. Surface runoff from the property flows towards the neighboring property to the east. The city ROW along the Upper Canada Street and Campeau Drive were developed as part of the plan of subdivision for the Kanata West Business Park Phase 4 and 5.



6.3 Allowable Release Rate

The allowable release rate for the site was identified in the Kanata West Business Park Phase 5 Design Brief prepared by IBI Group, dated October 2019. The City had noted in the pre-consultation meeting notes that the proposed development is part of the Kanata West Business Park and shall comply with the stormwater management criteria identified in the above-mentioned design brief. Therefore, the allowable release rate for up-to 100-year storm for the proposed development is considered as 408 L/sec.

6.4 **Post-Development Conditions**

Stormwater from the 1.84 ha drainage area will be controlled and released at a rate less than the allowable release rate for storms up to and including the 100-year storm event. An overland flow route is provided for storms greater than the 100-year event. In the post-development conditions, the stormwater run-off coefficients for the hard surfaces (concrete, asphalt, roof etc.) and soft surfaces (grass) are considered as 0.9 and 0.2, respectively. The estimated post-development average run-off coefficient is 0.83.

6.4.1 Storage Requirements and Allocation

Post development runoff will be detained on-site for storms up to and including the 100-year storm. The required SWM storage volumes will be achieved using the surface ponding in the landscaped areas, parking areas and ponding on the roof of the new building for up to 100-year storm event.

Surface ponding volumes over catch basins and roof drains were determined by applying the pyramid volume equation of one-third of the depth multiplied by the surface area of the pond. Ponding depths for the subject site must be equal to or less than 300 mm for the landscape and parking surfaces and 150mm for the roof during a 100-year storm event.

Refer to Stormwater Management Plan drawing #C400 in Appendix F for the drainage areas, associated ponding limits, ponding depth and control methods and refer to Appendix D for the detailed stormwater management calculations. The following table 6-1 summarizes the release rates and storage requirements for the proposed drainage areas within the subject site.

The proposed 100-year controlled release rate is 407.7 L/s and 5-year controlled release rate is 272.1 L/sec, which are compliant with the quantity control criteria noted in section 6.1 above. The available storage volume of 447.9 m³ is more than the required volume of 347.5 m³.

6.4.2 Flow Control Device Sizing

Stormwater runoff from the proposed development will be detained using inlet control devices (ICDs) and flow control roof drains. The proposed ICD manufacturer and models are summarized in Table 6-1 below. The required flow control from the roof will be achieved by mounting Watts Accutrol flow weirs on the roof drains. Further details regarding the ICDs and roof drains are provided in Appendix D. The 5-year and 100-year ponding limits, total ponding depth and location of the flow control measures are provided on drawing #C400 in Appendix F.



Area ID	Outlet Location	Area (ha)	Cavg	100 Year Release (L/s)	100 Year storage required (m ³)	100 Year surface storage provided (m3)	Control Method	Storage Method
A1	CB11	0.079	0.82	30.0	6.9	9.5	Hydrovex 150 VHV-2	Surface Ponding
A1-1	Trench Drain	0.023	0.90	11.5	-	-	Uncontrolled	-
A2	CB10	0.078	0.79	33.0	5.7	5.7	Hydrovex 150 VHV-2	Surface Ponding
A3	CB09	0.089	0.77	35.0	6.7	7.9	Hydrovex 150 VHV-2	Surface Ponding
A4	CB07	0.078	0.79	30.0	6.5	8.4	Hydrovex 125 VHV-2	Surface Ponding
A5-1	DCB06	0.152	0.81	50.0	15.8	15.8	Hydrovex 200 VHV-2	Surface Ponding
A5-2	CB04	0.076	0.88	30.0	6.5	18.5	Hydrovex 125 VHV-2	Surface Ponding
A6-1	DCB05	0.160	0.90	70.0	11.4	14.8	Hydrovex 200 VHV-2	Surface Ponding
A6-2	CB03	0.052	0.90	15.0	6.5	15.8	Hydrovex 100 VHV-1	Surface Ponding
A7-1	CBE02, CBT03, CBT04	0.039	0.41					
A7	CB01, CB02	0.120	0.86	43.0	22.5	31.7	Hydrovex 150	Underground pipe +
A8	CBT01, CBMH300	0.046	0.24				VNV-2	Surface Following
A9	Trench Drain	0.015	0.90	7.4	-	-	Uncontrolled	-
A10-1	East Property Line	0.011	0.20	1.3	-	-	Uncontrolled	-
A10-2	South-West Property Line	0.017	0.20	2.1	-	-	Uncontrolled	-
A10-3	Campeau Drive	0.011	0.23	1.5	-	-	Uncontrolled	-
A11	Roof Drains	0.799	0.90	47.8	259.1	319.8	WATTS Roof Drains	Surface Ponding
	TOTAL	1.844		407.7	347.5	447.9		
	Total Allov	vable Rele	ease L/s:	408.0	(From Kanata Brief prepare	ı West Business I d by IBI Group, a	Park - Phase 5 Design lated October 2019)	

Table 6-1: Summary of SWM Storage Requirements

*Bold flows are controlled.

6.4.3 Quality Control

Mississippi Valley Conservation Authority (MVCA) had noted quality control criteria as summarized in section 6.1 above (Also noted in the pre-consultation meeting noted included in Appendix E). In the KWBP-



Phase 5 Design Brief (IBI, October 2019), it is noted that the West Pond 6 is designed to provide quality control criteria for the existing and proposed development within the Kanata West Business Park. The subject site is a tributary to Pond 6 West. The proposed stormwater management strategy is compliant with the criteria assigned to the subject site in the design brief. Therefore, the proposed development shall be successfully accommodated by Pond 6 West for the quality control. Hence, no additional quality control measures are proposed.

6.4.4 Infiltration

As noted in section 6.1 above, MVCA has assigned an annual infiltration target of 73 mm/year for the subject site for the groundwater recharge. With the subject site area of 1.84 ha, a 73 mm/year infiltration target equates to a total volume of 1343.2 m³. To meet this target, onsite infiltration system consisting of four underground Stormtech chambers with 0.5m thick drainage layer at the bottom is proposed. This system will receive stormwater from the roof drains only, to maintain the groundwater quality.

The proposed building will have fourteen roof drains, out of which four roof drains will be directed to four separate Stormtech MC-3500 chambers. Rest of the roof drains will discharge to storm stub, ultimately making its way to the municipal storm sewer. Each roof drain will be equipped with a Watts Accutrol weir, set at full-open position. Refer to Table D4 in Appendix D for detailed roof drain calculations. The four roof drains for infiltration will be equipped with a Watts Accutrol Weir with two notch set at full open position. With this setup, each of these four roof drains will discharge maximum of 3.78 L/sec flow towards the underground Stormtech chambers. Total roof area draining to these four roof drains is 2626.4 m². Annual rainfall in Ottawa area based on the historical data is \pm 943.4 mm/year. Therefore, the volume of stormwater directed towards underground Stormtech chambers for infiltration purpose equates to 2477.75 m³ which is more than the target infiltration volume of 1343.2 m³ as noted above.

Memo from the Geotech engineer (included in Appendix E), dated 6th September 2023 noted that the design infiltration rate of 43 mm/hr for the subsurface soil below Stormtech chambers is reasonable given the soil type. To ensure that the stormwater routed from the designated roof drains would be infiltrated, Stormtech chambers are proposed to be dispersed across the site to avoid concentrating infiltration at one location. Additionally, proposed 0.5m thick drainage layer below Stormtech chambers will ensure initial high infiltration rates and provide storage when the subsurface soil reaches saturation. The chambers will provide additional buffer volume to ensure infiltration. Additionally, as per MECP's stormwater management guidelines the bottom of the drainage layer will be placed at least 1.0m above the ground water elevation of ~102.46m noted in the Geo-investigation report. In the extreme weather conditions, the chambers will overflow into the nearby storm sewers. Refer to drawings #C101, C102 and C400 for the proposed Stormtech chamber locations and typical details. Refer to Appendix E for Stormtech chamber product details from the manufacturer.

With the above noted reasonings, the annual infiltration target of 73 mm/year can be achieved with the proposed infiltration system.

7 Erosion and Sediment Control

During all construction activities, erosion and sedimentation shall be controlled by the following techniques:

- Extent of exposed soils shall be limited at any given time;
- Exposed areas shall be re-vegetated as soon as possible;
- Minimize the area to be cleared and disruption of adjacent areas;



- Siltsack or approved equivalent shall be installed inside all catch basins, catch basin manholes, and storm manholes as identified on the erosion and sediment control plan;
- Visual inspection shall be completed daily on sediment control barriers and any damage will be repaired immediately. Care will be taken to prevent damage during construction operations;
- In some cases, barriers may be removed temporarily to accommodate the construction operations. The affected barriers will be reinstated at night when construction is completed;
- Sediment control devices will be cleaned of accumulated silt as required. The deposits will be disposed of as per the requirements of the contract;
- During construction, if the engineer believes that additional prevention methods are required to control erosion and sedimentation, the contractor will install additional silt fences or other methods as required to the satisfaction of the engineer; and,
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.

8 Conclusions

This report addresses the site servicing and stormwater management requirements for the site plan control application for the proposed development. Based on the analysis provided in this report, the conclusions are as follows:

- The proposed warehouse building will be serviced by 150mm and 200mm diameter dual watermains, which will adequately service the proposed development for the domestic and fire flow demands.
- The proposed building will be serviced by a 200mm diameter sanitary sewer, which will have adequate capacity to service the new building for the sanitary flows.
- Stormwater Management criteria for the proposed development will be achieved by restricting the postdevelopment stormwater discharge rates up to and including the 100-year to the allowable release rates.
- Required on-site SWM storage volumes will be achieved using the surface storage in the landscaped areas and parking areas and roof storage using the flow control measures like ICDs and flow control roof drains.
- The annual infiltration target will be achieved by directing a portion of the stormwater form the building roof to the underground Stormtech chambers.
- The stormwater quality control for the proposed site is provided by the existing Pond 6 West. Therefore, no additional quality control measures are proposed.
- Temporary erosion and sediment control measures for the subject site have been identified.



EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix A – Figures



FIGURE A1: SITE LOCATION PLAN



EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix B – Water Servicing



TABLE B1: Water Demand Chart

*exp.

Location: Konson Warehouse - Kanata West Business Park OTT-22023462-A0 Project No: Designed by: K.Hinds Checked By: A. Ansari February 2023 Date Revised:

Water ConsumptionIndustrial - Light =35,000L/gross ha/day

				No. of	Reside	ntial U	nits							Indu	strial			Total I	Demands	(L/sec)
	Sing	yles/Sen	nis/Tow	ins			Apart	ments						Peal Fac (x Avg	king tors g Day)					
Proposed	Single Familty	Semi- Detached	Duplexz	Townhome	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	Avg Apt.	Total Persons (pop)	Area (m²)	Avg Demand (L/day)	Max Day	Peak Hour	Max Day Demand (L/day)	Peak Hour Demand (L/day)	Avg Day (L/s)	Max Day (L/s)	Max Hour (L/s)
Konson Development				F	F	\square	\square		F	F		18,383	64,341	1.50	1.80	96,511	173,719	0.74	1.12	2.01
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TABLE B2: FIRE FLOW REQURIEMENTS BASED ON FIRE UNDERWRITERS SURVEY(FUS) 2020 PROJECT: OTT-22023462 Building: Konson Development

An estimate of the Fire Flow required for a given fire area may be estimated by:

F = 220 * C * SQRT(A)

where:

F = required fire flow in litres per minute

A = total floor area in m^2 (including all storeys, but excluding basements at least 50% below grade)

C = coefficient related to the type of construction

Task	Options	Multiplier	Input	Value Used	Fire Flow Total (L/min)
	Wood Frame	1.5			
Choose Building	Ordinary Construction	1			
Frame (C)	Non-combustible	0.8	Non-combustible Construction	0.8	
	Construction	0.0			
	Fire Resistive Construction	0.6			
	Second Floor		8142		
	First Floor		8142	16284.0 m ²	
	Basement (At least 50% be	ow grade, not included)	0		
Fire Flow (F)	F = 220 * C * SQRT(A)				22,459
Fire Flow (F)	Rounded to nearest 1,000				22,000

Reductions/Increases Due to Factors Effecting Burning

Task	Options		Multipli	ier			In	put			Value Used	Fire Flow Change (L/min)	Fire Flow Total (L/min)
	Non-combustible		-25%)									
Choose	Limited Combustible		-15%)									
Combustibility of	Combustible		0%				Comb	oustible			0%	0	22,000
Building Contents	Free Burning		15%										
	Rapid Burning		25%										
	Adequate Sprinkler Conforms to NFPA13		-30%	•	A	Adequate	Sprinkler	Conforms to	D NFPA13		-30%	-6,600	15,400
	No Sprinkler		0%										
Choose Reduction Due to Sprinkler	Standard Water Supply for Fire Department Hose Line and for Sprinkler System		-10%		Standard W	/ater Sup	ply for Fin Sprinkle	e Departmer er System	nt Hose Line	and for	-10%	-2,200	13,200
System	Not Standard Water Supply or Unavailable		0%										
	Fully Supervised Sprinkler System		-10%	•		Fully S	unervised	l Sprinkler Sv	/stem		-10%	-2 200	11 000
	Not Fully Supervised or N/A	0%				T uny S	apervised	(oprintier of	Jocenn			2,200	11,000
		0					E:	xposed Wall	Length				
Choose Structure Exposure Distance	Exposures	Separ- ation Dist (m)	Cond	Separation Conditon	Exposed Wall type	Length (m)	No of Storeys	Length- Height Factor	Sub- Conditon	Charge (%)	Total Charge (%)	Total Exposure Charge (L/min)	
	West	150	5	30.1 to 45	Type V	18	2	36	6	0%			
	East	200	5	30.1 to 45	Type V	94	0	0	6	0%	0%	0	11 000
	South	54	5	30.1 to 45	Type V	52	4	208	6	0%	0 /0	0	11,000
	North	43	5	30.1 to 45	Type V	105	8	840	6	0%			
Obtain Required							Tota	al Required F	Fire Flow, Ro	unded to th	e Nearest 1	,000 L/min =	11,000
Fire Flow										Total F	Required Fir	e Flow, L/s =	183.3
Exposure Charges for	Exposing Walls of Wood Fra	me Const	ruciton (f	rom Table G5	<u>i)</u>								

Type V Type IV-III (U) Mass Timber or Ordinary with Unprotected Openings

Type IV-III (P) Mass Timber or Ordinary with Protected Openings

Noncombustible or Fire Resistive with Unprotected Openings Type II-I (U) Type II-I (P) Noncombustible or Fire Resistive with Protected Openings

Conditons for Separation

Separation Dist	Condition	
0m to 3m	1	
3.1m to 10m	2	
10.1m to 20m	3	
20.1m to 30m	4	
> 30.1m	5	

*exp.

TABLEB3ESTIMATED WATER PRESSURE AT PROPOSED BUILDING FFE

			Domond	Pipe	Pipe		0	0		Val	Slope of	Head	Elev	Flave Ta	* - le	_	_		_	Pressure
Description	From	То	Demand (L/sec)	Length (m)	Dia (mm)	Dia (m)	Q (m3/sec)	Area (m2)	с	vei (m/s)	HGL (m/m)	LOSS (m)	From (m)	Elev To (m)	*Elev Diff (m)	Pressu kPa	re From (nsi)	Pressur	re To (nsi)	Drop (psi)
Description			(_,,	(,	()	J.a. (,	(()	•	(, 0)	(,,	(,	(,	(,	,	кга	(psi)	KFa	(h21)	(1901)
Avg Day Conditons																				
Single 150mm water service	Main	Building	0.74	97 m	150	0.150	0.0007	0.017671	110	0.0421	2.9E-05	0.0029	105.80	105.90	-0.1	538.6	(78.1)	537.6	(78.0)	0.1
Max Day Conditons																			<u> </u>	
Single 150mm watermain	Main	Building	1.12	97 m	150	0.150	0.0011	0.017671	110	0.0632	6.2E-05	0.006	105.80	105.90	-0.1	497.4	(72.1)	496.3	(72.0)	0.2
Peak Hour Conditons																				
Single 150mm watermain	Main	Building	2.01	97 m	150	0.150	0.0020	0.017671	110	0.1138	0.00018	0.018	105.80	105.90	-0.1	497.4	(72.1)	496.2	(72.0)	0.2
Flow @65 psi for sprinkler system																				
Single 150mm watermain	Main	Building	15.00	97 m	150	0.150	0.0150	0.017671	110	0.8488	0.00762	0.7423	105.80	105.90	-0.1	0.0	(0.0)	-8.3	-(1.2)	1.2
Single 200mm watermain	Main	Building	30.00	97 m	200	0.200	0.0300	0.031416	110	0.9549	0.00678	0.6601	105.80	105.90	-0.1	0.0	(0.0)	-7.5	-(1.1)	1.1
Water Demand Info	0.74	1/202				Pipe Lei	ngths						07 m							
Average Demand =	0.74	L/Sec				From wa	Villiams C F	building =	iction L	oss in Pir			110							
Peak Hr Deamand =	2.01	L/sec				TIQZCIT V	villariis O i			033 111 1	, 0-		110							
Fireflow Requriement =	183.3	L/sec																		
Max Day Plus FF Demand =	184.5	L/sec																		
Boundary Conditon																				
	Min HGL	Max HGL	Max Day	+ Fireflow	<u>.</u>	(From C	ity of Ottaw	a)												
Approx Ground Elev. (m) -	105.80	105.80	105.80			(1101110	ity of Ottaw	α)												
Approx Bidg FE Flev (m) =	105.00	105.00	105.00																	
Pressure (m) =	50.7	54.9	28.9																	
Pressure (Pa) =	497,367	538,569	283,509																	
Pressure (psi) =	72.1	78.1	41.1																	

TABLE B4AVAILABLE FIRE FLOWS BASED ON HYDRANT SPACING

					Konson Wa	arehouse
Hydrant #	Location	City / Private	Color Code	Accessible (yes/no)	¹ Dist (m)	² Fire Flow Contrib (L/min)
348017H119	UPPER CANADA STREET	CITY	BLUE	Yes	139	3,800
348017H120	UPPER CANADA STREET	CITY	BLUE	Yes	53	5,700
348017H121	UPPER CANADA STREET	CITY	BLUE	Yes	77	3,800
348017H122	UPPER CANADA STREET	CITY	BLUE	Yes	118	3,800
348017H083	UPPER CANADA STREET	CITY	BLUE	Yes	63	5,700
348017H082	CAMPEAU DRIVE	CITY	BLUE	Yes	84	3,800
348017H081	CAMPEAU DRIVE	CITY	BLUE	Yes	57	5,700
348017H080	CAMPEAU DRIVE	CITY	BLUE	Yes	70	5,700
348017H092	-	CITY	BLUE	Yes	73	5,700
Total (L/min)						43,700
Total (L/sec)						728
FUS RFF in L/min						183
Meets Requreiment	t (Yes/No)					Yes
<u>Notes:</u> 1) Distance is measu 2) Fire Flow Contrib	ured along a road or fire route. Jution for Class AA Hydrant from Table 1 o	f Appendix I, ISTB	-2018-02			

Boundary Conditions 1485 Upper Canada Street (Konson Development)

Provided Information

Scopario	Dem	nand
Scenario	L/min	L/s
Average Daily Demand	44	0.74
Maximum Daily Demand	67	1.12
Peak Hour	121	2.01
Fire Flow Demand #1	16,980	283.00
Fire Flow Demand #2	15,000	250.00
Fire Flow Demand #3	11,100	185.00
Fire Flow Demand #4	10,000	166.67

Location



Future Condition: Location of future 305 mm watermain



<u>Results</u>

Existing Condition

Connection 1 - Upper Canada Street

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	160.7	79.2
Peak Hour	156.5	73.2
Max Day plus Fire Flow #1	108.5	5.1
Max Day plus Fire Flow #2	118.3	19.0
Max Day plus Fire Flow #3	134.7	42.2
Max Day plus Fire Flow #4	138.5	47.7
¹ Ground Elevation =	105.0	m

Future Condition

Connection 1 - Upper Canada Street

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	160.7	79.2
Peak Hour	156.5	73.2
Max Day plus Fire Flow #1	117.3	17.5
Max Day plus Fire Flow #2	125.3	28.9
Max Day plus Fire Flow #4	141.8	52.4
¹ Ground Elevation =	105.0	m

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix C – Sanitary Sewer Design Sheet



TABLE C1 - SANITARY SEWER CALCULATION SHEET

	LOC	CATION					R	ESEDENTI	AL AREAS	S AND PO	PULAITO	NS					COMMER	CIAL		INDUSTR	AL	IN	STITUTIO	NAL	IN	IFILTRATI	ON					SEWER	DATA		
				Area			NUN	/IBER OF U	JNITS			POPU	LATION		Peak	ARE	A (ha)	Peak	ARE	A (ha)	Peak		ACCU	Peak	ARE	A (ha)	INFILT	TOTAL	Nom	Actual	Slone	Longth	Conocity	0/0	
Street	U/S MH	D/S MH	Dere	Area (ha)	Circular	Countin	Taura	1-Bed	2-Bed	3-Bed	4-Bed			Peak	Flow		A.CC11	Flow		A.C.C.L.	Flow	AREA	AREA	Flow		ACCU	FLOW	FLOW	Dia	Dia		(m)			Full Velocity
			Desc	(na)	Singles	Semis	Towns	Apt.	Apt.	Apt.	Apt.	INDIV	ACCU	Factor	(L/sec)	INDIV	ACCU	(L/sec)	INDIV	ACCU	(L/sec)	(Ha)	(Ha)	(L/sec)	INDIV	ACCU	(L/s)	(L/s)	(mm)	(mm)	(%)	(m)	(L/sec)	(%)	(m/s)
Site	BLDG	SANMH 01																	1.84	1.84	1.12				1.84	1.84	0.61	1.72	200	201.16	2.00	89.730	47.1	4%	1.72
Upper																																			
Canada	SANMH 01	SANMH 02																		1.84	1.12					1.84	0.61	1.72	200	201.16	2.00	10.780	47.1	4%	1.72
Street																																			
											1		1			1		1		1	1	1	1				1	1	1	1	1		1		
		•	-	-			8						8	-	-		-	-	8		8	=	8	-	1.838		8	8	-		8				
																											Designed	d:			Project:				
Residentia	l Avg. Daily Flow	v, q (L/p/day) =			280		Commer	cial Peak Fa	actor =		1.5	(when are	ea >20%)		Peak Pop	ulation Flo	ow, (L/sec)	=	P*q*M/8	86.4		Unti Typ	e		Persons/L	<u>Jnit</u>									
Commerci	al Avg. Daily Flov	w (L/gross ha/da	y) =		28,000						1.0	(when are	ea <20%)		Peak Ext	raneous Fl	ow, (L/sec)	=	I*Ac			Singles			3.0		A. Jariwa	ala, M.Eng	, EIT.		Konson	Warehouse	Э		
or L/gro	ss ha/sec =				0.324										Resident	ial Peaking	Factor, M	=	1 + (14/(4	4+P^0.5)) *	К	Semi-Def	tached		2.7										
Institutian	al Avg. Daily Flo	ow (L/s/ha) =			28,000		Institutio	nal Peak Fa	actor =		1.5	(when are	ea >20%)		A _c = Cum	ulative Are	ea (hectare	es)				Townhor	nes		2.7		Checked	:			Location	:			
or L/gro	ss ha/sec =				0.324						1.0	(when are	ea <20%)		P = Popu	lation (tho	usands)					Single Ap	ot. Unit		1.4				_						
Light Indus	strial Flow (L/gro	oss ha/day) =			35,000		De state en			V.					6 6		(1. /		1/N C+/-	D ^{4/3} A		2-bed Ap	it. Unit		2.1		A. Ansar	i, M.Sc., F	P.Eng.		1485 Up	per Canad	a Street, O	tawa, ON	
or L/gro	ss na/sec =				0.40509		Resident	al Correcti	on Factor,	К =	0.80				Sewer Ca	ipacity, Qc	ap (L/sec)	=	1/10 5	κ Α _c		3-bed Ap	it. Unit		3.1		File Defe				Dees No				
Heavy Indi	istrial Flow (L/gi	ross na/day) =			55,000		ivianning	IN =		- (2)	0.013	(Total I/I)			(Iviannin	g s Equatio	n)					4-реа Ар	it. Unit		3.8		FILE KETE	rence:		<u> </u>	Page NO				
or L/gro	ss na/sec =				0.637		Peak exti	aneous no	w, i (L/S/fi	id) =	0.33	(10(a) 1/1)															Chart.xls	2 water -	Hydrant	Spacing	1 of 1				



EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix D – Stormwater Management Design Sheet



Table D1 Stormwater Management Summary

Area ID	Outlet Location	Area (ha)	Runoff Coefficient 'C'	100 Year Release (L/s)	100 Year storage required (m ³)	100 Year surface storage provided (m3)	Control Method	Storage Method
A1	CB11	0.079	0.82	30.0	6.9	9.5	Hydrovex 150 VHV-2	Surface Ponding
A1-1	Trench Drain	0.023	0.90	11.5	-	-	Uncontrolled	-
A2	CB10	0.078	0.79	33.0	5.7	5.7	Hydrovex 150 VHV-2	Surface Ponding
A3	CB09	0.089	0.77	35.0	6.7	7.9	Hydrovex 150 VHV-2	Surface Ponding
A4	CB07	0.078	0.79	30.0	6.5	8.4	Hydrovex 125 VHV-2	Surface Ponding
A5-1	DCB06	0.152	0.81	50.0	15.8	15.8	Hydrovex 200 VHV-2	Surface Ponding
A5-2	CB04	0.076	0.88	30.0	6.5	18.5	Hydrovex 125 VHV-2	Surface Ponding
A6-1	DCB05	0.160	0.90	70.0	11.4	14.8	Hydrovex 200 VHV-2	Surface Ponding
A6-2	CB03	0.052	0.90	15.0	6.5	15.8	Hydrovex 100 VHV-1	Surface Ponding
A7-1	СВЕ02, СВТ03, СВТ04	0.039	0.41					
A7	CB01, CB02	0.120	0.86	43.0	22.5	31.7	Hydrovex 150 VHV-2	Underground pipe + Surface Ponding
A8	СВТ01, СВМН300	0.046	0.24					
A9	Trench Drain	0.015	0.90	7.4	-	-	Uncontrolled	-
A10-1	East Property Line	0.011	0.20	1.3	-	-	Uncontrolled	-
A10-2	South-West Property Line	0.017	0.20	2.1	-	-	Uncontrolled	-
A10-3	Campeau Drive	0.011	0.23	1.5	-	-	Uncontrolled	-
A11	Roof Drains	0.799	0.90	47.8	259.1	319.8	WATTS Roof Drains	Surface Ponding
	TOTAL	1.844		407.7	347.5	447.9		

Total Allowable Release L/s:

408.0 (From

(From Kanata West Business Park - Phase 5 Design Brief prepared by IBI Group, dated October 2019)

