CITY OF OTTAWA

LANSDOWNE PARK NORTH SIDE STANDS
OTTAWA, ON
SERVICING REPORT

OCTOBER 10, 2025

LANSDOWNE PARK NORTH SIDE STANDS OTTAWA, ON

SERVICING STUDY

CITY OF OTTAWA

PROJECT NO.: CA0043476.7969
DATE: OCTOBER 10, 2025

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October 10, 2025

City of Ottawa

Attention: Sean Moore

Dear Sir:

Subject: Lansdowne 2.0 North Side Stands Development for Site Plan Control Application

We are pleased to deliver this enclosed updated servicing report in support of the application for Site Plan Control for the subject Lansdowne 2.0 Phase 2 – North Side Stands. This report details the water and sanitary demands for the proposed development in coordination with the existing site and future phased works.

Should there be any questions or comments regarding this report, please do not hesitate to contact the undersigned.

Yours sincerely,



Winston Yang, P.Eng.
Lead Engineer – Technical Lead
Land Development & Municipal
Engineering, Ontario

WSP ref.: CA0033920.1056

SIGNATURES

PREPARED AND APPROVED BY





Ding Bang (Winston) Yang, P.Eng., PMP
Lead Engineer – Technical Lead

October 10th, 2025
Date

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1 GENERAL

1.1 EXECUTIVE SUMMARY

Following the Zoning By-Law Amendment submission in September 2023, the Lansdowne Park redevelopment project (Lansdowne 2.0) entered the Site Plan Control Application stage. WSP was again retained by the City of Ottawa to provide servicing, grading and stormwater management design services for the phase 1 (Event Centre) and phase 2 (North Side Stands) development of the project for Site Plan Control Application.

The Lansdowne site is home to many commercial, residential, and leisure facilities. This includes TD place Stadium, Aberdeen Pavilion, Horticultural Building, mixed-use retail/office/residential, and a subsurface parking lot. The overall site is approximately 15.4 ha, and borders Bank Street to the west, Holmwood Ave to the north, and Queen Elizabeth Drive to the south and east.

The overall proposed redevelopment of Lansdowne Park is divided into 3 phases: Phase 1 includes a new event centre and landscaping/south stands modifications, Phase 2 involves the reconstruction of the north stands and Grand Stairs, and Phase 3 is for a future commercial/residential block containing probably two residential towers and retail space. This report pertains to the infrastructure upgrades due to Lansdowne 2.0 redevelopment and specifically to Phase 2, the design of the new North Side Stands. See Appendix A for the architectural design upon which this report is based.

The site is located in the City of Ottawa per the Topographic Sketch of Lansdowne Park dated June 2024 and completed by Stantec Geomatics Ltd. Based on the topographic survey, the site slopes from the existing berm to the great lawn and the swale on the south side of the site. The existing Lansdowne site has been previously developed, as per phase 1 of Lansdowne 2.0 project, to convey flow to various underground tanks for detention. The private storm network eventually discharges to a 1050mm storm sewer on O'Connor Street. And runoff will drain overland to the Queen Elizabeth Drive exceeding 100 year event.

As per phase 1 of the Lansdowne 2.0 project, the drainage and stormwater management system for the redevelopment project has already been designed (refer to Servicing and Stormwater Management reports for Lansdowne Park Event Centre, prepared by WSP, September 2024). Therefore, for the purpose of this report, the stormwater management systems and the main servicing infrastructure will be referred to as existing.

This report outlines the design for water, sanitary wastewater, and stormwater connections to the existing network that have already been designed as per the phase 1 Servicing report for the Event Centre.

The format of this report matches that of the servicing study checklist found in Section 4 of the City of Ottawa's Servicing Study Guidelines for Development Applications, November 2009.

It is proposed that:

- Existing drainage patterns, previously established controlled flow rates and storm sewers will be maintained.
- Servicing connections for water, sanitary, and storm will be made to the existing servicing infrastructure and previously established conveyance patterns will be maintained.

1.2 DATE AND REVISION NUMBER

This version of the report is the third issue, dated October 3rd, 2025.

1.3 LOCATION MAP AND PLAN

The proposed development is located at 1015 Bank Street, Ottawa, Ontario at the location shown in Figure 1-1 below.



Figure 1-1 Lansdowne Site Location

1.4 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with zoning and related requirements prior to approval and construction and is understood to be in conformance with current zoning.

1.5 PRE-CONSULTATION MEETINGS

A pre-consultation meeting for the site plan control application of the new North Side Stands was held with the City of Ottawa on October 11, 2024. The notes from the meeting are provided in Appendix A for reference.

1.6 HIGHER LEVEL STUDIES

The review for servicing has been undertaken in conformance with, and utilizing information from, the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including:
    - Technical Bulletin ISDTB-2012-4 (20 June 2012)
    - Technical Bulletin ISDTB-2014-01 (05 February 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)
    - Technical Bulletin ISDTB-2018-01 (21 March 2018)
    - Technical Bulletin ISDTB-2018-04 (27 June 2018)
- 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)

- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).

- Functional Servicing and Stormwater Management Report for Lansdowne Live Ottawa Sports and Entertainment Group, Project No. 09-378, January 2012, by DSEL.

- Stormwater Management Design Report for Lansdowne Urban Park, February 2012, by Stantec Consulting Ltd.

- Functional Servicing and Stormwater Management Study for Lansdowne Park Redevelopment 2.0, Project No. CA0000286.1662, September 2023, by WSP.

- Servicing Report for Lansdowne Park Event Centre, Report No. CA0033920.1056, June 20th, 2025, by WSP.

- Stormwater Management Design Report for Lansdowne Park Event Centre, Report No. CA0033920.1056, September 25th, 2025, by WSP.

- Geotechnical Investigation – Proposed North Side Stands Lansdowne Park Redevelopment, Report No. PG6655-2, June 2025, by Patterson Group.

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

1.7 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed modification of the site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines. The current phase of the site plan includes new North Side Stands and Grand Stairs.

1.8 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

The site is currently serviced by a network of watermain, storm, and sanitary sewers constructed during the Lansdowne 1.0 redevelopment project completed between 2012 and 2015 and the phase 1 of the Lansdowne 2.0 redevelopment project, which is assumed will be constructed prior to the phase 2 of the Lansdowne 2.0 project. The Sport and Entertainment Group provided an as-built services and grading plan after its completion, contained in Appendix A. The WSP Lansdowne 2.0 phase 1 servicing design drawings have also been provided in Appendix A. These phase 1 design drawings are used as the basis for servicing infrastructure.

Based on the Phase 1 design by WSP, portable water supply is available within the site, and there should be adequate fire protection supply. As discussed in the Phase 1 servicing report, the Lansdowne Park has a peak dry and peak wet weather flow of 48.92 l/s and 53.54 l/s, respectively, in the post-development condition. These flows include the flows from the phase 1 (Event Centre) and the phase 2 (new North Side Stands) developments.

The existing minor storm system has been designed to convey all storms up to and including a 5-year storm event and detention up to and including a 100-year storm event has also been designed and provided on site with the use of existing and new subsurface tanks. The minor system has already been designed with the phase 2 flows in mind.

Since there is already existing infrastructure present, it is proposed to provide building sanitary, storm, and water service connections straight into the existing adjacent infrastructure. A series of trench drains leading into the existing storm sewer running parallel to the sports field are also proposed to capture some runoff from the North Stands and from ground level. No additional stormwater management is required as the phase 2 development has already been taken into account during the design of the phase 1 servicing and stormwater management facilities.

1.9 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS

Rideau Canal is south to the Lansdowne site. From the previous design or the existing condition before Lansdowne 1.0 development, an outlet to the Rideau Canal exist. But the outlet to the Canal is no longer in used as per the current finding. And this outlet will be completely abandoned and removed to accommodate the changes for the proposed Lansdowne 2.0 redevelopment. Thus, the proposed changes to the site will not require any additional approvals or amendments to approvals pertaining to environmentally significant areas, watercourses or municipal drains.

1.10 CONCEPT LEVEL MASTER GRADING PLAN

As the design is being submitted for site plan approval, the grading plan has been developed for the Phase 2 modifications. The existing and proposed grading are shown on drawing C03 (Grading Plan). Existing grading information is based on the topographic survey of the site completed in June 2024. No changes in grading are proposed beyond the redevelopment area boundaries. The proposed grading plan confirms the feasibility of the drainage requirements for the phase 2 modifications. The geotechnical investigation was completed in 2024 by Patterson Group. The grading along the redevelopment extents is proposed to meet the existing grade.

1.11 IMPACTS ON PRIVATE SERVICES

There are no existing domestic private services (septic system and well) located on the site. There are no neighbouring properties using private services.

The existing on-site storm, sanitary and watermain services will remain as per the phase 2 design conditions. The overall site drainage system will remain unaffected. The drainage areas around the new North Side Stands will be slightly modified based on the proposed grading. Ultimately, all of the flows will still be conveyed through the same downstream on-site storm sewer system.

1.12 DEVELOPMENT PHASING

As previously mentioned, the redevelopment of Lansdowne 2.0 will be completed in 3 phases. This report focuses on phase 2 (New North Side Stands and Grand Stairs). The civil design in phase 1 for storm conveyance, stormwater management and wastewater took into consideration the ultimate design/demands (i.e. all 3 phases were taken into account). As mentioned in the phase 1 Servicing report, no changes to the existing watermain network are anticipated during phase 2.

1.13 GEOTECHNICAL STUDY

A geotechnical investigation report was previously prepared by Patterson Group. on May 30, 2024. No additional geotechnical information was required for the design of the modified site services, including paving. This geotechnical report will be included with the contract documents to be issued for construction, and the recommendations of the reports will be referenced in the construction specifications. The geotechnical study specifies a design recommendation based on a maximum groundwater elevation of 60.78m.

1.14 DRAWING REQUIREMENT

The engineering plans submitted for site plan approval will be in compliance with City requirements.

2 WATER DISTRIBUTION

2.1 CONSISTENCY WITH MASTER SERVICING STUDY AND AVAILABILITY OF PUBLIC INFRASTRUCTURE

Lansdowne Park resides within the City of Ottawa 1W Pressure Zone. Water supply is delivered to the subject property through existing 300mm on Bank Street, 400mm on Holmwood Ave and 200mm on Fifth Ave.

The new North Side Stands building's services (2 services will be required since the average day demands are greater than 50 m^3/day) are proposed to connect to the existing on-site 200mm watermain. There is already one existing service connection on the southwest side of the north stands. The second service connection will be to the 200mm watermain to the southeast of the stands. The new North Side Stands will be protected with a fully supervised and automatic fire protection system sprinkler system. The fire department connection is assumed to be located near the east side of the building.

No changes are required to the existing City water distribution system to allow servicing for this property.

The Ottawa Sports and Entertainment Group have completed fire hydrant testing on site in September 2022. Table 2-1 summarizes the results of the hydrant testing. The associated hydrant testing results are located Appendix B.

Table 2-1: Fire Hydrant Testing Results

Hydrant Location	Color Code	Static Pressure (psi)	Dynamic Pressure (psi)	Pitot Pressure (psi)	Measured Flow (Gallons/min L/s)	Available Fire Flow at 20 psi (Gallons/min L/s)
Apartment Facing Field	Blue	68	62	39	875/55.0	2689/169.7
Back Entrance	Blue	70	62	44	929/58.6	2499/157.7
Behind Apartment (Bank St)	Blue	70	61	41	897/56.6	2264/142.8
Behind Apartment (Parkway)	Blue	70	62	38	863/54.5	2323/146.6
Box Office	Blue	68	62	42	908/57.3	2790/176.0
Cattle Castle	Blue	70	62	38	863/54.5	2323/146.6
Cineplex	Blue	66	61	38	863/54.5	2739/172.8
Filed Entrance*	Blue	70	60	39	875/55.2	2086/131.6
On Field*	Blue	70	62	43	918/57.9	2471/155.9
Goodlife*	Blue	67	60	37	852/53.8	2382/150.3
Milestones*	Blue	67	62	34	817/51.5	2739/172.8

Sporting Life	Blue	65	58	41	897/56.6	2450/154.6

*Fire hydrants proposed to meet the fire flow demands of the North Side Stands.

2.2 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

The existing water supply network is shown on As-Built Site Servicing Plan C01003 by DSEL. Boundary condition from the Lansdowne 1.0 post development is summarized below. A conservative estimate for the required fire supply of 9,000 L/min (150 L/s) was used for the analysis. Table 2-2 summarizes the DSEL anticipated water demands and boundary conditions under existing conditions.

Table 2-2: Water Demand and Boundary Conditions Existing Conditions from DSEL's analysis

Design Parameter	Existing Demand (L/s)	Boundary Condition (Hydraulic m/kPa)
Average Daily Demand	11.8	115.6/481.7
Max Day + Fire Flow	19.9+150=169.9	106.4/391.4
Peak Hour	38.0	103.1/359.0

*Boundary conditions supplied by the City of Ottawa during Lansdowne 1.0. Assumed ground elevation 65.50m.

This report will focus on the existing total site and future total site water demands. Due to the lack of information for Phase 3, a hydraulic check should be conducted at the beginning of Phase 3 design to determine if modification to the existing watermain network is required.

During the design of the phase 1 servicing, a boundary request for the proposed Lansdowne 2.0 development was submitted to the City on December 11, 2024, based on the recent fire flows and domestic demands for the total site. The purpose of this exercise was to ensure the pre and post water pressure are consistent from the existing water network.

It is assumed that the future demand from the Lansdowne 2.0 development will be equal to or less than the demand of the existing system. The existing system's real-world demands were determined from the provided actual metering data as described below. The purpose of this exercise is to ensure the pre and post water pressure are consistent from the existing water network. The new North Side Stands has a fire flow demand of 6000 L/min (100 L/s). Refer to Appendix B for the fire flow calculations. Note that the fire flow of 150 L/s (as per existing conditions) was used to analyze the Lansdowne 2.0 development as this is more conservative, and thus, is why it was provided for boundary conditions.

Table 2-3 summarizes the anticipated Water Demands (per metering data) and Boundary Conditions under proposed conditions.

Table 2-3: Water Demand and Boundary Conditions Proposed Conditions

Design Parameter	Proposed Demand (L/s)	Boundary Condition 1 (Hydraulic m/kPa)	Boundary Condition 2 (Hydraulic m/kPa)
Average Daily Demand	5.41	114.6/481.4	114.6/465.7
Max Day + Fire Flow	13.52+150=163.52	107.8/414.7	106.5/386.3
Peak Hour	29.73	105.7/394.1	105.6/377.5

*Boundary conditions supplied by the City of Ottawa. Assumed ground elevation 65.50m at Connection 1 and 67.10m at Connection 2. See Appendix B for detail boundary condition.

As demonstrated in Table 2-2 and 2-3, the pressure range is similar during Maximum Day plus Fire Flow as well as Peak Hour demands. Therefore, the existing water supply is available per the design requirement and conforms to all relevant City Guidelines and Policies.

For the purposes of determining accurate water demands for the ultimate condition, it has been assumed that the existing average day demands derived from the OSEG CARMA metering data for 2023 and 2024 will be equivalent, or greater than, the ultimate condition demands (see Appendix B for correspondence with the City of Ottawa regarding the use of metering data to determine the total site water demands and the OSEG CARMA metering data spreadsheet).

Based on the 12-month average of the November to December 2023 Metered Total readings in the OSEG CARMA Metering data and the January to October 2024 Metered Total readings, an average water consumption of 14,012,838 L/month was calculated. This is equivalent to 5.41 L/s. As per the City correspondence, 5.41 L/s and residential peaking factors is acceptable as the average day demand for the total site. The water demands for the entire site are as follows:

Average Day Demand = 5.41 L/s
Max. Day Demand = Average Day Demand x 2.5 (Residential Peaking Factor)
= 5.41 L/s x 2.5
= 13.52 L/s
Peak Hour Demand = Max. Day Demand x 2.2 (Residential Peaking Factor)
= 13.53 L/s x 2.2
= 29.73 L/s

As previously stated, the fire flow of 150 L/s was used in the boundary condition request for the entire site to determine the adequacy of the watermain network.