		Asphalt/Cor	ncrete Areas	Roof	Areas	Pavers/Gr	avel Areas	Grasse	d Areas		Total Area	
Area No.	Outlet Location	Area (m ²)	A * C	Area (m ²)	A * C	Area (m ²)	A * C	Area (m ²)	A * C	Sum AC	(m ²)	C _{AVG}
		C=0	0.90	C=0).90	C=0	.90	C=().20		, ,	
A1	CB11	702.48	632.2		0.0		0.0	84.40	16.88	649.1	786.88	0.82
A1-1	Trench Drain	230.89	207.8		0.0		0.0		0.00	207.8	230.89	0.90
A2	CB10	658.15	592.3		0.0		0.0	124.20	24.84	617.2	782.35	0.79
A3	CB09	717.20	645.5		0.0		0.0	168.14	33.63	679.1	885.34	0.77
A4	CB07	652.00	586.8		0.0		0.0	127.16	25.43	612.2	779.16	0.79
A5-1	DCB06	1323.70	1191.3		0.0		0.0	195.76	39.15	1230.5	1519.46	0.81
A5-2	CB04	739.80	665.8		0.0		0.0	24.00	4.80	670.6	763.80	0.88
A6-1	DCB05	1599.81	1439.8		0.0		0.0		0.00	1439.8	1599.81	0.90
A6-2	CB03	521.39	469.3		0.0		0.0		0.00	469.3	521.39	0.90
A7-1	СВЕ02, СВТ03, СВТ04	118.50	106.7		0.0		0.0	273.82	54.76	161.4	392.32	0.41
A7	CB01, CB02	1121.13	1009.0		0.0		0.0	76.00	15.20	1024.2	1197.13	0.86
A8	CBT01, CBMH300	28.60	25.7		0.0		0.0	429.47	85.89	111.6	458.07	0.24
A9	Trench Drain	149.73	134.8		0.0		0.0		0.00	134.8	149.73	0.90
A10-1	East Property Line		0.0		0.0		0.0	107.11	21.42	21.4	107.11	0.20
A10-2	South-West Property Line		0.0		0.0		0.0	170.15	34.03	34.0	170.15	0.20
A10-3	Campeau Drive	5.20	4.7		0.0		0.0	99.80	19.96	24.6	105.00	0.23
A11	Roof Drains		0.0	7992.47	7193.2		0.0		0.00	7193.2	7992.47	0.90
							Average Ru	noff Coeff =		C _{AVG} =	<u>15,281</u> 18,441	= 0.83

Table D2 - CALCULATION OF AVERAGE RUNOFF COEFFICIENTS (POST-DEVELOPMENT)

			Time of		Storm =	= 2-year			Storm = 5	-year			Storm = 10	0-year	
Area No	Outlet Location	Area (ha)	Conc. T _c (min)	C _{AVG}	I ₂ (mm/hr)	Q (L/sec)	Q _{CAP} (L/sec)	C _{AVG}		Q (L/sec)	Q _{CAP} (L/sec)	C _{AVG-100Yr}	l ₁₀₀ (mm/hr)	Q (L/sec)	Q _{CAP} (L/sec)
A1	CB11	0.079	10	0.82	76.81	13.9	13.9	0.82	104.19	18.8	18.8	1.00	178.56	39.1	30.0
A1-1	Trench Drain	0.023	10	0.90	76.81	4.4	4.4	0.90	104.19	6.0	6.0	1.00	178.56	11.5	11.5
A2	CB10	0.078	10	0.79	76.81	13.2	13.2	0.79	104.19	17.9	17.9	0.99	178.56	38.3	33.0
A3	CB09	0.089	10	0.77	76.81	14.5	14.5	0.77	104.19	19.7	19.7	0.96	178.56	42.1	35.0
A4	CB07	0.078	10	0.79	76.81	13.1	13.1	0.79	104.19	17.7	17.7	0.98	178.56	38.0	30.0
A5-1	DCB06	0.152	10	0.81	76.81	26.3	26.3	0.81	104.19	35.6	35.6	1.00	178.56	75.4	50.0
A5-2	CB04	0.076	10	0.88	76.81	14.3	14.3	0.88	104.19	19.4	19.4	1.00	178.56	37.9	30.0
A6-1	DCB05	0.160	10	0.90	76.81	30.7	30.7	0.90	104.19	41.7	41.7	1.00	178.56	79.4	70.0
A6-2	CB03	0.052	10	0.90	76.81	10.0	10.0	0.90	104.19	13.6	13.6	1.00	178.56	25.9	15.0
A7-1	CBE02, CBT03, CBT04	0.039	10	0.41	76.81	3.4		0.41	104.19	4.7		0.51	178.56	10.0	
A7	CB01, CB02	0.120	10	0.86	76.81	21.9	27.7	0.86	104.19	29.7	37.6	1.00	178.56	59.4	43.0
A8	CBT01, CBMH300	0.046	10	0.24	76.81	2.4		0.24	104.19	3.2		0.30	178.56	6.9	
A9	Trench Drain	0.015	10	0.90	76.81	2.9	2.9	0.90	104.19	3.9	3.9	1.00	178.56	7.4	7.4
A10-1	Last Froperty	0.011	10	0.20	76.81	0.5	0.5	0.20	104.19	0.6	0.6	0.25	178.56	1.3	1.3
A10-2	Dreportulino	0.017	10	0.20	76.81	0.7	0.7	0.20	104.19	1.0	1.0	0.25	178.56	2.1	2.1
A10-3	Campeau Drive	0.011	10	0.23	76.81	0.5	0.5	0.23	104.19	0.7	0.7	0.29	178.56	1.5	1.5
A11	Roof Drains	0.799	10	0.90	76.81	153.6	31.6	0.90	104.19	208.4	37.9	1.00	178.56	396.7	47.8
Total		1.844				326.3	204.3			442.6	272.1			873.1	407.7
Notes															

Table D3 SWM POST-DEVELOPMENT RUNOFF (UNCONTROLLED AND CONTROLLED)

1) Intensity, $l_2 = 732.951/(Tc+6.199)^{0.810}$ (2-year, City of Ottawa) 2) Intensity, $l_5 = 998.071/(Tc+6.035)^{0.814}$ (5-year, City of Ottawa)

3) Intensity, $I_{100} = 1735.688/(Tc+6.014)^{0.820}$ (100-year, City of Ottawa)

4) Time of Concentration: T_c=10min

4) Flows under column Q_{CAP} which are **bold**, denotes flows that are controlled.

Table D4: 2-year, 5-year & 100-year Roof Drains Design Sheet - Using Flow Controlled Roof Drains Project: 1485 UPPER CANADA STREET

Location: City of Ottawa Date: SEPTEMBER 2023

					Runc (C	off Coeff Cavg)	Drain	age Area						2-	year Event								5-yea	r Event					100-'	year Event		
Area	a # Roof Dra Type	No in Drain per Area	No of s Weirs per Drain	Weir Position	2-year & 5- year	100- year	m²	ha	Runoff Rate (L/sec)	2yr Ponding Depth (mm)	1-None	2-Closed	3-1/4 open	4-1/2 open	5-3/4 oper	6-Full	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	5yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	100yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Fl From R Drain (L/see
A11	-1 RD2	1	2	6-Full	0.90	1.00	656.60	0.0657	12.618	98	0.0	5.0	12.4	14.8	17.2	19.6	19.6	39.2	2.473	2.473	17.117	117	23.4	46.8	2.953	2.953	32.593	146	29.2	58.4	3.684	3.68
A11	-2 RD2	1	2	6-Full	0.90	1.00	656.60	0.0657	12.618	98	0.0	5.0	12.4	14.8	17.2	19.6	19.6	39.2	2.473	2.473	17.117	117	23.4	46.8	2.953	2.953	32.593	146	29.2	58.4	3.684	3.68
A11	-3 RD2	1	2	6-Full	0.90	1.00	656.60	0.0657	12.618	98	0.0	5.0	12.4	14.8	17.2	19.6	19.6	39.2	2.473	2.473	17.117	117	23.4	46.8	2.953	2.953	32.593	146	29.2	58.4	3.684	3.68
A11	-4 RD2	1	2	6-Full	0.90	1.00	656.60	0.0657	12.618	98	0.0	5.0	12.4	14.8	17.2	19.6	19.6	39.2	2.473	2.473	17.117	117	23.4	46.8	2.953	2.953	32.593	146	29.2	58.4	3.684	3.68
A11	-5 RD3	1	3	6-Full	0.90	1.00	594.63	0.0595	11.428	90	0.0	5.0	12.0	13.9	16.0	18.0	18.0	54.0	3.407	3.407	15.501	109	21.8	65.4	4.126	4.126	29.517	137	27.4	82.2	5.186	5.18
A11	-6 RD3	1	3	6-Full	0.90	1.00	869.53	0.0870	16.711	97	0.0	5.0	12.4	14.7	17.1	19.4	19.4	58.2	3.672	3.672	22.668	115	23.0	69.0	4.353	4.353	43.163	144	28.8	86.4	5.451	5.45
A11	-7 RD3	1	3	6-Full	0.90	1.00	470.30	0.0470	9.038	87	0.0	5.0	11.9	13.6	15.6	17.4	17.4	52.2	3.293	3.293	12.260	104	20.8	62.4	3.937	3.937	23.345	132	26.4	79.2	4.997	4.99
A11	-8 RD3	1	3	6-Full	0.90	1.00	470.30	0.0470	9.038	8/	0.0	5.0	11.9	13.6	15.6	17.4	17.4	52.2	3.293	3.293	12.260	104	20.8	62.4	3.937	3.937	23.345	132	26.4	79.2	4.997	4.99
A11	-9 RD3	1	3	6 Full	0.90	1.00	470.30	0.0470	9.038	8/	0.0	5.0	11.9	13.6	15.6	17.4	17.4	52.2	3.293	3.293	12.200	104	20.8	62.4	3.937	3.937	23.345	132	26.4	79.2	4.997	4.99
Δ11	11 RD3	1	3	6-Full	0.90	1.00	470.30	0.0470	9.038	87	0.0	5.0	11.9	13.6	15.0	17.4	17.4	52.2	3 293	3 293	12.200	104	20.8	62.4	3,937	3.937	23.345	132	26.4	79.2	4.997	4.99
A11	12 RD3	1	3	6-Full	0.90	1.00	470.30	0.0470	9.038	87	0.0	5.0	11.9	13.6	15.6	17.4	17.4	52.2	3.293	3.293	12.260	104	20.8	62.4	3.937	3.937	23.345	132	26.4	79.2	4.997	4.99
A11	13 RD2	1	2	6-Full	0.90	1.00	541.26	0.0541	10.402	95	0.0	5.0	12.3	14.5	16.8	19.0	19.0	38.0	2.397	2.397	14.110	114	22.8	45.6	2.877	2.877	26.868	143	28.6	57.2	3.609	3.60
A11	14 RD2	1	2	6-Full	0.90	1.00	541.26	0.0541	10.402	95	0.0	5.0	12.3	14.5	16.8	19.0	19.0	38.0	2.397	2.397	14.110	114	22.8	45.6	2.877	2.877	26.868	143	28.6	57.2	3.609	3.60
Tot	als				0.9	0.9	7,994.9	0.7995	153.64								258.20		41.53	41.53	208.42		308.80		49.66	49.66	396.86		388.60		62.57	62.5
Tota City Se	l to ewer																			31.63						37.85						47.8
Mi	n									90										`	-	109				`		137				
Ma	IX									98												117						146				

Runof	f Based	on	the	Following:	
	-				т

Storm Frequency (years) =	2	5	100
Time of Conc (mins) =	10	10	10
Storm Intensity (mm/hr) =	76.8	104.2	178.6

Deaf Dusing hours Fallouder	- Flaue Datas a secondar	MATTC Flass Controllad Duck
roof Drains have Followin	a Flow Rates per weir:	WATTS Flow Controlled Drain

			Flow	ı (gpm) per dep	th			Max Flow
Position	0	25	50	75	100	125	150	Rate per Weir
	0	0.025	0.05	0.075	0.1	0.125	0.15	@150mm
1-None	0	0	0	0	0	0	0	0.000
2-Closed	0	5	5	5	5	5	5	0.315
3-1/4 open	0	5	10	11	13	14	15	0.946
4-1/2 open	0	5	10	12	15	18	20	1.262
5-3/4 open	0	5	10	14	18	21	25	1.577
6-Full	0	5	10	15	20	25	30	

Roof Drain Types			
Drain Type =	RD1	RD2	RD3
Max Overflow Depth (mm)	150 mm	150 mm	150 mm
Flow Controlled (Yes/No)	Yes	Yes	Yes
Ponding	Yes	Yes	Yes
Weir Desc	Accutrol	Accutrol	Accutrol
No. Weirs	1	2	3



Storage Volumes Roof Area #A11-1 to A11-4(2 Year, 5 Year and 100 Year Storms)

C_{AVG} = 0.90 (dimmensionless)

C_{AVG} = **1.00**

Time Interval =5(mins)Drainage Area =0.06566(hectares)

	Rele	ase Rate =	2.473	(L/sec)		Relea	ase Rate =	2.9526	(L/sec)		Rele	ase Rate =	3.6845	(L/sec)	
	Retur	rn Period =	2	(years)		Retur	n Period =	5	(years)		Retur	n Period =	100	(years)	
	IDF Paran	neters, A =	732.951	, B =	0.810	IDF Param	ieters, A =	998.071	, B =	0.814	IDF Param	ieters, A =	1735.69	, B =	0.820
		(=/	4/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
	Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
Duration	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage
(min)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)
0	167.2	27.5	2.47	25.0	0.00	230.5	42.1	2.953	39.1	0.00	398.6	72.8	3.7	69.1	0.00
5	103.6	17.0	2.47	14.5	4.36	141.2	25.8	2.953	22.8	6.85	242.7	44.3	3.7	40.6	12.19
10	76.8	12.6	2.47	10.1	6.09	104.2	19.0	2.953	16.1	9.64	178.6	32.6	3.7	28.9	17.35
15	61.8	10.1	2.47	7.7	6.91	83.6	15.3	2.953	12.3	11.07	142.9	26.1	3.7	22.4	20.16
20	52.0	8.5	2.47	6.1	7.29	70.3	12.8	2.953	9.9	11.84	120.0	21.9	3.7	18.2	21.85
25	45.2	7.4	2.47	4.9	7.42	60.9	11.1	2.953	8.2	12.24	103.8	19.0	3.7	15.3	22.91
30	40.0	6.6	2.47	4.1	7.39	53.9	9.8	2.953	6.9	12.40	91.9	16.8	3.7	13.1	23.55
35	36.1	5.9	2.47	3.5	7.25	48.5	8.9	2.953	5.9	12.40	82.6	15.1	3.7	11.4	23.92
40	32.9	5.4	2.47	2.9	7.02	44.2	8.1	2.953	5.1	12.27	75.1	13.7	3.7	10.0	24.08
45	30.2	5.0	2.47	2.5	6.74	40.6	7.4	2.953	4.5	12.05	69.1	12.6	3.7	8.9	24.08
50	28.0	4.6	2.47	2.1	6.40	37.7	6.9	2.953	3.9	11.76	64.0	11.7	3.7	8.0	23.97
55	26.2	4.3	2.47	1.8	6.03	35.1	6.4	2.953	3.5	11.41	59.6	10.9	3.7	7.2	23.76
60	24.6	4.0	2.47	1.6	5.62	32.9	6.0	2.953	3.1	11.02	55.9	10.2	3.7	6.5	23.47
65	23.2	3.8	2.47	1.3	5.19	31.0	5.7	2.953	2.7	10.58	52.6	9.6	3.7	5.9	23.11
70	21.9	3.6	2.47	1.1	4.73	29.4	5.4	2.953	2.4	10.12	49.8	9.1	3.7	5.4	22.70
75	20.8	3.4	2.47	0.9	4.26	27.9	5.1	2.953	2.1	9.62	47.3	8.6	3.7	4.9	22.24
80	19.8	3.3	2.47	0.8	3.77	26.6	4.8	2.953	1.9	9.10	45.0	8.2	3.7	4.5	21.73
85	18.9	3.1	2.47	0.6	3.26	25.4	4.6	2.953	1.7	8.56	43.0	7.8	3.7	4.2	21.20
90	18.1	3.0	2.47	0.5	2.74	24.3	4.4	2.953	1.5	8.00	41.1	7.5	3.7	3.8	20.63
95	17.4	2.9	2.47	0.4	2.21	23.3	4.3	2.953	1.3	7.42	39.4	7.2	3.7	3.5	20.03
100	16.7	2.8	2.47	0.3	1.67	22.4	4.1	2.953	1.1	6.82	37.9	6.9	3.7	3.2	19.40
105	16.1	2.7	2.47	0.2	1.12	21.6	3.9	2.953	1.0	6.22	36.5	6.7	3.7	3.0	18.76
110	15.6	2.6	2.47	0.1	0.56	20.8	3.8	2.953	0.8	5.60	35.2	6.4	3.7	2.7	18.09
115	15.0	2.5	2.47	0.0	-0.01	20.1	3.7	2.953	0.7	4.97	34.0	6.2	3.7	2.5	17.41
120	14.6	2.4	2.47	-0.1	-0.58	19.5	3.6	2.953	0.6	4.33	32.9	6.0	3.7	2.3	16.70
Max =					7.42					12.40				·	24.08
Notes															,
1) Peak fl	ow is equal to	the produc	t of 2.78 x	CxIxA											

2) Rainfall Intensity, $I = A/(Tc+C)^{B}$

3) Release Rate = Min (Release Rate, Peak Flow)

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

Storage Volumes Roof Area #A11-5 (2 Year, 5 Year and 100 Year Storms)

C_{AVG} = 0.90 (dimmensionless)

C_{AVG} = 1.00

Time Interval = 5 (mins)

Drainage Area = 0.05946 (hectares)

	Rel	ease Rate =	3.407	(L/sec)		Rele	ase Rate =	4.1261	(L/sec)		Rele	ase Rate =	5.1860	(L/sec)	
	Reti	urn Period =	2	(years)	I	Retur	n Period =	5	(years)		Retur	n Period =	100	(years)	
	IDF Para	meters, A =	732.951	, B =	0.810	IDF Param	neters, A =	998.071	, B =	0.814	IDF Param	neters, A =	1735.688	, B =	0.820
		(I = A	/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
		· · · · · · · · · · · · · · · · · · ·													· · · · · ·
	Rainfall	!	Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	1
Duration	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage
(min)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)
0	167.2	24.9	3.41	21.5	0.00	230.5	38.1	4.126	34.0	0.00	398.6	65.9	5.2	60.7	0.00
5	103.6	15.4	3.41	12.0	3.60	141.2	23.3	4.126	19.2	5.76	242.7	40.1	5.2	34.9	10.48
10	76.8	11.4	3.41	8.0	4.81	104.2	17.2	4.126	13.1	7.86	178.6	29.5	5.2	24.3	14.60
15	61.8	9.2	3.41	5.8	5.20	83.6	13.8	4.126	9.7	8.72	142.9	23.6	5.2	18.4	16.59
20	52.0	7.7	3.41	4.3	5.20	70.3	11.6	4.126	7.5	8.98	120.0	19.8	5.2	14.6	17.57
25	45.2	6.7	3.41	3.3	4.97	60.9	10.1	4.126	5.9	8.91	103.8	17.2	5.2	12.0	17.97
30	40.0	6.0	3.41	2.6	4.59	53.9	8.9	4.126	4.8	8.62	91.9	15.2	5.2	10.0	18.00
35	36.1	5.4	3.41	2.0	4.11	48.5	8.0	4.126	3.9	8.18	82.6	13.7	5.2	8.5	17.78
40	32.9	4.9	3.41	1.5	3.56	44.2	7.3	4.126	3.2	7.63	75.1	12.4	5.2	7.2	17.37
45	30.2	4.5	3.41	1.1	2.95	40.6	6.7	4.126	2.6	6.99	69.1	11.4	5.2	6.2	16.82
50	28.0	4.2	3.41	0.8	2.29	37.7	6.2	4.126	2.1	6.29	64.0	10.6	5.2	5.4	16.16
55	26.2	3.9	3.41	0.5	1.61	35.1	5.8	4.126	1.7	5.54	59.6	9.9	5.2	4.7	15.41
60	24.6	3.7	3.41	0.2	0.89	32.9	5.4	4.126	1.3	4.75	55.9	9.2	5.2	4.1	14.59
65	23.2	3.4	3.41	0.0	0.15	31.0	5.1	4.126	1.0	3.92	52.6	8.7	5.2	3.5	13.72
70	21.9	3.3	3.41	-0.1	-0.62	29.4	4.9	4.126	0.7	3.06	49.8	8.2	5.2	3.0	12.79
75	20.8	3.1	3.41	-0.3	-1.40	27.9	4.6	4.126	0.5	2.18	47.3	7.8	5.2	2.6	11.82
80	19.8	3.0	3.41	-0.5	-2.19	26.6	4.4	4.126	0.3	1.27	45.0	7.4	5.2	2.3	10.81
85	18.9	2.8	3.41	-0.6	-3.00	25.4	4.2	4.126	0.1	0.34	43.0	7.1	5.2	1.9	9.76
90	18.1	2.7	3.41	-0.7	-3.82	24.3	4.0	4.126	-0.1	-0.60	41.1	6.8	5.2	1.6	8.69
95	17.4	2.6	3.41	-0.8	-4.65	23.3	3.9	4.126	-0.3	-1.56	39.4	6.5	5.2	1.3	7.60
100	16.7	2.5	3.41	-0.9	-5.49	22.4	3.7	4.126	-0.4	-2.53	37.9	6.3	5.2	1.1	6.48
105	16.1	2.4	3.41	-1.0	-6.34	21.6	3.6	4.126	-0.6	-3.52	36.5	6.0	5.2	0.8	5.34
110	15.6	2.3	3.41	-1.1	-7.20	20.8	3.4	4.126	-0.7	-4.51	35.2	5.8	5.2	0.6	4.18
115	15.0	2.2	3.41	-1.2	-8.06	20.1	3.3	4.126	-0.8	-5.52	34.0	5.6	5.2	0.4	3.00
120	14.6	2.2	3.41	-1.2	-8.93	19.5	3.2	4.126	-0.9	-6.54	32.9	5.4	5.2	0.3	1.81
Max =					5.20					8.98					18.00
Notes											•				
1) Peak fl	ow is equal t	o the produ	ct of 2.78 :	xCxIxA											
2) Rainfall	Intensity, I =	= A/(Tc+C) ^B													
3) Release	Rate = Min	(Release Rat	te, Peak Fl	ow)											

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

Storage Volumes Roof Area #A11-6 (2 Year, 5 Year and 100 Year Storms)

C_{AVG} = 0.90 (dimmensionless)

C_{AVG} =

= 1.00 = 5 (mins)

Time Interval =5(mins)Drainage Area =0.08695(hectares)

	Rele	ease Rate =	3.672	(L/sec)		Relea	ase Rate =	4.3532	(L/sec)		Relea	ase Rate =	5.4510	(L/sec)	
	Retu	rn Period =	2	(years)		Retur	n Period =	5	(years)		Returi	n Period =	100	(years)	
	IDF Para	meters, A =	732.951	, B =	0.810	IDF Param	neters, A =	998.071	, B =	0.814	IDF Param	eters, A =	1735.69	, B =	0.820
		(I = A	/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
						l									
	Rainfall		Release	Storage	Í	Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
Duration	Intensity. I	Peak Flow	Rate	Rate	Storage	Intensity. I	Flow	Rate	Rate	Storage	Intensity. I	Flow	Rate	Rate	Storage
(min)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)
0	167.2	36.4	3.67	32.7	0.00	230.5	55.7	4.353	51.4	0.00	398.6	96.4	5.5	90.9	0.00
5	103.6	22.5	3.67	18.9	5.66	141.2	34.1	4.353	29.8	8.93	242.7	58.7	5.5	53.2	15.97
10	76.8	16.7	3.67	13.0	7.82	104.2	25.2	4.353	20.8	12.50	178.6	43.2	5.5	37.7	22.63
15	61.8	13.4	3.67	9.8	8.79	83.6	20.2	4.353	15.8	14.26	142.9	34.5	5.5	29.1	26.18
20	52.0	11.3	3.67	7.6	9.18	70.3	17.0	4.353	12.6	15.15	120.0	29.0	5.5	23.5	28.25
25	45.2	9.8	3.67	6.2	9.23	60.9	14.7	4.353	10.4	15.55	103.8	25.1	5.5	19.7	29.48
30	40.0	8.7	3.67	5.0	9.07	53.9	13.0	4.353	8.7	15.63	91.9	22.2	5.5	16.8	30.16
35	36.1	7.8	3.67	4.2	8.76	48.5	11.7	4.353	7.4	15.49	82.6	20.0	5.5	14.5	30.47
40	32.9	7.1	3.67	3.5	8.35	44.2	10.7	4.353	6.3	15.19	75.1	18.2	5.5	12.7	30.51
45	30.2	6.6	3.67	2.9	7.85	40.6	9.8	4.353	5.5	14.76	69.1	16.7	5.5	11.2	30.35
50	28.0	6.1	3.67	2.4	7.29	37.7	9.1	4.353	4.7	14.25	64.0	15.5	5.5	10.0	30.03
55	26.2	5.7	3.67	2.0	6.67	35.1	8.5	4.353	4.1	13.65	59.6	14.4	5.5	9.0	29.57
60	24.6	5.3	3.67	1.7	6.01	32.9	8.0	4.353	3.6	13.00	55.9	13.5	5.5	8.1	29.02
65	23.2	5.0	3.67	1.4	5.32	31.0	7.5	4.353	3.2	12.29	52.6	12.7	5.5	7.3	28.37
70	21.9	4.8	3.67	1.1	4.60	29.4	7.1	4.353	2.7	11.54	49.8	12.0	5.5	6.6	27.66
75	20.8	4.5	3.67	0.9	3.85	27.9	6.7	4.353	2.4	10.75	47.3	11.4	5.5	6.0	26.87
80	19.8	4.3	3.67	0.6	3.08	26.6	6.4	4.353	2.1	9.92	45.0	10.9	5.5	5.4	26.04
85	18.9	4.1	3.67	0.4	2.29	25.4	6.1	4.353	1.8	9.07	43.0	10.4	5.5	4.9	25.15
90	18.1	3.9	3.67	0.3	1.49	24.3	5.9	4.353	1.5	8.20	41.1	9.9	5.5	4.5	24.23
95	17.4	3.8	3.67	0.1	0.66	23.3	5.6	4.353	1.3	7.30	39.4	9.5	5.5	4.1	23.26
100	16.7	3.6	3.67	0.0	-0.17	22.4	5.4	4.353	1.1	6.38	37.9	9.2	5.5	3.7	22.27
105	16.1	3.5	3.67	-0.2	-1.02	21.6	5.2	4.353	0.9	5.44	36.5	8.8	5.5	3.4	21.24
110	15.6	3.4	3.67	-0.3	-1.88	20.8	5.0	4.353	0.7	4.49	35.2	8.5	5.5	3.1	20.19
115	15.0	3.3	3.67	-0.4	-2.75	20.1	4.9	4.353	0.5	3.52	34.0	8.2	5.5	2.8	19.11
120	14.6	3.2	3.67	-0.5	-3.63	19.5	4.7	4.353	0.4	2.54	32.9	8.0	5.5	2.5	18.00
Max =					9.23					15.63					30.51
Notes															

1) Peak flow is equal to the product of 2.78 x C x I x A

2) Rainfall Intensity, $I = A/(Tc+C)^{B}$

3) Release Rate = Min (Release Rate, Peak Flow)

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

Storage Volumes Roof Area #A11-7 to A11-12 (2 Year, 5 Year and 100 Year Storms)

C_{AVG} = 0.90 (dimmensionless)

C_{AVG} = 1.00 5 (mins)

Time Interval = Drainage Area = 0.04703 (hectares)

	Rele	ease Rate =	3.293	(L/sec)		Relea	ase Rate =	3.9368	(L/sec)		Relea	ase Rate =	4.9967	(L/sec)	
	Retu	rn Period =	2	(years)		Retur	n Period =	5	(years)		Returi	n Period =	100	(years)	
	IDF Para	meters, A =	732.951	, B =	0.810	IDF Param	neters, A =	998.071	, B =	0.814	IDF Param	ieters, A =	1735.688	, B =	0.820
		(I = A	/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
	1														
	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
Duration	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage
(min)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)
0	167.2	19.7	3.29	16.4	0.00	230.5	30.1	3.937	26.2	0.00	398.6	52.1	5.0	47.1	0.00
5	103.6	12.2	3.29	8.9	2.67	141.2	18.5	3.937	14.5	4.36	242.7	31.7	5.0	26.7	8.02
10	76.8	9.0	3.29	5.7	3.45	104.2	13.6	3.937	9.7	5.81	178.6	23.3	5.0	18.3	11.01
15	61.8	7.3	3.29	4.0	3.58	83.6	10.9	3.937	7.0	6.29	142.9	18.7	5.0	13.7	12.32
20	52.0	6.1	3.29	2.8	3.39	70.3	9.2	3.937	5.2	6.30	120.0	15.7	5.0	10.7	12.82
25	45.2	5.3	3.29	2.0	3.03	60.9	8.0	3.937	4.0	6.04	103.8	13.6	5.0	8.6	12.87
30	40.0	4.7	3.29	1.4	2.55	53.9	7.1	3.937	3.1	5.60	91.9	12.0	5.0	7.0	12.63
35	36.1	4.2	3.29	0.9	1.99	48.5	6.3	3.937	2.4	5.05	82.6	10.8	5.0	5.8	12.18
40	32.9	3.9	3.29	0.6	1.38	44.2	5.8	3.937	1.8	4.42	75.1	9.8	5.0	4.8	11.59
45	30.2	3.6	3.29	0.3	0.72	40.6	5.3	3.937	1.4	3.71	69.1	9.0	5.0	4.0	10.88
50	28.0	3.3	3.29	0.0	0.02	37.7	4.9	3.937	1.0	2.96	64.0	8.4	5.0	3.4	10.09
55	26.2	3.1	3.29	-0.2	-0.71	35.1	4.6	3.937	0.7	2.16	59.6	7.8	5.0	2.8	9.24
60	24.6	2.9	3.29	-0.4	-1.45	32.9	4.3	3.937	0.4	1.33	55.9	7.3	5.0	2.3	8.32
65	23.2	2.7	3.29	-0.6	-2.22	31.0	4.1	3.937	0.1	0.48	52.6	6.9	5.0	1.9	7.36
70	21.9	2.6	3.29	-0.7	-3.00	29.4	3.8	3.937	-0.1	-0.41	49.8	6.5	5.0	1.5	6.35
75	20.8	2.4	3.29	-0.8	-3.80	27.9	3.6	3.937	-0.3	-1.31	47.3	6.2	5.0	1.2	5.32
80	19.8	2.3	3.29	-1.0	-4.61	26.6	3.5	3.937	-0.5	-2.23	45.0	5.9	5.0	0.9	4.25
85	18.9	2.2	3.29	-1.1	-5.43	25.4	3.3	3.937	-0.6	-3.16	43.0	5.6	5.0	0.6	3.16
90	18.1	2.1	3.29	-1.2	-6.26	24.3	3.2	3.937	-0.8	-4.11	41.1	5.4	5.0	0.4	2.04
95	17.4	2.0	3.29	-1.2	-7.09	23.3	3.0	3.937	-0.9	-5.07	39.4	5.2	5.0	0.2	0.91
100	16.7	2.0	3.29	-1.3	-7.94	22.4	2.9	3.937	-1.0	-6.04	37.9	5.0	5.0	0.0	-0.25
105	16.1	1.9	3.29	-1.4	-8.79	21.6	2.8	3.937	-1.1	-7.02	36.5	4.8	5.0	-0.2	-1.42
110	15.6	1.8	3.29	-1.5	-9.64	20.8	2.7	3.937	-1.2	-8.02	35.2	4.6	5.0	-0.4	-2.60
115	15.0	1.8	3.29	-1.5	-10.51	20.1	2.6	3.937	-1.3	-9.01	34.0	4.4	5.0	-0.6	-3.80
120	14.6	1.7	3.29	-1.6	-11.37	19.5	2.5	3.937	-1.4	-10.02	32.9	4.3	5.0	-0.7	-5.01
Max =					3.58					6.30					12.87
Notes															
1) Deals fl	and a second	المحترين مجالد ماد													

1) Peak flow is equal to the product of 2.78 x C x I x A

2) Rainfall Intensity, $I = A/(Tc+C)^{B}$

3) Release Rate = Min (Release Rate, Peak Flow)

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

Storage Volumes Roof Area #A11-13 & A11-14 (2 Year, 5 Year and 100 Year Storms)

(dimmensionless) C_{AVG} = 0.90

C_{AVG} = **1.00** Time Interval = 5 (mins)

Drainage Area = 0.05413 (hectares)

	Rel	ease Rate =	2.397	(L/sec)		Relea	ase Rate =	2.8769	(L/sec)		Rele	ase Rate =	3.6088	(L/sec)	
	Reti	urn Period =	2	(years)	,	Retur	n Period =	5	(years)		Retur	n Period =	100	(years)	,
	IDF Para	meters, A =	732.951	, B =	0.810	IDF Param	ieters, A =	998.071	, B =	0.814	IDF Param	neters, A =	1735.688	, B =	0.820
	1	(I = A	./(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
	· · · · · · · · · · · · · · · · · · ·														; I
	Rainfall	'	Release	Storage	'	Rainfall	Peak	Release	Storage	l	Rainfall	Peak	Release	Storage	1
Duration	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity,	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage
(min)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	I (mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)
0	167.2	22.6	2.40	20.2	0.00	230.5	34.7	2.877	31.8	0.00	398.6	60.0	3.6	56.4	0.00
5	103.6	14.0	2.40	11.6	3.49	141.2	21.2	2.877	18.4	5.51	242.7	36.5	3.6	32.9	9.87
10	76.8	10.4	2.40	8.0	4.80	104.2	15.7	2.877	12.8	7.68	178.6	26.9	3.6	23.3	13.96
15	61.8	8.4	2.40	6.0	5.37	83.6	12.6	2.877	9.7	8.73	142.9	21.5	3.6	17.9	16.10
20	52.0	7.0	2.40	4.6	5.58	70.3	10.6	2.877	7.7	9.23	120.0	18.0	3.6	14.4	17.33
25	45.2	6.1	2.40	3.7	5.58	60.9	9.2	2.877	6.3	9.43	103.8	15.6	3.6	12.0	18.03
30	40.0	5.4	2.40	3.0	5.45	53.9	8.1	2.877	5.2	9.43	91.9	13.8	3.6	10.2	18.39
35	36.1	4.9	2.40	2.5	5.22	48.5	7.3	2.877	4.4	9.29	82.6	12.4	3.6	8.8	18.52
40	32.9	4.5	2.40	2.1	4.93	44.2	6.6	2.877	3.8	9.05	75.1	11.3	3.6	7.7	18.48
45	30.2	4.1	2.40	1.7	4.58	40.6	6.1	2.877	3.2	8.74	69.1	10.4	3.6	6.8	18.31
50	28.0	3.8	2.40	1.4	4.20	37.7	5.7	2.877	2.8	8.37	64.0	9.6	3.6	6.0	18.04
55	26.2	3.5	2.40	1.1	3.78	35.1	5.3	2.877	2.4	7.95	59.6	9.0	3.6	5.4	17.70
60	24.6	3.3	2.40	0.9	3.34	32.9	5.0	2.877	2.1	7.49	55.9	8.4	3.6	4.8	17.29
65	23.2	3.1	2.40	0.7	2.88	31.0	4.7	2.877	1.8	7.00	52.6	7.9	3.6	4.3	16.82
70	21.9	3.0	2.40	0.6	2.39	29.4	4.4	2.877	1.5	6.48	49.8	7.5	3.6	3.9	16.31
75	20.8	2.8	2.40	0.4	1.90	27.9	4.2	2.877	1.3	5.94	47.3	7.1	3.6	3.5	15.76
80	19.8	2.7	2.40	0.3	1.38	26.6	4.0	2.877	1.1	5.38	45.0	6.8	3.6	3.2	15.17
85	18.9	2.6	2.40	0.2	0.86	25.4	3.8	2.877	0.9	4.80	43.0	6.5	3.6	2.9	14.56
90	18.1	2.5	2.40	0.1	0.32	24.3	3.7	2.877	0.8	4.20	41.1	6.2	3.6	2.6	13.92
95	17.4	2.4	2.40	0.0	-0.22	23.3	3.5	2.877	0.6	3.59	39.4	5.9	3.6	2.3	13.25
100	16.7	2.3	2.40	-0.1	-0.78	22.4	3.4	2.877	0.5	2.97	37.9	5.7	3.6	2.1	12.57
105	16.1	2.2	2.40	-0.2	-1.34	21.6	3.2	2.877	0.4	2.33	36.5	5.5	3.6	1.9	11.86
110	15.6	2.1	2.40	-0.3	-1.91	20.8	3.1	2.877	0.3	1.69	35.2	5.3	3.6	1.7	11.14
115	15.0	2.0	2.40	-0.4	-2.48	20.1	3.0	2.877	0.2	1.04	34.0	5.1	3.6	1.5	10.41
120	14.6	2.0	2.40	-0.4	-3.06	19.5	2.9	2.877	0.1	0.38	32.9	4.9	3.6	1.3	9.65
Max =		·			5.58					9.43					18.52
Notes															
1) Peak fl	ow is equal t	o the produ	ct of 2.78 >	« CxIxA											
2) Rainfall	Intensity, I =	= A/(Tc+C) ^B													
3) Release	Rate = Min ((Release Rat	e, Peak Flc	Jw)											

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

	<u> </u>			5101 - ,	/cui, c		100	ui 0.0		,					
		41													
	Area No:		-												
	C _{AVG} =	0.82	_(2-yr)												
	C _{AVG} =	0.82	_(5-yr)												
	C _{AVG} =	1.00	_(100-yr, N	lax 1.0)					Act	ual Release	e Rate (L/sec) =	30.00	_		
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa r	requirement) =	100%	(Set to 50%	when U/G s	storage used)
Drai	inage Area =	0.0787	(hectares))		Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	30.00			
	R	elease Rate =	13.86	(L/sec)		Rele	ase Rate =	18.80	(L/sec)		Rele	ase Rate =	30.00	(L/sec)	
	Re	eturn Period =	·	(years)		Retur	rn Period =	- 5	(years)	l	Retur	n Period =	100	(years)	
	IDF Pa	rameters, A =	733.0	, B =	0.810	IDF Parar	neters, A =	998.1	, B =	0.814	IDF Paran	neters, A =	1735.7	, B =	0.820
Duration		(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$	1	, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage (m ³)
	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m²)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m²)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	U
0	167.2	30.2	13.9	16.3	0.0	230.5	41.6	18.8	22.8	0.0	398.6	87.2	30.0	57.2	0.0
5	103.6	18.7	13.9	4.8	1.4	141.2	25.5	18.8	6.7	2.0	242.7	53.1	30.0	23.1	6.9
10	76.8	13.9	13.9	0.0	0.0	104.2	18.8	18.8	0.0	0.0	178.6	39.1	30.0	9.1	5.4
15	61.8	11.1	13.9	-2.7	-2.4	83.6	15.1	18.8	-3.7	-3.4	142.9	31.3	30.0	1.3	1.1
20	52.0	9.4	13.9	-4.5	-5.4	70.3	12.7	18.8	-6.1	-7.3	120.0	26.2	30.0	-3.8	-4.5
25	45.2	8.2	13.9	-5.7	-8.6	60.9	11.0	18.8	-7.8	-11.7	103.8	22.7	30.0	-7.3	-10.9
30	40.0	7.2	13.9	-6.6	-11.9	53.9	9.7	18.8	-9.1	-16.3	91.9	20.1	30.0	-9.9	-17.8
35	36.1	6.5	13.9	-7.4	-15.4	48.5	8.8	18.8	-10.0	-21.1	82.6	18.1	30.0	-11.9	-25.1
40	32.9	5.9	13.9	-7.9	-19.0	44.2	8.0	18.8	-10.8	-26.0	75.1	16.4	30.0	-13.6	-32.5
45	30.2	5.5	13.9	-8.4	-22.7	40.6	7.3	18.8	-11.5	-31.0	69.1	15.1	30.0	-14.9	-40.2
50	28.0	5.1	13.9	-8.8	-26.4	37.7	6.8	18.8	-12.0	-36.0	64.0	14.0	30.0	-16.0	-48.0
55	26.2	4.7	13.9	-9.1	-30.2	35.1	6.3	18.8	-12.5	-41.1	59.6	13.0	30.0	-17.0	-56.0
60	24.6	4.4	13.9	-9.4	-33.9	32.9	5.9	18.8	-12.9	-46.3	55.9	12.2	30.0	-17.8	-64.0
65	23.2	4.2	13.9	-9.7	-37.8	31.0	5.6	18.8	-13.2	-51.5	52.6	11.5	30.0	-18.5	-72.1
70	21.9	4.0	13.9	-9.9	-41.6	29.4	5.3	18.8	-13.5	-56.7	49.8	10.9	30.0	-19.1	-80.3
75	20.8	3.8	13.9	-10.1	-45.5	27.9	5.0	18.8	-13.8	-62.0	47.3	10.3	30.0	-19.7	-88.5
80	19.8	3.6	13.9	-10.3	-49.4	26.6	4.8	18.8	-14.0	-67.2	45.0	9.8	30.0	-20.2	-96.8
85	18.9	3.4	13.9	-10.4	-53.2	25.4	4.6	18.8	-14.2	-72.5	43.0	9.4	30.0	-20.6	-105.1
90	18.1	3.3	13.9	-10.6	-57.2	24.3	4.4	18.8	-14.4	-77.9	41.1	9.0	30.0	-21.0	-113.4
95	17.4	3.1	13.9	-10.7	-61.1	23.3	4.2	18.8	-14.6	-83.2	39.4	8.6	30.0	-21.4	-121.8
100	16.7	3.0	13.9	-10.8	-65.0	22.4	4.0	18.8	-14.8	-88.6	37.9	8.3	30.0	-21./	-130.3
iviax =					1.4					2.0					6.9
Notes												City of Ot	tawa IDF D	ata (from §	SDG002)
1) Peak flow	is equal to the	e product of 2.7	8 x C x I x A								IDE autris aquat	Hone (Intens	ity in mm/h		
2) Rainfall In	tensity, I = A/(1	Гс+С) ^в									100 Internet	ions (intens) 	0.820
3) Release Ra	ate = Min (Rele	ase Rate, Peak	Flow)								50 year Intensity	7 = 1/35. = 1569.	580 / (Time i .580 / (Time ³	$n \min + 6.01$ in min + 6.01	4) ^{0.820}
4) Storage R	ate = Peak Flor	w - Release Rate	e								25 year Intensity	= 1402.	.884 / (Time i	n min + 6.01	.8) 0.819
5) Storage = 6) Maximium	Duration x Sto n Storage = Ma	w Storage Over	Duration								10 year Intensity	= 1174.	184 / (Time i	$n \min + 6.01$	(4) ^{0.816} 0.814
7) Parameter	rs a,b,c are for	City of Ottawa	Duration								2 year Intensity	= 998.0 = 732.9	51 / (Time in	min + 6.033 min + 6.199) 0.810
,															

Table D5 Storage volumes for 2-year, 5-year and 100-year Storms living
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Tin
Dra
Duration
(mins)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Max =
Notes
1) Peak flow 2) Rainfall In
3) Release R
4) Storage R
5) Storage =
6) Maximium
7) Paramete
1

Table D6 Storage Volumes for 2-year, 5-Year and 100-Year Storms (MRM)

	,	Storage	Volume	5101 - 1	cur, s		100	ui 5.5	115 (•••					
		42													
	Area No:	A3													
	C _{AVG} =	0.77	(2-yr)												
	C _{AVG} =	0.77	_(5-yr)												
	C _{AVG} =	0.96	(100-yr, N	lax 1.0)					Act	ual Release	e Rate (L/sec) =	35.00	_		
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa ı	equirement) =	100%	(Set to 50%	when U/G s	torage used)
Dra	inage Area =	0.0885	(hectares)			Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	35.00			
													•		
	F	Release Rate =	14.50	(L/sec)		Rele	ase Rate =	19.67	(L/sec)		Rele	ease Rate =	35.00	(L/sec)	
	Re	eturn Period =		(years)		Retur	rn Period =	5	(years)		Retur	rn Period =	100	(years)	
	IDF Pa	rameters, A =	733.0	, B =	0.810	IDF Paran	neters, A =	998.1	, B =	0.814	IDF Parar	neters, A =	1735.7	, B =	0.820
Duration		(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage (m ³)
	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ²)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m [°])	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	
0	167.2	31.6	14.5	17.1	0.0	230.5	43.5	19.7	23.8	0.0	398.6	94.1	35.0	59.1	0.0
5	103.6	19.6	14.5	5.1	1.5	141.2	26.7	19.7	7.0	2.1	242.7	57.3	35.0	22.3	6.7
10	76.8	14.5	14.5	0.0	0.0	104.2	19.7	19.7	0.0	0.0	178.6	42.1	35.0	7.1	4.3
15	61.8	11.7	14.5	-2.8	-2.6	83.6	15.8	19.7	-3.9	-3.5	142.9	33.7	35.0	-1.3	-1.2
20	52.0	9.8	14.5	-4.7	-5.6	70.3	13.3	19.7	-6.4	-7.7	120.0	28.3	35.0	-6.7	-8.0
25	45.2	8.5	14.5	-6.0	-9.0	60.9	11.5	19.7	-8.2	-12.3	103.8	24.5	35.0	-10.5	-15.7
30	40.0	7.6	14.5	-6.9	-12.5	53.9	10.2	19.7	-9.5	-17.1	91.9	21.7	35.0	-13.3	-24.0
35	36.1	6.8	14.5	-7.7	-16.2	48.5	9.2	19.7	-10.5	-22.1	82.6	19.5	35.0	-15.5	-32.6
40	32.9	6.2	14.5	-8.3	-19.9	44.2	8.3	19.7	-11.3	-27.2	75.1	17.7	35.0	-17.3	-41.4
45	30.2	5.7	14.5	-8.8	-23.7	40.6	7.7	19.7	-12.0	-32.4	69.1	16.3	35.0	-18.7	-50.5
50	28.0	5.3	14.5	-9.2	-27.6	37.7	7.1	19.7	-12.6	-37.7	64.0	15.1	35.0	-19.9	-59.7
55	26.2	4.9	14.5	-9.6	-31.5	35.1	6.6	19.7	-13.0	-43.0	59.6	14.1	35.0	-20.9	-69.1
60	24.6	4.6	14.5	-9.9	-35.5	32.9	6.2	19.7	-13.5	-48.4	55.9	13.2	35.0	-21.8	-78.5
65	23.2	4.4	14.5	-10.1	-39.5	31.0	5.9	19.7	-13.8	-53.9	52.6	12.4	35.0	-22.6	-88.0
/0	21.9	4.1	14.5	-10.4	-43.5	29.4	5.5	19.7	-14.1	-59.3	49.8	11./	35.0	-23.3	-97.7
/5	20.8	3.9	14.5	-10.6	-47.6	27.9	5.3	19.7	-14.4	-64.8	47.3	11.2	35.0	-23.8	-107.3
00 0E	19.8	3.7	14.5	-10.8	-51.0	20.0	5.0	19.7	-14.7	-70.5	45.0	10.0	25.0	-24.4	-117.0
90	18.5	3.0	14.5	-10.3	-59.8	23.4	4.0	19.7	-14.9	-75.5	43.0	9.7	35.0	-24.3	-120.8
95	17.4	33	14.5	-11.2	-63.9	23.3	4.0	19.7	-15.3	-87.0	39.4	93	35.0	-25.5	-146 5
100	16.7	3.2	14.5	-11.3	-68.0	22.4	4.2	19.7	-15.4	-92.6	37.9	8.9	35.0	-26.1	-156.3
Max =					1.5	<u> </u>				2.1					6.7
Notes 1) Peak flow 2) Rainfall In 3) Release Ri 4) Storage R 5) Storage = 6) Maximiun 7) Paramete	Max = 1.5 2.1 6.7 Iotes City of Ottawa IDF Data (from SDG002) Deak flow is equal to the product of 2.78 x C x I x A Binfall Intensity, I = A/(Tc+C) ⁶ Bainfall Intensity, I = A/(Tc+C) ⁶ IDF curve equations (Intensity in mm/hr) 100 year Intensity = 1735.688 / (Time in min + 6.014) 0.820 J Storage Rate = Peak Flow - Release Rate 50 year Intensity = 1569.580 / (Time in min + 6.014) 0.820 50 year Intensity = 1402.884 / (Time in min + 6.014) 0.820 J Storage = Duration x Storage Over Duration Storage over Duration 998.071 / (Time in min + 6.013) 0.814														
I											-				<u></u>

Table D7	Storage Volumes for 2-year, 5-Year and 100-Year Storms	(MRM)	١
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	<u> </u>	Storage		5101 - ,			100	ui 3.0	115 (1111	•••					
		A4													
	Area No:		-												
	C _{AVG} =	0.79	_(2-yr)												
	C _{AVG} =	0.79	_(5-yr) _												
	C _{AVG} =	0.98	_(100-yr, M	lax 1.0)					Act	ual Release	e Rate (L/sec) =	30.00	_		
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa r	requirement) =	100%	(Set to 50%	when U/G s	storage used)
Dra	inage Area =	0.0779	(hectares)	j		Rele	ase Rate U	sed for Esti	mation of ?	100-year St	orage (L/sec) =	30.00			
													↓		
	R	elease Rate =	13.07	(L/sec)		Rele	ase Rate =	17.73	(L/sec)		Rele	ase Rate =	30.00	(L/sec)	
	Re	eturn Period =		(years)		Retur	n Period =	5	(years)		Retu	rn Period =	100	(years)	
	IDF Pa	arameters, A =	733.0	, B =	0.810	IDF Parar	neters, A =	998.1	, B =	0.814	IDF Parar	neters, A =	1735.7	, B =	0.820
Duration		(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
	Intensity I	Peak Flow	Rate	Rate	Storage	Intensity I	Flow	Rate	Rate	Storage	Intensity I	Flow	Rate	Rate	Storage (m ³)
	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	Storage (III)
	167.2	20.5	12.1	15.4	0.0	220 5	20.2	177	21.5	0.0	200.0	04.0	20.0	54.0	
	107.2	28.5	13.1	15.4	0.0	230.5	39.2	17.7	21.5	0.0	398.0	84.8 51.6	30.0	21.6	0.0
5	103.6	17.6	13.1	4.0	1.4	141.2	24.0	17.7	0.3	1.9	242.7	51.0	30.0	21.0	0.5
10	/0.8	13.1	13.1		0.0	104.2	1/./	17.7	0.0	0.0	1/8.6	38.0	30.0	8.0	4.8
15	52.0	10.5	13.1	-2.0	-2.3	83.0	14.2	17.7	-3.5	-3.2	142.9	30.4	30.0	0.4	0.4
20	52.0	8.9	13.1	-4.2	-5.1	70.3	12.0	17.7	-5.8	-6.9	120.0	25.5	30.0	-4.5	-5.4
25	45.2	1.7	13.1	-5.4	-8.1	52.0	10.4	17.7	-7.4	-11.1	103.8	22.1	30.0	-7.9	-11.9
30	40.0	6.8	13.1	-6.3	-11.3	53.9	9.2	17.7	-8.6	-15.4	91.9	19.5	30.0	-10.5	-18.8
35	30.1	6.1	13.1	-6.9	-14.0	48.5	8.3	17.7	-9.5	-19.9	82.0	17.0	30.0	-12.4	-26.1
40	32.9	5.0	13.1	-7.5	-17.9	44.2	7.5	17.7	-10.2	-24.5	75.1	16.0	30.0	-14.0	-33.0
45	30.2	5.1	12.1	-7.9	-21.4	40.0	6.9	17.7	-10.8	-29.2	64.0	14.7	30.0	-15.5	-41.5
50	26.0	4.0	12.1	-0.5	-24.9	25.1	6.0	17.7	-11.5	-54.0	54.0	13.0	30.0	-10.4	-49.2
55	20.2	4.5	12.1	-0.0	-20.4	22.0	0.0 F.C	17.7	-11.0	-30.0	59.0	11.0	30.0	-17.5	-57.1
65	24.0	4.2	12.1	-0.9	-52.0	21.0	5.0	17.7	-12.1	-43.7	53.9	11.9	20.0	10.1	-03.2
70	23.2	3.9	12.1	-9.1	-55.0	20.4	5.5	17.7	-12.5	-40.0 E2 E	32.0	10.6	20.0	10.0	-75.5
70	21.9	3.7 2 E	12.1	-9.5	-39.2	29.4	3.0	17.7	-12.7	-33.5	45.8	10.0	20.0	10.0	-61.5
00	20.0	3.3	12.1	-9.5	-42.9	27.5	4.7	17.7	-13.0	-36.4	47.5	0.1	20.0	-19.9	-05.0
85	19.0	3.4	12.1	-9.7	-40.5	20.0	4.5	17.7	-13.2	-03.4	43.0	9.0	30.0	-20.4	-38.1
90	18.5	3.1	13.1	-10.0	-53.9	23.4	4.5	17.7	-13.4	-00.4	43.0	87	30.0	-20.3	-100.4
05	17.4	3.1	12.1	-10.0	-57.6	24.5	4.1	17.7	-12.0	-78.5	20 /	8.1	30.0	-21.5	-122.2
100	16.7	2.9	13.1	-10.2	-61.3	23.5	3.8	17.7	-13.9	-83.5	37.9	8.1	30.0	-21.0	-131.6
Max =					1.4					1.9					6.5
Notes												City of Ot	tawa IDF D	ata (from S	5DG002)
1) Peak flow	is equal to the	e product of 2.7	8 x C x I x A								IDF curve equat	ions (Intens	ity in mm/hr	r)	
2) Rainfall In	tensity, I = A/(1	TC+C) ⁻	Elever)								100 year Intensity	v = 1735.	688 / (Time i	in min + 6.01	4) 0.820
A) Storage R	ate – Iviiii (Reie	2050 Rolesco Rat	- FIUW)								50 year Intensity	= 1569.	.580 / (Time i	in min + 6.01	4) 0.820
5) Storage =	Duration x Sto	orage Rate	-								25 year Intensity	= 1402.	.884 / (Time i	$\sin \min + 6.01$.8) ^{0.819}
6) Maximiun	n Storage = Ma	ax Storage Over	Duration								5 year Intensity	= 11/4. = 998.0	.184 / (11me i)71 / (Time ir	$1n \min + 6.01$ $1 \min + 6.05$?	$(4)^{0.814}$
7) Paramete	rs a,b,c are for	City of Ottawa									2 year Intensity	= 732.9	51 / (Time in	1 min + 6.199	ý ^{0.810}
1												-			

Table D8 Storage Volumes for 2-year, 5-Year and 100-Year Storms (MRM)