The water demands of the individual buildings as per the CARMA metering report is as follows:

Table 2-4: Lansdowne Site Water Demands Breakdown per Building

Building	Avg. Day (L/mo)	Avg. Day (L/s)	Max. Day (L/s)	Peak Hour (L/s)
Abeerdeen	133,208	0.05	0.13	0.28
Horticulture	96,600	0.04	0.09	0.20
Plaza	5,975	0.00	0.01	0.01
Ice Rink	1,572,614	0.61	1.52	3.34
Bldg I	627,112	0.24	0.60	1.33

Bldg A - Condo	396,692	0.15	0.38	0.84
Bldg K	946,138	0.37	0.91	2.01
NTH Condo	376,627	0.15	0.36	0.80
Bldg A - Retail	34,866	0.01	0.03	0.07
Bldg B - Retail	785,189	0.30	0.76	1.67
Bldg C - Retail	765,755	0.30	0.74	1.62
Bldg D - Retail	477,617	0.18	0.46	1.01
Bldg G - Retail	1,240,308	0.48	1.20	2.63
Bldg H - Retail	992,625	0.38	0.96	2.11
Bldg J - Civil Centre	659,273	0.25	0.64	1.40
North Stands	3,780,750	1.46	3.65	8.02
South Stands	987,500	0.38	0.95	2.10
Stadium Public Realm	133,990	0.05	0.13	0.28
Total	**14,012,838**	**5.41**	**13.52**	**29.73**

2.3 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Existing water demands are based on existing information that was used in Lansdowne 1.0. The existing (Lansdowne 1.0) and proposed (Lansdowne 2.0) condition total site demands are listed in Table 2-5. As shown in the table, the Lansdowne 2.0 demands, as determined from the CARMA metering report, are lower than the DSEL approved demands. Since it is assumed that the ultimate demands will be less than or equal to the existing (CARMA metering) demands, therefore, the existing watermain network should be adequate to support the proposed developments. Refer to Appendix B for detail existing demands (as used in Lansdowne 1.0) calculation provided by DSEL.

Table 2-5: Existing and Proposed Water Demands and FUS for Phase 1 and Phase 2.

	Avg Day (L/s)	**Max Day (L/s)**	**Peak HR (L/s)**	**FUS (L/s)**
Lansdowne 1.0 Demands (as per DSEL calculations)	11.8	19.9	38.0	150
Lansdowne 2.0 Demands (as per OSEG CARMA Metering Data)	5.41	13.52	29.73	150*

*FUS as per existing Lansdowne Park Building Service Summary by DSEL (Appendix B) to be conservative.

The 2010 City of Ottawa Water Distribution Guidelines stated that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

Minimum Pressure — Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)

Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

To demonstrate the proposed service connections are able to provide the required North Side Stands building fire sprinkler and peak hour demand, conservative approach has been taken into account that the watermain analysis would not be looped or interconnected. The residual pressure for the proposed building is calculated by subtracting the total headloss from the residual pressure measured on the two connections on Holmwood Ave and Bank Street from City Boundary Condition.

The flow capacity of a water pipe is commonly modelled by the Hazen-Williams equation to confirm the physical properties of the pipe and the pressure drop caused by friction:

$$H_L = \frac{10.67 * L * Q^{1.852}}{C^{1.852} * D^{4.87}}$$

Where: Q is volumetric flow rate
C is the Hazen-Williams friction coefficient
L is the pipe length
D is the pipe diameter
H_L is the friction head loss

Sample calculation for residual pressure at North Side Stands using Connection 1 and the Max. Day plus Fire Flow condition:

C	= 110 (204mm diameter PVC pipe)
D	= 0.205 m
Pipe Length	= 360 m
Flow	= 100 L/s + 13.52 L/s (use total site flow to be conservative)
	= 114 L/s
	= 0.114 m^3/s

Friction Head Loss is determined as follows:

$$H_L = \frac{10.67 * L * Q^{1.852}}{C^{1.852} * D^{4.87}}$$

$$H_L = \frac{10.67 * 360\ \text{m} * \left(\frac{0.114\ m^3}{s}\right)^{1.852}}{(110)^{1.852} * (0.204\ m)^{4.87}}$$

$$H_L = 26.06\ \text{m}$$

Total Head Loss	= Friction Head Loss + Static Head (elevation different between boundary condition and building)
	= 26.06 m + 0.50 m
	= 26.56 m
Residual Pressure	= Ex. Residual Pressure – Total Head Loss
	= 415 kPa – (26.56 m * 9.81)

= 154 kPa > 140 kPa

Residual pressure and pipe sizing check are summarized as shown in Table 2-6 and Table 2-7 in respect to the provided boundary condition. Refer to Appendix B for detail water services sizing and pressure analysis.

Table 2-6: Fire Service Pipe Sizing and Pressure Check for North Side Stands

	North Side Stand	
Boundary Condition	Connection 1	Connection 2
Max Day + Fire Flow (l/s)	103.7	103.7
Existing Residual Pressure (kPa)	415	386
Length (m)	360	125
Total Headloss (kPa)	261	94
Residual Pressure for Site (kPa)	154	292

Table 2-7: Domestic Service Pipe Sizing and Pressure Check for North Side Stands

	North Side Stand	
Boundary Condition	Connection 1	Connection 2
Peak Hour (l/s)	8.02	8.02
Existing Residual Pressure (kPa)	394	378
Length (m)	360	125
Total Headloss (kPa)	26	12
Residual Pressure for Site (kPa)	368	365

The minimum water pressure inside the building at the connection is determined with the minimum HGL condition, resulting in a pressure of 365 kPa for the North Side Stands which exceed the minimum requirement of 276 kPa per the guidelines.

Fire flow pressure at building connection is determined with the max day + fire HGL condition resulting in a pressure of 154 kPa for the North Side Stands which exceed the minimum requirement of 140 kPa during a fire flow event.

And based on the on-site hydrant flow test, the residual pressures of the hydrants that will be used to service the North Side Stands (Field Entrance, On Field, Goodlife, and Milestones) are 414 kPa, 427 kPa, 414 kPa, and 427 kPa, respectively. Thus, the hydrants meet the requirements for minimum system pressure. The measured hydrant flow at 20 psi were 2086 gpm (131.6 l/s), 2471 gpm (155.9 l/s), 2382 gpm (150.3 l/s), and 2739 gpm (172.8 l/s), respectively, which is greater than the existing hydrant maximum rating of 95 L/s.

2.4 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures.

Assuming fire resistive construction for North Side Stands and a fully supervised sprinkler system, the following have been determined: Fire flow demand of 6,000 l/min (100 l/s) for the North Side Stands. A copy of the FUS calculation sheet is included in Appendix B.

The existing available fire flow for the nearby private hydrants at 140 kPa range from 131.6 l/s to 176.0 l/s. The new North Side Stands can be serviced by two or more existing fire hydrants. The combined available fire flow exceeds the required fire flow by FUS for each proposed building.

And the boundary condition for Maximum Day and Fire Flow results in a pressure of 154 kPa for North Side Stands. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As a pressure of 154 kPa is achieved, the fire flow requirement is exceeded.

The existing fire hydrants that will be used to meet the required fire flow demand of 6,000 l/min (100 l/s) are located at the Field Entrance, On Field, Goodlife and Milestones as listed on Table 2-1. The Field Entrance hydrant is within 75m of the assumed Siamese connection and can provide up to 95 l/s. The remaining 3 hydrants are within 150m of the assumed fire department connection location and can each provide up to 63 l/s. Thus, the four hydrants have a combined total of 284 l/s which is greater than the FUS demand for the North Side Stands. Therefore, the watermain system will have adequate capacity to service the new North Side Stands.

2.5 CHECK OF HIGH PRESSURE

High pressure is not a concern.

Water pressure at building connection (at average day) check:

Max. HGL – Finished floor elevation = 114.6m – 67.54m = 47.3m = 461.4 kPa

The maximum water pressure inside the Event Centre at the connection is determined with the maximum HGL condition, resulting in a pressure of 461.4 kPa which is less than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure control is not required for the building.

2.6 PHASING CONSTRAINTS

There are three different phases for the Lansdowne 2.0 redevelopment. Phase 1 was the new Event Centre. Phase 2 will be the new North Side Stands. Phase 3 will be the Air Rights residential tower and commercial podium. The ultimate design condition, which assumes the ultimate condition is to be equal to or less than the existing conditions, is used for design consideration of this report. No on site and off-site upgrades are anticipated during the Phase 2 developments.

2.7 RELIABILITY REQUIREMENTS

Existing shut off valves will remain as per existing conditions. Additional shut off valves have been provided on the domestic services connecting to the new North Side Stands.

2.8 NEED FOR PRESSURE ZONE BOUNDARY MODIFICATION

There is no need for a pressure zone boundary modification.

2.9 CAPABILITY OF MAJOR INFRASTRUCTURE TO SUPPLY SUFFICIENT WATER

The capability of the major infrastructure to supply sufficient water has already been confirmed. Refer to the WSP Servicing report for Lansdowne Park Event Centre for further details.

2.10 DESCRIPTION OF PROPOSED WATER DISTRIBUTION NETWORK

It is proposed to provide to provide two domestic services connecting to the existing on site water distribution network. The watermain will interconnect internally in the North Side Stands to provide looping. The overall site will continue to be serviced through existing 400mm and 200mm diameter watermains on Holmwood Avenue and Bank Street.

2.11 OFF-SITE REQUIREMENTS

No off-site improvements to watermains, feedermains, pumping stations, or other water infrastructure are required to maintain existing conditions and service the adjacent developments.

2.12 CALCULATION OF WATER DEMANDS

Water demands were calculated as described in Sections 2.3 and 2.4 above.

2.13 MODEL SCHEMATIC

The water works for 2 consist only a dual building services, the proposed condition are exactly the same as existing, a model schematic is not required for this development.

3 WASTEWATER DISPOSAL

3.1 DESIGN CRITERIA

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

- Minimum Velocity 0.6 m/s
- Maximum Velocity 3.0 m/s
- Manning Roughness Coefficient 0.013
- Total est. hectares commercial and residential use 15.4
- Average residential daily flow 280 L/cap/day
- Average sanitary flow for institutional use 28,000 L/Ha/day
- Commercial/Institutional Peaking Factor 1.5
- Infiltration Allowance (Total) 0.33 L/Ha/s
- Minimum Sewer Slopes – 200 mm diameter 0.32%

The area of 15.4 ha represents the lot area of the Lansdowne Park. This is the sanitary collection area that is being considered to contribute to the existing 600mm trunk sanitary sewer along Holmwood Ave.

3.2 CONSISTENCY WITH MASTER SERVICING STUDY

The outlet for the sanitary service from the proposed buildings is the 375 mm diameter private sewer. The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on residential development.

The criteria to determine anticipated actual peak flow based on site used as described in Ottawa Sewer Design Guidelines Appendix 4-A are described in the sanitary sewer design sheet in Appendix C.

As stated in the phase 1 servicing report by WSP, the contributing flows for the North Stands are based on the DSEL sanitary design sheet and Building Service Summary for Lansdowne Park (also found in Appendix C). The new North Side Stands is assumed to provide 7.6 l/s of sanitary flow. Although the number of seats for the new North Stands is actually less than the number of seats for the existing North Stands, and thus a lower flow would be generated, the anticipated flows of 7.6 l/s is used since it is more conservative.

The proposed Lansdowne 2.0 increases the peak dry weather flow from 42.1 l/s (pre-Lansdowne 2.0 development) to 48.92 l/s. Under wet weather flow condition, the peak discharge is also increased from 45.3 l/s (pre-Lansdowne 2.0 development) to 53.54 l/s. This is consistent with the approved peak flows stated in the ZBLA Functional Servicing and Stormwater Management Study.

3.3 REVIEW OF SOIL CONDITIONS

There are no specific local subsurface conditions that suggest the need for a higher extraneous flow allowance. Soil conditions have been reviewed by Patterson Group. Bedding and backfill will be provided as recommended, conventional sewer materials will be utilized, and dewatering will be undertaken as necessary in accordance with the geotechnical recommendations and conditions encountered. The geotechnical study specifies a design recommendation based on a maximum groundwater elevation of 60.78m. Therefore, groundwater should not be an issue for the sanitary network.

3.4 DESCRIPTION OF EXISTING SANITARY SEWER

The subject site lies within the Rideau River Interceptor catchment. The existing development is serviced by a 600mm diameter sanitary trunk sewer on Holmwood Street. The existing peak wastewater flow rates have been determined

employing City guidelines based on building type and usage. The anticipated dry weather peak wastewater discharge from the site is 48.92 l/s while the wet weather peak is 53.54 l/s. The peak discharge from the development assumes that both the retail and stadium will be operating at maximum capacity. The existing (pre-Lansdowne 2,0) and proposed (post Lansdowne 2.0) sanitary design sheets are found in Appendix C.

3.5 VERIFICATION OF AVAILABLE CAPACITY IN DOWNSTREAM SEWER

The capacity of the downstream 375 mm diameter private sewer from existing sanitary manhole 7 to existing sanitary manhole 6 has 67.91 l/s capacity with slope at 0.15%, which is adequate for the flow assumptions from the proposed addition as noted above. The servicing pipe capacity is capable to handle the estimated peak sanitary flow rate of 53.54 l/s for the site including both existing and proposed. Please refer to sanitary sewer design sheet in Appendix C.

3.6 CALCULATIONS FOR NEW SANITARY SEWER

Two sanitary service connections will be provided for the North Side stands. Since the total peak demand for the North Stands is 7.6 l/s, the service connections will each convey half (3.8 l/s) of the peak flow. Both of the services (service connection to existing sanitary manhole 15 and service connection to existing sanitary manhole 208) are 200 mm diameter sewers at a 1.00% slope. This size and slope of sewer provides a capacity of 34.22 l/s which is more than adequate for the flow of 3.8 l/s.

The downstream pipe size that conveys all the combined wastewater flows from the site is a 375 mm diameter sewer at a minimum slope of 0.15%. This size and slope of sewer provides a capacity of 67.91 l/s.

For the entire Lansdowne Park subject area, the post-development sanitary peak flow is calculated at a total flow of 53.54 l/s. Both the proposed and existing sanitary sewers will have adequate capacity to convey this flow. Refer to Appendix C for the sanitary design sheet for details and the Servicing Plan for the proposed and existing sanitary network.

3.7 DESCRIPTION OF PROPOSED SEWER NETWORK

Two 200 mm diameter service connections are proposed to service the new North Side Stands. These service connections will convey flow to the existing 375 mm diameter storm sewer that runs parallel to the north side of the sports field.

3.8 ENVIRONMENTAL CONSTRAINTS

There are no previously identified environmental constraints that impact the sanitary servicing design in order to preserve the physical condition of watercourses, vegetation, or soil cover, or to manage water quantity or quality.

3.9 PUMPING REQUIREMENTS

The proposed development will have no impact on existing pumping stations and will not require new pumping facilities.

3.10 FORCEMAINS

There are no sanitary forcemains proposed on this site.

3.11 EMERGENCY OVERFLOWS FROM SANITARY PUMPING STATIONS

No sanitary pumping stations are proposed on this site.

3.12 SPECIAL CONSIDERATIONS

There is no known need for special considerations for sanitary sewer design related to existing site conditions.

4 SITE STORM SERVICING

4.1 EXISTING CONDITION

The existing conditions on the Lansdowne site are as designed in the Stantec Stormwater Management Design Report – Lansdowne Urban Park (2012) and the WSP Lansdowne Park Event Centre Servicing Report (September 2024). The primary site stormwater outlet is to the storm sewer on O'Connor Street, which discharges to a combined sewer at the intersection with Fifth Street. During large storm events (i.e. exceeding 100-year return period) runoff is directed to the Rideau Canal through an overflow pipe and overland.

The existing stormwater management system consists of three subsurface storage tanks, outlet controls, and quality control structures. The three underground storage tanks provide 600 m^3 in Basin 1, 2200 m^3 in Basin 2, and 4777 m^3 in Basin 3.

Based on the design criteria identified in the Stantec 2012 report (as per the OSDG 8.3.7.2 design criteria), the allowable release rate has been set to 616 l/s to O'Connor Street for all events from the 2-year to the 100-year return period. The stormwater management system has been designed with the new North Side Stands in mind during the Lansdowne 2.0 Phase 1 design, as summarized in the WSP Lansdowne Park Event Centre Servicing Report and Stormwater Management Report.