	<u> </u>	5101450		5101 - ,	cur, s		100 .0	<u>ui 3.0</u>	115 (
	Area No:	A5-1	-												
	C _{AVG} =	0.81	(2-yr)												
	C _{AVG} =	0.81	(5-yr)												
	C _{AVG} =	1.00	(100-yr, M	lax 1.0)					Act	ual Release	e Rate (L/sec) =	50.00			
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa r	equirement) =	100%	(Set to 50%	when U/G s	storage used)
Dra	inage Area =	0.1519	(hectares))		Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	50.00			
			•										-		
													↓ · ·		
	R	telease Rate =	26.27	(L/sec)		Rele	ase Rate =	35.64	(L/sec)		Rele	ase Rate =	50.00	(L/sec)	
	Re	eturn Period =		(years)		Retur	n Period =	5	(years)	I	Retur	n Period =	100	(years)	
	IDF Pa	arameters, A =	733.0	, B =	0.810	IDF Paran	neters, A =	998.1	, B =	0.814	IDF Paran	neters, A =	1735.7	, B =	0.820
Duration	1	(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage (m ³)
	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m°)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	500.0g2 (,
0	167.2	57.2	26.3	30.9	0.0	230.5	78.8	35.6	43.2	0.0	398.6	168.4	50.0	118.4	0.0
5	103.6	35.4	26.3	9.2	2.7	141.2	48.3	35.6	12.7	3.8	242.7	102.5	50.0	52.5	15.8
10	76.8	26.3	26.3	0.0	0.0	104.2	35.6	35.6	0.0	0.0	178.6	75.4	50.0	25.4	15.3
15	61.8	21.1	26.3	-5.1	-4.6	83.6	28.6	35.6	-7.1	-6.4	142.9	60.4	50.0	10.4	9.3
20	52.0	17.8	26.3	-8.5	-10.2	70.3	24.0	35.6	-11.6	-13.9	120.0	50.7	50.0	0.7	0.8
25	45.2	15.5	26.3	-10.8	-16.2	60.9	20.8	35.6	-14.8	-22.2	103.8	43.9	50.0	-6.1	-9.2
30	40.0	13.7	26.3	-12.6	-22.6	53.9	18.4	35.6	-17.2	-31.0	91.9	38.8	50.0	-11.2	-20.1
35	36.1	12.3	26.3	-13.9	-29.3	48.5	16.6	35.6	-19.0	-40.0	82.6	34.9	50.0	-15.1	-31.7
40	32.9	11.2	26.3	-15.0	-36.1	44.2	15.1	35.6	-20.5	-49.3	75.1	31.7	50.0	-18.3	-43.8
45	30.2	10.3	26.3	-15.9	-43.0	40.6	13.9	35.6	-21.7	-58.7	69.1	29.2	50.0	-20.8	-56.2
50	28.0	9.6	26.3	-16.7	-50.0	37.7	12.9	35.6	-22.8	-68.3	64.0	27.0	50.0	-23.0	-69.0
55	26.2	9.0	26.3	-17.3	-57.2	35.1	12.0	35.6	-23.6	-78.0	59.6	25.2	50.0	-24.8	-81.9
60	24.6	8.4	26.3	-17.9	-64.3	32.9	11.3	35.6	-24.4	-87.7	55.9	23.6	50.0	-26.4	-95.0
65	23.2	7.9	26.3	-18.4	-71.6	31.0	10.6	35.6	-25.0	-97.6	52.6	22.2	50.0	-27.8	-108.3
70	21.9	7.5	26.3	-18.8	-78.9	29.4	10.0	35.6	-25.6	-107.5	49.8	21.0	50.0	-29.0	-121.7
75	20.8	7.1	26.3	-19.2	-86.2	27.9	9.5	35.6	-26.1	-117.5	47.3	20.0	50.0	-30.0	-135.2
80	19.8	6.8	26.3	-19.5	-93.6	26.6	9.1	35.6	-26.6	-127.5	45.0	19.0	50.0	-31.0	-148.8
85	18.9	6.5	26.3	-19.8	-100.9	25.4	8.7	35.6	-27.0	-137.5	43.0	18.1	50.0	-31.9	-162.5
90	18.1	6.2	26.3	-20.1	-108.4	24.3	8.3	35.6	-27.3	-147.6	41.1	17.4	50.0	-32.6	-176.2
95	17.4	6.0	26.3	-20.3	-115.8	23.3	8.0	35.6	-27.7	-157.7	39.4	16.7	50.0	-33.3	-190.1
100	16.7	5.7	26.3	-20.5	-123.3	22.4	7.7	35.6	-28.0	-167.9	37.9	16.0	50.0	-34.0	-203.9
Max =					2.7					3.8					15.8
Notes												City of Ot	tawa IDF D	ata (from S	SDG002)
1) Peak flow	is equal to the	e product of 2.7	8 x C x I x A								IDE auro aquat	ions (Intons	ity in mm/h		
2) Rainfall In	tensity, I = A/(1	Гс+С) ^в									100 year Interneits	-1725	699 / (Time i) n min + 6.01	4) 0.820
3) Release Ra	ate = Min (Rele	ease Rate, Peak	Flow)								50 year Intensity	= 1735. = 1569.	580 / (Time i	$n \min + 6.01$ $n \min + 6.01$	$(4)^{0.820}$
4) Storage R	ate = Peak Flor	w - Release Rate	2								25 year Intensity	= 1402.	884 / (Time i	n min + 6.01	.8) 0.819
6) Maximiun	n Storage = Ma	ax Storage Over	Duration								10 year Intensity	= 1174. = 998.0	184 / (Time i 71 / (Time in	$n \min + 6.01$ $\min + 6.053$	4) 0.816 (0.814
7) Paramete	rs a,b,c are for	City of Ottawa									2 year Intensity	= 732.9	51 / (Time in	$\min + 6.199$	y 0.810
										L	,				

Table D9 Storage Volumes for 2-year, 5-Year and 100-Year Storms (MRM)

										,					
	Area No:	A5-2	-												
	C _{AVG} =	0.88	(2-yr)												
	C _{AVG} =	0.88	(5-yr)												
	C _{AVG} =	1.00	(100-yr, N	lax 1.0)					Act	ual Release	e Rate (L/sec) =	30.00			
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa ı	equirement) =	100%	(Set to 50%	when U/G s	torage used)
Drai	inage Area =	0.0764	(hectares)			Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	30.00			
			-										-		
													↓ · ·		
	R	Release Rate =	14.32	(L/sec)		Rele	ase Rate =	19.42	(L/sec)		Rele	ase Rate =	30.00	(L/sec)	
	Re	eturn Period =		(years)		Retur	n Period =	5	(years)		Retur	n Period =	100	(years)	
	IDF Pa	arameters, A =	733.0	, B =	0.810	IDF Paran	neters, A =	998.1	, B =	0.814	IDF Paran	neters, A =	1735.7	, B =	0.820
Duration		(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Rainfall		Release	Storage		Rainfall	Peak	Release	Storage		Rainfall	Peak	Release	Storage	
	Intensity, I	Peak Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage	Intensity, I	Flow	Rate	Rate	Storage (m ³)
	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	(m ³)	(mm/hr)	(L/sec)	(L/sec)	(L/sec)	0 ()
0	167.2	31.2	14.3	16.9	0.0	230.5	43.0	19.4	23.5	0.0	398.6	84.6	30.0	54.6	0.0
5	103.6	19.3	14.3	5.0	1.5	141.2	26.3	19.4	6.9	2.1	242.7	51.5	30.0	21.5	6.5
10	76.8	14.3	14.3	0.0	0.0	104.2	19.4	19.4	0.0	0.0	178.6	37.9	30.0	7.9	4.7
15	61.8	11.5	14.3	-2.8	-2.5	83.6	15.6	19.4	-3.8	-3.5	142.9	30.3	30.0	0.3	0.3
20	52.0	9.7	14.3	-4.6	-5.5	70.3	13.1	19.4	-6.3	-7.6	120.0	25.5	30.0	-4.5	-5.4
25	45.2	8.4	14.3	-5.9	-8.8	60.9	11.4	19.4	-8.1	-12.1	103.8	22.1	30.0	-7.9	-11.9
30	40.0	7.5	14.3	-6.9	-12.3	2.3 53.9 10.1 19.4 -9.4 -16.9 91.9 19.5							30.0	-10.5	-18.9
35	36.1	6.7	14.3	-7.6	-16.0	-16.0 48.5 9.0 19.4 -10.4 -21.8 82.6 17.5 30.0 -12.5								-12.5	-26.2
40	32.9	6.1	14.3	-8.2	-19.7	44.2	8.2	19.4	-11.2	-26.9	75.1	16.0	30.0	-14.0	-33.7
45	30.2	5.6	14.3	-8.7	-23.4	40.6	7.6	19.4	-11.9	-32.0	69.1	14.7	30.0	-15.3	-41.4
50	28.0	5.2	14.3	-9.1	-27.3	37.7	7.0	19.4	-12.4	-37.2	64.0	13.6	30.0	-16.4	-49.3
55	26.2	4.9	14.3	-9.4	-31.2	35.1	6.5	19.4	-12.9	-42.5	59.6	12.7	30.0	-17.3	-57.2
60	24.6	4.6	14.3	-9.7	-35.1	32.9	6.1	19.4	-13.3	-47.8	55.9	11.9	30.0	-18.1	-65.3
70	23.2	4.3	14.3	-10.0	-39.0	31.0	5.8	19.4	-13.0	-53.2	52.0	11.2	30.0	-18.8	-73.4
70	21.9	4.1	14.5	-10.2	-43.0	29.4	5.5	19.4	-15.9	-56.0	49.0	10.0	30.0	-19.4	-81.0
75 90	20.8	3.9	14.5	-10.4	-47.0	27.9	5.2	19.4	-14.2	-04.0	47.5	10.0	20.0	-20.0	-69.6
85	19.0	3.7	14.3	-10.0	-51.0	20.0	17	19.4	-14.5	-03.5	43.0	9.0	30.0	-20.4	-30.1
90	18.1	3.4	14.3	-10.9	-59.1	23.4	4.5	19.4	-14.9	-80.4	41.1	8.7	30.0	-21.3	-114.9
95	17.4	3.2	14.3	-11.1	-63.1	23.3	4.3	19.4	-15.1	-86.0	39.4	8.4	30.0	-21.6	-123.3
100	16.7	3.1	14.3	-11.2	-67.2	22.4	4.2	19.4	-15.2	-91.5	37.9	8.0	30.0	-22.0	-131.7
Max =					1.5					2.1					6.5
Notes			0									City of Ot	tawa IDF D	ata (from S	5DG002)
2) Rainfall In	tensity. I = A/(Tc+C) ^B	OXCXIXA								IDF curve equat	ions (Intens	ity in mm/h	r)	
3) Release Ra	ate = Min (Rele	ease Rate, Peak	Flow)								100 year Intensity	= 1735.	688 / (Time	in min + 6.01	4) $^{0.820}_{0.820}$
4) Storage R	ate = Peak Flo	w - Release Rate	e								50 year Intensity 25 year Intensity	= 1569. = 1402	580 / (Time : 884 / (Time :	mmin + 6.01	4) ^{0.819}
5) Storage =	Duration x Sto	orage Rate	.								10 year Intensity	= 1174.	184 / (Time	in min $+$ 6.01	4) 0.816
 b) Maximium 7) Parametor 	1 storage = Ma rs a hic are for	City of Ottawa	Duration								5 year Intensity	= 998.0 = 732.0	71 / (Time ir 51 / (Time ir	min + 6.053 min + 6.100	0.814
, , i arameter	5 a,b,c are 101	City of OttaWd									2 Joan michsity	- 152.9			,

Table D10	Storage Volumes for 2-v	vear. 5-Year and	100-Year Storms	(MRM)

										,					
	Area No:	A6-1	-												
	C _{AVG} =	0.90	(2-yr)												
	C _{AVG} =	0.90	(5-yr)												
	C _{AVG} =	1.00	(100-yr, M	lax 1.0)					Act	ual Release	e Rate (L/sec) =	70.00			
Tin	ne Interval =	5.00	- (mins)				Percentag	e of Actual	Rate (City	of Ottawa ı	requirement) =	100%	(Set to 50%	when U/G	torage used)
Dra	inage Area =	0.1600	- (hectares)			Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	70.00			
	-		-								- · ·		-		
													↓ ·		
	R	elease Rate =	30.74	(L/sec)		Rele	ase Rate =	41.71	(L/sec)		Rele	ase Rate =	70.00	(L/sec)	
	Re	eturn Period =	2	(vears)		Retur	n Period =	5	(vears)		Retur	n Period =	100	(vears)	
	IDF Pa	rameters. A =	733.0	.B=	0.810	IDF Paran	neters. A =	998.1	.B=	0.814	IDF Parar	neters. A =	1735.7	.B=	0.820
Duration	-	(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Del dell		Duluu.			D. 1. C. II	Deed.	Duluur			Det de ll	Deed.	Duluur		
	Rainfall	Peak Flow	Release	Storage	Storage	Rainfall	Реак	Release	Storage	Storage	Rainfall	Реак	Release	Storage	Charren (m ³)
	(mm/hr)	(L/sec)			(m ³)	(mm/hr)				(m ³)	(mm/hr)				Storage (m)
	((((((((((((((((((((((((((((((((((((((((L/ 300)	(L/ 300)		(1111)	(L/ 300)	(L/ SEC)	(L/ 300)		(1111)	(L/ 300)	(L/ SEC)	(L/ 300)	
0	167.2	66.9	30.7	36.2	0.0	230.5	92.3	41.7	50.6	0.0	398.6	177.3	70.0	107.3	0.0
5	103.6	41.5	30.7	10.7	3.2	141.2	56.5	41.7	14.8	4.4	242.7	107.9	70.0	37.9	11.4
10	/6.8	30.7	30.7	0.0	0.0	104.2	41./	41.7	0.0	0.0	1/8.6	79.4	70.0	9.4	5.6
15	61.8	24.7	30.7	-6.0	-5.4	83.6	33.4	41.7	-8.3	-7.4	142.9	63.6	70.0	-6.4	-5.8
20	52.0	20.8	30.7	-9.9	-11.9	70.3	28.1	41.7	-13.0	-16.3	120.0	53.3	70.0	-16.7	-20.0
25	45.2	16.1	30.7	-12.7	-19.0	52.0	24.4	41.7	-17.5	-20.0	105.8	40.2	70.0	-23.0	-35.7
30	40.0	16.0	30.7	-14.7	-26.5 53.9 21.6 41.7 -20.1 -36.2 91.9 40.9 70.0 -29.1								-29.1	-52.5	
40	22.0	14.4	20.7	-10.5	-54.2	46.5	19.4	41.7	-22.5	-40.8	02.0 75.1	30.7 22.4	70.0	-55.5	-09.9
40	30.2	13.2	30.7	-17.0	-42.2	44.2	16.3	41.7	-24.0	-57.0	69.1	20.7	70.0	-30.0	-07.0
50	28.0	11.2	30.7	-19.5	-58.6	37.7	15.1	41.7	-26.6	-79.9	64.0	28.4	70.0	-41.6	-124 7
55	26.2	10.5	30.7	-20.3	-66.9	35.1	14.1	41.7	-27.6	-91.2	59.6	26.5	70.0	-43.5	-143 5
60	24.6	9.8	30.7	-20.9	-75.3	32.9	13.2	41.7	-28.5	-102.7	55.9	20.5	70.0	-45.1	-162.5
65	23.2	9.3	30.7	-21.5	-83.8	31.0	12.4	41.7	-29.3	-114.2	52.6	23.4	70.0	-46.6	-181.7
70	21.9	8.8	30.7	-22.0	-92.3	29.4	11.8	41.7	-29.9	-125.8	49.8	22.1	70.0	-47.9	-201.0
75	20.8	8.3	30.7	-22.4	-100.9	27.9	11.2	41.7	-30.5	-137.4	47.3	21.0	70.0	-49.0	-220.4
80	19.8	7.9	30.7	-22.8	-109.5	26.6	10.6	41.7	-31.1	-149.2	45.0	20.0	70.0	-50.0	-240.0
85	18.9	7.6	30.7	-23.2	-118.1	25.4	10.2	41.7	-31.6	-160.9	43.0	19.1	70.0	-50.9	-259.6
90	18.1	7.3	30.7	-23.5	-126.8	24.3	9.7	41.7	-32.0	-172.7	41.1	18.3	70.0	-51.7	-279.3
95	17.4	7.0	30.7	-23.8	-135.5	23.3	9.3	41.7	-32.4	-184.5	39.4	17.5	70.0	-52.5	-299.0
100	16.7	6.7	30.7	-24.0	-144.2	22.4	9.0	41.7	-32.7	-196.4	37.9	16.9	70.0	-53.1	-318.9
Max =					3.2	-		-	-	4.4	_		-	_	11.4
Nata												City of City		ata /6 (EDC003)
1) Peak flow	is equal to the	e product of 2.7	8 x C x I x A							_		City of Ut	tawa IDF D	ata (from s	,DG002)
2) Rainfall In	tensity, I = A/(Tc+C) ^B									IDF curve equat	ions (Intens	ity in mm/h	.)	
3) Release Ra	ate = Min (Rele	ease Rate, Peak	Flow)								100 year Intensity	= 1735.	688 / (Time	mmin + 6.01	4) $^{0.820}_{0.820}$
4) Storage R	ate = Peak Flo	w - Release Rate	e								25 year Intensity	= 1569. = 1402.	884 / (Time	m min + 6.01 in min + 6.01	*) (8) 0.819
5) Storage =	Duration x Sto	orage Rate	Duration								10 year Intensity	= 1174.	184 / (Time	in min + 6.01	$(4)^{0.816}_{0.814}$
7) Paramete	rs a.b.c are for	City of Ottawa	DuratiON								5 year Intensity 2 year Intensity	= 998.0 = 732.9	0/1 / (Time ir 051 / (Time ir	min + 6.053 min + 6.199	0.810
,	,-,	,									_ ,	,			×-

Table D11	Storage Volumes for 2-	vear. 5-Year and	100-Year Storms	(MRM)
			100 100 000 000	

										,					
	Area No:	A6-2	-												
	C _{AVG} =	0.90	(2-yr)												
	C _{AVG} =	0.90	(5-yr)												
	C _{AVG} =	1.00	- (100-yr <i>,</i> M	lax 1.0)					Act	ual Release	e Rate (L/sec) =	15.00			
Tin	ne Interval =	5.00	- (mins)				Percentag	e of Actual	Rate (City	of Ottawa ı	requirement) =	100%	 (Set to 50%	when U/G s	torage used)
Drai	inage Area =	0.0521	(hectares)			Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	15.00			
	•												-		
													L		
	R	elease Rate =	10.02	(L/sec)		Rele	ase Rate =	13.59	(L/sec)		Rele	ase Rate =	15.00	(L/sec)	
	Re	eturn Period =	2	(vears)		Retur	n Period =	5	(vears)		Retur	n Period =	100	(vears)	
	IDF Pa	rameters. A =	733.0	. B =	0.810	IDF Paran	neters. A =	998.1	. B =	0.814	IDF Parar	neters. A =	1735.7	. B =	0.820
Duration		(I = A/(T _c +C)	. C =	6.199	(1	= A/(T_+C)		. , = . C =	6.053	(1	= A/(T_+C)		. C =	6.014
(mins)		. ,		, <u>-</u>		<u>,</u>			, -					, <u>-</u>	
	Rainfall	Peak Flow	Release	Storage	Storage	Rainfall	Peak	Release	Storage	Storage	Rainfall	Peak	Release	Storage	C1
	(mm/hr)	(L/sec)	(L/coc)	(L/coc)	(m ³)	(mm/hr)		(L/coc)		(m ³)	(mm/hr)				Storage (m)
	((((((((((((((((((((((((((((((((((((((((L/SEC)	(L/SEC)		(11111/111)	(L/SEC)	(L/SEC)	(L/SEC)		(1111)	(L/SEC)	(L/SEC)	(L/SEC)	
0	167.2	21.8	10.0	11.8	0.0	230.5	30.1	13.6	16.5	0.0	398.6	57.8	15.0	42.8	0.0
5	103.6	13.5	10.0	3.5	1.0	141.2	18.4	13.6	4.8	1.4	242.7	35.2	15.0	20.2	6.1
10	76.8	10.0	10.0	0.0	0.0	104.2	13.6	13.6	0.0	0.0	178.6	25.9	15.0	10.9	6.5
15	61.8	8.1	10.0	-2.0	-1.8	83.6	10.9	13.6	-2.7	-2.4	142.9	20.7	15.0	5.7	5.1
20	52.0	6.8	10.0	-3.2	-3.9	70.3	9.2	13.6	-4.4	-5.3	120.0	17.4	15.0	2.4	2.9
25	45.2	5.9	10.0	-4.1	-6.2	60.9	7.9	13.6	-5.6	-8.5	103.8	15.1	15.0	0.1	0.1
30	40.0	5.2	10.0	-4.8	-8.6 53.9 7.0 13.6 -6.6 -11.8 91.9 13.3 15.0 -1.7 11.2 485 6.2 12.6 7.2 15.2 82.6 12.0 15.0 -0.0								-3.0		
35	30.1	4.7	10.0	-5.3	-11.2	48.5	0.3 F 0	13.0	-7.3	-15.3	82.0	12.0	15.0	-3.0	-6.4
40	32.9	4.5	10.0	-5.7	-15.0	44.2	5.0	13.0	-7.8	-10.0	75.1	10.9	15.0	-4.1	-9.9
43 50	28.0	3.9	10.0	-6.1	-10.4	40.0 27.7	1.0	13.0	-0.5	-22.4	64.0	10.0	15.0	-5.0	-17.2
55	26.0	3.7	10.0	-6.6	-13.1	37.7	4.5	13.0	-0.7	-20.0	59.6	9.5	15.0	-5.7	-17.2
60	20.2	3.4	10.0	-6.8	-21.0	32.9	4.0	13.0	-9.0	-23.7	55.9	8.0	15.0	-6.9	-21.0
65	24.0	3.0	10.0	-7.0	-27.3	31.0	4.0	13.6	-9.5	-37.2	52.6	7.6	15.0	-7.4	-28.7
70	21.9	2.9	10.0	-7.2	-30.1	29.4	3.8	13.6	-9.8	-41.0	49.8	7.2	15.0	-7.8	-32.7
75	20.8	2.7	10.0	-7.3	-32.9	27.9	3.6	13.6	-10.0	-44.8	47.3	6.8	15.0	-8.2	-36.7
80	19.8	2.6	10.0	-7.4	-35.7	26.6	3.5	13.6	-10.1	-48.6	45.0	6.5	15.0	-8.5	-40.7
85	18.9	2.5	10.0	-7.5	-38.5	25.4	3.3	13.6	-10.3	-52.4	43.0	6.2	15.0	-8.8	-44.7
90	18.1	2.4	10.0	-7.7	-41.3	24.3	3.2	13.6	-10.4	-56.3	41.1	6.0	15.0	-9.0	-48.8
95	17.4	2.3	10.0	-7.7	-44.2	23.3	3.0	13.6	-10.6	-60.1	39.4	5.7	15.0	-9.3	-52.9
100	16.7	2.2	10.0	-7.8	-47.0	22.4	2.9	13.6	-10.7	-64.0	37.9	5.5	15.0	-9.5	-57.0
Max =					1.0					1.4					6.5
Notes			0									City of Ot	tawa IDF D	ata (from S	;DG002)
2) Rainfall In	tensity I = A/(Tc+C) ^B	8XCXIXA								IDF curve equat	ions (Intens	ity in mm/h	•)	
3) Release Ra	ate = Min (Rele	ease Rate, Peak	Flow)								100 year Intensity	= 1735.	688 / (Time	in min + 6.01	4) 0.820
4) Storage R	ate = Peak Flo	w - Release Rate	e								50 year Intensity	= 1569. = 1402	580 / (Time :	$m \min + 6.01$	4) 0.819 8) 0.819
5) Storage =	Duration x Sto	orage Rate									10 year Intensity	= 1174.	184 / (Time	$\sin \min + 6.01$	4) 0.816
6) Maximium	n Storage = Ma	IX Storage Over	Duration								5 year Intensity	= 998.0	71 / (Time in	min + 6.053	$)^{0.814}_{0.810}$
/ / Parameter	is a,b,c die 10f	City Of OttaWa									2 year intensity	- 152.9	(Time I	nini + 0.199)

$1able D12$ $3(0)ase volumes (0) 2-veal 3^{-1}eal and 100^{-1}eal 3(0)$	Table D12	Storage Volumes for 2-	vear. 5-Year and	100-Year Storms	(MRM)
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										,					
	Area No:	A7-1A7A8	-												
	C _{AVG} =	0.63	(2-yr)												
	C _{AVG} =	0.63	(5-yr)												
	C _{AVG} =	0.79	(100-yr, N	lax 1.0)					Act	ual Release	e Rate (L/sec) =	43.00			
Tin	ne Interval =	5.00	(mins)				Percentag	e of Actual	Rate (City	of Ottawa r	equirement) =	100%	(Set to 50%	when U/G s	torage used)
Drai	inage Area =	0.2048	- (hectares)			Rele	ase Rate U	sed for Esti	mation of :	100-year St	orage (L/sec) =	43.00			
			-										-		
													•		
	R	elease Rate =	27.70	(L/sec)		Rele	ase Rate =	37.58	(L/sec)		Rele	ase Rate =	43.00	(L/sec)	
	Re	eturn Period =	2	(years)		Retur	n Period =	5	(years)		Retur	n Period =	100	(years)	
	IDF Pa	rameters, A =	733.0	, B =	0.810	IDF Paran	neters, A =	998.1	, B =	0.814	IDF Paran	neters, A =	1735.7	, B =	0.820
Duration		(I = A/(T _c +C)	, C =	6.199	(1	$= A/(T_c+C)$, C =	6.053	(1	$= A/(T_c+C)$, C =	6.014
(mins)	Del dell					Defe fell	D	Bulance			Det dell	D	Bulance		
	Rainfall	Peak Flow	Release	Storage	Storage	Rainfail	Реак	Release	Storage	Storage		Реак	Release	Storage	Charrence (mr. ³)
	(mm/hr)	(L/sec)			(m ³)	(mm/hr)				(m ³)	(mm/hr)				Storage (III)
	(1111)		(L/ SEC)	(L/ SEC)		((((((((((((((((((((((((((((((((((((((((L/ SEC)	(L/ SEC)	(L/ SEC)		((((((((((((((((((((((((((((((((((((((((L/ 300)	(L/ 300)	(L/ 300)	
0	167.2	60.3	27.7	32.6	0.0	230.5	83.1	37.6	45.5	0.0	398.6	179.7	43.0	136.7	0.0
5	103.6	37.4	27.7	9.7	2.9	141.2	50.9	37.6	13.3	4.0	242.7	109.4	43.0	66.4	19.9
10	/6.8	27.7	27.7	0.0	0.0	104.2	37.6	37.6	0.0	0.0	1/8.6	80.5	43.0	37.5	22.5
15	61.8	22.3	27.7	-5.4	-4.9	83.0	30.1	37.6	-7.4	-6.7	142.9	64.4	43.0	21.4	19.3
20	52.0	18.8	27.7	-8.9	-10.7	70.3	25.3	37.6	-12.2	-14.7	120.0	54.1	43.0	11.1	13.3
25	45.2	16.3	27.7	-11.4	-17.1	52.0	22.0	37.0	-15.0	-23.4	103.8	40.8	43.0	3.8	5.7
30	40.0	14.4	27.7	-13.3	-23.9	53.9 19.4 37.6 -18.1 -32.6 91						41.4	43.0	-1.6	-2.9
35	22.0	11.0	27.7	-14.7	-30.9	46.5	17.5	37.0	-20.1	-42.2	02.0 75.1	37.2	43.0	-5.6	-12.1
40	32.9 20.2	10.0	27.7	-15.6	-56.0	44.2	15.9	37.0	-21.0	-51.9	75.1	21.1	43.0	-9.1	-21.9
4J 50	28.0	10.3	27.7	-17.6	-43.3	40.0	13.6	37.0	-22.5	-01.9	64.0	28.8	43.0	-11.5	-32.1
55	26.0	10.1	27.7	-19.3	-52.0	25.1	12.0	37.0	-24.0	-72.0	59.6	26.0	43.0	-14.2	-42.5
60	20.2	8.9	27.7	-18.8	-00.3	32.0	11.0	37.0	-24.5	-02.2	55.9	20.3	43.0	-17.8	-55.2
65	23.0	83	27.7	-19.3	-75.5	31.0	11.5	37.6	-26.4	-102.9	52.6	23.2	43.0	-19.3	-75.1
70	21.9	7.9	27.7	-19.8	-83.1	29.4	10.6	37.6	-27.0	-113.3	49.8	22.4	43.0	-20.6	-86.3
75	20.8	7.5	27.7	-20.2	-90.9	27.9	10.1	37.6	-27.5	-123.8	47.3	21.3	43.0	-21.7	-97.6
80	19.8	7.2	27.7	-20.5	-98.6	26.6	9.6	37.6	-28.0	-134.4	45.0	20.3	43.0	-22.7	-109.0
85	18.9	6.8	27.7	-20.9	-106.4	25.4	9.1	37.6	-28.4	-145.0	43.0	19.4	43.0	-23.6	-120.5
90	18.1	6.5	27.7	-21.2	-114.2	24.3	8.8	37.6	-28.8	-155.6	41.1	18.5	43.0	-24.5	-132.1
95	17.4	6.3	27.7	-21.4	-122.1	23.3	8.4	37.6	-29.2	-166.3	39.4	17.8	43.0	-25.2	-143.8
100	16.7	6.0	27.7	-21.7	-130.0	22.4	8.1	37.6	-29.5	-177.0	37.9	17.1	43.0	-25.9	-155.5
Max =					2.9					4.0					22.5
Notes												City of Ot	tawa IDF D	ata (from S	DG002)
1) Peak flow	is equal to the	e product of 2.7	8 x C X I X A								IDF curve equat	ions (Intens	ity in mm/hı	.)	
2) Release Ra	ate = Min (Rele	ase Rate Peak	Flow)								100 year Intensity	= 1735.	688 / (Time i	in min + 6.01	4) 0.820
4) Storage R	ate = Peak Flo	w - Release Rate	е,								50 year Intensity	= 1569.	580 / (Time i	$m \min + 6.01$	4) ^{0.820} 0) 0.819
5) Storage =	Duration x Sto	orage Rate									10 year Intensity	= 1402. = 1174.	184 / (Time i 184 / (Time i	m min + 6.01 m min + 6.01	4) ^{0.816}
6) Maximium	n Storage = Ma	x Storage Over	Duration								5 year Intensity	= 998.0	71 / (Time in	min + 6.053) 0.814
7) Parameter	rs a,b,c are for	City of Ottawa									2 year Intensity	= 732.9	51 / (Time in	min + 6.199) ****
1															

Table D13	Storage Volumes for 2-	vear. 5-Year and	100-Year Storms	(MRM)

Table D14 5-YEAR STORM SEWER CALCULATION SHEET

Return Period Storm =	5	(5-years, 100-years)
Default Inlet Time=	10	(minutes)
Manning Coefficient =	0.013	(dimensionless)

	LOCATION			AREA (he	ctares)			FLOW (UNRESTRIC	CTED - RATI	IONAL METHO)D)		SEWER DATA										
																				Velocit	ty (m/s)	Time in	Hydrau	lic Ratios
Location	From Node	To Node	Area No.	Area (ha)	∑ Area (ha)	Average R	Indiv. 2.78*A*R	Accum. 2.78*A*R	Tc (mins)	l (mm/h)	Indiv. Flow (L/sec)	Return Period	Q (L/sec)	Dia (mm Actual) Dia (mm) Nominal	Туре	Slope (%)	Length (m)	Capacity (L/sec)	Vf	Va	Pipe, Tt (min)	Qa/Qf	Va/Vf
	Trench Drain	900	A1-1	0.02309	0.02309	0.90	0.06	0.06	10.00	104.19	6.02	5.00	6.0	201.16	200	PVC	1.00	35.31	33.3	1.04	0.67	0.88	0.18	0.64
	900	800	A1,A2	0.1569	0.180	0.81	0.35	0.41	10.88	99.76	35.12	5.00	40.9	299.36	300	PVC	0.50	64.36	68.0	0.97	0.87	1.23	0.60	0.90
	800	700	A3	0.0885	0.269	0.77	0.19	0.60	12.11	94.22	17.79	5.00	56.4	299.36	300	PVC	0.46	62.98	65.2	0.93	0.93	1.13	0.86	1.00
	700	600	A4	0.08	0.346	0.79	0.17	0.77	13.24	89.70	15.27	5.00	69.0	366.42	375	PVC	0.30	85.69	90.3	0.87	0.85	1.68	0.76	0.98
	BLDG	501	A11	0.799	0.799	0.90	2.00	2.00	10.00	104.19	208.36	5.00	208.4	366.42	375	PVC	2.00	22.98	233.1	2.25	2.25	0.17	0.89	1.00
	501	502			0.799			2.00	10.17	103.30		5.00	206.6	447.87	450	PVC	1.17	3.43	304.5	1.94	1.63	0.04	0.68	0.84
	Trench Drain	502	A9	0.015	0.015	0.90	0.04	0.04	10.00	104.19	3.90	5.00	3.9	201.16	200	PVC	1.02	21.57	33.6	1.05	0.59	0.61	0.12	0.56
	502	600	A5-1, A5-2, A6-1, A6-2	0.4404	1.255	0.87	1.06	3.10	10.61	101.08	107.07	5.00	313.0	533	525	CONC	1.00	57.10	447.8	1.99	1.89	0.50	0.70	0.95
	100	200	A71, A7	0.159	0.159	0.75	0.33	0.33	10.00	104.19	34.34	5.00	34.3	299.36	300	PVC	0.39	57.08	60.0	0.85	0.60	1.57	0.57	0.71
	200	300			0.159			0.33	11.57	96.56		5.00	31.8	299.36	300	PVC	0.44	36.11	63.8	0.91	0.64	0.94	0.50	0.71
	300	400	A8	0.046	0.205	0.24	0.03	0.36	12.51	92.57	2.87	5.00	33.4	299.36	300	PVC	0.44	75.77	63.8	0.91	0.64	1.97	0.52	0.71
	400	600			0.205			0.36	14.48	85.28		5.00	30.8	299.36	300	PVC	0.51	14.04	68.7	0.98	0.69	0.34	0.45	0.71
	600	601			1.806			4.23	14.82	84.15		5.00	355.6	610	600	CONC	0.50	9.72	453.7	1.54	1.50	0.11	0.78	0.98
	601	Storm Main			1.806			4.23	14.93	83.80		5.00	354.1	610	600	CONC	0.50	12.85	453.7	1.54	1.50	0.14	0.78	0.98
Definitions: Q = 2.78*AIR, where							Notes: Ottawa Rainfal	ll Intensity Val	ues:	a =	<u>5yr</u> = 998.071	<u>100yr</u> 1735.688		Designec Aaditya	: ariwala, M	eng, EIT.		Project: 1485 Upper	Street					
Q = Peak Flow in Litre A = Watershed Area (I = Rainfall Intensity (r	es per second (L/s) (hectares) mm/h)						From Sewer De	esing Guideline	es, 2004	b= c =	0.814 6.053	0.820 6.014		Checked: A. Ansar	, PEng.			Location: Ottawa, On	tario					
R = Runoff Coefficient	ts (dimensionless)													Dwg Refe	erence:			File Ref:					Sheet No	:

				Designed:	Project:
Definitions:	Notes:	<u>5yr</u>	<u>100yr</u>	Aaditya Jariwala, Meng, EIT.	1485 Upper Street
Q = 2.78*AIR, where	Ottawa Rainfall Intensity Values:	a = 998.07	71 1735.688		
Q = Peak Flow in Litres per second (L/s)	From Sewer Desing Guidelines, 2004	b= 0.814	4 0.820	Checked:	Location:
A = Watershed Area (hectares)		c = 6.053	6.014	A. Ansari, PEng.	Ottawa, Ontario
I = Rainfall Intensity (mm/h)					
R = Runoff Coefficients (dimensionless)				Dwg Reference:	File Ref:
				C101, C102	22023462 - STM Design Sheet



1 of 1

CONTROMES OF CONTROL OF CONTROL

ICD SELECTION CHART FOR 1485 UPPER CANADA STREET



JOHN MEUNIER

FIGURE 3

EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix E – Additional Information



Pre-Application Consultation Meeting Minutes

Property Address: 1485 Upper Canada **Location:** Virtual – Microsoft Teams **Meeting Date:** November 15, 2022

Attendees: Sarah Ezzio – Planner, City of Ottawa Steven Payne – Planning Coop, City of Ottawa Ann O'Connor– Urban Design, City of Ottawa Julie Candow – Engineer, City of Ottawa Patrick McMahon – Transportation, City of Ottawa Jeff Goettling – Parks, City of Ottawa Mercedes Liedtke - MVCA Toon Dreessen - Architects DCA Jimmy Wang, Property Owner - Konson Homes Doug Burnside – Dolyn Construction Melissa Guimond – Dolyn Construction

Regrets: Hayley Murray – Forester Matthew Hayley – Environmental Planning

Policies/Designations of the site

- Official Plan Suburban Transect, Mixed Industrial Designation
- Zoning IP13, Business Park Industrial Zone
- Community Design Plan Kanata West Concept Plan

<u>Planning</u>

- 1. This would be considered a complex site plan application, information about the fees is available at this <u>link</u>. A Lifting of a Holding Symbol application is also needed in order to accommodate the proposed use.
- 2. Thank you for showing the pedestrian connections on the site. Please continue to develop the connections to and within the site.
- 3. Retail is not a permitted use on this site. Showrooms must be accessory to a permitted use, and are not permitted to exceed 25% of the GFA as per the provisions of the zoning by-law.
- 4. Please indicate where the snow storage is proposed to be located on the site plan.
- 5. Please look for opportunities to consolidate the loading areas to one area of the site where possible.
- 6. Show all the dimensions (in metric units) on the site plan for items like the garbage storage, snow storage, etc.
- 7. There is a Holding Symbol with an urban exception 2166 along the western edge of the property which would require a vibration and noise study to have it lifted.

- a. For more information, please see here.
- 8. Please limit the amount of hard surfacing where possible on the site.
- The new Official Plan calls for a 40% tree canopy coverage across neighbourhoods so we would appreciate finding opportunities on the site to plant more trees.
- 10. We would request landscaped medians around the parking to provide more tree canopy cover.
- 11. The subject property is located within the boundary of the Kanata West CDP, where it is designated as Prestige Business Park, and thus must conform to the policy. Please refer to the Kanata West CDP found <u>here</u>.

Feel free to contact Sarah Ezzio, Planner (File Lead), at <u>sarah.ezzio@ottawa.ca</u> for follow-up questions.

<u>Urban Design</u>

- 1. An Urban Design Brief that follows the provided Terms of Reference is required upon submission of application.
- 2. Provisions of the Kanata West CDP and SP should be complied with.
- 3. Provide tree and soft-landscaping plantings
 - a. Please consider planting multiple trees between the front and corner property lines on Upper Canada St and Campeau Dr and the proposed internal road that winds around the proposed building. Between the planted trees, consider also including shrubs and other softlandscaping/vegetative elements. Substantial landscaping on-site, aligned with the public ROW is highly encouraged.
- 4. Prioritize pedestrian and cycling movement and safety
 - a. Design staff support the five pedestrian crosswalks/pavement markings provided across the internal road and the associated pathways to the existing concrete sidewalk on the public roads.
 - b. Design staff support the provision of the three bicycle racks. Please ensure the movement of a cyclist coming into the site toward these bicycle spots is considered moving forward.
 - c. Ensure public sidewalks are built along the lot lines abutting the public ROW
- 5. Create animated facades facing the public realm
 - a. No elevations were provided in advance of this pre-consultation; however, when they are drafted, please consider creating an animated façade along the building walls that face the public ROW. Also, consider locating any internal office or commercial uses to be along these facades, to provide more interaction with the public realm than a storage use would.

Feel free to contact Ann O'Connor, Urban Design, at <u>ann.oconnor@ottawa.ca</u> for followup questions.

Transportation

- 1. Follow Traffic Impact Assessment Guidelines:
 - a) Start this process as soon as possible.
 - b) Applicant advised that the application will not be deemed complete until the submission of the draft step 1-4. Collaboration and communication between development proponents and City staff are required at the end of every step of the TIA process.
- 2. A noise study is not required.
- 3. On site plan:
 - a) Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions). Accesses will require justification for a width of greater than 9m.
 - b) Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
 - c) Sidewalks are to be continuous across accesses as per City Specification 7.1.
- 4. Please review access configurations with respect to the Private Approach Bylaw. Some are too close to property lines and do not meet minimum offsets from each other.

Feel free to contact Patrick McMahon, Transportation Project Manager, at <u>patrick.mcmahon@ottawa.ca</u> for follow-up questions.

Forestry

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

- 2. Tree specifications
 - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
 - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
 - Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
 - Plant native trees whenever possible
 - No root barriers, dead-man anchor systems, or planters are permitted.
 - No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)
- 3. Hard surface planting
 - Curb style planter is highly recommended
 - No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
 - Trees are to be planted at grade
- 4. Soil Volume
 - Please document on the LP that adequate soil volumes can be met:

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

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines
- 5. Tree Canopy
 - The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
 - At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate.
 - Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Hayley Murray, Forester, at <u>hayley.murray@ottawa.ca</u> for follow-up questions.

Engineering

- The Servicing Study Guidelines for Development Applications are available at the following address: <u>https://ottawa.ca/en/planning-development-and-</u> <u>construction/development-information-residents/development-application-</u> <u>20#section-servicing-study-guidelines-for-development-applications</u>
- 2. Servicing and site works shall be in accordance with the following documents:
 - ⇒ Ottawa Sewer Design Guidelines (October 2012)
 - ⇒ Ottawa Design Guidelines Water Distribution (2010)
 - ⇒ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
 - ⇒ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
 - ⇒ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
 - ⇒ City of Ottawa Park and Pathway Development Manual (2012)
 - ⇒ City of Ottawa Accessibility Design Standards (2012)
 - ⇒ Ottawa Standard Tender Documents (latest version)
 - ⇒ Ontario Provincial Standards for Roads & Public Works (2013)
- Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at <u>geoinformation@ottawa.ca</u> or by phone at (613) 580-2424 x.44455).
- 4. The water, sanitary, storm servicing and stormwater management criteria for the subject site are to be in accordance with the Kanata West Business Park Phase 5 Design Brief, prepared by IBI Group (September 2019), attached, and the Kanata West Master Servicing Study (2006). The existing storm, sanitary and watermain infrastructure within Upper Canada Street, as well as the receiving storm pond, were designed to accommodate this site as per the KWBP Phase 5

Design Brief. The capacity of pipes receiving flows from the subject site should be reviewed and confirmed within the Site Servicing Report. Flows to the storm sewer in excess of the allocated release rate, up to and included the 100-yr storm event, must be detained onsite.

- 5. All services to be grouped in one common trench to minimize the number of road cuts.
- 6. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:
 - a) Location of service
 - b) Type of development and the amount of fire flow required (as per FUS).
 - c) Average daily demand: ____ l/s.
 - d) Maximum daily demand: ____l/s.
 - e) Maximum hourly daily demand: ____ l/s.
- 7. An MECP Environmental Compliance Approval is not anticipated to be required for this application unless the proposed development does not meet the following exemption criteria:
 - a) Is designed to service one lot or parcel of land;
 - b) Discharges into a storm sewer that is not a combined sewer;
 - c) Does not service industrial land or a structure located on industrial land; and
 - d) Is not located on industrial land. O.Reg. 525/98, s. 3; O.Reg. 40/15, s. 4.

In which "industrial land" means land used for the production, processing, repair, maintenance or storage of goods or materials, or the processing, storage, transfer or disposal of waste, but does not include land used primarily for the purpose of buying or selling;

- a) Goods or materials other than fuel, or
- b) Services other than vehicle repair services.
 - 8. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Feel free to contact Julie Candow, Infrastructure Project Manager, at julie.candow@ottawa.ca for follow-up questions.

Environmental Planning

Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here:
 <u>https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf</u>

Feel free to contact Matthew Hayley, Environmental Planner, at <u>matthew.hayley@ottawa.ca</u> for follow-up questions.

<u>Parks</u>

- 1. As per the <u>Parkland Dedication (By-law No. 2022-280) | City of Ottawa</u>, as amended, parkland dedication will be required as a condition of development. In this circumstance given the parcel size and proposed use, Cash in Lieu of Parkland (CILP) would be considered appropriate.
- Based in the details provided, the proposal would be best considered a commercial or industrial development for the purposes of the parkland dedication by-law. The applicant is encouraged to review the parkland dedication by-law should they feel that an alternative land use category be more appropriate. The parkland requirement for a commercial, industrial or retail use is calculated as 2% of the gross land area of the site being developed.
- 3. Has there been any past Parkland Dedication credited to the subject property parcel(s)? If so, please provide the associated documentation for Parks and Facilities Planning (PFP) review/ consideration. The conveyance of land for purposes or the payment of money in-lieu of accepting the conveyance is not required for development, redevelopment, subdivisions or consents, where it is known, or can be demonstrated that the required parkland conveyance or money in-lieu thereof has been previously satisfied.
- 4. Please identify for example in the Planning Rationale or by other means (when the initial development application is submitted) how the requirements in the Parkland Dedication (By-law No. 2022-280) will be or have been achieved.
- 5. Given the above comments and should Cash in Lieu of Parkland (CILP) be collected, the value of the land shall be determined by the City's Realty Services Branch or submitted otherwise according to By-law No. 2022-280. The owner is responsible for any appraisal costs incurred by the City.

 Please note that the park comments are preliminary and will be finalized (and subject to change) upon receipt of the requested supporting documentation. Additionally, if the proposed land use changes, then the parkland dedication requirement will be re-evaluated accordingly.

Feel free to contact Jeff Goettling with Parks and Facilities Planning Services, at <u>jeff.goettling@ottawa.ca</u> for follow-up questions.

<u>MVCA</u>

- 1. MVCA has no concerns from a natural heritage/ natural hazard standpoint
- 2. We will require a stormwater management plan.
 - a. Please include the design criteria for the existing pond (Pond 6 West).
 - b. 80% TSS removal, or enhanced level of protection, is required as per the Carp River Watershed Subwatershed Study.
 - c. Thermal mitigation is required as Feedmill Creek is a coolwater watercourse
- 3. The Carp River Watershed Subwatershed Study identifies this site as a low groundwater recharge area, which has an annual infiltration target of 73mm/year.

Feel free to contact Mercedes Liedtke, Infrastructure Project Manager, at <u>mliedtke@mvc.on.ca</u> for follow-up questions.

General Comments

The list of required plans and studies are attached to this email.

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

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

CSO/STORMWATER MANAGEMENT



[®] HYDROVEX[®] VHV / SVHV Vertical Vortex Flow Regulator



JOHN MEUNIER

HYDROVEX® VHV / SVHV VERTICAL VORTEX FLOW REGULATOR

APPLICATIONS

One of the major problems of urban wet weather flow management is the runoff generated after a heavy rainfall. During a storm, uncontrolled flows may overload the drainage system and cause flooding. Due to increased velocities, sewer pipe wear is increased dramatically and results in network deterioration. In a combined sewer system, the wastewater treatment plant may also experience significant increases in flows during storms, thereby losing its treatment efficiency.

A simple means of controlling excessive water runoff is by controlling excessive flows at their origin (manholes). John Meunier Inc. manufactures the HYDROVEX[®] VHV / SVHV line of vortex flow regulators to control stormwater flows in sewer networks, as well as manholes.

The vortex flow regulator design is based on the fluid mechanics principle of the forced vortex. This grants flow regulation without any moving parts, thus reducing maintenance. The operation of the regulator, depending on the upstream head and discharge, switches between orifice flow (gravity flow) and vortex flow. Although the concept is quite simple, over 12 years of research have been carried out in order to get a high performance.

The **HYDROVEX**[®] **VHV** / **SVHV** Vertical Vortex Flow Regulators (**refer to Figure 1**) are manufactured entirely of stainless steel, and consist of a hollow body (1) (in which flow control takes place) and an outlet orifice (7). Two rubber "O" rings (3) seal and retain the unit inside the outlet pipe. Two stainless steel retaining rings (4) are welded on the outlet sleeve to ensure that there is no shifting of the "O" rings during installation and use.



FIGURE 1: HYDROVEX[®] VHV-SVHV VERTICAL VORTREX FLOW REGULATORS

ADVANTAGES

- The **HYDROVEX[®] VHV** / **SVHV** line of flow regulators are manufactured entirely of stainless steel, making them durable and corrosion resistant.
- Having no moving parts, they require minimal maintenance.
- The geometry of the **HYDROVEX**[®] **VHV** / **SVHV** flow regulators allows a control equal to an orifice plate, having a cross section area 4 to 6 times smaller. This decreases the chance of blockage of the regulator, due to sediments and debris found in stormwater flows. **Figure 2** illustrates the comparison between a regulator model 100 SVHV-2 and an equivalent orifice plate. One can see that for the same height of water, the regulator controls a flow approximately four times smaller than an equivalent orifice plate.
- Installation of the **HYDROVEX**[®] **VHV** / **SVHV** flow regulators is quick and straightforward and is performed after all civil works are completed.
- Installation requires no special tools or equipment and may be carried out by any contractor.
- Installation may be carried out in existing structures.



FIGURE 2: DISCHARGE CURVE SHOWING A HYDROVEX® FLOW REGULATOR VS AN ORIFICE PLATE

SELECTION

Selection of a VHV or SVHV regulator can be easily made using the selection charts found at the back of this brochure (see Figure 3). These charts are a graphical representation of the maximum upstream water pressure (head) and the maximum discharge at the manhole outlet. The maximum design head is the difference between the maximum upstream water level and the invert of the outlet pipe. All selections should be verified by John Meunier Inc. personnel prior to fabrication.

Example:

- 2m (6.56 ft.) ✓ Maximum design head
- ✓ Maximum discharge ✓ Using Figure 3 - VHV

6 L/s (0.2 cfs) model required is a 75 VHV-1

INSTALLATION REQUIREMENTS

All HYDROVEX[®] VHV / SVHV flow regulators can be installed in circular or square manholes. Figure 4 gives the various minimum dimensions required for a given regulator. It is imperative to respect the minimum clearances shown to ensure easy installation and proper functioning of the regulator.

SPECIFICATIONS

In order to specify a **HYDROVEX**[®] regulator, the following parameters must be defined:

- The model number (ex: 75-VHV-1)
- The diameter and type of outlet pipe (ex: 6" diam. SDR 35)
- The desired discharge (ex: 6 l/s or 0.21 CFS)
- The upstream head (ex: 2 m or 6.56 ft.) *
- The manhole diameter (ex: 36" diam.)
- The minimum clearance "H" (ex: 10 inches)
- The material type (ex: 304 s/s, 11 Ga. standard)
- * Upstream head is defined as the difference in elevation between the maximum upstream water level and the invert of the outlet pipe where the HYDROVEX[®] flow regulator is to be installed.

PLEASE NOTE THAT WHEN REQUESTING A PROPOSAL, WE SIMPLY REQUIRE THAT YOU PROVIDE US WITH THE FOLLOWING:

- project design flow rate
- > pressure head
- chamber's outlet pipe diameter and type



Typical VHV model in factory



VHV-1-O (standard model with odour control inlet)



VHV with Gooseneck assembly in existing chamber without minimum release at the bottom



FV – SVHV (mounted on sliding plate)



FV – *VHV-O* (mounted on sliding plate with odour control inlet)



VHV with air vent for minimal slopes



VHV Vertical Vortex Flow Regulator



FIGURE 3 - VHV

JOHN MEUNIER



SVHV Vertical Vortex Flow Regulator



FIGURE 3 - SVHV

JOHN MEUNIER

Model Number	Regulator Diameter		Minimum Dian	Manhole neter	Minimur Pipe D	n Outlet iameter	Minimum Clearance		
	A (mm)	A (in.)	B (mm)	B (in.)	C (mm)	C (in.)	H (mm)	H (in.)	
50VHV-1	150	6	600	24	150	6	150	6	
75VHV-1	250	10	600	24	150	6	150	6	
100VHV-1	325	13	900	36	150	6	200	8	
125VHV-2	275	11	900	36	150	6	200	8	
150VHV-2	350	14	900	36	150	6	225	9	
200VHV-2	450	18	1200	48	200	8	300	12	
250VHV-2	575	23	1200	48	250	10	350	14	
300VHV-2	675	27	1600	64	250	10	400	16	
350VHV-2	800	32	1800	72	300	12	500	20	

FLOW REGULATOR TYPICAL INSTALLATION IN CIRCULAR MANHOLE FIGURE 4 (MODEL VHV)



FLOW REGULATOR TYPICAL INSTALLATION IN	CIRCULAR MANHOLE
FIGURE 4 (MODEL SVHV)	

Model Number	Regulator Diameter		Minimum Dian	Manhole neter	Minimur Pipe Di	n Outlet ameter	Minimum Clearance		
	A (mm)	A (in.)	B (mm)	B (in.)	C (mm)	C (in.)	H (mm)	H (in.)	
25 SVHV-1	125	5	600	24	150	6	150	6	
32 SVHV-1	150	6	600	24	150	6	150	6	
40 SVHV-1	200	8	600	24	150	6	150	6	
50 SVHV-1	250	10	600	24	150	6	150	6	
75 SVHV-1	375	15	900	36	150	6	275	11	
100 SVHV-2	275	11	900	36	150	6	250	10	
125 SVHV-2	350	14	900	36	150	6	300	12	
150 SVHV-2	425	17	1200	48	150	6	350	14	
200 SVHV-2	575	23	1600	64	200	8	450	18	
250 SVHV-2	700	28	1800	72	250	10	550	22	
300 SVHV-2	850	34	2400	96	250	10	650	26	
350 SVHV-2	1000	40	2400	96	250	10	700	28	





Model Number	Regulator Diameter		Minimum Chamber Width		Minimur Pipe Di	n Outlet ameter	Minimum Clearance		
	A (mm)	A (in.)	B (mm)	B (in.)	C (mm)	C (in.)	H (mm)	H (in.)	
50VHV-1	150	6	600	24	150	6	150	6	
75VHV-1	250	10	600	24	150	6	150	6	
100VHV-1	325	13	600	24	150	6	200	8	
125VHV-2	275	11	600	24	150	6	200	8	
150VHV-2	350	14	600	24	150	6	225	9	
200VHV-2	450	18	900	36	200	8	300	12	
250VHV-2	575	23	900	36	250	10	350	14	
300VHV-2	675	27	1200	48	250	10	400	16	
350VHV-2	800	32	1200	48	300	12	500	20	

FLOW REGULATOR TYPICAL INSTALLATION IN SQUARE MANHOLE FIGURE 4 (MODEL VHV)

NOTE: In the case of a square manhole, the outlet flow pipe must be centered on the wall to ensure enough clearance for the unit.





Model Number	Regulator Diameter		Minimum Wi	Chamber dth	Minimur Pipe D	n Outlet iameter	Minimum Clearance		
	A (mm)	A (in.)	B (mm)	B (in.)	C (mm)	C (in.)	H (mm)	H (in.)	
25 SVHV-1	125	5	600	24	150	6	150	6	
32 SVHV-1	150	6	600	24	150	6	150	6	
40 SVHV-1	200	8	600	24	150	6	150	6	
50 SVHV-1	250	10	600	24	150	6	150	6	
75 SVHV-1	375	15	600	24	150	6	275	11	
100 SVHV-2	275	11	600	24	150	6	250	10	
125 SVHV-2	350	14	600	24	150	6	300	12	
150 SVHV-2	425	17	600	24	150	6	350	14	
200 SVHV-2	575	23	900	36	200	8	450	18	
250 SVHV-2	700	28	900	36	250	10	550	22	
300 SVHV-2	850	34	1200	48	250	10	650	26	
350 SVHV-2	1000	40	1200	48	250	10	700	28	

FLOW REGULATOR TYPICAL INSTALLATION IN SQUARE MANHOLE FIGURE 4 (MODEL SVHV)

NOTE:

In the case of a square manhole, the outlet flow pipe must be centered on the wall to ensure enough clearance for the unit.





INSTALLATION

The installation of a HYDROVEX[®] regulator may be undertaken once the manhole and piping is in place. Installation consists of simply fitting the regulator into the outlet pipe of the manhole. John Meunier Inc. recommends the use of a lubricant on the outlet pipe, in order to facilitate the insertion and orientation of the flow controller.