4.2 ANALYSIS OF AVAILABLE CAPACITY IN PUBLIC INFRASTRUCTURE

As the allowable release rate from the site will be unchanged and was determined in conjunction with the design of the public infrastructure and has already been taken into consideration for the North Side Stands in the phase 1 Stormwater Management report (WSP, 2024), there are no concerns related to the adequacy and available capacity of the downstream network. Capacity in the minor system is not a concern.

4.3 DRAINAGE DRAWING

Drawing C04 shows the detailed site sewer network. Drawings C03 provides proposed grading and drainage and includes existing grading information. Drawing C06 provides post-development drainage areas for the North Side Stands. The site sub-area information is also provided on the storm sewer design sheet attached in Appendix C. Drainage patterns and storm sewers outside of the study limits are to remain per the existing condition.

4.4 WATER QUANTITY CONTROL OBJECTIVE

Refer to the WSP Stormwater Management Report for the water quantity objective for the site. Since the North Side Stands has already been taken into account during the phase 1 design, stormwater management is not a concern for this report.

4.5 WATER QUALITY CONTROL OBJECTIVE

The Phase 1 design already took into consideration flows from the new North Side Stands in order to meet the MOE enhanced protection requirements (80% TSS removal of suspended solids). And as such, the stormtech chamber and OGS unit sized during the Event Centre design will meet the water quality control requirements. No further consideration is required for the purposes of this report. Refer to the Servicing report for the Lansdowne Park Event Centre for more information.

4.6 DESIGN CRITERIA

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

Some of the key criteria include the following:

- Design Storm (minor system) — 1:5-year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.20
  - Asphalt/Concrete — C = 0.90
  - Traditional Roof — C = 0.90
- Pipe Velocities — 0.80 m/s to 6.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads and service pipes)

4.7 PROPOSED MINOR AND MAJOR SYSTEMS

Under proposed conditions the majority of the site land use remains as it is under existing conditions. The minor system was designed during the phase 1 stage with the flows from the new North Stands taken into consideration. The North Stands' building roof will be serviced via two new service connections to the existing 825 mm diameter concrete storm sewer that runs parallel to the sports field. A portion of the North Stands will sheet flow to the proposed trench drains situated at the bottom of the North Stands which will convey flow to the 825 mm storm sewer. Refer to Appendix C for the North Stands catchment areas and the design sheet for sewer sizing.

The minor system for Phase 2 has been designed to convey the 5-year storm without ponding on the surface. The total site minor system outlets remain the same as they are in existing conditions. The primary outlet is to O'Connor Street to the north. Storm sewer design sheet for the new North Stands building connections are included in Appendix C.

The overland flow route will remain as designed in the Phase 1 design (as per the Lansdowne Park Event Centre Stormwater Management Report). The overland route is proposed to cascade southwards along the east side of the proposed Event Centre and eventually to the ditches along Queen Elizabeth Drive. During large storm events exceeding 100-year, runoff is directed to the Rideau Canal overland.

4.8 STORMWATER MANAGEMENT

Refer to the Stormwater Management Report for Lansdowne Park Event Centre, prepared by WSP, dated September 25, 2025

4.9 INLET CONTROLS

Refer to the Stormwater Management Report for Lansdowne Park Event Centre, prepared by WSP, dated September 25, 2025.

4.10 ON-SITE DETENTION

Refer to the Stormwater Management Report for Lansdowne Park Event Centre, prepared by WSP, dated September 25, 2025.

4.11 WATERCOURSES

There will be no modification to watercourses as a result of this proposed site plan.

4.12 PRE AND POST DEVELOPMENT PEAK FLOW RATES

Pre and post development peak flow rates have been noted in the Stormwater Management Report for Lansdowne Park Event Centre, prepared by WSP, dated September 25, 2025.

4.13 DIVERSION OF DRAINAGE CATCHMENT AREAS

There will be no diversion of existing drainage catchment areas arising from the proposed work described in this report.

4.14 DOWNSTREAM CAPACITY WHERE QUANTITY CONTROL IS NOT PROPOSED

This checklist item is not applicable to this development as quantity control is provided.

4.15 IMPACTS TO RECEIVING WATERCOURSES

No significant negative impact is anticipated to downstream receiving watercourses due to proposed quantity and quality control measures.

4.16 MUNICIPAL DRAINS AND RELATED APPROVALS

There are no municipal drains on the site or associated with the drainage from the site.

4.17 MEANS OF CONVEYANCE AND STORAGE CAPACITY

The means of flow conveyance and storage capacity are described in Sections 4.7, 4.8, 4.9 and 4.10 above.

4.18 HYDRAULIC ANALYSIS

Hydraulic calculations for the site storm sewers are provided in the storm sewer design sheet.

4.19 IDENTIFICATION OF FLOODPLAINS

There are no designated floodplains on the site of this development.

4.20 FILL CONSTRAINTS

There are no known fill constraints applicable to this site related to any floodplain. The site is generally matching into existing conditions.

5 SEDIMENT AND EROSION CONTROL

5.1 GENERAL

During construction, existing storm sewer system can be exposed to sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings will be used including:

- Silt sacks will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use.
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.
- The installation of straw bales within existing drainage features surround the site.
- Bulkhead barriers will be installed in the outlet pipes.

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

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

During construction of any development both imported and native soils are placed in stockpiles. Mitigative measures and proper management to prevent these materials entering the sewer system are needed.

During construction of the deeper watermains and sewers, imported granular bedding materials are temporarily stockpiled on site. These materials are however quickly used up and generally placed before any catchbasins are installed.

Refer to the Erosion and Sedimentation Control Plan (drawing C06) provided in Appendix D.

6 APPROVAL AND PERMIT REQUIREMENTS

6.1 GENERAL

The proposed development is subject to site plan approval.

No approvals related to municipal drains are required.

No permits or approvals are anticipated to be required from the Ontario Ministry of Transportation, National Capital Commission, Parks Canada, Public Works and Government Services Canada, or any other provincial or federal regulatory agency.

7 CONCLUSION CHECKLIST

7.1 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development can meet all provided servicing constraints and associated requirements. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

This issue addresses the comments received from the City August 21, 2025. This is the 3rd revision of the report.

APPENDIX

A

- CITY COMMENTS
- LANSDOWNE CIVIL DRAWINGS - STANTEC
- AS-BUILT DRAWINGS
- ARCHITECURAL PLANS
- TOPOGRAPHICAL SURVEY PLAN
- LANSDOWNE EVENT CENTRE CIVIL DRAWINGS - WSP

File No.: PC2024-0423

October 30, 2024

Patricia Warren
Fotenn Planning + Design
Via email: Warren@Fotenn.com

Subject: **Pre-Consultation: Meeting Feedback**
Proposed Site Plan Control Application – 945 & 1015 Bank Street

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on October 11, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

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

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

2. Staff strongly encourage further consideration be made into ensuring a harmonious interface between the proposed north side stands and future mixed-use podium and tower. Efforts should be made to mitigate any negative impacts between the two land uses, including but not limited to:

    a. The ground-level laneway (previously a public promenade) should be designed with CPTED principles in mind, creating a pedestrian-friendly and animated area. Currently, it is staff's understanding that this area will functionally operate as the back-of-house for the commercial uses in the future podium. However, the area should be designed to positively integrate and connect with the remainder or Lansdowne Park, and incorporate glazing and quality surface treatment to resemble an active, safe, and visible component of the public realm.

    b. Ensure that the height of the proposed north side stands, as well as the proposed northern elevation does not negatively impact the south-facing units within the future residential towers, ensuring adequate separation and views.

3. Please consider revisiting the design of the north side stands in order to better represent Lansdowne Park's identity as a dense, urban entertainment district requiring architectural merit and integrity. The skeletal nature of the current proposal could be studied further in an effort to better contribute to the historical and cultural significance of the surrounding area and interface to future phases of the development.

    a. Please investigate opportunities to better treat the east, west, and northern façades to incorporate architectural elements which can screen the functional elements and activate the façade.

b. Please describe the interim treatment of the north façade during the period of time starting after completion of the north side stands until the construction of the phase 3 residential towers.

4. Priority should be given to the provision of accessible pedestrian pathways/connections between the phases forming Lansdowne 2.0 and the existing public realm.

5. Please strive towards the coordination of construction timing for the north side stands and future phase of development to minimize the length of construction and impacts to Lansdowne Park/Exhibition Way.

6. Please provide further details on the bridges connecting the north side stands to the event centre, and the event centre to the south side stands.

Feel free to contact Jean-Charles Renaud – Planner III, or Jack Smith – Planner II, for follow-up questions.

Urban Design

Comments:

Submission Requirements

7. An Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation.

    a. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.

    b. The following elements are particularly important for this development application and should be clearly illustrated:

        i. Relationship with the proposed event centre and the public space in front of the event centre (east of the north stand).
        ii. Relationship with the Aberdeen Pavilion.
        iii. Relationship with the future proposed mixed-use development.
        iv. Relationship with the existing buildings on Bank Street (west of the north stand)

    c. Please note that the Urban Design Brief will also serve as the submission to the Urban Design Review Panel (see notes below).

8. Additional drawings and studies are required as shown on the ASPIL. Please follow the terms of references (Planning application submission information and materials | City of Ottawa) the prepare these drawings and studies. These drawings and studies should be attached as appendixes to the Urban Design Brief. These include:

    a. Site Plan
    b. Landscape Plan
    c. Building Floor Plans
    d. Building Elevations
    e. Building Sections
    f. Site Servicing Plan
    g. It will be useful to update the wind and shadow studies conducted at the master site plan stage. Wind conditions between the north stand and the future mixed-use development is of concern. Wind conditions on the north stand should also be carefully management/mitigated to ensure safety and comfort of the spectators.

Urban Design Review Panel Review and Report

9. The site is located within a Design Priority Area and is subject to review by the Urban Design Review Panel. UDRP review typically occurs within the pre-consultation stage. To proceed with UDRP review, please contact udrp@ottawa.ca.

10. If the UDRP review occurs within the pre-consultation stage, the submission of a UDRP report is a requirement for deeming an application complete. Please follow the instructions provided in the Terms of Reference available here: Urban Design Review Panel Report (ottawa.ca).

Comments on Preliminary Design

11. East façade and relationship with the future plaza, the Aberdeen Pavilion and the new event centre is a concern. Back of house functions are proposed at grade on the east side. Much of the east side of the structure also appears to be “façade-less” where a very large storage space is secured by chain-link fences. The future plaza is an important public space and should be animated and/or well landscaped. Please consider the following:

    a. Allocate uses that can animate the plaza.
    b. Provide appropriate landscaping.
    c. Enclose the space under the stand and create a façade.

12. Height and location of the north stand and relationship with future development along Exhibition Way is a concern. The total height of the proposed north stand is 29.952m, which is approximately 9m taller than the concept shown in the master plan. The north stand is also significantly closer to the potential future mixed-use high-rise development. The overall relationship with the future development may be significantly impacted when compared to the concept shown in the master plan, resulting in concerns on the impacts of the north stand on the viability and livability of future development, particularly the residential aspect of the development.

13. In addition, the previously proposed pedestrian promenade is no longer contemplated. The applicant also indicated that Gate 3, which is an iconic feature of the master plan, is not a necessity for the operation of the north stand. These proposed and potential changes raise questions and concerns on the overall vision, connectivity, and public realm interface of the proposal.

14. Relationship with developments on Bank Street is a concern. Comparing with the current condition, the proposed north stand will protrude into the background of the existing plaza on Bank Street between the two buildings. How will the "façade-less" design of the north stand looks like from Bank Street? Similarly, at a height that is equivalent to a 9-storey building, the proposed stand will be highly visible from Exhibition Way. How will the "façade-less" design impact views from the Exhibition Way?

15. Wind conditions on and around the north stand should be further studied given the changes to both the north stand design and the zoning provisions for the future private development along Exhibition Way. Spectators should be safe and feel comfortable to sit and move around.

16. The main concourse of the north stand is set at over 9m above grade, which is approximately 2.5m higher than previously envisioned in the master concept plan. Climbing up to the main concourse is equivalent to walking up to the 4th floor of a residential building. Is it too tall?

17. With three major projects in a row, the event centre, the north stand, and the mixed-use high-rise development up to 40-storeys, Landsdowne Park Special District is likely to experience a prolonged period of construction activities. What is the plan to mitigate the impacts so that the District can continue to be a viable and vital destination during and after the construction? It appears that the north stand and the mixed-use high-rise development are intertwined by virtue of their location and close proximity, is there a plan to bundle the two projects so that the design can be integrated, and the construction can be coordinated?

Feel free to contact Randolph Wang, Urban Designer, for follow-up questions.

Engineering

Comments:

18. Stormwater Management Quantity and Quality Criteria

    It is assumed that the stormwater management criteria for the subject site, is to follow the recommendations of the Functional Servicing and Stormwater Management Study prepared by WSP May 25, 2023, which was based on the design criteria as identified in the Stantec Stormwater Management Design Report – Lansdowne Urban Park (2012) as per OSDG 8.3.7.2. Design criteria are as follows:

    a. Peak flow rate of 616 L/s to O'Connor Street sewer for all events from the 2-year to the 100-year return period

    b. Stormwater shall be treated to MOE "enhanced" standard (80% TSS removal)

    c. The "first flush" (i.e. 10mm event) shall be directed to the O'Connor Street sewer for the entire site drainage area.

    d. Outflow to O'Connor Street Sewer will be restricted if the downstream system surcharges and will be cut off when the receiving sewer HGL is higher than the onsite HGL.

    e. Minor system shall be design for a 5-year level of service with minimal surface ponding.

    f. Major system shall provide a 100-year level of service while minimizing outflow to the canal.

    h. The 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.

    i. For separated sewer system built pre-1970 the design of the storm sewers are based on a 2 year storm.

    j. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).

    k. A calculated time of concentration (Cannot be less than 10 minutes).

    l. Flows to the storm sewer in excess of the 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.

19. Deep Services (Storm, Sanitary & Water Supply)

    a. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

    b. Connections to trunk sewers and easement sewers are typically not permitted.

    c. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).

    d. Review provision of a high-level sewer.

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

        i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.

        ii. Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain,

        iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,

        iv. When the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain connection via Maintenance hole is required. – Connect obvert to obvert with the outlet pipe.

        v. No submerged outlet connections.

20. 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.

Please **review Technical Bulletin ISTB-2018-02**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**.
[*Fire flow demand requirements shall be based on **ISTB-2021-03***]
Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).
Hydrant capacity shall be assessed to demonstrate the RFF can be achieved. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

21. An MECP Environmental Compliance Approval **[Industrial Sewage Works or Municipal/Private Sewage Works]** may be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:

    a. Charlie Primeau at (613) 521-3450, ext. 251 or Charlie.Primeau@ontario.ca

    b. Emily Diamond at (613) 521-3450, ext. 238 or Emily.Diamond@ontario.ca

22. Water

    a. As per ISTB-2021-03, Industrial, commercial, institutional service areas with a basic day demand greater than 50 m^3/day and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area. Individual residential facilities with a basic day demand greater than 50 m3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.

23. Sewer (sanitary and storm)

    a. Sanitary sewer capacity, Please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity.

    b. Please note the sanitary capacity will be governed by the approved wet weather peak discharge of **53.54L/s** as per the functional servicing and stormwater management study prepared by WSP September 22, 2023.

    c. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.

d. A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.

24. Stormwater

a. Underground Storage: Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

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

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

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 2- and 100-year event storage requirements.

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

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

b. **If rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.

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

d. Quality Control Stormwater shall be treated to MOE "enhanced" standard (80% TSS removal)

e. The "first flush" (i.e. 10mm event) shall be directed to the O'Connor Street sewer for the entire site drainage area.

f. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**

25. Grading

Post-development site grading shall match existing property line grades to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.

26. Geotechnical (including sensitive marine clay, where appropriate)

A Geotechnical Study/Investigation shall be prepared in support of this development proposal.

Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.

Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. See the Studies Plans and Identification List for more information.

27. Excavation

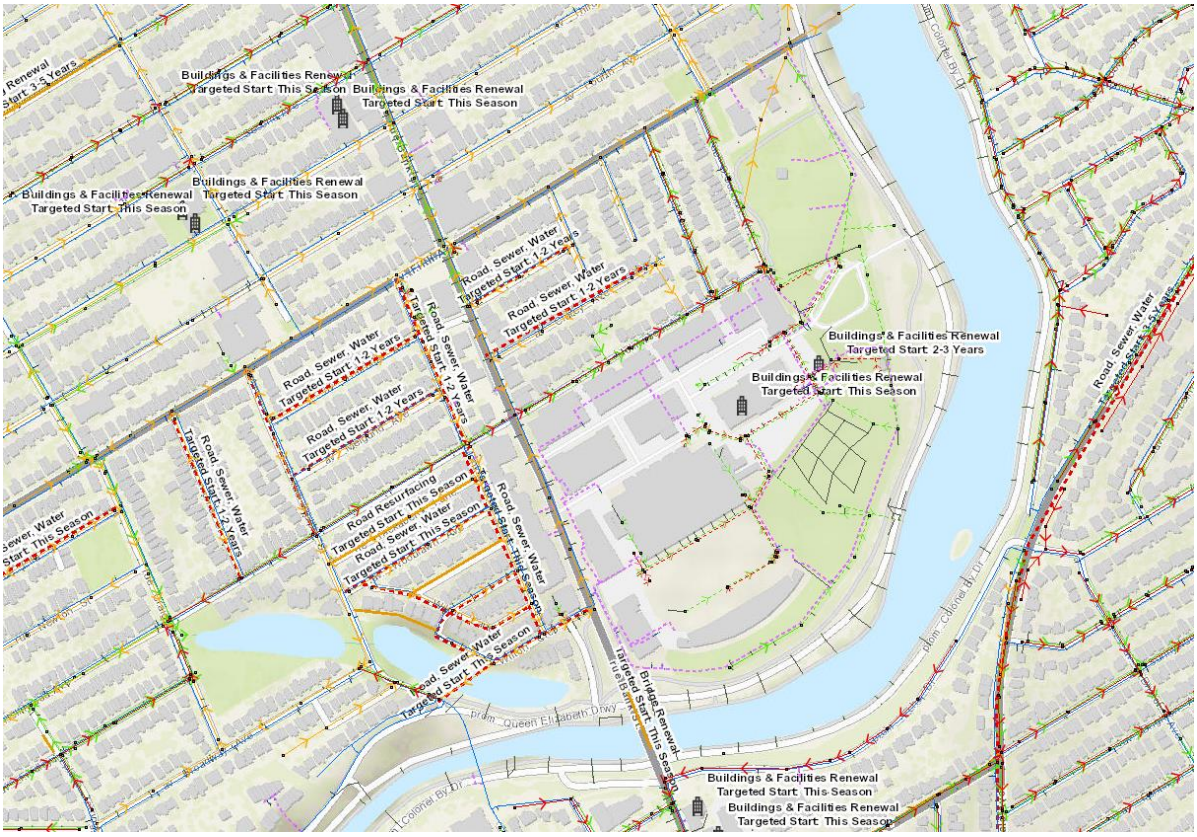
Pre-Construction Survey (Piling/Hoe Ramming, Rock Anchors, Shoring and/or close proximity to City Assets) or *Pre-Blasting Survey* will be required for any buildings/dwellings within proximity of 75m of the site. Circulation of notice of vibration/noise is required to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled *Use of Explosives,* as amended.

28. CCTV sewer inspection

CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

29. Capital Works Projects scheduled

Various capital works project scheduled near by subject site please see image below from GeoOttawa.



Disclaimer:

The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any

responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only.

30. Snow Storage

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

31. Road Reinstatement

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

32. Exterior Site Lighting

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

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Specific/Phase 2 Site servicing Plan
- Site Specific/Phase 2 Grade Control and Drainage Plan
- Drainage Plan
- Road Reinstatement Plan
- Erosion and Sediment Control Plan
- Roof Drainage Plan
- Foundation Drainage System Detail (if applicable)
- Topographical survey

REPORTS:

- Site Specific/Phase 2 Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation
- Phase I ESA
- Phase II ESA (Depending on recommendations of Phase I ESA)
- Site lighting certificate

Feel free to contact Amy Whelan, Project Manager, Abdul Mottalib, Senior Engineer, or Brett Hughes, Project Manager, for follow-up questions.

Noise

Comments:

33. The following condition will be included as a condition of Site Plan Approval, as it is common that HVAC and other mechanical system design takes place at the detailed design stage:

    Stationary Noise Study

    The Owner covenants and agrees that it shall retain the services of an professional engineer licensed in the Province of Ontario to provide a Stationary Noise Study (the "Report") for review to Development Review (PRED-DR), prior to issuance of a building permit, further to City comments and requirements. The Owner further acknowledges and agrees that it shall provide the General Manager, Planning Real Estate and Economic Development Department (PRED) with confirmation issued by the professional engineer that the Owner has complied with all recommendations and provisions of the Report, prior to building occupancy, which confirmation shall be to the satisfaction of the General Manager, Planning Infrastructure and Economic Development Department.

Feel free to contact Amy Whelan, Project Manager, Abdul Mottalib, Senior Engineer, or Brett Hughes, Project Manager, for follow-up questions.

Transportation

Comments:

34. Access to development and on-site circulation to be reviewed through the site plan submission.

35. Right-of-way protection (Bank Street).

    a. See Schedule C16 of the Official Plan.

b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

36. A TIA is triggered so the applicant must proceed to Step 2 Scoping. The TIA Strategy and Synchro files is required two weeks (minimum) prior to an application.

37. Cycling and pedestrian connections to be reviewed through the site plan submission.

Feel free to contact Mike Giampa, Transportation Project Manager, for follow-up questions.

Community Recreation Core Programs

Comments:

38. Please refer to the feedback form dated October 24, 2024 (for the proposed event centre) relating to the construction zone required to facilitate the development of the lands.

Feel free to contact Natalie Ollson, Program Manager – Community Recreation Core Programs, for follow-up questions.

Park and Facilities Planning

Comments:

39. Similar to Urban Design comments, the east façade and its relationship with the future plaza, the Great Lawn, the Aberdeen Pavilion and the new event centre is a concern. Back of house functions are proposed at grade on the east side. Much of the east side of the structure also appears to be "façade-less" where a very large storage space is secured by chain-link fences. The future plaza is an important public space and should be animated and/or well landscaped. It is requested that the applicant consider the following:

    a. Allocate uses that can animate the plaza.
    b. Provide appropriate landscaping.
    c. Enclose the space under the stand and create a façade.

40. Additional drawings are required, including:
    - Site Plan
    - Landscape Plan
    - Building Elevations, notably the east facade, showing the view from the future plaza, the Great Lawn/Aberdeen Pavilion and Event Centre,

Feel free to contact Paul Landry, Parks Planner, for follow-up questions.

Heritage

Comments:

41. The North Side Stands (NSS) should be designed to minimize the impact of the cultural heritage resources of Lansdowne Park.

42. A Heritage Impact Assessment is required to assess the impacts of the NSS on the cultural heritage resources of Lansdowne Park. This includes the Aberdeen Pavilion, the Horticulture Building and the adjacent resources of the Rideau Canal and the Queen Elizabeth Driveway, and Colonel By Drive cultural landscapes.

    The HIA should be conducted in accordance with the "Terms of Reference: North Side Stands and TD Arena" prepared jointly by the City of Ottawa, NCC, Parks Canada and the Ontario Heritage Trust. A view analysis will be included as part of the HIA.

43. The interface of the North Side Stands and the Event Centre Plaza is an important consideration as the public space can highlight the Aberdeen Pavilion. Heritage staff reiterate the comments provided by Urban Design staff that it would be beneficial to provide landscaping and enclose an area under the stands to create a façade on the western edge of the plaza that would frame the space.

44. A Documentation and Heritage Salvage Plan for the North Side Stands and former Frank Clair Stadium will be required and should be made a condition of site plan approval.

Feel free to contact Anne Fitzpatrick, Heritage Planner, for follow-up questions.

Environmental Remediation Unit

Comments:

45. The Environmental Remediation Unit notes that Phase One and Phase Two Environmental Site Assessments are required.

Feel free to contact Richard Barker, Environmental Remediation Specialist, for follow-up questions.

Community issues

Glebe CA:

46. We support Old Ottawa South CA's comments and questions.

Old Ottawa East CA:

47. We endorse OOSCA's comments and add the following:

48. ***Context:*** The consideration of NSS as a separate project and not in the context of the whole of Lansdowne 2.0 is difficult and not satisfactory. While the City may be trying to rush approvals so that work can begin as soon as possible, without seeing the NSS site in relation to how the residential towers are proposed makes it difficult to fully understand and comment how the new stands will work. Similarly, the transportation analysis both within the park and on the roadways serving the park should be done in the context of all of the new elements of L2.0, i.e., the event centre, the NSS, the added commercial and, the two towers, one of which may be partially a hotel. Time really should have been spent on an overarching master plan, then the components should have been considered.

49. ***Accessibility***: Despite repeated City and OSEG claims of vastly improved accessibility with L2.0, there is little evidence that this will really be the case. Aside from possible improvements to accessibility to field-level accommodation, attendees will have to use elevators to get to the rest of the stadium. There appears to be no significant additional accessible ramps. The notional grand staircase to be built later might end up being grand for those who can climb a lot of stairs but for anybody with mobility challenges they will just be the flaunting of a flawed vision. If the City wants to have a grand staircase for rather unimposing stands, it should also have a grand ramp that provides accessibility. Further, as we argued in discussion of the event centre, accessibility getting to Lansdowne Park will not be improved. Indeed, by virtue of more vehicles going to the towers and event centre in the middle of the park, the streets (especially QED and Bank) will become more clogged than they already are.

50. ***Architectural Merit***: The new stands have no architecturally redeeming features, quite unlike the existing NSS. Indeed, the east and west elevations are routine, basic, and boring – totally inappropriate in comparison to the heritage-protected Aberdeen Pavilion and the Horticulture Building. As for the north elevation, it sounds as though the goal is to hide it with the towers and the podium – hardly a sound design. The "new" southside stands were wrapped in wood and actually have some visual appeal. Similar treatment should be used with the NSS.

51. ***Transportation and Parking:*** The only thing that is clear is that more vehicles will be penetrating the site making it less safe and comfortable for pedestrians and cyclists. Until we know how the towers residents' (and hotel visitors'?) and delivery vehicles are going to access the towers and how residents' and visitors'

parking needs will be resolved, it is premature to discuss how the NSS vehicular access will work. And as has been said: 60 parking spaces for cyclists seriously underserves active transportation objectives. As we noted in our comments on the event centre, the location of the main loading dock for both the event centre and the stands means many more large vehicles must use Exhibition Way or Marché Way, thus conflicting with pedestrian and cyclist use of Lansdowne Park. The loading dock should be near Bank Street and the underground parking space should allow vehicular access to the event centre.

52. ***Capacity / Features:*** It's been said before but bears repeating: no roof makes no sense. Secondly, reduced capacity seems to fly in the face of the objective to better host major events. Not only will there be less seating in NSS but, with the construction of the event centre, the one of the two areas where temporary seating was built for large events will be mostly gone.

Old Ottawa South CA:

Access

Vehicular Traffic

53. Vehicular access has been an Achilles heel for Lansdowne. Traffic backups to reach the access points to the underground parking garage on Exhibition Way east of Bank Street and on Princess Patricia Way west of Queen Elizabeth Driveway, result in long queues along Bank Street and Queen Elizabeth Drive whenever there are games and other larger events at Lansdowne. Innovative transportation management strategies and additional traffic control measures, beyond the purview of the Site Plan Control process for the North Stands, are needed, as the current vehicular traffic issues are not tenable in the long-term.

Parking

54. Additional bicycle parking spaces are required to support development of the North Stands. Although City of Ottawa Parking By-Law requirements for bicycle parking spaces may be being met by the current proposal, a substantial increase in additional bicycle parking spaces is needed to support the City's active transportation initiatives and, importantly, to offer visitors viable and secure end-to-end transportation alternatives to help alleviate Lansdowne's vehicular traffic issues.

Pedestrian

55. If not already undertaken, it is suggested that pedestrian and vehicular volumes, movement patterns and potential interaction near Gates 2 and 4 be modelled to ensure any potential conflicts are identified, particularly in the area approaching the vehicular drop off near Gate 2.

Emergency Access Gate 2

56. Turning radii for emergency vehicle access at Gate 2 should be reviewed.

Accessibility

57. Given that accessibility improvements have been presented as an important rationale for the demolition of the existing North Stands in favour of new stands that meet up-to-date accessibility standards, it is important to clarify where and how equitable access to seating options and stadium circulation are being provided for the North Stands. The location and number of accessible parking spaces for stadium patrons should be clearly indicated. Is the proposed connecting walkway between the North and South Stands fully accessible? Additionally, as the project proceeds beyond the Site Plan Control process, will accessible wheelchair viewing spaces be made available from various viewpoints and at all concourse levels, to allow for equitable viewing? Will the Phase II walkway from the North Stands to the Events Centre be fully accessibility?

Aesthetics

East Facade

58. It is understood that the podium levels of the future development to the north of the stands will temper end-state views to and from the North Stands to the Aberdeen Pavilion. In addition, this elevation has an important view relationship with the outdoor public areas to the east. The proposed metal panel façade material as well as the proposed installation of a chain link fence enclosure wall fall short of the expected level of attention to this elevation as it relates to both the heritage building and the public realm. The design team has indicated that the design for this area is evolving and we look forward to its future iteration.

Exterior Lighting

59. Although exterior lighting was not discussed at the pre-consultation meeting, impacts from proposed lighting strategies for the North Stands should be studied and coordinated with those of the existing field and South Stands, as well as the future Events Centre. The effects of proposed exterior lighting strategies on the overall landscape should also be carefully studied. While it is understood that stadium lighting levels will likely be dominant during nighttime stadium events, it is important that the primacy of the Aberdeen Pavilion in the night sky be maintained within a lighting framework for the overall site that emphasizes subtlety in night lighting design.

60. Finally, consistent with our previous questions on indigenous consultations as part of stakeholder engagement, we wonder if an organized strategy has been developed for consultations with the various Indigenous communities — workshops, reviews, formal comments on the Master Plan, the Events Centre

design, and the North Stands — which can then become part of the wider public conversation?

Other Public Comment:

61. The plans for Lansdowne 2.0 look amazing, except for one major omission; the North Side stands will no longer be covered. The protection a roof provides is one of the main reasons my wife and I have continued to purchase season tickets to the Redblacks. Other cities have football stadiums with roofs, and Ottawa, being Canada's Capital, should have a roof as well. Without the protection of a roof, we will most likely not be renewing our subscription. We are hoping the design will be modified to include a roof.