MAINTENANCE

HYDROVEX[®] regulators are manufactured in such a way as to be maintenance free; however, a periodic inspection (every 3-6 months) is suggested in order to ensure that neither the inlet nor the outlet has become blocked with debris. The manhole should undergo periodically, particularly after major storms, inspection and cleaning as established by the municipality

GUARANTY

The HYDROVEX[®] line of VHV / SVHV regulators are guaranteed against both design and manufacturing defects for a period of 5 years. Should a unit be defective, John Meunier Inc. is solely responsible for either modification or replacement of the unit.

John Meunier Inc. ISO 9001 : 2008 Head Office 4105 Sartelon Saint-Laurent (Quebec) Canada H4S 2B3 Tel.: 514-334-7230 www.johnmeunier.com Fax: 514-334-5070 cso@johnmeunier.com

Ontario Office

2000 Argentia Road, Plaza 4, Unit 430 Mississauga (Ontario) Canada L5N 1W1 Tel.: 905-286-4846 www.johnmeunier.com Fax: 905-286-0488 ontario@johnmeunier.com Fax: 215-885-4741 asteele@johnmeunier.com

USA Office 2209 Menlo Avenue Glenside, PA USA 19038 Tel.: 412-417-6614 www.johnmeunier.com



StormTech[®] MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

Nominal Chamber Specifications

(not to scale)

Size (L x W x H) 90" x 77" x 45" 2286 mm x 1956 mm x 1143 mm

Chamber Storage 109.9 ft³ (3.11 m³)

Min. Installed Storage* 175.0 ft³ (4.96 m³)

Weight 134 lbs (60.8 kg)

Shipping

15 chambers/pallet 7 end caps/pallet 7 pallets/truck

*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below chambers, 6" (150 mm) of stone between chambers/ end caps and 40% stone porosity.

Nominal End Cap Specifications (not to scale)

Size (L x W x H) 26.5" x 71" x 45.1" 673 mm x 1803 mm x 1145 mm

End Cap Storage 14.9 ft³ (0.42 m³)

Min. Installed Storage* 45.1 ft³ (1.28 m³)

Weight 49 lbs (22.2 kg)

*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below, 6" (150 mm) of stone perimeter, 6" (150 mm) of stone between chambers/ end caps and 40% stone porosity.











MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24 (600 mm)



StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber	r Chamber and Stone Foundation Depth in. (mm)								
	ft ³ (m ³)	9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)					
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)					
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)					

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

English	Stone Foundation Depth								
Tons (yds³)	9 in	12 in	15 in	18 in					
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)					
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)					
Metric Kilograms (m³)	230 mm	300 mm	375 mm	450 mm					
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)					
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)					

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth			
	9 in (230 mm)	12 in (300 mm)	15 in (375mm)	18 in (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.3)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project? Visit us at adspipe.com/stormtech and utilize the Design Tool



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memorandum

re:	Geotechnical Response to City Comments			
	Proposed Commercial-Industrial Building			
	1485 Upper Canada Street - Ottawa			
to:	Dolyn Developments Inc Ms. Melissa Guimond – melissa@dolyn.com			
date:	September 6, 2023			
file:	PG6477-MEMO.01			

Further to your request, Paterson Group (Paterson) has prepared the current memo to provide our responses to the geotechnical-related comments from the City of Ottawa for the proposed development to be located at the aforementioned site. This memo should be read in conjunction with the updated Geotechnical Investigation PG6477-1 dated January 10, 2023.

Comment 1: Geotechnical Investigation – Proposed Commercial-Industrial Building, Report PG6477-1 prepared by Paterson Group, dated January 10, 2023. 1.14. The Geotechnical Report should address the infiltration target of 73mm/yr and the anticipated hydraulic conductivity of the onsite soils. The hydraulic conductivity specified by the Geotechnical Consultant should then be used in the infiltration calculations within the Site Servicing Report.

Response: Based on the soils observed during our geotechnical investigation at the subject site, the theoretical infiltration rates are as follows:

- Silty Clay <10 to 30 mm/hour
- Glacial Till 25 to 75 mm/hour
- Silty Sand 50 to >150 mm/hour
- Sandy Silt 25 to 75 mm/hour

Based on internal meetings with the civil consultant, Paterson provided the above noted theoretical infiltration rates based on the soils encountered on site. The infiltration systems proposed by the civil servicing plans are understood to be designed to an infiltration rate of 43 mm/hour based on the subgrade soils expected below the systems. Therefore, the infiltration rates used by the civil consultant are considered acceptable from a geotechnical perspective.





Comment 2: The building foundation setback must be determined by the geotechnical engineer. If there are no sensitive marine clay impacts here, there are no required foundation setbacks.

Response:

Generally, tree planting setbacks are required when a continuous silty clay deposit is located at the founding elevation of the proposed footings. Based on our findings during the geotechnical investigation, the bearing medium will consist of compact silty sand. Therefore, no setbacks are required for those areas from a geotechnical perspective. However, one isolated area was observed to have a very thin layer of silty clay below the USF level as shown below:



Although a silty clay layer is encountered in BH1-22, the thickness of the silty clay layer along with the sand content would lessen the shrinkage and volume changes of this layer as a result of tree roots extending below the footings. Therefore, it is safe to consider that a minimum 7.5 m spacing is acceptable for small to medium sized trees for this portion of the building.

For due diligence purposes, Paterson reviewed the landscaping plan prepared by James B. Lennox & Associates, Drawing No. L1 – Landscape Plan – Block 1, South Half Lot 4, Concession 1 – 23MIS2322 dated April 14, 2023.Based on our review, the proposed trees are proposed to be placed at least 14.9 and 11.5 m away from the northwestern and southeastern foundation walls of the building, respectively. From a geotechnical perspective, the proposed tree planting spacing is considered acceptable.



We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

Puneet Bandi, M.Eng.



Faisal I. Abou-Seido, P.Eng.

Ottawa Head Office 9 Auriga Drive Ottawa – Ontario – K2E 7T9 Tel: (613) 226-7381 Ottawa Laboratory 28 Concourse Gate Ottawa – Ontario – K2E 7T7 Tel: (613) 226-7381 List of Services

Geotechnical Engineering ♦ Environmental Engineering ♦ Hydrogeology Materials Testing ♦ Retaining Wall Design ♦ Rural Development Design Temporary Shoring Design ♦ Building Science ♦ Noise and Vibration Studies


EXP Services Inc. Konson Warehouse 1485 Upper Canada Street, Ottawa, ON OTT-22023462-A0 September 12, 2023

Appendix F – Drawings





TOPOGRAPHIC PLAN OF

BLOCK 1 **REGISTERED PLAN 4M-1649** CITY OF OTTAWA Prepared by Annis, O'Sullivan, Vollebekk Ltd. January 10, 2023 Fieldwork completed December 20, 2022

Scale 1:300 12 9 6 3

Metric DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IM METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

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Date 10, 2023 E.H. Herveyer O Ontario Land Surveyor

Notes & Legend

	Denotes	
-Ôfh		Fire Hydrant
(e) wv	ж.	Water Valve
O MH-ST		Maintenance Hole (Storm Sewer)
O MH-S	× 1	Maintenance Hole (Sanitary)
T/G		Top of Grate
e vc	× .	Valve Chamber (Watermain)
OHW -		Overhead Wires
CBI		Catch Basin Inlet
🔶 ВН	1.00	Borehole
OUP		Utility Pole
• AN	· · .	Anchor
O LS	· · · · ·	Light Standard
+ 65.00		Location of Elevations
+ 65.00		Top of Concrete Curb Elevation

SITE AREA = 18394 m²

.3 0/84 +104.72

SOCIATION OF ONTAF LAND SURVEYORS PLAN SUBMISSION FORM V-40807

Bearings are grid, derived from bearings shown on Plan 4M-1649 and are referred to the Central Meridian of MTM Zone 9 (76'30' West Longitude) NAD-63 (original).

- ELEVATION NOTES 1. Elevations shown are groaded: and are referred to the CGVD28 goodetic daturn are referred to morument No. 70/242: having a elevation of 114.09 metes. 2. It is the responsibility of the user of this information to verify that the job bench has not been alred or disturbed and that it's relative elevation and description agrees with the information shown on this drawing. 3. Elevations with Block 1 are in part acquired via CgV of Clawa LDRA data.

UTILITY NOTES

- 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.
- Only visible surface utilities were located.
 A field location of underground plant by the mandatory before any work involving breaking t utility authority is



O Anite, O'Sulture, Voldedek Lis 2023. THIS PLAN IS PROTECTED BY COMPRESET ANNIS, O'SULLIVAN, VOLLEBEKK LTD. 14 Concourse Galaxies, Sulte 500 Nepene, Ont. X22 758 Phone, (613) 727-5805 (143) (151) 727-1007







			LEGEND:
			MH3A SANITARY MANHOLE
			O ^{MH-3} STORM MANHOLE G8 TG 99.76 STREET CATCHBASIN c/w TOP OF GRATE G/G 99.76 C/W GUTER GRADE C/W GUTER GRADE
			T/G 100.27 REARYARD CB c/w TOP OF GRATE
			DIMH DITCH INLET MANHOLE c/w TOP OF GRAT
			CBMH STREET CATCHBASIN MANHOLE G/G 101.55 C/W GUTTER GRADE
			⊗ ^{V&VB} VALVE AND VALVE BOX
			⊗ V&C VALVE AND CHAMBER
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			9 RE-ISSUED FOR CONSTRUCTION LME 16:02:0
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			7 ISSUED FOR MYLARS LME 16:01:12
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ARCHITECTURAL

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GROUND FLOOR PLAN

PROJECT TITLE

DRAWING TITLE

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4 FOR CO-ORDINATION/REVIEW

5 FOR CO-ORDINATION/REVIEW



- GENERAL NOTES 1. DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BEUSED, WHERE DOLBT EXORTS, FILE REQUEST ARE TO BEUSED, WHERE DOLBT EXORTS, FILE REQUEST 2. IT. IS. THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIP DIMENSIONS ON SITE, REPORT DISOREPANCIES TO THE ARCHITECT PROMPTLY. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT CONTRUCTION TOLERANCE GENERAL CONTRACTOR TO COORDINATE THE WORK OF DIFFERENT TRADES TO COMPLY WITH DESIGN WITHT. DEFECIENCINGS ARE TO COMPLY WITT THE CURRENT EDITION OF THE ONTARIO ROUTY WITT THE CURRENT EDITION OF THE ONTARIO BUILDING CODE (2010) NATIONAL BUILDING CODE (2010) INCLUDING MOST RECENT AMENDMENTS. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY AND ARE TO BE READ TOGETHER.

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project north	R REVENSION					
ISSU	ISSUE RECORD:					
NO.	DESCRIPTION	DATE				
1	FOR CLIENT REVIEW	2022/05/12				
2	FOR CLIENT APPROVAL	2022/08/09				
3	FOR REVIEW	2022/11/01				

A GROUP OF ARCHITECTS 201-1339 WELLINGTON ST. WEST OTTAWA ON K1Y 3B8 WWW.ARCHITECTSDCA.COM 613.725.2294

ARCHITECTURAL

KONSON WAREHOUSE

BLOCK 1, SOUTH HALF LOT 4, CONCES

PROJECT TITLE

DRAWING TITLE ROOF PLAN 2023/02/08

2023/02/28

4 FOR CO-ORDINATION/REVIEW

5 FOR CO-ORDINATION/REVIEW



<u>SEVERAL NOTES</u> DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED, WHERE DUBT EXISTS, FILE REQUEST ARE TO BE USED, WHERE DUBT EXISTS, FILE REQUEST CONTRACTOR TO VERIP OMENSIONS ON SITE: REPORT DISCREPANCIES TO THE ARCHITECT FROMPTLY. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT CONTRUCTION TOLERANCE GENERAL CONTRACTOR DISCREPANCIES TO THE ARCHITECT FROMPTLY. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT CONTRUCTION TOLERANCE GENERAL CONTRACTOR DISCREPANCIES TO THE ARCHITECT FROMPTLY. CONTRUCTION TOLERANCE GENERAL CONTRACTOR DISCREPANCIES TO THE ARCHITECT FROMPTLY. CONTRUCTION TO THE ARCHITECT FROMPTLY. DISCREPANCIES TO THE ARCHITECT FROMPTLY. DISCREPANCIES TO THE ARCHITECT FROM TO ACCOUNT CONTRUCTION TO THE ARCHITECT FOR TAXES TO SEFECIFICATIONS ARE TO COMITY WITH THE CURRENT EDITION OF THE ONTARIO BUILDING CODE (2010) INCLUDING MOST RECENT AMENDMENTS. DRAWINGS AND SEPECIFICATIONS ARE COMPLEMENTARY AND ARE TO BE READ TOGETHER.

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2	FOR CLIENT APPROVAL	2022/08/09			
3	FOR REVIEW	2022/11/01			
4	FOR CO-ORDINATION/REVIEW	2023/02/08			





GENERAL SITE PLAN NOTES:		GENERAL NOT	ES		
PROPERTY BOUNDARY INFORMATION, AND T INFORMATION DERIVED FROM SURVEYOR'S F REPORT BLOCK 1, REGISTERED PLAN 4M-164 OTTAWA. PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEK	 DO NOT SCALE DRAWINGS; ONLY FIGURED DIMENSIONS ARE TO BE USED. WHERE DOUBT EXISTS; FILE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY DIMENSIONS ON SITE; REPORT DISCREPANCIES TO THE ARCHITECT PROMPTLY. 				
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SITE AREA 18.383 m ²		4. ALL WO	DINATE THE WO WITH DESIGN IN RK DESCRIBED	DRK OF DIFFER TENT.) IN THESE	DRAWINGS AND
NEW BUILDING AREA 8,666 m ²		SPECIFIC EDITION	ATIONS ARE TO	COMPLY WIT	H THE CURRENT CODE (2012) OR
BUILDING HEIGHT 8.4m		5. DRAWING	MENDMENTS.	CATIONS ARE C	COMPLEMENTARY
GENERAL NOTES: 1. FOR PAVED SURFACES, GRADING, SITE S DRAINAGE EROSION AND SEDIMENT CON CIVIL DRAWINGS. 2. FOR PLANTING DETAILS, REFER TO LAND DRAWINGS.	ERVICING, ITROL, REFER TO SCAPE	AND ARE <u>COPYRIGHT</u> THIS DRAWIN PROTECTED E ARCHITECTS COPIES MAY	TO BE READ TO IG IS AN INST Y COPYRIGHT DCA INC. CO ONLY BE USED	GETHER. RUMENT OF S AND IS THE SO PIES, INCLUDI FOR THE PUR	SERVICE AND IS LE PROPERTY OF NG ELECTRONIC POSE INTENDED,
GROSS BUILDING AREA: ' (ONTARIO BUILDING CODE DEFINITION); AREA OF ALL FLOORS ABOVE GRADE M BETWEEN THE OUTSIDE SURFACES OF WALLS.	THE TOTAL EASURED EXTERIOR	AND MAY N WITHOUT TH ARCHITECT.	GLE PROJECT DT BE OFFERI E EXPRESS W	FOR WHICH TI ED FOR SALE RITTEN PERM	E OR TRANSFER
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701110					
ZONING DESIGNATIONS (PART 11)-					
ZONE IP13 - BUSINESS PARK INDUSTRIAL ZON	IE				
ZONING PROVISIONS					
LOT AREA: MINIMUM: 750 m ² PROPOSED: 18,383 m ²					
LOT WIDTH:		ISSUE RECOR	RD:		
MINIMUM: NO MINIMUM PROPOSED: 147.70 m		NO. DESCR			DATE 2022/05/12
LOT COVERAGE:		2 FOR C	IENT APPROVA	L	2022/08/09
MAXIMUM: 55% PROPOSED: 43%		3 FOR R	EVIEW		2022/11/01
SETBACKS (SECTIONS 205 AND 206): MIN.	PROVIDED	4 FOR C 5 FOR C	D-ORDINATION/F		2023/02/08 2023/02/28
FRONT YARD 6.00r CORNER SIDE YARD: 6.00r INTERIOR SIDE YARD: 4.00r	n 19.85m n 18.60m n 7.34m	6 SUBMI	TTED FOR SPA		2023/04/14
INTERIOR SIDE YARD: 4.00r INTERIOR SIDE YARD: 4.00r	n 55.70m n 4.00m	7 ISSUEI 8 (A100)	FOR COORDIN	ORDINATION	2023/06/16
FLOOR SPACE INDEX: 6.00	16.90m	9 ISSUE	FOR COORDIN	ATION	2023/07/14
MAXIMUM: 2.00 PROPOSED: 0.47		10 ISSUER	FOR COORDIN		2023/07/28
BUILDING HEIGHT: MAXIMUM: 22.0 m		KONSO 361 CHURCHIL	N HOME	S INC.	
PROPOSED: 8.4 m		OTTAWA, ONT CANADA TEL: (613) 715	ARIO K1Z 5C4, 9666		
LANDSCAPING (SECTION 205): MIN. ABUTTING A STREET: 3.0 r	PROVIDED		<u>8</u>		
NOT ABUTTING A STREET: 0.0 r	n 0.0 m	CIMA+ MECHANICAL,	ELECTRICAL AN	ID STRUCTURA	L ENGINEERS
DRAWING LEGEND:	DIAN DOOD?	TEL: 613-860-2		INC	
LOCATION OF PEDEST	AR DOORS	CIVIL ENGINER TEL: 613-688-1			
oB BOLLARD		JAMES	B LENN	OX &	
ACCESSIBLE PARKING PAINTED LOGO & SIGN WALI	SPACE C/W ON POST OR	ASSOC	IATES IN	IC.	
L DESIGNATED LOADING	ZONE	TEL: 613-722-5	168 ITRACTOR		
CR CURB RAMP W/TWSI		DOLYN	CONST	RUCTIO	N LTD.
G GARBAGE ENCLOSURI	FLECTRICAL	OTTAWA, ON H CANADA	IN PLACE, (1Z 5L5,		
XEFH EXISTING FIRE HYDRA	NT	TEL: 613-224-7	268		
XNFH NEW FIRE HYDRANT					
FIRE DEPARTMENT CC	NNECTION		$\mathbf{\Sigma}$		Λ
PROPERTY LINE	LINE				
	LINE		フヘ		
FIRE TRUCK BACK-UP	SPACE				
)	A GRC 201-1339 W	ELLINGTON ST.		
LANDSCAPING DRAWINGS	, REFER TO				613./25.2294
CIVIL DRAWINGS	OTTAW	'A, ON, K	(0A 1L0		
HEAVY DUTY ASPHALT, REFER DRAWINGS SNOW STORAGE	I O CIVIL	SITE PL	.AN		
		-	004444	JOB NO.	DRAWING NO
$\mathbf{K} \leftarrow \langle \mathbf{H} \rangle$		DATE JAN 2023	BR DR	3482	A100
		DATE JAN 2023 SCALE	BR DR REVIEWED DR TD	3482	A100



		FOUNDATION PLAN NOTES:	GENE	RAL NOTES				
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			3. C	DISCREPANCIES TO THE ARC SENERAL CONTRACTOR CONSTRUCTION TOLERANC	CHITECT PROM TO TAKE IN E: GENERAL	IPTLY. TO ACCOUNT CONTRACTOR		
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		CONCRETE FOUNDATION WALL, REFER TO	4. / S	PECIFICATIONS ARE TO C	OMPLY WITH BUILDING CC	THE CURRENT DDE (2012) OR		
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			J. L	ND ARE TO BE READ TOGE	THER.	WFLEMENTART		
		SLAB EDGE LEGEND:	COPY THIS	<u>'RIGHT</u> DRAWING IS AN INSTRUI	MENT OF SEP	RVICE AND IS		
		FLOOR DRAIN, REFER TO MECHANICAL DOCUMENTS. PROVIDE 2% SLOPE TO AREA	PROT ARCH	ECTED BY COPYRIGHT AND ITECTS DCA INC. COPIE	S, INCLUDING	PROPERTY OF ELECTRONIC		
		(INDICATED) SURROUNDING DRAIN.	FOR	THE SINGLE PROJECT FOR MAY NOT BE OFFERED	R WHICH THE	Y ARE ISSUED OR TRANSFER		
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		EXTRUDED POLYSTYRENE INSULATION TO FULL PERIMETER, 1.2m (MINIMUM Rsi 2.6 / R15) COMPACTED SUB-GRADE MATERIAL BEFER TO						
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			1	FOR CLIENT REVIEW		2022/05/12		
			2	FOR REVIEW		2022/08/09		
			4	FOR CO-ORDINATION/REV	IEW	2023/02/08		
			5	FOR CO-ORDINATION/REV	/IEW	2023/02/28		
Image: contract of the second seco			6	SUBMITTED FOR SPA	ON	2023/04/14 2023/06/16		
9 ISSUED FOR COORDINATION 202307/14 CIMA+ MECHANICAL ELECTRICAL AND STRUCTURAL ENGINEERS TEL: 613-880-2402 EXPL SECTICAL AND STRUCTURAL ENGINEERS TEL: 613-880-2402 DATE EXAMPLES EXPL SECTICAL AND STRUCTURAL ENGINEERS TEL: 613-880-1690 JAMES B LENNOX & ASSOCIATEERS TEL: 613-224-5180 JAMES D LENNOX & ASSOCIATEDS JAMES D LENNOX & ASSOCIATEDS TEL: 613-224-5180 SECTION STRUCTION LTD. DOLY OCTORS DOLY OCTORS			8	(A100) ISSUED FOR COOR	DINATION	2023/06/26		
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MECHANICAL ELECTRICAL AND STRUCTURAL ENGINEERS TEL: 013-060-2462			CI	<i>1</i> Δ+				
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TEL: 913-722-5168 GENERAL CONTRACTOR DOLAY N CONSTRUCTION LTD. BOB JAY PLACE. OTADA ALWYZ 215, OTADA ALWYZ 215, OT				SOCIATES INC) .			
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BBLAY ELE PLACE. OTTAWA, ON KIZ 265, CANADA TEL: 013-224-7288								
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	FOUNDATION PLAN NOTES:	GENE	RAL NOTES		
	 REFER TO SLAB EDGE DRAWING FOR EXTENT OF RAISED CURBS, REDUCED FOUNDATION WALL HEIGHTS, ETC. 	1. E	O NOT SCALE DRAWINGS	ONLY FIGURE	D DIMENSIONS
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	EXTENT OF SANITARY TRENCH. DO NOT PROVIDE SLAB ON GRADE IN THIS LOCATION, COORDINATE EXTENTS WINCH DOCUMENTS	/	A JUNGEL		
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	PERIMETER, 1.2m (MINIMUM Rsi 2.6 / R15) COMPACTED SUB-GRADE MATERIAL, REFER TO STRUCTURAL DOCUMENTS & CEOTECHNICAL REPORT				_
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				STRUCTURAL F	NGINEERS
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		TEL:	513-688-1899		
		JA	MES B LENNC)X &	
`		AS	SOCIATES IN SCAPE ARCHITECTS	C.	
)		TEL:	313-722-5168		
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	FOUNDATION PLAN NOTES:	GENE	RAL NOT	ES		
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		7	ISSUED	FOR COORDINA	TION	2023/06/16
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	FLOOR PLAN NOTES:			GENERAL NOTES				
0	 ALL INTERIOR WALL ASSEMBLIES TO BE CONSTRUCTED FROM FLOOR TO UIS OF FLOOR / ROOF ABOVE, UNLESS NOTED OTHERWISE (SEE REFLECTED CEILUR PLAN). REFER TO FLOOR PLANS FOR EXTENTS OF FIRE RATED WALL ASSEMBLIES. 			DO NOT SCALE DRAWINGS; ONLY FIGURED DIMENSIONS ARE TO BE USED, WHERE DOUBT EXISTS; FILE REQUEST FOR INTERPERTATION AND REQUEST CLARITY. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERITY DIMENSIONS ON SITE; REPORT DISCREPANCIES TO THE ARCHITECT FROMPTLY. GENERAL CONTRACTOR TO TAKE INITO. ACCOUNT				
	3. W. As	ALL ASSEMBLIES W/ AN STC RATING INDICATED IN THE SSEMBLY SCHEDULE TO RECEIVE ACOUSTIC SEALANT S DESCRIBED IN SPECIFICATION SECTION 09 21 16 (2.3)	-	CONSTRUCT TO COORE COMPLY W	INATE THE WO	NUE; GENERAL RK OF DIFFEREN ENT.	UNIRACTOR NT TRADES TO	
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	5. PA	DNCRETE BLOCK IS NOT TO BE FLUSH WITH, OR PROUD FRAME. AINT ALL EXPOSED STEEL IN NEW BUILDING, INCLUDING RIJCTI IBAL STEEL	<u>COP</u> THIS	AND ARE T <u>(RIGHT</u> DRAWING	O BE READ TOO	ETHER.	RVICE AND IS	
		FIRE RESISTANCE RATING (SEE PLANS FOR EXTENTS)	PROT ARCH COPI FOR AND	FECTED BY HITECTS I ES MAY O THE SING MAY NO	COPYRIGHT A DCA INC. COP NLY BE USED LE PROJECT F T BE OFFERE	ND IS THE SOLE IES, INCLUDING FOR THE PURPC OR WHICH THE D FOR SALE (PROPERTY OF ELECTRONIC ISE INTENDED, Y ARE ISSUED OR TRANSFER	
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	SOUND	TRANSMISSION TOTAL WALL			-7			
	FLOOR	R PLAN LEGEND:		\wedge	NORTH			
	BOL	STEEL BOLLARD, REFER TO SPECIFICATIONS.	ŧ		Jan 1			
	BSP	BENT STEEL PLATE TO ALL SIDES OF DOOR OPENING. REFER TO METAL FABRICATION SPECIFICATIONS & DETAILS	oject n	ø				
	FDC	FIRE DEPARTMENT CONNECTION, REFER TO MECHANICAL DOCUMENTS	ā	. 1				
	PDO	LOCATION OF POWER DOOR OPERATOR BUTTON. BUTTON TO BE LOCATED 900-1100m ABOVE GROUND / FLOOR AND 600-1500mm FROM DOOR SWING WHEN DOOR OPENS TOWARDS THE CONTROL.						
	RAL	ROOF ACCESS LADDER, REFER TO SPECIFICATIONS.					I	
	R	OOM NAME → ROOM				A211	Ц	
	F							
	WOO	WINDOW IDENTIFICATION NUMBER,						
						A 21	,	
	<u>00</u>	REFER TO DOOR SCHEDULE COLUMNS w/ BRACE-FRAMF					-	
	—	REFER TO STRUCTURAL DOCUMENTS.						
	FIRE S	EPARATION LEGEND:						
	at camina	= 0 HOUR FIRE RESISTANCE RATING,						
		REFER TO ASSEMBLY SCHEDULE 60 MINUTE FIRE RESISTANCE RATING,	ISSU	E RECORD	D:			
		2 HOUR FIRE RESISTANCE RATING,	NO.	DESCRI	PTION		DATE	
-		REFER TO ASSEMBLY SCHEDULE	1	FOR CLI	ENT REVIEW		2022/05/12	
	EXTER	NOR WALL ASSEMBLIES:	2	FOR CLI	ENT APPROVAL		2022/08/09	
	REFER	TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS.	4	FOR CO	-ORDINATION/R	EVIEW	2022/11/01 2023/02/08	
	EW1	EXTERIOR WALL: STEEL STUD (184mm) 1 OR 2HK. FRK: ULC 453	5	FOR CO	-ORDINATION/R	EVIEW	2023/02/28	
	•	CONTINUOUS MINERAL FIBRE BOARD INSULATION (MINIMUM Rsi 2.6 / R15) c/w 100mm DEEP Z-BAR	6	SUBMIT	TED FOR SPA		2023/04/14	
		SUB-GIRTS WHERE REQUIRED BY EXTERIOR FINISH AIR BARRIER	7	ISSUED	FOR COORDINA		2023/06/16	
	•	16mm EXTERIOR GRADE GYPSUM BOARD	9	ISSUED	FOR COORDINA	TION	2023/06/26	
		BATT INSULATION (TYPE 2 FOR FIRE RATED ASSEMBLY, MIN. Rsi 2.3 / R13)						
	:	6mil POLYETHYLENE VAPOUR BARRIER 16mm TYPE 'X' GYPSUM BOARD (2HR. FRR = x2)						
	1 2 3	ALUMINUM COMPOSITE METAL PANEL c/w SUB- GIRTS; - <u>OR</u> VERTICAL SIDING, c/w SUB-GIRTS, - <u>OR</u> 90mm MASONRY VENEER c/w 25mm AIR SPACE	CII MECI TEL:	MA+ HANICAL, E 613-860-24	ELECTRICAL ANI	O STRUCTURAL E	NGINEERS	
	EV AS RA FIF	VI TO BE CONSTRUCTED AS A NON-RATED FIRE SSEMBLY UNLESS NOTED OTHERWISE. 1 OR 2 HOUR ITED ASSEMBLY BASED ON ULC U453. REFER TO RE SEPARATION PLAN FOR LOCATIONS.	EX CIVIL TEL:	PSEI ENGINEER 613-688-18	RVICES	INC.		
	EW2 INS	SULATED METAL PANEL WALL 1 OR 2HR. FRR: ULC	JA	MES I	B LENNO	X &		
	•	90mm MASONRY VENEER c/w 25mm AIR SPACE (WHERE SHOWN, REFER TO ELEVATIONS)		SOCI	ATES IN	C.		
	:	INSULATED METAL PANEL, MINIMUM Rsi 4.2 / R24 HORIZONTAL CHANNEL GIRT SYSTEM, REFER TO STRUCTURAL DOCUMENTS	TEL:	613-722-51	68			
	EW UN AS	V2 TO BE CONSTRUCTED AS UNRATED ASSEMBLY ILESS NOTED OTHERWISE. 1 OR 2 HOUR RATED ISEMBLY BASED ON ULC. REFER TO FIRE			CONSTR	RUCTION	LTD.	
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	(N4.1) IN	TERIOR WALL, STC 48 (124mm) 1HR. FRR: ULC 453			ハ	1		
	:	16mm TYPE 'X' GYPSUM BOARD 92mm STEEL STUD FRAMING c/w FULL DEPTH RATT INSULATION						
	•	16mm TYPE 'X' GYPSUM BOARD	A	GRO	UP OF	ARCHI	TECTS	
	(N6.1) IN	TERIOR WALL, STC 51 (184mm) 1HR. FRR: ULC 453	20 W	01-1339 WE	LLINGTON ST.	MEST OTTAWA (ON K1Y 3B8 13.725.2294	
	:	16mm TYPE 'X' GYPSUM BOARD 152mm STEEL STUD FRAMING c/w FULL DEPTH BATT INSULATION	PRO.	IECT TITLE				
	•	16mm TYPE 'X' GYPSUM BOARD	1485 0TT		NADA STREET	HOUSE		
	W8.1	16mm TYPE 'X' GYPSUM BOARD	DRAV	VING TITLE				
	•	203mm STEEL STUD FRAMING c/w FULL DEPTH BATT INSULATION 16mm TYPE 'X' GYPSUM BOARD	GF	ROUN	D FLOO	R PLAN		
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FLOOR PLAN NOTES:	GENERAL NOTES
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HETERIO IN ASSEMBLY SCHEDULE CONSTRUCTED AS A NORARED FOR USUATION ASSEMBLY SCHEDULE EXTERIOR WALL ASSEMBLIES: REFER TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS. DECTERIOR WALL STEEL STUD (184mm) 10 R 2HF FRR: ULC 445 CONTINUOUS MIRERAL FIRER BOAD NOULD FIRE SUBGRITS WHERE ROURED BY SUM BOARD ISOM STEEL STUD GRADE DY SUM BOARD ISOM STEEL STUD GRADE DY SUM BOARD ISOM STEEL STUD CARDING AND LIDEPTH BATTINSULATION (CARDING AND ULC 445 CONTINUOUS MIRERAL DIMENDIATION SCHEDER TO BE ADDRESS NOTED OTHERWISE, 10 R 2HF RR 20 ISOM STEEL STUD CARDING AND LIDEPTH BATTINSULATION (TYPE 2 FOR FIRE RATED ASSEMBLY, NUR, 32 (3 (13) Gomil POLYETYTLENE VAPOUR BARRIER IGmm EXTEROR FRR 20 ISOM MASONRY VENEER ON 25mm AIR SPACE IOFT OR CONSTRUCTED AS A NORARED FIRE SEMENT WAS DO ULL (2 4AS, 10 R 2HF RT 20 ISOM MASONRY VENEER ON 25mm AIR SPACE IOFT 2000 INSULATED METAL PANEL WALL 10 R 2HF FRR IOR STRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR STRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR STRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR CONSTRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR STRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR STRUCTED AS A NORARED FIRE SEMARTION PLAN FOR LOCATIONS INSULATED METAL PANEL WALL IOR 2HF FRR IOR STRUCTED AS NORARED INSULATED METAL PANEL WALL IOR AND AS STRUCTED AS NORARED INSULATED METAL PANEL WALL IOR AND AS STRUCTED AS NORARED INSULATED METAL PANEL WALL IOR STRUCTURED AS NORARED INSULATED METAL PANEL WALL IOR STRUCTED AS NORARED INSULATED INTERIOR WALL ASSEMBLIES ARE TO BE CONSTRUCTED AS NORARED INSULATE	NO. DESCRIPTION DATE 1 FOR CLIENT REVIEW 2022/05/12 2 FOR CLIENT REVIEW 2022/05/12 2 FOR CLIENT APPROVAL 2022/06/09 3 FOR REVIEW 2022/01/01 4 FOR CO-ORDINATION REVIEW 2022/01/01 4 FOR CO-ORDINATION REVIEW 2023/02/28 6 SUBMITTED FOR SPA 2023/02/16 8 (A100) ISSUED FOR COORDINATION 2023/06/16 9 ISSUED FOR COORDINATION 2023/07/14 CLIMA+ MECHANICAL ELECTRICAL AND STRUCTURAL ENGINEERS TEL: 613-860-2462 EXPSOCIATES INC. CIVIL ENGINEERS INC. LANDSCAPE ARCHITECTS INC. LANDSCAPE ARCHITECTS INC. LANDSCAPE ARCHITECTS ELEGITAREACONTRACTOR DOLYN CONSTRUC
BATT INSULATION 16mm TYPE 'X' GYPSUM BOARD INTERIOR WALL, STC 51+ (235mm) ULC 453 203mm STEEL STUD FRAMING o'w FULL DEPTH BATT INSULATION 16mm TYPE 'X' GYPSUM BOARD	KONSON WAREHOUSE 1485 UPPER CANADA STREET OTTAWA, ON, IKA 110 DRAWING TITLE GROUND FLOOR PLAN DATE DRAWN SCALE REVIEWED DR 17D ARCHITECTURAL



FLOOR PLAN NOTES:	GENERAL NOTES
ALL INTERIOR WALL ASSEMBLIES TO BE CONSTRUCTED FON FLOOR TO US OF FLOOP (POOF ABOVE, UNLESS NOTED OTHERWISE (SEE REFLECTED CELLIN PLAN). REFER TO FLOOR PLANS FOR EXTENTS OF FIRE RATED WALL ASSEMBLIES. WALL ASSEMBLIES. WALL ASSEMBLIES WAN STC RATING INDICATED IN THE ASSEMBLY SOCHEDULE TO RECEIVE ACOUSTIC SEALANT ASSEMBLY TO FT HE PRESSED STELL FRAME SUPPLIER. THROAT WOTH OF ALL DOOR A WINDOW TRAMES TO BE SUED TO ACCEPT FULL THICKNESS OF FRAMED OR COONORTE BLOCK IS NOT TO BE FLUSH WITH, OR PROUD OF FRAME. FANT ALL EXPOSED STELL IN NEW BUILDING, INCLUDING STRUCTURAL STELL FIRE RESISTANCE RATING (SEE PLANS FOR EXTENTS) WALL DESCRIPTION, STC (000mm) FRR SOUND TRANSMISSION TOTAL WALL THICKNESS FLOOR PLAN LEGEND: BOL STEEL BOLARD, REFER TO SPECIFICATIONS. BEIN STELL PLATE TO ALL SIDES OF DOOR OPENING. TEFEN TOMETAL FABRICATION SPECIFICATIONS. BEIN STELL PLATE TO ALL SIDES OF DOOR OPENING. TEFEN TOMETAL FABRICATION SPECIFICATIONS. BEIN STELL PLATE TO ALL SIDES OF DOOR OPENING. TEFEN TOMETAL FABRICATION SPECIFICATIONS. BEIN STELL PLATE TO ALL SIDES OF DOOR OPENING. TEFEN TO METAL FABRICATION SPECIFICATIONS. ROOF ACCESS LADDER, REFER TO SPECIFICATIONS. ROOF ACCESS LADDER, REFER TO SPECIFICATIONS. ROOF ACCESS LADDER, REFER TO SPECIFICATIONS. ROOM NAME REFER TO WINDOW DENTIFICATION NUMBER, REFER TO WINDOW SCHEDULE ODOR DENTIFICATION NUMBER, REFER TO WINDOW SCHEDULE ODOR DENTIFICATION NUMBER, REFER TO WINDOW SCHEDULE DOOR SUMMY WEND DOOR OPENS TOWARDS THE CONTROL. WINDOW DENTIFICATION NUMBER, REFER TO DONG SCHEDULE ODOR DENTIFICATION NUMBER, REFER TO WINDOW SCHEDULE ODOR DENTIFICA	1. Do NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED. WHERE DOUBT EXISTS; FILE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. T IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERTY DIMENSIONS ON SITE; REPORT CONTRACTOR SITE OF COMPLY WITH DE CURRENT ALL WORK DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY AND ARE TO BE READ TOGETHER. COPYEINT THE DEB READ TOGETHER. COPYEIGHT THE DRAWING IS AN INSTRUMENT OF SERVICE AND IS PROTECTED BY COPYRIGHT AND IS THE SOLE OR TRAVERSE THE SINGLE PROJECT FOR WHICH THEY ARE ISSUED AND MAY NOT BE OFFERED FOR SALE OR TRAVERSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE ARCHITECT. A210 A211 A210 A211
# I = I = 0 HOUR FIRE RESISTANCE RATING, REFER TO ASSEMBLY SCHEDULE	
60 MINUTE FIRE RESISTANCE RATING, REFER TO ASSEMBLY SCHEDULE	ISSUE RECORD:
2 HOUR FIRE RESISTANCE RATING, REFER TO ASSEMBLY SCHEDULE	NO. DESCRIPTION DATE 1 FOR CLIENT REVIEW 2022/05/12
EXTERIOR WALL ASSEMBLIES:	2 FOR CLIENT APPROVAL 2022/08/09
REFER TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS.	3 FOR REVIEW 2022/11/01 4 FOR COLORDINATION//REVIEW 2022/02/02
EXTERIOR WALL: STEEL STUD (184mm) 1 OR 2HR. FRR: ULC 453	• FOR CO-ORDINATION/REVIEW 2023/02/08 5 FOR CO-ORDINATION/REVIEW 2023/02/28
CONTINUOUS MINERAL FIBRE BOARD INSULATION (MINIMUM Rsi 2.6 / R15) c/w 100mm DEEP Z-BAR	6 SUBMITTED FOR SPA 2023/04/14
SUB-GIRTS WHERE REQUIRED BY EXTERIOR FINISH AIR BARRIER	7 ISSUED FOR COORDINATION 2023/06/16 8 (A100) ISSUED FOR COORDINATION 2023/06/26
Imm EXTERIOR GRADE GYPSUM BOARD SHEATHING (2Hr. FRR + z2) IS2mm STEEL STUD FRAMING of WFULL DEPTH BATT INSULATION (VTPE 2 FOR FIRE ARED ASSEMBLY, MIN. Rai 2.3 / R13) 6mil PO/LYTHYLENE VAPOUR BARRIER Imm TYPE 'X' GYPSUM BOARD (2Hr. FRR = x2)	9 ISSUED FOR COORDINATION 2023/07/14
ALUMINUM COMPOSITE METAL PANEL dv SUB- GIRTS, <u>OR.</u> VERTICAL SIDING, dv SUB-GIRTS, <u>OR.</u> SOMM MASONRY VENEER dv Z5mm AIR SPACE EWI TO BE CONSTULCTED AS A NON-RATED FIRE EWI TO BE CONSTULCTED AS A NON-RATED FIRE	CIMA+ MECHANICAL, ELECTRICAL AND STRUCTURAL ENGINEERS TEL: 613-860-2462 EXP SERVICES INC.
ASSEMBLT UNLESS NUTED UTHERWISE. 1 OR 2 HOUR RATED ASSEMBLY BASED ON LUC 4453. REFER TO FIRE SEPARATION PLAN FOR LOCATIONS.	CIVIL ENGINEERS TEL: 613-688-1899 JAMES B LENNOX &
90mm MASONRY VENEER olw 25mm AIR SPACE (WHERE SHOWN, PEFER TO LELVATIONS) INSULATED METAL PANEL, MINIMUM Rsi 4.2 / R24 HORIZONTAL CHANNEL GIRT SYSTEM, REFER TO STRUCTURAL DOCUMENTS	ASSOCIATES INC. LANDSCAPE ARCHTECTS TEL: 013-722-5188 <u>GENERAL CONTRACTOR</u>
EW2 TO BE CONSTRUCTED AS UNRATED ASSEMBLY UNLESS NOTED OTHERWISE: 10 R 2 HOUR RATED ASSEMBLY BASED ON ULC REFER TO FIRE SEPARATION PLAN FOR LOCATIONS.	DOLYN CONSTRUCTION LTD. 888 LADY ELLEN PLACE, 0TTAWA, ON K12 5L5, CANADA TEL: 613-224-7268
INTERIOR WALL ASSEMBLIES ARE TO BE CONSTRUCTED AS NON-RATED FIRE ASSEMBLIES UNLESS NOTED OTHERWISE. FIRE RATED ASSEMBLIES UNLESS NOTED OTHERWISE. TO FIRE SEPARATION PLAN FOR LOCATIONS AND REFER TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS. INTERIOR WALL, STC 48 (124mm) ULC 453 10mm TYDE X: GYPSUM BOARD 10mm TYDE X: GYPSUM BOARD 10mm TYDE X: GYPSUM BOARD 10mm TYDE X: GYPSUM BOARD	A GROUP OF ARCHITECTS
I6mm TYPE 'X' GYPSUM BOARD I52mm STEEL STUD FRAMING dw FULL DEPTH BATT INSULATION I6mm TYPE 'X' GYPSUM BOARD	WWW.ARCHITEL: SUCA.COM 613.725.2294 PROJECT TITLE KONSON WAREHOUSE 1485 UPPER CANADA STREET
INTERIOR WALL, STC 51+ (235mm) HR. F.RE. ULC 453 I6mm TYPE ½ GYPSUM BOARD 203mm STEEL STUD FRAMING dw FULL DEPTH BATT INSULATION 16mm TYPE ½ GYPSUM BOARD	OTTAWA, ON, KOA 1LD DRAWING TITLE GROUND FLOOR PLAN
	DATE DRAWN JOB NO. DRAWING NO. JAN 2023 BR J DR SCALE REVIEWED JOB 10 DR TD 3482 A212
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FLOOR PLAN NOTES:	GENERAL NOTES				
ALL INTERIOR WALL ASSEMBLIES TO BE CONSTRUCTED FROM FLOOR TO us OF FLOOR / ROOF ABOVE, INLESS NOTED OTHERWISE, (BE REFLECTE D CHING FLAN). REFER TO FLOOR PLANS FOR EXTENTS OF FIRE RATED WALL ASSEMBLIES WALL ASSEMBLY THICKNESSES ARE INDICATED IN THE BENEFIT OF THE PRESSED STELL FRAME SUPPLIER THROR TWO HTH OF ALL DOTA AN BODDRY FUNCTION SETCION 092116 (3.) WALL ASSEMBLY THICKNESSES ARE INDICATED FOR THE BENEFIT OF THE PRESSED STELL FRAME SUPPLIER THROR TWO HTH OF ALL DOTA AN BODDRY HAVED OR CONCRETE BLOCK WALL ASSEMBLY. GYPSUM BOARD / CONCRETE BLOCK WALL ASSEMBLY. GYPSUM BUILDING, INCLUDING STRUCTURAL STELL FIRE RESISTANCE RATING (BEE PLANS FOR EXTENTS) TOTAL WALL FIRE RESISTANCE RATING (BEE PLANS FOR EXTENTS) FIRE TELL PLANCE OR TO SPECIFICATIONS. BOANT STELL	I. DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED. WHERE DOUBT EXISTS: FLIE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO YEAR'S MILLIONS ON SITE: REPORT DISCREPANCIES TO THE ARCHITECT PROMPTLY. GENERAL CONTRACTOR TO TAKE INTO ADCOUNT GONERAL CONTRACTOR TO TAKE INTO ADCOUNT ALL WORK DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS ARE TO COMPLY WITH THE CURRENT EDITION OF THE ONTARIO BUILDING CODE (2012) OR NATIONAL BUILDING CODE (2012) INCLUDING MOST AND ARE TO BE READ TOGETHER. COPYRIGHT THIS DRAWING SAN INSTRUMENT OF SERVICE AND IS AND ARE TO BE READ TOGETHER. COPYRIGHT THIS DRAWING SAN INSTRUMENT OF SERVICE AND IS ROTICLEDER ON AND SHED FOR THE PURPOSE INTENDED. FOR THE SINGLE PROPERTY OF RATIONAL ONLY BUILDING TO THE VERPOSE INTENDED. FOR THE SINGLE PROPERTY OF RATIONAL ONLY BUILDING THEY ADD ARE TO BE READ TOGETHER. COPYRIGHT THIS DRAWING SAND SPECIFIC FOR THE VIEP ADE ISSUE AND ARY ONLY BUILDING ADD ARE COMPLEMENTARY AND ARE TO BE READ TOGET FOR WHICH THEY ARE ISSUED AND ARY ONLY BUILDING TO THE VIEP ADD ARE ON THE ANSFER WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE ARCHITECT.				
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DOCUMENTS.	4				
FIRE SEPARATION LEGEND:	4				
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60 MINUTE FIRE RESISTANCE RATING, REFER TO ASSEMBLY SCHEDULE	ISSUE RECORD:				
2 HOUR FIRE RESISTANCE RATING,	NO. DESCRIPTION DATE				
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EXTERIOR WALL ASSEMBLIES:	2 FOR CLIENT APPROVAL 2022/08/09				
REFER TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS.	3 FOR REVIEW 2022/11/01				
EXTERIOR WALL: STEEL STUD (184mm) 1 OR 2HR. FRR: ULC 453	4 FOR CO-ORDINATION/REVIEW 2023/02/08 5 FOR CO-ORDINATION/REVIEW 2023/02/08				
EXTERIOR FINISH, REFER TO ELEVATIONS CONTINUOUS MINERAL FIBRE BOARD INSULATION	6 SUBMITTED FOR SPA 2023/02/28				
(MINIMUM Rsi 2.6 / R15) c/w 100mm DEEP Z-BAR SUB-GIRTS WHERE REQUIRED BY EXTERIOR	7 ISSUED FOR COORDINATION 2023/06/16				
HINSH AIR BARRIER Inmm EXTERIOR GRADE GYPSUM BOARD K/0	8 (A100) ISSUED FOR COORDINATION 2023/06/26				
SHEATHING (2HR, FRR = x2) 152mm STEEL STUD FRAMING c/w FULL DEPTH	9 ISSUED FOR COORDINATION 2023/07/14				
BATT INSULATION (TYPE 2 FOR FIRE RATED ASSEMBLY, MIN. Rsi 2.3 / R13)					
timil PULYETHYLENE VAPOUR BARRIER 16mm TYPE 'X' GYPSUM BOARD (2HR. FRR = x2)					
ALUMINUM COMPOSITE METAL PANEL o'W SUB- GIRTS. <u>OR:</u> VERTICAL SIDING, o'W SUB-GIRTS, <u>OR:</u> 90mm MASONRY VENEER o'W 25mm AIR SPACE	CIMA+ MECHANICAL, ELECTRICAL AND STRUCTURAL ENGINEERS TEL: 613-860-2462				
EWI TO BE CONSTRUCTED AS A NON-RATED FIRE ASSEMBLY UNLESS NOTED OTHERWISE. I OR 2 HOUR RATED ASSEMBLY BASED ON ULC U453. REFER TO FIRE SEPARATION PLAN FOR LOCATIONS.	EXP SERVICES INC. CIVIL ENGINEERS TEL: 613-688-1899				
EW2 INSULATED METAL PANEL WALL 1 OR 2HR. FRR: ULC	JAMES B LENNOX &				
 90mm MASONRY VENEER c/w 25mm AIR SPACE (WHERE SHOWN, REFER TO ELEVATIONS) 	ASSOCIATES INC. LANDSCAPE ARCHITECTS				
 INSULATED METAL PANEL, MINIMUM Rsi 4.2 / R24 HORIZONTAL CHANNEL GIRT SYSTEM, REFER TO STRUCTURAL DOCUMENTS 	TEL: 613-722-5168				
EW2 TO BE CONSTRUCTED AS UNRATED ASSEMBLY					
UNLESS NOTED OTHERWISE. 1 OR 2 HOUR RATED ASSEMBLY BASED ON ULC REFER TO FIRE SEPATION I AN FOR I CONTINUE	BOLTIN CONSTRUCTION LTD. 888 LADY ELLEN PLACE, OTTAMA ON LET PLACE,				
	GT ATWA, UN KTZ 203, CANADA TEL: 613-224-7268				
INTERIOR WALL ASSEMBLIES:					
INTERIOR WALL ASSEMBLIES ARE TO BE CONSTRUCTED AS NON-RATED FIRE ASSEMBLIES UNLESS NOTED OTHERWISE. FIRE RATED ASSEMBLIES ARE BASED ON LUC 4053. REFER TO FIRE SEPARATION PLAN FOR LOCATIONS AND REFER TO ULC DOCUMENTS FOR ASSEMBLY REQUIREMENTS.	$\Box \cap \Delta$				
(N4.) INTERIOR WALL, STC 48 (124mm) 1HR. FRR: ULC 453					
16mm TYPE 'X' GYPSUM BOARD 92mm STEEL STUD FRAMING c/w FULL DEPTH BATT INSULATION					
16mm TYPE 'X' GYPSUM BOARD	A GROUP OF ARCHITECTS				
(N6.) INTERIOR WALL, STC 51 (184mm) 1HR. FRR: UI C 453	201-1339 WELLINGTON ST. WEST OTTAWA ON K1Y 3B8 WWW.ARCHITECTSDCA.COM 613 725 2294				
16mm TYPE 'X' GYPSUM BOARD 152mm STEEL STUD FRAMING c/w FULL DEPTH	PROJECT TITLE				
BATT INSULATION BATT INSULATION BATT INSULATION BATT INSULATION	KONSON WAREHOUSE				
M8.1 INTERIOR WALL, STC 51+ (235mm) 1HR. FRR:	1485 UPPER CANADA STREET OTTAWA ON K0A 110				
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16mm TYPE 'X' GYPSUM BOARD 203mm STEEL STUD FRAMING c/w FULL DEPTH					
timm TYPE 'X' GYPSUM BOARD 203mm STEEL STUD FRAMING ow FULL DEPTH BATT INSULATION 16mm TYPE 'X' GYPSUM BOARD	DRAWING TITLE SECOND FLOOR PLAN				
têmm TYPE X' GYPSUM BOARD 203mm STEEL STUD FRAMING dw FULL DEPTH BATT INSULATION 16mm TYPE X' GYPSUM BOARD	DRAWING TITLE SECOND FLOOR PLAN DATE DRAWN JAN 2023 BR JDR SCALF BR JDR 3482 DRAWING NO. A215				
I6mm TYPE X: GYPSUM BOARD Z03mm STEEL STUD FRAMING dw FULL DEPTH BATT INSULATION I6mm TYPE X: GYPSUM BOARD	DRAWING TITLE SECOND FLOOR PLAN DATE DRAWN JAN 2023 BR DR SCALE REVIEWED 3482 A215 DR TD				
16mm TYPE X: GYPSUM BOARD 20mm STEEL STUD FRAMING dw FULL DEPTH BATT INSULATION 16mm TYPE X: GYPSUM BOARD	DRAWING TITLE SECOND FLOOR PLAN DATE DRAWN JAN 2023 BR I DR SCALE REVIEWED 3482 A215 ARCHITECTURAL				