Other

62. The High-Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

    b. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

63. Under the Affordable Housing Community Improvement Plan, a Tax Increment Equivalent Grant (TIEG) program was created to incentivize the development of affordable rental units. It provides a yearly fixed grant for 20 years. The grant helps offset the revenue loss housing providers experience when incorporating affordable units in their developments.

    a. To be eligible for the TIEG program you must meet the following criteria:

        i. the greater of five units OR 15 per cent of the total number of units within the development must be made affordable

        ii. provide a minimum of 15 per cent of each unit type in the development as affordable

        iii. enter into an agreement with the city to ensure the units maintain affordable for a minimum period of 20 years at or below the city-wide average market rent for the entire housing stock based on building form and unit type, as defined by the Canada Mortgage and Housing Corporation

iv. must apply after a formal Site Plan Control submission, or Building Permit submission for projects not requiring Site Plan Control, and prior to Occupancy Permit issuance

b. Please refer to the TIEG information *at Affordable housing community improvement plan / Plan d'améliorations communautaires pour le logement abordable for more details or contact the TIEG coordinator via email at affordablehousingcip@ottawa.ca.*

Submission Requirements and Fees

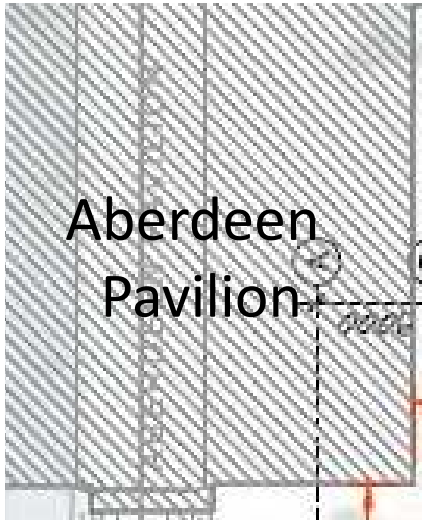
1. A Site Plan Application is required.
    a. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

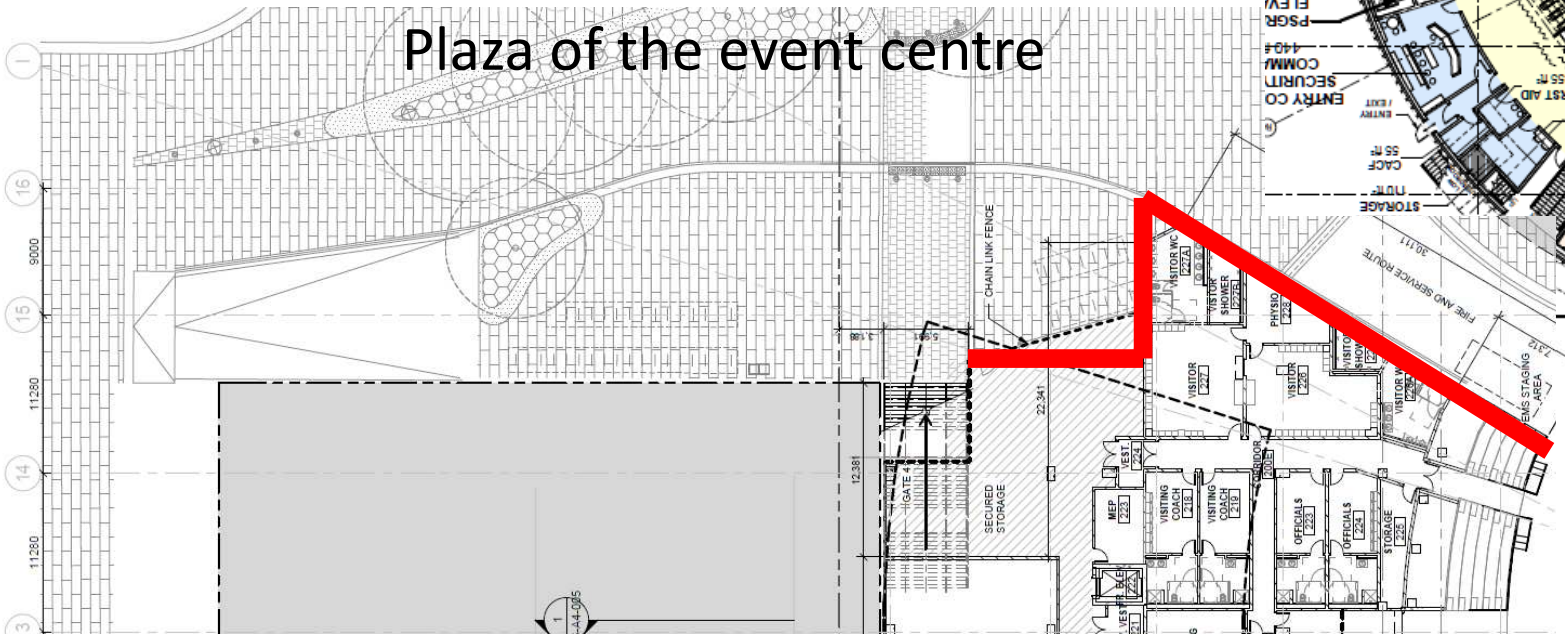
Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

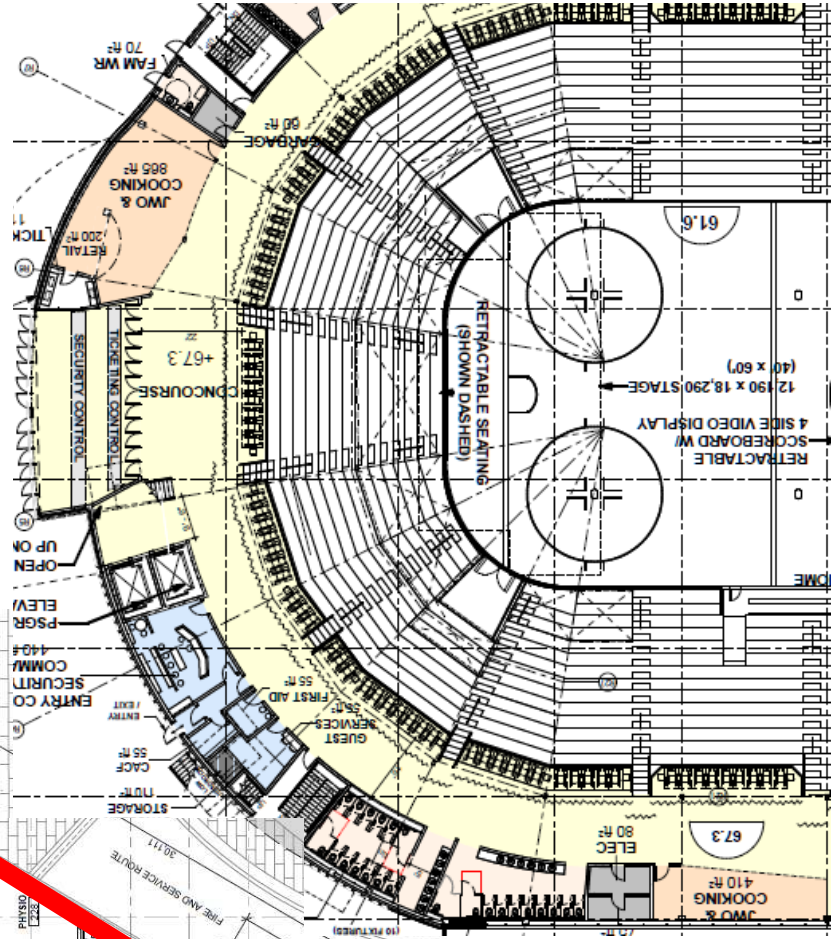
Yours Truly,

Jean-Charles Renaud, Planner III

c.c. Jack Smith, Planner II
Andrew McCreight. Manager, DR Central
Randolph Wang, Urban Designer
Amy Whelan, Infrastructure Project Manager
Brett Hughes, Infrastructure Project Manager
Abdul Mottalib, Senior Engineer
Mike Giampa, Transportation Project Manager
Natalie Ollson, Program Manager – Community Recreation Core Programs
Paul Landry, Parks Planner
Anne Fitzpatrick, Heritage Planner
Richard Barker, Environmental Remediation Unit



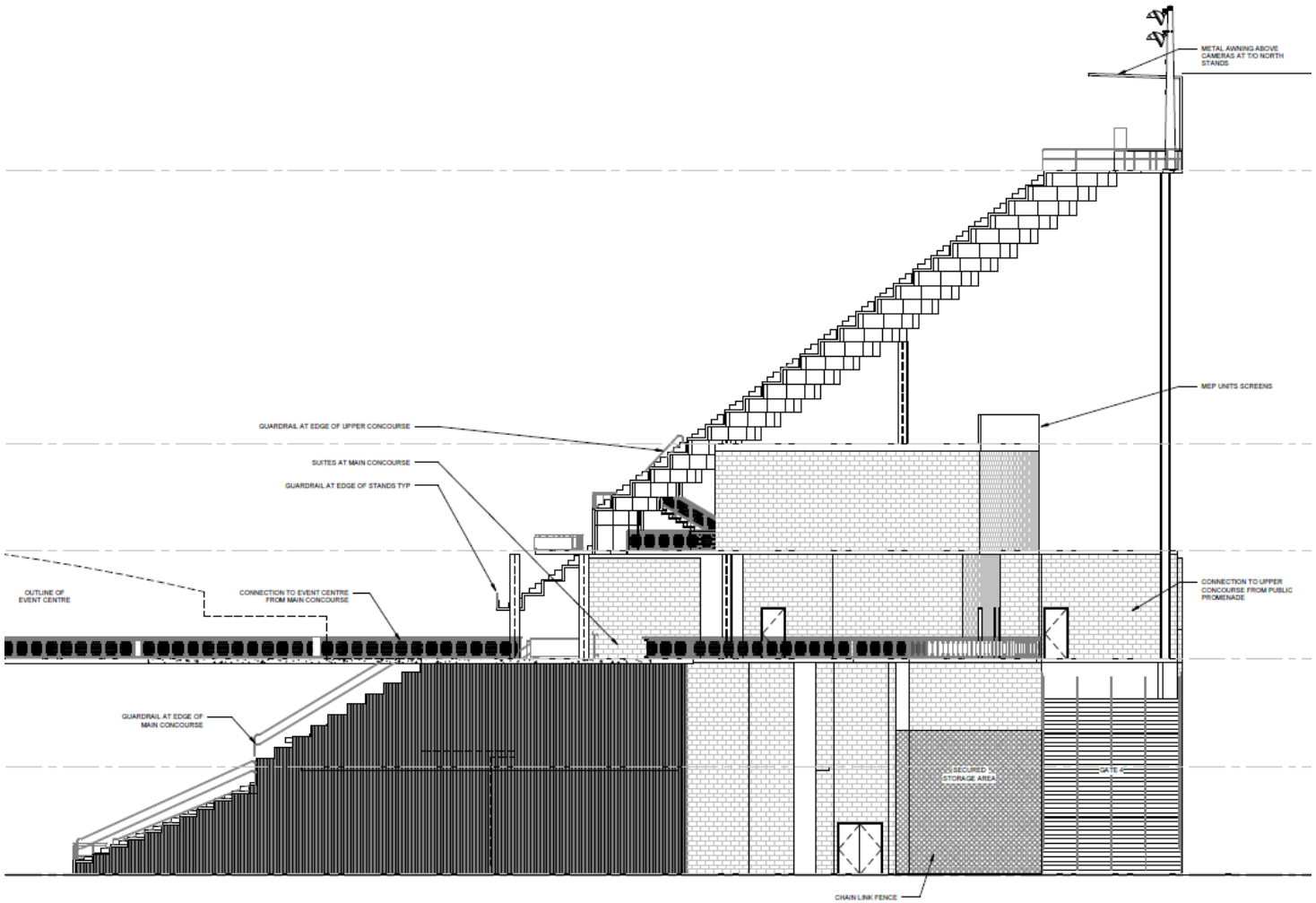


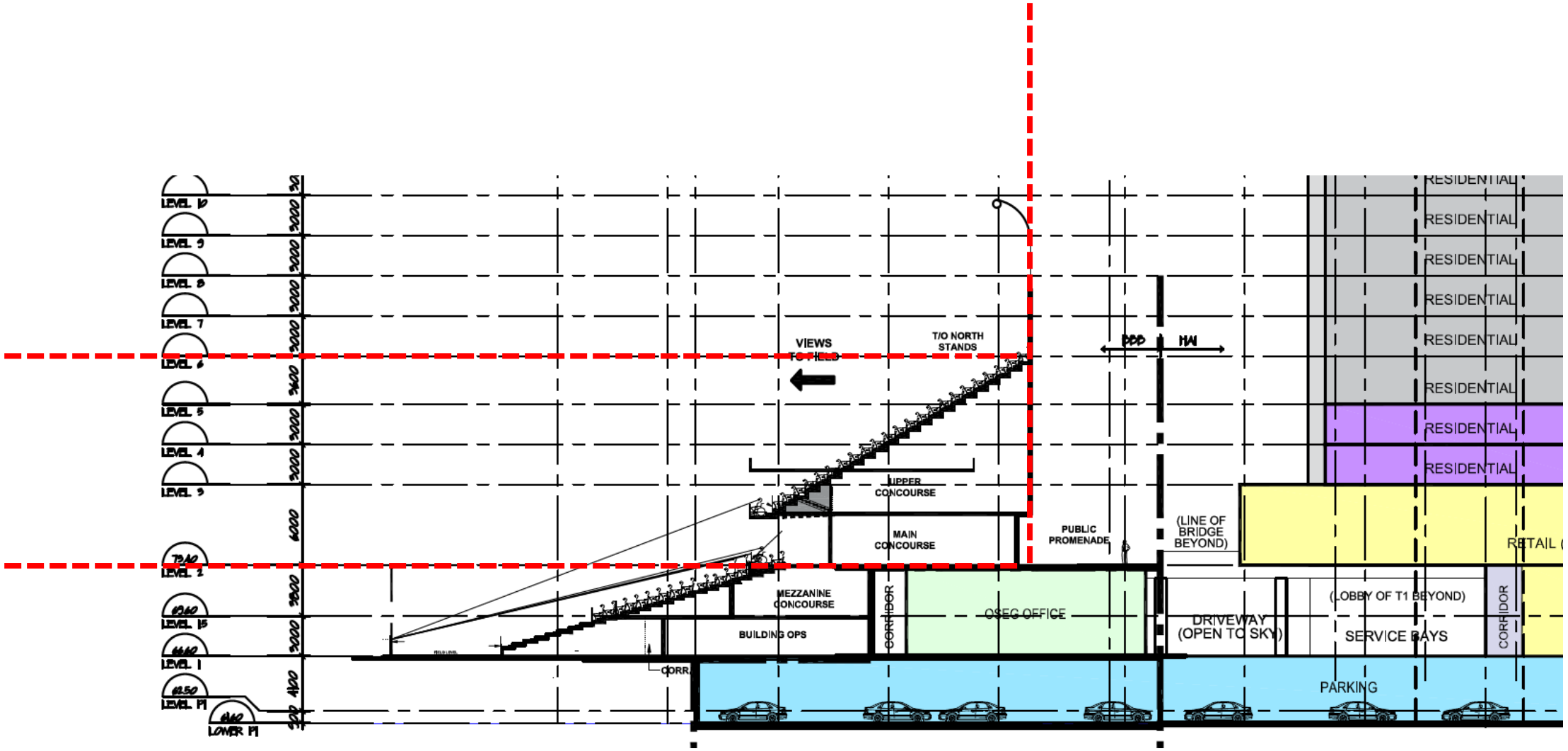


Animated uses are preferred. Or at least proper landscaping should be provided along the edge.