	ROOF PLAN NOTES: 1. MECHANICAL EQUIPMENT SHOWN FOR COORDINATION PURPOSES. REFER TO MECHANICAL DOCUMENTS. ROOF ASSEMBLIES: TYPICAL ROOF 2.PLY MODIFIED BITUMINOUS MEMBRANE OVERLAY PROTECTION BOARD OVERLAY PROTECTION BOARD	GENERAL NOTES 1. DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED. WHERE DOUBT EXISTS; FILE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. 2. DIT TRATEGRAVE TO THE ADDRESS TO SEARCHAL DISCREPANCIES TO THE ARCHTECT PROMPTLY. 3. GENERAL CONTRACTOR TO TAKE NON SITE: REPORT DISCREPANCIES TO THE ARCHTECT PROMPTLY. 4. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT TO COORDINATE THE WORK OF DIFFERENT TRADES TO COMPLY WITH DESIGN INTENT. 4. ALL WORK DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS ARE TO COMPLY WITH THE CURRENT EDITION OF THE ONTARIO BUILDING CODE (2012) OR MECENITAMENDMENTS. 5. DRAWINGS AND SRECHCATIONS ARE COMPLEMENTARY AND ARE TO BE READ TOGETHER. COPYRIGHT THIS DRAWING IS AN INSTRUMENT OF SERVICE AND IS PROTECTED BY COPYRIGHT AND IS THE SOLE PROPERTY OF ARCHITECTS DGA. INC. COPIES, INCLUDING ELECTRONIC OFOR THE SINGLE PROJECT FOR WHICH THEY ARE ISSUED AND MAY NOT BE OFFERED FOR SALE OR THANSER WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE ARCHITECT.				
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	ROOF PLAN NOTES:	GENE	RAL NOTES		
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ROOF PLAN NOTES:	GENERAL NOTES			
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	MECHANICAL, ELECTRICAL AND STRUCTURAL ENGINEERS			
	TEL: 613-860-2462			
	EXP SERVICES INC.			
	CIVIL ENGINEERS TEL: 613-688-1899			
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	LANDSCAPE ARCHITECTS			
	TEL: 613-722-5168			
	GENERAL CONTRACTOR			
	DOLYN CONSTRUCTION LTD.			
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FLOOR PLAN NOTES:			GENERAL NOTES				
ALL INTERIOR WALL ASSEMBLIES TO BE CONSTRUCTED FROM FLOOR TO us OF FLOOR / ROOF ABOVE, UNLESS NOTED OTHERWISE (SEE REFLECTED CEILING PLAN). BEFER TO FLOOR PLANS FOR EXTENTS OF FIRE PATED.			DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED WHERE DOUBT EVAINTS: FILE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. TI SI THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY DIMENSIONS ON SITE, REPORT DISCREPANCIEST OT HE ARCHITECT PROMPTLY.				
	WALL ASSEMBLIES.			DISCREPANCIES TO THE ARCHITECT PROMPTLY. 3. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT CONSTRUCTION TOLERANCE; GENERAL CONTRACTOR			
	 WALL ASSEMBLIES ASSEMBLY SCHED AS DESCRIBED IN S 	w/ AN STC RATING INDICATED IN THE ULE TO RECEIVE ACOUSTIC SEALANT SPECIFICATION SECTION 09 21 16 (3.3)	CONSTRUCTION TOLERANCE; GENERAL CONTRACT TO COORDINATE THE WORK OF DIFFERENT TRADES COMPLY WITH DESIGN INTENT.				
	4. WALL ASSEMBLY T	HICKNESSES ARE INDICATED FOR THE	4.	ALL WORK DESCRIBED SPECIFICATIONS ARE TO	IN THESE DR. COMPLY WITH T	AWINGS AND THE CURRENT DE (2012) OR	
	BENEFIT OF THE P THROAT WIDTH OF SIZED TO ACCEPT CONCRETE BLOCK CONCRETE BLOCK	ALSED STEEL FRAME SUPPLIEN. ALL DOOR & WINDOW FRAMES TO BE FULL THICKNESS OF FRAMED OR WALL ASSEMBLY. GYPSUM BOARD / IS NOT TO BE FLUSH WITH. OR PROUD	5. 1	NATIONAL BUILDING COL RECENT AMENDMENTS. DRAWINGS AND SPECIFIC/ AND ARE TO BE READ TOG	DE (2010) INCL ATIONS ARE COM ETHER.	UDING MOST	
	OF FRAME. 5. PAINT ALL EXPOSE STRUCTURAL STEE	D STEEL IN NEW BUILDING, INCLUDING -L.	COP THIS PRO	<u>(RIGHT</u> DRAWING IS AN INSTR FECTED BY COPYRIGHT AN	UMENT OF SER	VICE AND IS PROPERTY OF	
		TIRE RESISTANCE RATING SEE PLANS FOR EXTENTS)	COP FOR AND WITH ARC	ES MAY ONLY BE USED F THE SINGLE PROJECT F MAY NOT BE OFFEREN IOUT THE EXPRESS WF	OR THE PURPO OR WHICH THEY D FOR SALE O RITTEN PERMISS	R TRANSFER	
	SOUND TRANSMISSION	TOTAL WALL THICKNESS					
	FLOOR PLAN LEGEND:			A JOET			
	BOL STEEL BOLLAR	D, REFER TO SPECIFICATIONS.	but	KCTUPE []			
	BSP REFER TO MET, DETAILS.	AL FABRICATION SPECIFICATIONS &	roject r	.ø			
	FDC FIRE DEPARTM MECHANICAL D	ENT CONNECTION, REFER TO OCUMENTS	-	. 1			
	PDO LOCATION OF P BUTTON TO BE GROUND / FLOO SWING WHEN D CONTROL.	OWER DOOR OPERATOR BUTTON. LOCATED 900-1100mm ABOVE DR AND 600-1500mm FROM DOOR IOOR OPENS TOWARDS THE					
	RAL ROOF ACCESS	LADDER, REFER TO SPECIFICATIONS.					
	ROOM NAME						
	FLOOR FINISH, SE						
	W000 WINDOW	DENTIFICATION NUMBER,					
		O WINDOW SCHEDULE					
	REFER TO	DOOR SCHEDULE COLUMNS W/ BRACE-FRAME					
	★ ★ ←	REFER TO STRUCTURAL DOCUMENTS.					
	FIRE SEPARATION LEG	END:					
		RE RESISTANCE RATING,					
	60 MINUTE	FIRE RESISTANCE RATING,	ISSL	IE RECORD:			
	2 HOUR FI	ASSEMBLY SCHEDULE RE RESISTANCE RATING, ASSEMBLY SCHEDULE	NO.	DESCRIPTION		DATE	
			1	FOR CLIENT REVIEW		2022/05/12	
	EXTERIOR WALL ASSEM		2	FOR REVIEW		2022/08/09	
	EXTERIOR WALL: S	TEEL STUD (184mm) 1 OR 2HR. FRR:	4	FOR CO-ORDINATION/RE	EVIEW	2023/02/08	
	EXTERIOR FINI	ULC 453	5	FOR CO-ORDINATION/RE	EVIEW	2023/02/28	
	(MINIMUM Rsi 2 SUB-GIRTS WH	ERE REQUIRED BY EXTERIOR	6	SUBMITTED FOR SPA	TION	2023/04/14	
	FINISH AIR BARRIER 16mm EXTERIO		8	(A100) ISSUED FOR COC	RDINATION	2023/06/26	
	 SHEATHING (2) 152mm STEEL 5 	HR. FRR = x2)	9	ISSUED FOR COORDINA	TION	2023/07/14	
	ASSEMBLY, MII • 6mil POLYETHY	N. Rsi 2.3 / R13) LENE VAPOUR BARRIER					
	16mm TYPE 'X' 1. ALUMINUM C	GYPSUM BOARD (2HR. FRR = x2)					
	GIRTS, <u>-OR-</u> 2. VERTICAL SIE 3. 90mm MASON	DING, c/w SUB-GIRTS, <u>-OR-</u> IRY VENEER c/w 25mm AIR SPACE	MEC TEL:	VIA+ HANICAL, ELECTRICAL ANE 613-860-2462	STRUCTURAL E	NGINEERS	
	EW1 TO BE CONST ASSEMBLY UNLESS RATED ASSEMBLY I FIRE SEPARATION I	RUCTED AS A NON-RATED FIRE 5 NOTED OTHERWISE. 1 OR 2 HOUR BASED ON ULC U453. REFER TO PLAN FOR LOCATIONS.	EX CIVIL TEL:	PSERVICES ENGINEERS 613-688-1899	INC.		
	EW2 INSULATED METAL	PANEL WALL 1 OR 2HR. FRR: ULC_	JA	MES B LENNO	X &		
	 90mm MASONR (WHERE SHOW) 	Y VENEER c/w 25mm AIR SPACE N, REFER TO ELEVATIONS)		SOCIATES IN	C.		
	 INSULATED ME HORIZONTAL C STRUCTURAL E 	TAL PANEL, MINIMUM Rsi 4.2 / R24 HANNEL GIRT SYSTEM, REFER TO DOCUMENTS	TEL:	613-722-5168			
	EW2 TO BE CONSTR UNLESS NOTED OT	RUCTED AS UNRATED ASSEMBLY HERWISE, 1 OR 2 HOUR RATED		LYN CONSTR	RUCTION	LTD.	
	ASSEMBLY BASED SEPARATION PLAN	ON ULC REFER TO FIRE FOR LOCATIONS.	888 L OTT/	ADY ELLEN PLACE, WA, ON K1Z 5L5,			
	INTERIOR WALL ASSEM	BLIES:	CAN/ TEL:	613-224-7268			
	INTERIOR WALL ASSEM	BLIES ARE TO BE CONSTRUCTED AS			_		
	FIRE RATED ASSEMBLIE TO FIRE SEPARATION F	ES ARE BASED ON ULC U453. REFER					
		C 48 (124mm)					
	• 16mm TYPE 'X'	ULC 453 GYPSUM BOARD					
	 92mm STEEL S BATT INSULATI 16mm TVPE IV 	TUD FRAMING c/w FULL DEPTH ON GYPSUM BOARD		GROUP OF	ARCHI	FCTE	
		<u>C 51 (184mm)</u> 1HR. FRR:	2	D1-1339 WELLINGTON ST. V		N K1Y 3B8	
	• 16mm TYPE 'X'	ULC 453 GYPSUM BOARD	W	WW.ARCHITECTSDCA.COM	M 6	13.725.2294	
	 152mm STEEL S BATT INSULATI 16mm TYPE 'X' 	O OD FRAMING C/W FULL DEPTH ON GYPSUM BOARD	KC	NSON WARE	HOUSE		
	W8.1 INTERIOR WALL, ST	C 51+ (235mm) 1HR. FRR:	1485 OTT/	UPPER CANADA STREET WA, ON, K0A 1L0			
	• 16mm TYPE 'X'	ULC 453 GYPSUM BOARD	DRAV	VING TITLE			
	DOWN STEELS BATT INSULATI 16mm TYPE 'X'	ON GYPSUM BOARD	SE ED	COND FLOOF	RDECK		
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			S	CALE REVIEWED DR TD	3482	A215	
				ARCHITE	CTURAL		



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_	OPENING IN ROOF DECK, REFER TO STRUCTURAL DOCUMENTS FOR FRAMING	4. /	CONSTRUCTION TOLERAN O COORDINATE THE WOR SOMPLY WITH DESIGN INTE LLL WORK DESCRIBED PECIFICATIONS ARE TO (DITION OF THE ONTARIC IATIONAL BUILDING COD	CE; GENERAL K OF DIFFEREN NT. IN THESE DR COMPLY WITH " D BUILDING CO IE (2010) INCL	CONTRACTOR IT TRADES TO AWINGS AND THE CURRENT DE (2012) OR UDING MOST
		5. E	CECENT AMENDMENTS. PRAWINGS AND SPECIFICA AND ARE TO BE READ TOGE (RIGHT	TIONS ARE COM THER.	IPLEMENTARY
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		4	FOR CO-ORDINATION/RE	VIEW	2023/02/08
		5	FOR CO-ORDINATION/RE	VIEW	2023/02/28
		6	SUBMITTED FOR SPA		2023/04/14
		7	ISSUED FOR COORDINAT		2023/06/16
		8	(A100) ISSUED FOR COOPDINAT		2023/06/26
		CI	ла+		2023/07/14
		MECH TEL:	ANICAL, ELECTRICAL AND 513-860-2462	STRUCTURAL E	NGINEERS
			ENGINEERS 513-688-1899 MES B LENNO	X &	
		AS LAND	SOCIATES INC SCAPE ARCHITECTS 513-722-5168	С.	
		GENE DC 888 L OTTA CANA TEL:	RAL CONTRACTOR DLYN CONSTR ADY ELLEN PLACE, WA, ON K1Z 5L5, JA 313-224-7268	UCTION	LTD.
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-	DECK EDGE LEGEND: SLOPED ROOF DECK, REFER TO STRUCTURAL DOCUMENTS BOOLDO CONTROL GEODETIC ELEVATION: TOP OF STEL OPENING IN ROOF DECK, REFER TO STRUCTURAL DOCUMENTS FOR FRAMING	GENE 1. L & A 2. If T C C L C C C C C	RELLADIES REAL DEAL DRAWINGS: ONLY FIGUR RE TO BE USED WHERE DOUBT EXIST RE TO BE USED WHERE DOUBT EXIST OR INTERPRETATION AND ROUBST CLUEST CL I IS THE RESPONSIBILITY OF SIGNERATION TO VERITY DIMENSIONS C ISOREPANCIES TO THE ARCHTECT PRO ISONEPANCIES AN INSTRUMENT OF S IS	ED DIMENSIONS ; FILE REQUEST RITY. THE GENERAL NOTE: REPORT MPTLY. NTO ACCOUNT COUNTACTOR NOT ACCOUNT COUNTACTOR NOT ACCOUNT COUNTACTOR DRAWINGS AND THE CURRENT JODE (2012) OR DAVID COUNTACTOR DAVID REVICE AND IS E PROPERTY OF G ELECTRONIC COSE INT ROBED OF ELECTRONIC COSE INT ROBED OF TRANSFER SSION OF THE
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	DECK EDGE LEGEND:	GEN	ERAL NOT	ES		
	SLOPED ROOF DECK, REFER TO STRUCTURAL DOCUMENTS GEODETIC ELEVATION: TOP OF STELE OPENING IN ROOF DECK, REFER TO STRUCTURAL DOCUMENTS FOR FRAMING	1. C F C C C C C C C C C C C C C	DO NOT S'ARE TO BI OR INTER SOR INTE	CALE DRAWING CALE DRAWING USD. WHERE USD. WHERE RESPONSE USD. WHERE RESPONSE USD. WHERE RESPONSE USD. WHERE RESPONSE USD. WHERE RESPONSE CONTRACTOR USD. CONTRACTOR WITH DESIGN IN WITH DESIGN IN WITH DESIGN IN WITH DESIGN IN WITH DESIGN IN BUILDING CONTRACTOR BUILDING CONTRACTOR BUILING CONTRACTOR BUILING CONTRACTOR BUILING CONTRACTOR BUILING CO	S; ONLY FIGUE DOUBT EXIST D REQUEST CL BULTY OF D REQUEST CL BULTY OF D REQUEST CL BULTY OF D REQUEST D RE	EED DIMENSIONS SILLE REQUEST ARITY. INTERCEDENT METTEREPORT METTEREPORT METTEREPORT METTEREPORT METTEREPORT METTEREPORT OF ALLESSION OMPLEMENTARY ERVICE AND IS EPROPERTY OF ALLESSION OF THE SSION OF THE
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	REFLECTED CEILING PLAN NOTES:	GENE	RAL NOTES			
00	REFER TO FLOOR PLANS FOR LOCATIONS OF FIRE RATED ASSEMBLIES. SUSPENDED CEILING MAY FORM PART OF THIS SYSTEM. PROVIDE CONTROL JOINTS IN GYPSUM BOARD CEILINGS OR BULKHEADS AS INDICATED AND AS INDICATED IN SECRET/CONTROL SECRET.	1. E F 2. I G 3. C	OO NOT SCALE DRAWING ARE TO BE USED. WHER FOR INTERPRETATION AI T IS THE RESPON CONTRACTOR TO VERIF DISCREPANCIES TO THE SENERAL CONTRACTO	SS; ONLY FIGURE E DOUBT EXISTS; ND REQUEST CLAF SIBILITY OF TI Y DIMENSIONS ON ARCHITECT PROM R TO TAKE IN	D DIMENSIONS FILE REQUEST RITY. HE GENERAL SITE; REPORT IPTLY. TO ACCOUNT	
	INDICATED IN SPECIFICATION SECTION 09 21 16 (3.4). ALIGN CONTROL JOINTS WIGRID LINES. 3. WHERE FINISHED CELLINGS ARE NOT PROVIDED AND THE BUILDING STRUCTURE IS BEING PAINTED;	3. 0 1 4. 4	CONSTRUCTION TACTO CONSTRUCTION TACTO TO COORDINATE THE W COMPLY WITH DESIGN IN ALL WORK DESCRIBEI SPECIFICATIONS ARE T	ANCE; GENERAL ORK OF DIFFEREI ITENT. D IN THESE DF D COMPLY WITH	CONTRACTOR NT TRADES TO RAWINGS AND THE CURRENT	
-	DUCTWORK, CONDUITS, PIPING, ETC. IS TO BE PAINTED AS INDICATED IN SPECIFICATION SECTION 09 91 23 (2.5). CEILING ASSEMBLIES:	5. D	ATION OF THE ONTA ATIONAL BUILDING C RECENT AMENDMENTS. DRAWINGS AND SPECIFI AND ARE TO BE READ TO	CATIONS ARE CO	DE (2012) OR UDING MOST	
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	SUSPENDED GYPSUM BOARD SUSPENDED GYPSUM BOARD Zzmm STEEL FURRING @ 600mm O/C SUSPENDED CHANNELS @ 1.2m O/C C/W WIRE HANGERS @ 1.2m O/C	THIS PROT ARCH	DRAWING IS AN INST ECTED BY COPYRIGHT HITECTS DCA INC. CC	RUMENT OF SEI AND IS THE SOLE IPIES, INCLUDING	RVICE AND IS PROPERTY OF ELECTRONIC	
	CL2 SHAFT WALL CEING 2HR. FRR: ULC ER3660-01 2x LAYER OF 16mm TYPE 'X' GYPSUM BOARD 64mm STEEL C-H STUD FRAMING @ 610mm O/C C/W	FOR AND WITH ARCH	THE SINGLE PROJECT MAY NOT BE OFFER OUT THE EXPRESS V HITECT.	FOR WHICH THE ED FOR SALE (VRITTEN PERMIS	Y ARE ISSUED OR TRANSFER SION OF THE	
	25mm GYPSUM BOARD LINER PANEL GYPSUM BOARD BULKHEAD • 13mm GYPSUM BOARD • 64mm STEFL STUD ERAMING @ 610mm O/C					
	REFLECTED CEILING PLAN LEGEND:	Ę	ACTUAL MORT			
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	 WALL ASSEMBLY NOT REQUIRED TO BE CONSTRUCTED FROM FLOOR TO UNS FLOOR / ROOF ABOVE. ASSEMBLY MAY STOP 300mm ABOVE FINISHED CEILING. BRACE AS REQUIRED. 			A251		
	EXTENT OF GYPSUM BOARD CEILING OR BULKHEAD. FINISHED HEIGHT TO 2750mm A.F.F., UNLESS NOTED OTHERWISE.			A25	2	
	NEW SUSPENDED CEILING GRID AND ACOUSTIC CEILING TILE SYSTEM. INSTALLATION HEIGHT TO 2750mm A.F.F, UNLESS NOTED OTHERWISE.					
	FINISHED CEILING HEIGHT (mm ABOVE FLOOR)					
	FINISHED CEILING MATERIAL / ASSEMBLY	1001	E RECORD.			
		1000	DESCRIPTION		DATE	
		1	FOR CLIENT REVIEW		2022/05/12	
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		2	FOR CLIENT APPROVA	AL.	2022/08/09	
		3	FOR REVIEW		2022/11/01	
		4	FOR CO-ORDINATION/	REVIEW	2023/02/08	
		5	FOR CO-ORDINATION/	REVIEW	2023/02/28	
		6	SUBMITTED FOR SPA		2023/04/14	
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			P SERVICES	INC.		
		JA	MES B LENN	OX &		
		LAND TEL:	SCAPE ARCHITECTS 613-722-5168			
		DC 888 L OTTA CANA	ADY ELLEN PLACE, WA, ON K1Z 5L5, DA	RUCTION	LTD.	
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		A 3	GROUP OF 01-1339 WELLINGTON ST WW.ARCHITECTSDCA.C	WEST OTTAWA	TECTS ON K1Y 3B8 313.725.2294	
		PROJ KO 1485 OTTA	INSON WARE	EHOUSE		
		OTTAWA, ON, KOA 1L0 DRAWING TITLE GROUND FLOOR REFLECTED CEILING PLAN				
		GF CE	ROUND FLOC	R REFLE	CTED	
			ATE DRAWN BRIDR CALE REVIEWED DRITD	JOB NO. 3482	CTED drawing no. A250	



REFLECTED CEILING PLAN NOTES:	GENERAL NOTES				
REFER TO FLOOR PLANS FOR LOCATIONS OF FIRE RATED ASSEMBLES. SUSPENDED CELING MAY FORM PART OF THIS SYSTEM. PROVIDE CONTROL, JOINTS IN GYPSUM BOARD CELINGS OR BLICK-PADS AS INDICATED AND AS INDICATED IN SPECIFICATION SECTION 09 21 16 (3.4). ALGIG CONTROL. JOINTS WIGHD LINES. WHERE FINISHED CELINGS ARE NOT PROVIDED AND THE BUILDING STRUCTURE IS BEING PAINTED. DUCTWORK, CONDUTS, PINNG, ETC. IS TO BE PAINTED AS INDICATED IN SPECIFICATION SECTION 08 91 23 (2.5).	DO NOT SCALE DRAWINGS: ONLY FIGURED DIMENSIONS ARE TO BE USED. WHERE DOUBT EVAITS: FILE REQUEST FOR INTERPRETATION AND REQUEST CLARITY. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY DIMENSIONS ON SITE; REPORT DISCREPANCIEST OT HE ARCHITECT PROMPTLY. GENERAL CONTRACTOR TO TAKE INTO ACCOUNT CONSTRUCTION TOLERANCE; GENERAL CONTRACTOR TO COORDINATE THE WORK OF DIFFERENT TRADES TO COMPUTIVE DESCRIPTION TO TAKE INTO ACCOUNT TO CONTRUCTION TOLERANCE; GENERAL CONTRACTOR TO COORDINATE THE WORK OF DIFFERENT TRADES TO COMPUTIVE DESCRIPTION TOTALE ENTON OF THE ONTARIO BUILDING CODE (2012) OR NATIONAL BUILDING CODE (2010) INCLUDING MOST RECENT MENDMENTS.				
CEILING ASSEMBLIES:	 DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY AND ARE TO BE READ TOGETHER. 				
	CORVERNT				
CL1 SUSPENDED GYPSUM BOARD CEILING					
Timm GYPSUM BUAKD Zizm STEEL FURRING @ 600mm O/C SUSPENDED CHANNELS @ 1.2m O/C C/W WIRE HANGERS @ 1.2m O/C	THIS DRAWING IS AN INSTRUMENT OF SERVICE AND IS PROTECTED BY COPYRIGHT AND IS THE SOLE PROPERTY OF ARCHITECTS DCA INC. COPIES, INCLUDING ELECTRONIC COPIES MAY ONLY BE USED FOR THE PURPOSE INTENDED, FOR THE SINGLE PROJECT FOR WHICH THEY ARE ISSUED				
SHAFT WALL CEILING 2HR. FRR: ULC ER3660-01 Zx LAYER OF 16mm TYPE 'X' GYPSUM BOARD GAmm STEEL CH STUD FRAMING @ 610mm O/C C/W 25mm GYPSUM BOARD LINER PANEL	AND MAY NOT BE OFFERED FOR SALE OR TRANSFER WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE ARCHITECT.				
BHI GYPSUM BOARD BULKHEAD 13mm GYPSUM BOARD 64mm STEEL STUD FRAMING @ 610mm O/C	A John				
REFLECTED CEILING PLAN LEGEND:					
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REFLECTED CEILING PLAN LEGEND:	I I				
WALL ASSEMBLY NOT REQUIRED TO BE CONSTRUCTED FROM FLOOR TO U/S FLOOR / ROOF ABOVE. ASSEMBLY MAY STOP 300mm ABOVE FINISHED CEILING. BRACE AS PROUMERS	A250				
RECURCED. EXTENT OF GYPSUM BOARD CEILING OR BULKHEAD. FINISHED HEIGHT TO 2750mm A.F.F., UNLESS NOTED OTHERWISE.	1050				
NEW SUSPENDED CEILING GRID AND ACOUSTIC CEILING TILE SYSTEM. INSTALLATION HEIGHT TO 2750mm A.F.F, UNLESS NOTEO OTHERWISE.	A252				
FINISHED CEILING HEIGHT (mm ABOVE FLOOR)					
FINISHED CEILING MATERIAL / ASSEMBLY					
	ISSUE RECORD:				
	NO. DESCRIPTION DATE				
	1 FOR CLIENT REVIEW 2022/05/12				
	2 FOR CLIENT APPROVAL 2022/08/09				
	3 FOR REVIEW 2022/11/01				
	4 FOR CO-ORDINATION/REVIEW 2023/02/08				
	5 FOR CO-ORDINATION/REVIEW 2023/02/28				
	6 SUBMITTED FOR SPA 2023/04/44				
	7 ISSUED FOR COORDINATION 2023/06/46				
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	2023/06/26				
	9 ISSUED FOR COURDINATION 2023/07/14				
	CIMA+ MECHANICAL, ELECTRICAL AND STRUCTURAL ENGINEERS TE:: 013-080-2462 EXPOSED STRUCTURAL ENGINEERS TE:: 013-088-1099 JAMES B LENNOX & ASSCAPE ARCHITECTS TEI:: 013-722-5108 ENERAL CONTRACTOR DOLYN CONSTRUCTION LTD. 888 LADY ELLEN PLACE, OTTAWA, ON K1Z SLS, CANADA TEI:: 013-224-7208				
	A GROUP OF ARCHITECTS A GROUP OF ARCHITECTS 201-1339 WELLINGTON ST. WEST OTTAWA ON KIY 388 WWW ARCHITECTSDCA.COM PROJECT ITILE KONSON WAREHOUSE 1485 UPPER CANADA STREET OTTAWA, ON, KOA 1L0 DRAWING TITLE GROUND FLOOR REFLECTED CEILING PLAN				
	DATE DRAWN JUB NO. DRAWING NO.				
	JAN 2023 BR DR SCALE REVIEWED 3482 A251				
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		NEW SUSPENDED CEILING GRID AND ACOUSTIC CEILING TILE SYSTEM. INSTALLATION HEIGHT TO 2750mm A.F.F.					
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	L	FINISHED CEILING MATERIAL / ASSEMBLY	ISSU	E RECORD:			
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,				SOCIATES IN SCAPE ARCHITECTS 613-722-5168	C.		
			GENERAL CONTRACTOR DOLYN CONSTRUCTION LTD. 888 LADY ELLEN PLACE, 01TAWA ON K12 5L5, CANADA TEL: 613-224-7268				
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	~:	22mm STEEL FURRING @ 600mm O/C SUSPENDED CHANNELS @ 1.2m O/C C/W WIRE	THIS PROT ARCH	DRAWING IS AN INSTI ECTED BY COPYRIGHT A HITECTS DCA INC. COP	RUMENT OF SEF IND IS THE SOLE I PIES, INCLUDING	RVICE AND IS PROPERTY OF ELECTRONIC
		HANGENS @ 1.2m U/C IAFT WALL CEILING 2HR. FRR: ULC ER3660-01 2x LAYER OF 16mm TYPE 'X' GYPSUM BOARD 64mm STEEL CH STUD FRAMING @ 610mm 0/C C/W	COPI FOR AND WITH ARCH	ES MAY ONLY BE USED THE SINGLE PROJECT F MAY NOT BE OFFERE OUT THE EXPRESS W HITECT.	FOR THE PURPO FOR WHICH THEY ED FOR SALE C RITTEN PERMISS	SE INTENDED, ' ARE ISSUED IR TRANSFER SION OF THE
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			TEL:	613-688-1899		
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	EXP SERVICES INC. CVIIL ENGINEERS TEL: 613-688-1899 JAMES B LENNOX &		
	ASSOCIATES INC. LANDSCAPE ARCHITECTS TEL: 613-722-5168		
	DOLLYN CONSTRUCTION LTD. 888 IADY ELLEN PLACE. 0TTAWA, ON K1Z SLS. CAMADA TEL: 613-224-7268		
	DCA		
	A GROUP OF ARCHITECTS 20.1-1339 WELLINGTON ST. WEST OTTAWA ON KIY 388 WWWARCHITECTSDCA.COM 613.725.2294		
	KONSON WAREHOUSE 1485 UPPER CANADA STREET OTTAWA. ON, KOA 1L0		
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	CIMA+ MECHANICAL, ELECTRICAL AND STRUCTURAL EN TEL: 613-080242 EXP SERVICES INC. CYUL ENGINEERS TEL: 613-088-1690 JAMES B LENNOX & ASSOCIATES INC. LANDSCAFE ARCHITECTS TEL: 613-722-5160 CONSTRUCTION B88 LADY ELLEN FLACE, CANADA TEL: 613-224-7280 CONSTRUCTION B88 LADY ELLEN FLACE, CANADA TEL: 613-224-7280 CONSTRUCTION A GROUP OF ARCHITE TOLECT TITLE MONSON WELLINGTON ST. WEST OTTAWA OR WWW ARCHITECTSDCA.COM PROJECT TITLE MANUNG TITLE BUILDING ELEVATIONS	
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BUILDING	SECTION	NOTES
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- REFER TO FLOOR PLANS FOR LOCATIONS OF FIRE RATED ASSEMBLIES.
- ALL WALL ASSEMBLIES TO BE CONSTRUCTED FROM FLOOR TO U/S OF FLOOR / ROOF ABOVE, UNLESS NOTED OTHERWISE ON REFLECTED CEILING PLANS.
- PAINT ALL EXPOSED STEEL, INCLUDING ROOF ACCESS LADDER, STAIRS (UNDERSIDE, STRINGERS & RISERS), HAND / GUARD RAILS & STRUCTURAL STEEL.

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JAMES B LENNOX & ASSOCIATES INC.

TEL: 613-722-5168 GENERAL CONTRACTOR

DOLYN CONSTRUCTION LTD. 888 LADY ELLEN PLACE, OTTAWA, ON K1Z 5L5, CANADA TEL: 613-224-7268

ARCHITECTURAL

	GENERAL NOTES		
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