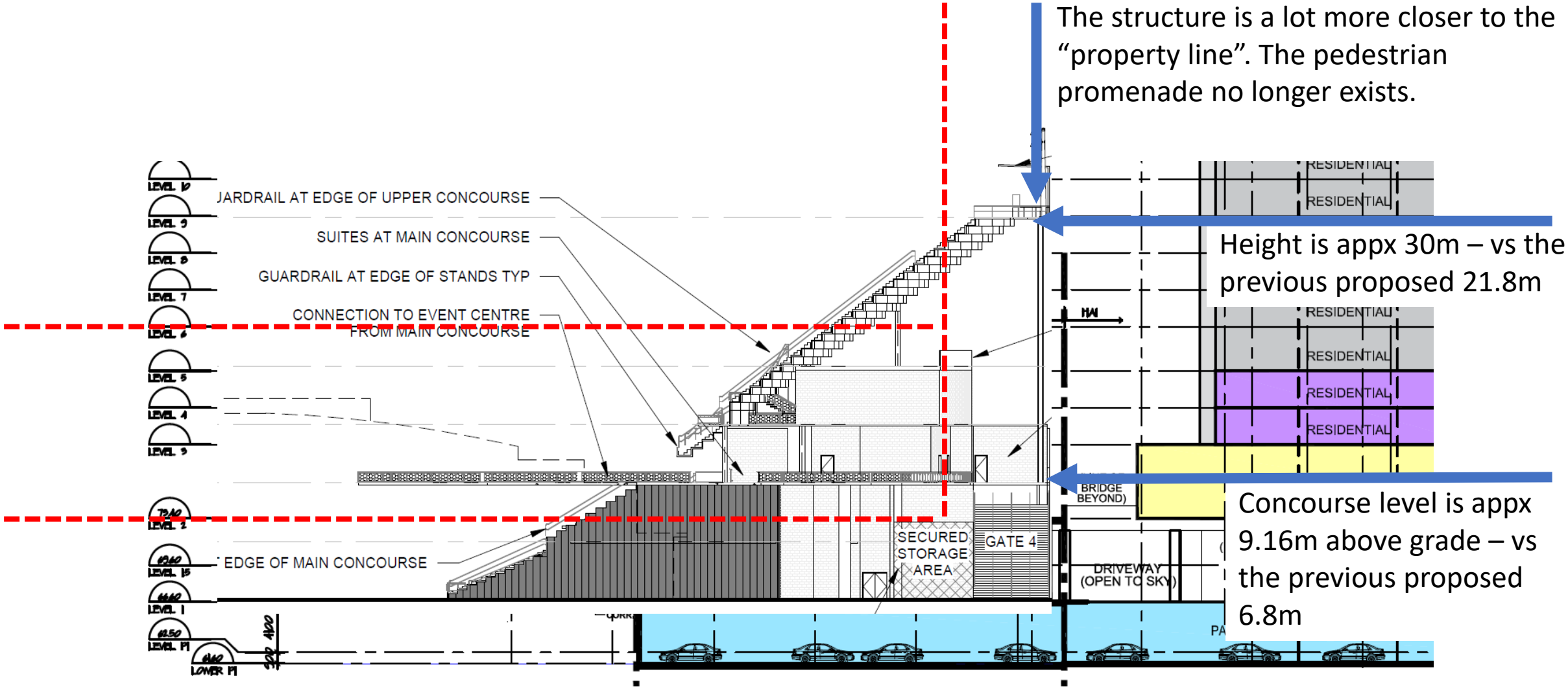
Relationship with the plaza of the event centre

East façade of the north stand, visible from the public plaza

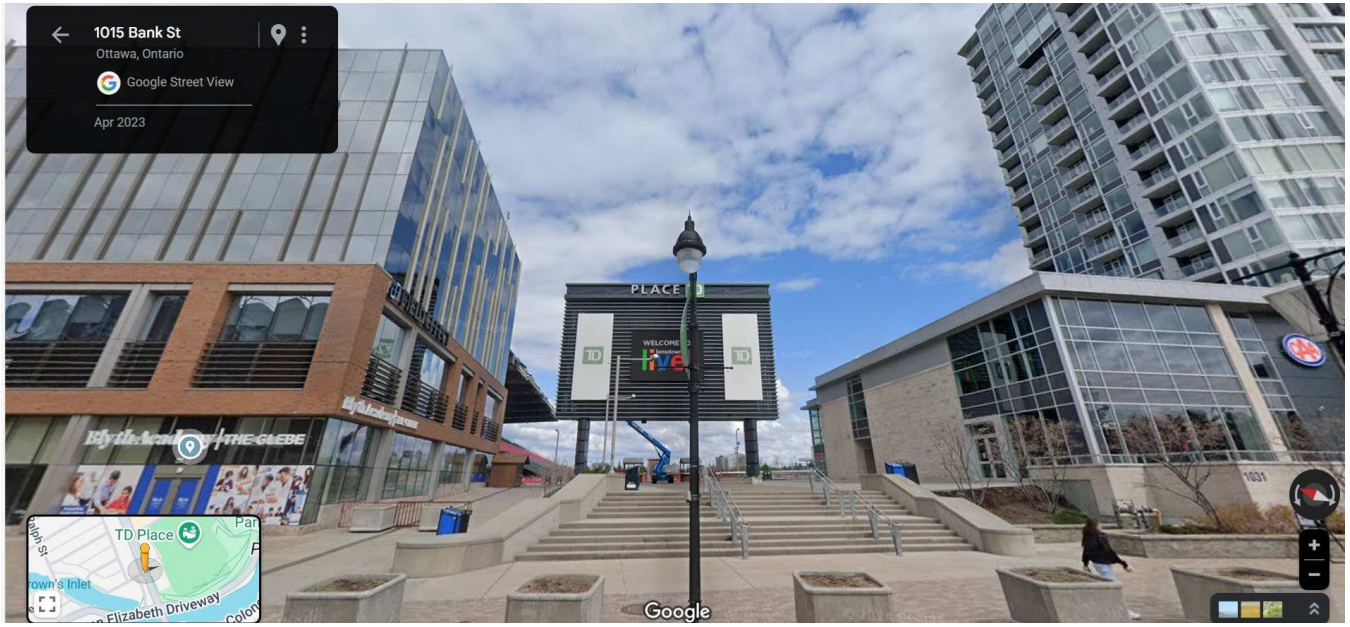




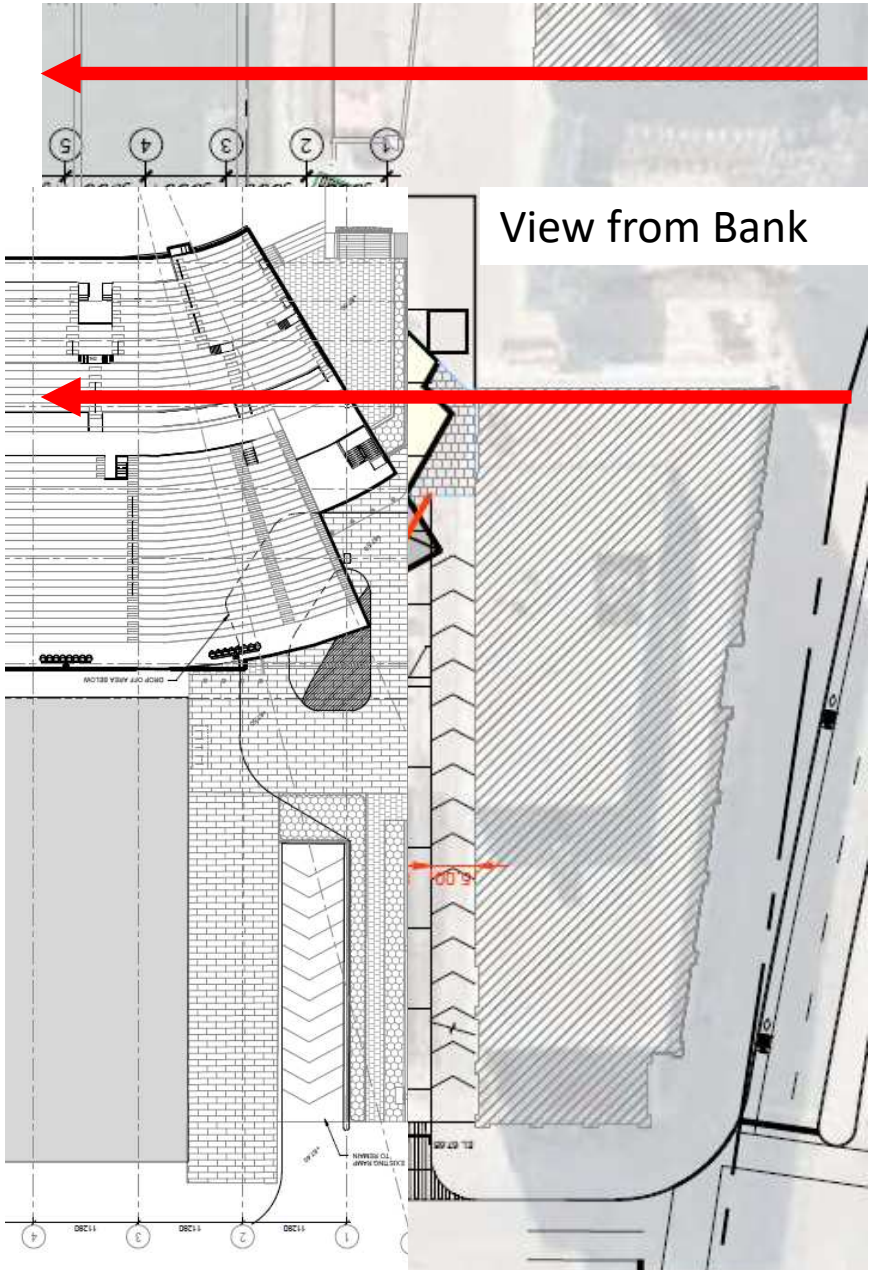
Relationship with future development – shown in the master plan



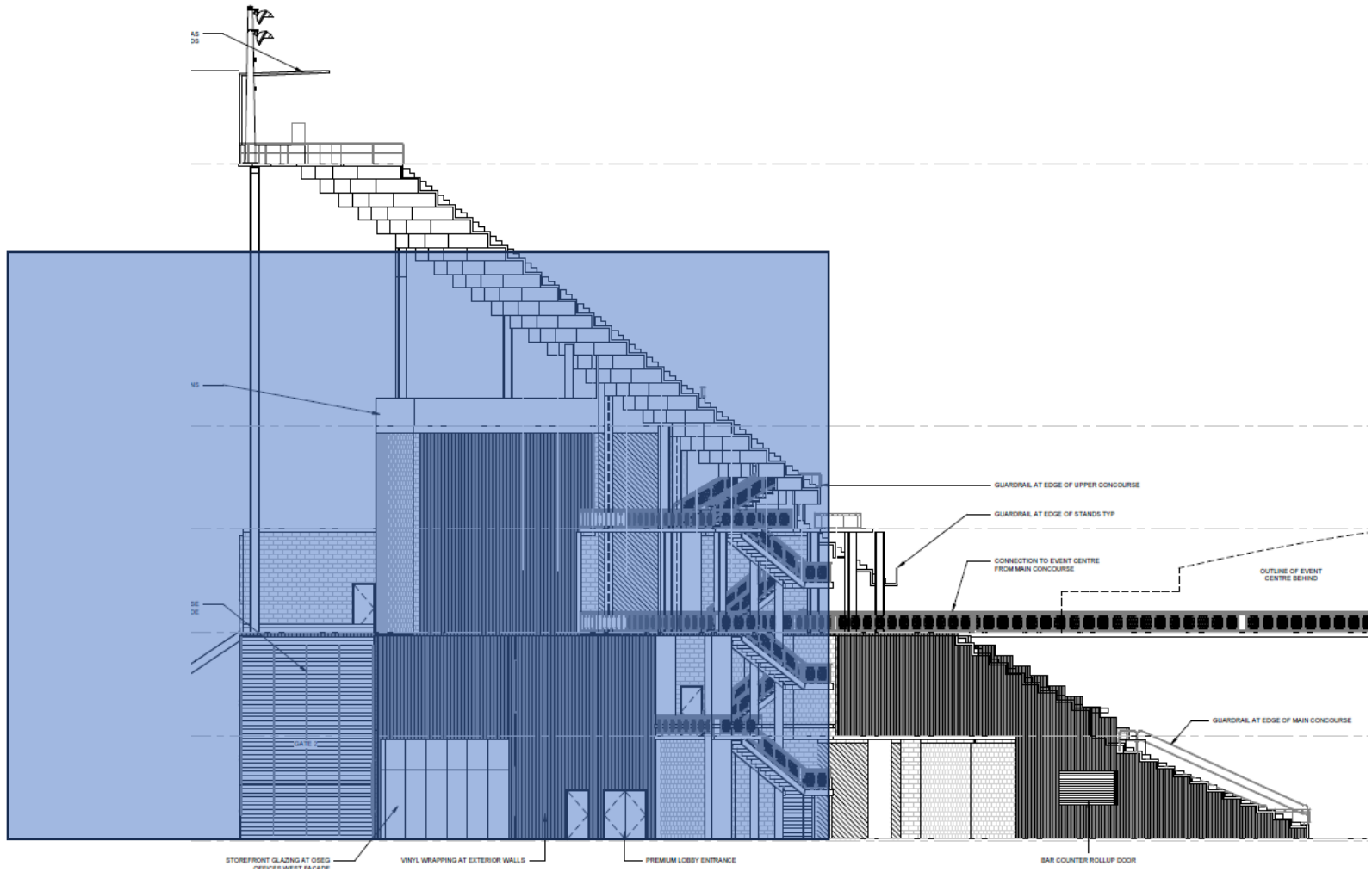
Relationship with future development – current proposal







Relationship with Bank Street

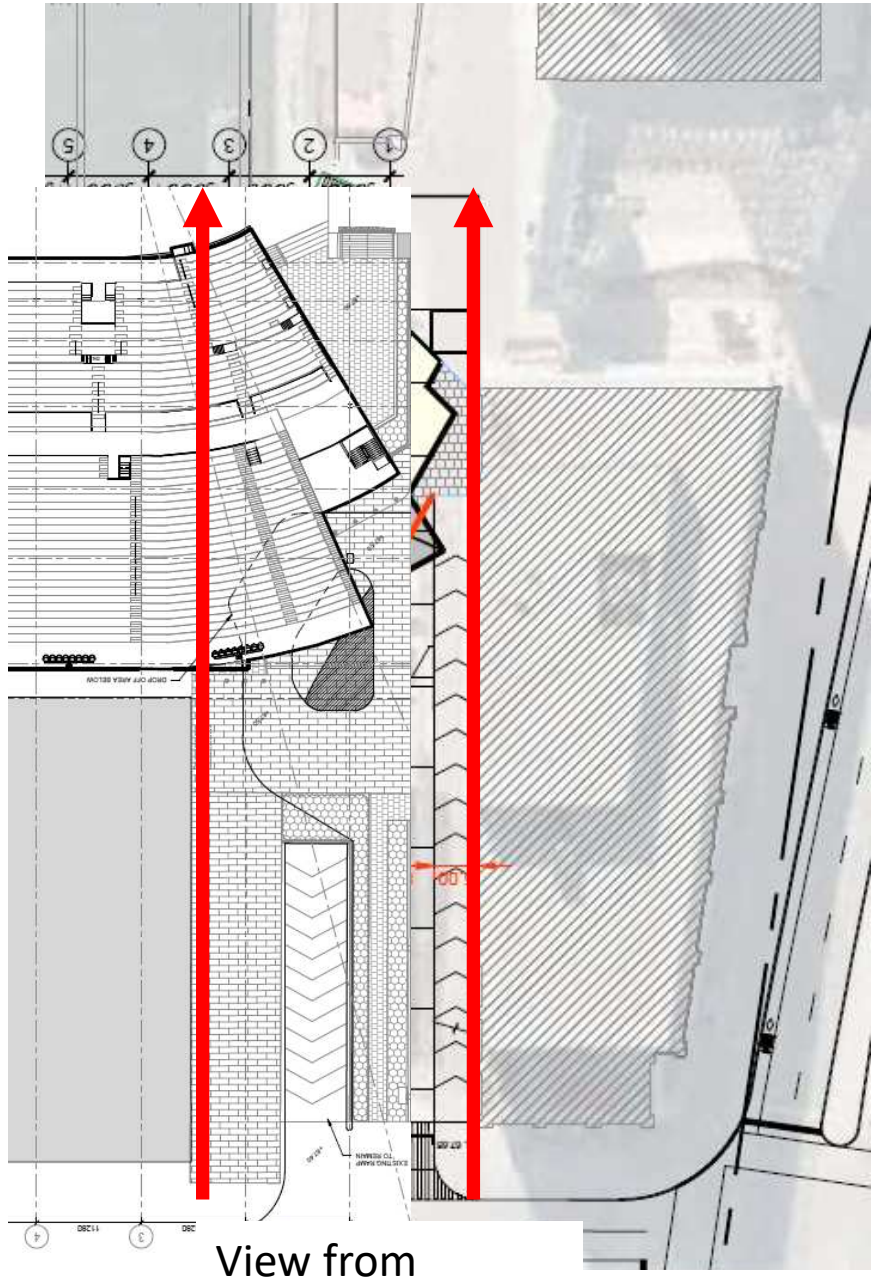


West façade of the north stand, a large portion visible from Bank Street.

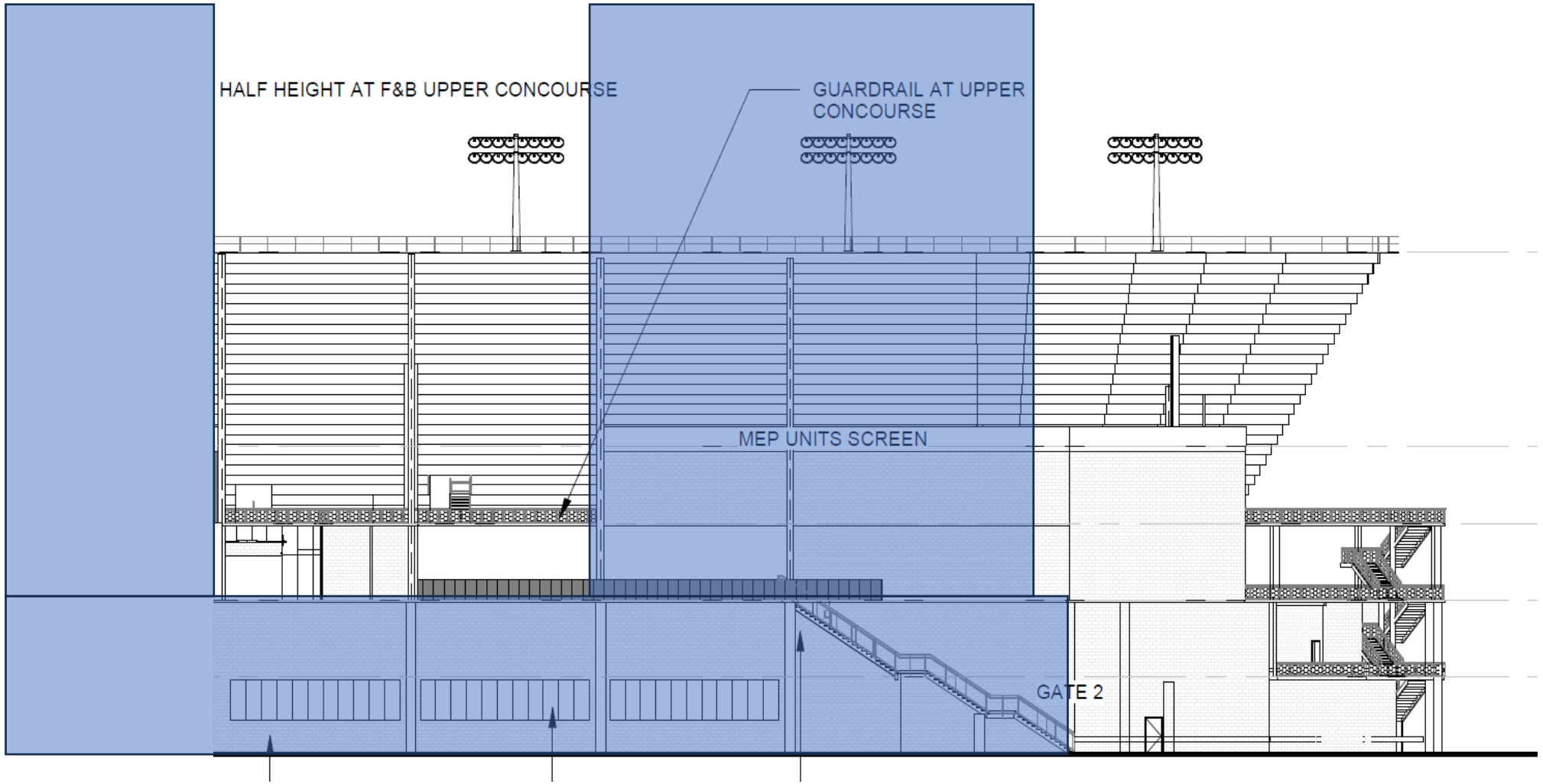




Relationship with Bank Street



View from
Exhibition Way



North façade of the north stand, a portion visible from Exhibition Way

What are the wind conditions in these areas? Is there a need to install wind-mitigation features?

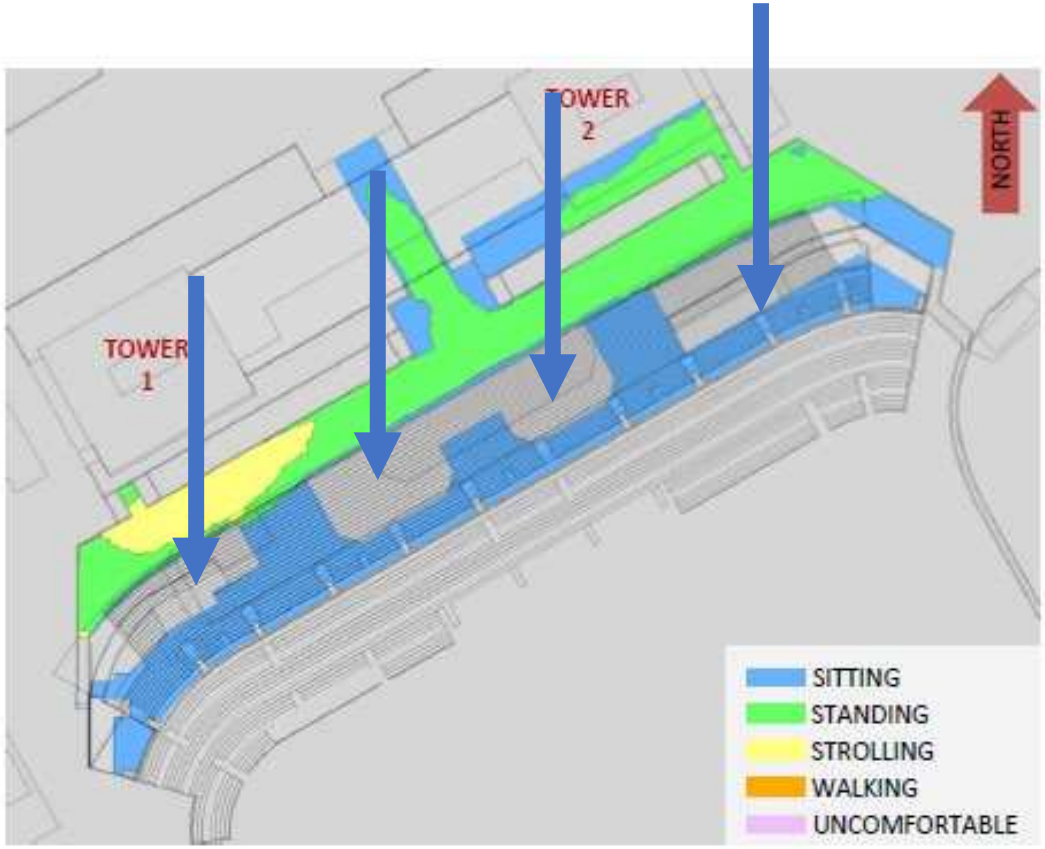


FIGURE 11A: SPRING – WIND COMFORT, PUBLIC PROMENADE



FIGURE 11B: SUMMER – WIND COMFORT, PUBLIC PROMENADE

Wind conditions on and around the north stand


LANSDOWNE PARK
RIDEAU RIVER
QUEEN ELIZABETH DRIVE
BROWNS
BRIDGE
CLEGG
GLEBE
BOWLES
BRIGHTON
BEECHWOOD
BELMONT
BELSIZE
BELVEDERE
BENSON
BERKELEY
BERNARD
BEVERLEY
BOWERS
BRADFORD
BRIGHTON
BROADVIEW
BROCK
BROOKFIELD
BROOKLEA
BROOKLEIGH
BROOKSIDE
BROOKVALE
BROOKVIEW
BROOKWOOD
BROWNING
BRUCE
BRYDEN
BUCHANAN
BURNHAM
BURNSIDE
CAMBRIDGE
CAMPBELL
CARLING
CARLTON
CARRUTHERS
CHAMBERLAIN
CHAMPAGNE
CHAPLEAU
CHARLOTTE
CHEMIN
CHESTNUT
CHILCOTT
CHRISTIE
CLARENDON
CLARENCE
CLARKE
CLEARVIEW
CLEMENTINE
CLIFFORD
CLIFTON
CLOVERDALE
COLBORNE
COLEMAN
COLLEGE
COLONEL
COLUMBIA
COMMERCIAL
COMMISSIONERS
CONCORD
CONNAUGHT
COOPER
CORKSTOWN
CRAIG
CRAIGMORE
CRAIGMOUNT
CRAIGWOOD
CRANBROOK
CRANSTON
CRAWFORD
CRESCENT
CROMWELL
CROYDON
CUMBERLAND
CUNNINGHAM
CURRAN
CURRIE
DALHOUSIE
DALKEITH
DANBY
DANFORTH
DARLINGTON
DAVIDSON
DAWSON
DEACON
DEAN
DEERING
DELAWARE
DELMAR
DENBIGH
DENMAN
DENNIS
DENVER
DERBY
DEVON
DEWEY
DIANA
DIDSBURY
DIXON
DOMINION
DONALDA
DONNELLY
DORCHESTER
DOVERCOURT
DOWNEY
DRAPER
DRUMMOND
DUFFERIN
DUNBAR
DUNCAN
DUNDAS
DUNLOP
DUNMORE
DUNSMUIR
DUPONT
EARL
EASTERN
EDGEWOOD
EDISON
EDMUND
EDWARD
ELDON
ELGIN
ELLIOTT
ELMDALE
ELMWOOD
EMERALD
EMERSON
ENGLEHART
ERIE
ESSEX
ETHEL
EVANS
EVERETT
EWART
FAIRMONT
FAIRVIEW
FARLEY
FARMER
FAULKNER
FAWCETT
FENTIMAN
FERNDALE
FERNWOOD
FIFTH
FINDLAY
FIRST
FISHER
FLEMING
FLORENCE
FOLEY
FORBES
FOREST
FORSYTH
FOSTER
FOURTH
FRANCIS
FRANKLIN
FRASER
FREELAND
FRENCH
FRIEL
FRONTENAC
GAGE
GARDEN
GARFIELD
GARLAND
GARNET
GARRY
GATINEAU
GEORGE
GERMAIN
GILBERT
GILLESPIE
GILMOUR
GLADSTONE
GLEBE
GLENCAIRN
GLENDALE
GLENDENNING
GLENFIELD
GLENLEA
GLENMORE
GLENWOOD
GLOUCESTER
GOLDEN
GOLDENRAIN
GOLDFINCH
GOLDSMITH
GOLF
GOODWIN
GORDON
GOULBURN
GRACE
GRAHAM
GRANDVIEW
GRANT
GRANTHAM
GRAVENHURST
GREENBANK
GREENFIELD
GREENWOOD
GREY
GRIFFITH
GROVE
GUELPH
GUILDWOOD
GUNN
HALCROW
HALL
HAMILTON
HAMPTON
HARDING
HARDWICK
HARGRAVE
HARLEY
HARMONY
HARRIS
HARRISON
HARTWELL
HARVEY
HASTINGS
HAWTHORNE
HAYDEN
HAYES
HAZELDEAN
HAZELWOOD
HEATHER
HEATHERINGTON
HEATHFIELD
HEATHWAY
HEMLOCK
HENDERSON
HENRY
HERON
HIGHLAND
HILLCREST
HILLSDALE
HILLSIDE
HILLTOP
HILTON
HINCHEY
HOLLAND
HOLLINGSWORTH
HOLMWOOD
HOLTON
HOPEWELL
HOWARD
HOWICK
HOWLAND
HUDSON
HUNTER
HUNTINGDON
HUNTLEY
HURDMAN
HURLEY
HUTTON
HYDE
IMPERIAL
INGLEWOOD
INGRAM
IRENE
IRVING
ISABELLA
ISLAND
IVANHOE
IVY
JACKSON
JAMES
JANET
JEANNE
JEANNETTE
JEFFERSON
JEFFREY
JENNINGS
JOHN
JOHNSTON
JOSEPH
JUDSON
KAREN
KEARNEY
KEITH
KELLY
KENDALE
KENILWORTH
KENNEDY
KENNETH
KENSINGTON
KENT
KENWOOD
KERR
KILBRIDE
KILLARNEY
KIMBERLEY
KING
KINGSLEY
KINGSMERE
KINGSTON
KIRKWOOD
KNOX
LABELLE
LACASSE
LACEWOOD
LADY
LAFLEUR
LAKE
LAKEWOOD
LANARK
LANCASTER
LANDSDOWNE
LANGFORD
LANSDOWNE
LARCH
LARKIN
LAURA
LAURENTIAN
LAURIER
LAVERGNE
LAWRENCE
LEAMY
LEBRETON
LEDBURY
LEE
LEES
LEGGET
LEGGETT
LEMIEUX
LEMOINE
LEONARD
LESLIE
LETHBRIDGE
LEVIS
LEWIS
LILAC
LINCOLN
LINDEN
LINDENLEA
LINDSAY
LINTON
LISGAR
LISMER
LITTLE
LIVINGSTON
LOCHAVEN
LOCHEED
LOCKWOOD
LOEB
LOGAN
LOMBARDY
LONDON
LONGFELLOW
LONGMOOR
LONGWOOD
LORAS
LORNE
LOUDOUN
LOUISA
LOWER
LUCERNE
LUCKNOW
LUMBERMANS
LYNDALE
LYNDHURST
LYNN
LYON
MACDONALD
MACKAY
MACKENZIE
MACLAREN
MACLAREN
MACLAREN



LEGEND

- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED SANITARY SEWER AND MAINTENANCE HOLE
- PROPOSED CATCH BASIN
- PROPOSED WATERMAIN
- PROPOSED FIRE HYDRANT
- D= PROPOSED DRINKING FOUNTAIN
- W= PROPOSED WATER CONNECTION
- *DR PROPOSED SANITARY DRAIN FOR DRINKING FOUNTAIN
- 65.00 PROPOSED SURFACE SWALE AND DIRECTION OF FLOW
- + 65.81 PROPOSED GRADE
- EXISTING GRADE
- EXISTING TREES

HOLMWOOD AVENUE

BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK H
BLOCK G
BLOCK I
BLOCK K

ABERDEEN SQUARE
ABERDEEN WAY
ABERDEEN PAVILION
WEST COURT
EAST COURT
EVENT SQUARE
GREAT PORCH
EAST BERM
GREAT LAWN
THE SCREEN
THE HILL
THE CROSSING
THE BEACON
NORTH SIDE STANDS
CIVIC ARENA + SALONS BELOW
EXISTING FIELD
SOUTH BERMS
QUEEN ELIZABETH DRIVEWAY
BANK STREET EXPANSION
BANK STREET
SHUTTLE LOOP
SKATING COURT
CHILDREN'S GARDEN
HEIRLOOM ORCHARD
NCC LANDS
RELOCATED HORTICULTURE BUILDING
BLOCK K INTERFACE ZONE

Approximate Construction Limit

JOB BENCH MARK #5
TOP OF SOUTHWEST BOLT OF LAMP STANDARD ELEV=65.51

JOB BENCH MARK #2
MAGNETIC NAIL SET IN TOP OF OLD CONCRETE BASE ELEVATION=63.380

JOB BENCH MARK #3
MAGNETIC NAIL SET IN -TOP- OF CONCRETE SLAB ELEV=67.553

JOB BENCH MARK #4
TOP CORNER OF CONCRETE WALL ELEVATION=67.617

JOB BENCH MARK #1
MAGNETIC NAIL SET IN TOP OF CONCRETE CANAL WALL ELEVATION=64.581

CANAL OUTLET WHR=62.58

OPERATING LEVEL OF CANAL DURING "MAXIMUM SEASON" 64.03m TO 64.08m

WATERMAIN 'A' -200mmØ

STATION	FINISHED GRADE	TOP OF W/M	ITEM
0+000	63.50	63.20	CONNECT TO EXISTING WATERMAIN
0+001.7	65.60	63.20	200mmØ VALVE AND BOX
0+003.5	65.55	63.15	45° HORIZONTAL BEND
0+005.2	65.55	63.15	45° HORIZONTAL BEND
0+022.5	65.45	63.05	TOP OF PIPE
0+022.5	65.43	63.03	SERVICE CONNECTION
0+040	65.20	62.80	TOP OF PIPE
0+060	65.10	62.70	TOP OF PIPE
0+068	65.10	62.70	11.25° HORIZONTAL BEND
0+080	65.15	62.75	TOP OF PIPE
0+100	65.15	62.75	TOP OF PIPE
0+104.4	65.15	62.75	22.5° HORIZONTAL BEND
0+107.4	65.15	62.75	200mmØ VALVE AND BOX
0+120	65.20	62.80	TOP OF PIPE
0+140	65.38	62.98	TOP OF PIPE
0+160	65.35	62.95	TOP OF PIPE
0+180	65.25	62.85	TOP OF PIPE
0+200	65.15	62.75	TOP OF PIPE
0+209.8	65.15	62.75	22.5° HORIZONTAL BEND
0+220.0	65.13	62.73	TOP OF PIPE
0+240	65.13	62.73	TOP OF PIPE
0+260	65.18	62.78	TOP OF PIPE
0+280	65.00	62.60	TOP OF PIPE
0+300	64.80	62.40	TOP OF PIPE
0+308.7	64.80	62.40	22.5° HORIZONTAL BEND
0+320	65.00	62.60	TOP OF PIPE
0+340	65.00	62.60	TOP OF PIPE
0+360	65.00	62.60	TOP OF PIPE
0+373.8	65.08	62.68	SERVICE CONNECTION
0+380	64.90	62.50	TOP OF PIPE
0+392.6	64.80	62.40	11.25° HORIZONTAL BEND
0+400	64.80	62.40	TOP OF PIPE
0+420	64.85	62.45	TOP OF PIPE
0+428.8	64.90	62.50	200mmØ VALVE AND BOX
0+460	64.90	62.50	TOP OF PIPE
0+462.3	64.90	62.50	SERVICE CONNECTION
0+468.8	64.90	62.50	45° HORIZONTAL BEND
0+473.4	64.90	62.50	11.25° HORIZONTAL BEND
0+480	64.85	62.45	TOP OF PIPE
0+500	64.50	62.10	TOP OF PIPE
0+520	64.50	62.10	TOP OF PIPE
0+521.7	64.50	62.10	SERVICE CONNECTION
0+535.7	64.90	62.50	45° HORIZONTAL BEND
0+537.3	64.90	62.50	45° HORIZONTAL BEND
0+540	64.90	62.50	TOP OF PIPE
0+548	64.90	62.50	200mmØ VALVE AND BOX
0+560	64.50	62.10	TOP OF PIPE
0+580	64.50	62.10	TOP OF PIPE
0+600	64.75	62.35	TOP OF PIPE
0+620	64.80	62.40	TOP OF PIPE
0+640	65.00	62.60	TOP OF PIPE
0+652.1	65.20	62.80	11.25° HORIZONTAL BEND
0+656.2	65.40	63.00	150mmØ FIRE HYDRANT TEE
0+660	65.50	63.10	TOP OF PIPE
0+680	65.75	63.35	TOP OF PIPE
0+693.8	66.30	63.90	22.5° HORIZONTAL BEND
0+697.4	66.30	63.90	22.5° HORIZONTAL BEND
0+700	66.40	64.00	TOP OF PIPE
0+720	66.45	64.05	TOP OF PIPE
0+740	66.45	64.05	200mmØ VALVE AND BOX
0+755.5	66.40	64.00	150mmØ FIRE HYDRANT TEE
0+757	66.40	64.00	TOP OF PIPE

WATERMAIN 'B' -200mmØ

STATION	FINISHED GRADE	TOP OF W/M	ITEM
1+000	64.90	62.50	CONNECT TO WATERMAIN 'A'
1+001.5	64.90	62.50	200mmØ VALVE AND BOX
1+005	64.90	62.50	11.25° HORIZONTAL BEND
1+020	64.70	62.30	TOP OF PIPE
1+033.8	65.00	62.60	150mmØ FIRE HYDRANT TEE
1+035.4	65.00	62.60	SERVICE CONNECTION
1+040	64.80	62.40	TOP OF PIPE
1+044.5	64.80	62.40	SERVICE CONNECTION
1+060	65.00	62.60	TOP OF PIPE
1+080	65.00	62.60	TOP OF PIPE
1+100	65.25	62.85	TOP OF PIPE
1+105	65.50	63.10	45° HORIZONTAL BEND
1+107.8	65.50	63.10	45° HORIZONTAL BEND
1+120	65.40	63.00	TOP OF PIPE
1+128.4	65.30	62.90	45° HORIZONTAL BEND
1+129.5	65.30	62.90	45° HORIZONTAL BEND
1+140	65.25	62.85	TOP OF PIPE
1+148	65.20	62.80	45° VERTICAL BEND
1+149.7	63.50	61.10	SERVICE CONNECTION
1+152.5	60.75	58.35	45° VERTICAL BEND
1+160	60.75	58.35	TOP OF PIPE
1+169	60.75	58.35	45° VERTICAL BEND
1+173.25	65.00	62.60	45° VERTICAL BEND
1+180	65.00	62.60	TOP OF PIPE
1+196.7	65.25	62.85	SERVICE CONNECTION
1+197.7	65.25	62.85	11.25° HORIZONTAL BEND
1+198.5	65.25	62.85	200mmØ VALVE AND BOX
1+200	65.25	62.85	TOP OF PIPE
1+209	65.00	62.60	TOP OF PIPE

WATERMAIN 'C' - 150mmØ

STATION	FINISHED GRADE	TOP OF W/M	ITEM
2+000	64.98	62.58	TEE CONNECTION TO WATERMAIN A
2+001.5	64.95	61.80	DEFLECT WATER UNDER STM & SAN
2+008	64.95	61.80	DEFLECT WATER UNDER STM & SAN
2+020	64.95	62.55	TOP OF PIPE
2+035.7	64.95	62.55	150mmØ HYDRANT TEE
2+040	64.95	62.55	TOP OF PIPE
2+060	64.95	62.55	TOP OF PIPE
2+067.2	64.95	62.55	22.5° HORIZONTAL BEND
2+070.7	64.95	62.55	45° BEND
2+077.3	64.95	62.55	45° BEND
2+080	64.95	62.55	TOP OF PIPE
2+081.2	64.95	62.55	MECHANICAL ROOM

GENERAL NOTES

1. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. ALL WORK AND MATERIALS TO CONFORM WITH CURRENT MINISTRY OF THE ENVIRONMENT & ENERGY OF ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES AND COORDINATION WITH ALL OTHER CONTRACTORS AND PRESENT CONSTRUCTION CONDITIONS.
4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES ON SITE. ALL UTILITIES SHOWN MUST BE LOCATED AND EXPOSED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO EXPOSE UTILITIES IN ADVANCE OF CONSTRUCTION SHALL BE CHARGED TO THE CONTRACTOR. ALL BE AT THE CONTRACTORS EXPENSE.
5. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF SAME INCLUDING WATER PERMIT AND ASSOCIATED COSTS.
7. ALL DISTURBED AREAS SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REINSTATEMENT FOR DEFICIENCIES AND SETTLEMENT DURING THE WARRANTY WITH OPSD 310.010 AND OPSD 310.030.
8. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE, SEE THE STORMWATER MANAGEMENT REPORT PREPARED BY CIMTEC ENGINEERING LTD. ROOF DRAINAGE TO BE PROVIDED VIA RESTRICTED ROOFTOP STORAGE AS DETAILED IN REPORT.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) AND CONTROL POINT(S) USED AS REFERENCE TO RELATIVE ELEVATIONS AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON DRAWING DP-1.
10. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS CONSTRUCTED SITE SERVICING, GRADING, AND SITE ELECTRICAL DWGS.
11. REFER TO RMA BANKRUPTCY PLANS FOR CAPPING OF LANDFILL AREAS.

STORM AND SANITARY SEWERS

1. STORM AND SANITARY MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010 TO 701.014. STORM MANHOLES SHALL BE PRECAST TO OPSD 701.021 WITH 1.2m DIAMETER FLAT SLAB TOP AND 600mm DIAMETER CLOSED FOR OPEN HOLES. SANITARY MANHOLES TO HAVE FRAME AND COVER AS PER OPSD 401.020 UNLESS LOCATED WITHIN STORM PONDING AREAS THEN WATERTIGHT FRAME AND COVER AS PER OPSD 401.030 TO BE USED. SAFETY PLATFORM TO BE INSTALLED IN ALL MANHOLES WHERE DEPTH EXCEEDS 6.0m.
2. ALL CATCH BASINS TO BE PRECAST TO OPSD 705.010 c/w FRAME AND GRATE AS PER OPSD 400.020.
3. SEWER TRENCH SHALL CONSIST OF CLASS 'B' BEDDING AND PER CITY OF OTTAWA STANDARDS DS AND ST. COMPACTION SHALL BE A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
4. ALL STORM SEWER PIPES UP TO AND INCLUDING 375mm DIA. SHALL BE PVC SDR-35 OR APPROVED EQUIVALENT. ALL STORM SEWER PIPES 450mm DIA. AND LARGER SHALL BE CONCRETE AND EQUAL TO C.S.A. STANDARD A257.2 CLASS 65-D. ALL STORM SEWER PIPES SHALL BE INSTALLED (HP-1, HP-2, HP-3) AS PER LATEST MUNICIPAL STANDARD UNLESS OTHERWISE NOTED.
5. ALL SANITARY PVC SEWER PIPES SHALL BE SDR-35 EQUAL TO CSA SPECIFICATIONS B182.2-M1980 OR LATEST AMENDMENT UNLESS OTHERWISE NOTED.
6. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY.
7. STORM MANHOLES SHALL NOT BE BENCHED UNLESS OTHERWISE SPECIFIED. SANITARY MANHOLES SHALL BE BENCHED AS PER OPSD 701.010 AND OPSD 701.011. ALL MANHOLES TO BE BENCHED TO THE SPRINGLINE OF THE PIPE. BENCHING TO BE PLACED WITH A MINIMUM OF 300mm ABOVE AND ALL STRUCTURES IN THE PIPE. ALL MANHOLES, WHERE BENCHING HAS NOT BEEN PLACED DUE TO THE SATISFACTION OF THE CONSULTANT, SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
8. "MONOLAY" OR APPROVED PRE-CAST MANHOLE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
9. FOR CONSTRUCTION DETAILS NOT SHOWN ON PLANS, REFERENCE SHALL BE MADE TO THE ONTARIO PROVINCIAL STANDARDS DRAWINGS AND MUNICIPAL STANDARDS.
10. ALL STORM SEWERS SHALL BE TERMINATED 1.0m FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
11. ALL SINGLE CATCH BASIN LEADS TO BE 200mmØ PVC, SDR-35, OR APPROVED EQUIVALENT UNLESS OTHERWISE SPECIFIED. CATCH BASIN LEADS TO HAVE MINIMUM GRADE OF 1.0%.
12. ALL CB LEAD INVERTS TO BE 1.0m BELOW FINISHED GRADE UNLESS OTHERWISE SPECIFIED.
13. THE CONTRACTOR IS TO PROVIDE CCTV CHECK/INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND ONE (1) VIDEO TAPE IN A FORMAT SATISFACTORY TO THE CONSULTANT AND THE CITY OF OTTAWA. ALL SEWERS SHALL BE CLEANED PRIOR TO INSPECTION. SEWERS TO BE FLUSHED UNTIL THE WATER DISCHARGE IS CLEAR AND ALL DEBRIS REMOVED. REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE CONSULTANT.
14. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
15. EXISTING MANHOLES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
16. FROST PROTECTION PER CITY OF OTTAWA STANDARD DRAWING W21 WHERE LESS THAN 1.5m OF COVER.
17. ALL CATCH BASINS AND CATCH BASIN MANHOLES TO HAVE 3.0m LONG SUBDRAINS HEADING OUT IN 4 DIRECTIONS IN PERVIOUS AREAS AND UNDER SIDEWALK ADJACENT TO BUILDING. SUBDRAINS TO BE PLACED 300mmØ BELOW SUBGRADE. THE SUB-DRAIN PIPES SHOULD BE SURROUNDED BY 10mm DIA CLEAR STONE DRAINAGE ZONE OF 19mm THICKNESS, WHICH SHOULD ONLY HAVE NON-WOVEN GEOTEXTILE WRAPPED AROUND.
18. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS AS PER OPSS 410.07.15 AND OPSS 407.07.15 AND 407.07.16. A COPY OF THE INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW.
19. STORM SEWER INLET CONTROL DEVICES TO BE INSTALLED AS OUTLINED IN THE IDS SCHEDULE ON THIS DRAWING. ALL INLET CONTROL DEVICES TO BE INSTALLED AT THE DOWNSTREAM MANHOLE OF CATCH BASIN LEADS.
20. MAIN SEWER CONNECTIONS ARE DRAWN TO CONVEY UNLESS DROP STRUCTURE IS TO BE USED.
21. 150mmØ PERFORATED SUB-DRAIN AROUND LANDSCAPED TREE ISLANDS TO BE CONNECTED TO STORM SEWER. REFER TO LANDSCAPE PLANS L-1.16 AND L-1.26 PREPARED BY LANDSCAPE ARCHITECTS, MACKENZIE.
22. ALL SWALES LESS THAN 0.50M SHALL INCLUDE A 250mmØ PERFORATED SUBDRAIN AS PER CITY STANDARD S24.
23. ALL CATCH BASINS SHALL INCLUDE A FLOATABLE TRAP S10 ASSEMBLY. THE S10 SHALL BE EQUAL TO THE PIPE DIA.
24. ALL SANITARY SEWER MANHOLES SHALL BE PRESSURE TESTED, MANHOLES SHALL BE TESTED TO WITHSTAND NO LEAKAGE AT A PRESSURE OF 35 KPA, AND FRAME AND COVER SHALL BE SECURED TO RESIST UPLIFT PRESSURES OF 100 KPA OF HEAD.
25. A STORM WATER QUALITY CONTROL STRUCTURE SHALL BE ADDED BY THE OWNER ONCE THE COMBINED SEWER SYSTEM IS SEPARATED.

WATERMAINS

1. WATERMAIN SHALL BE POLYMAIL CHLORINE (PVC) CLASS 150 DR-18 PIPE MANUFACTURED TO AWWA C900-89 AND CSA CAN/CSA B137.3-M1986 WITH GASKETED BELL END C/W (HI-AM) AWG SOLID COPPER TRACER WIRE.
2. ALL WATERMAINS, WATER SERVICES, CONNECTIONS AND APPURTENANCES AS PER CITY OF OTTAWA STANDARDS, SPECIFICATIONS AND OPSD. ALL WATERMAIN TO BE INSTALLED AND TESTED IN ACCORDANCE WITH OPSS 441, INSPECTION AND DISINFECTION BY CITY OF OTTAWA PERSONNEL. MINIMUM TRENCH TO BE IN ACCORDANCE WITH CITY OF OTTAWA W11.
3. ALL WATERMAINS SHALL HAVE MIN. COVER OF 2.4m. WATERMAINS ARE TO BE INSTALLED TO THE ELEVATIONS SHOWN ON THE DRAWINGS. WHERE THE WATERMAIN IS INSTALLED AT A DEPTH GREATER THAN THAT SHOWN ON THE DRAWINGS, A MINIMUM COVER OF 2.4m FROM PROPOSED GRADES, AS SHOWN ON THE GRADING PLAN, MUST BE MAINTAINED AT ALL TIMES. IN RESIDENCE AREAS COVER TO BE FROM PROPOSED ELEVATIONS.
4. ALL WATERMAIN BENDS, JOINTS, TEES AND PLUGS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
5. ALL FIRE HYDRANT INSTALLATIONS SHALL BE PER CITY OF OTTAWA W19. HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH OTTAWA STANDARDS. CONTRACTOR SHALL CHECK HYDRANTS AS DIRECTED BY LOCAL FIRE DEPARTMENT.
6. ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.15m ABOVE PROPOSED FINISHED GRADE AT HYDRANT.
7. BUILDING SERVICE TO BE CAPPED 1.0m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12m BACK FROM STUB.
8. WATERMAINS MUST COMPLY WITH MINIMUM HORIZONTAL AND VERTICAL CLEARANCES IN ACCORDANCE WITH LOCAL PROVINCIAL GUIDELINES AND THE APPLICABLE BUILDING AND PLUMBING CODE. WHERE HORIZONTAL SEPARATIONS CANNOT BE ACHIEVED, ALTERNATIVE MATERIALS MUST BE DESIGNED AND A MINIMUM 300mm VERTICAL SEPARATION MUST BE MAINTAINED.
9. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL DISINFECTED WATER TO BE DECHLORINATED AND PRESSURETESTED & FLUSHED/CLEANED PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT THE NATURAL ENVIRONMENT. DISCHARGE LOCATIONS MUST BE APPROVED BY THE LOCAL MUNICIPALITY AND PROVINCIAL REQUIREMENTS AND PERMITS.
10. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
11. CATHODIC PROTECTION PER CITY OF OTTAWA W40 AND W42.
12. THE SIZE, LOCATION TO BE SHALL MATCHED AND FOR COST SHARING PURPOSES INDIVIDUAL WATER CONSUMPTION METERS ARE REQUIRED ON ALL RESIDENTIAL BUILDING CONNECTIONS.

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REVISIONS

No.	Date	Details	By
1	2011-11-21	ISSUED TO CITY FOR REVIEW	JVG
2	2011-12-12	REVISED AS PER CITY COMMENTS	JVG
3	2012-01-11	REVISED AS PER COORDINATION WITH OSEG	JVG
4	2012-01-26	REVISED AS PER CITY COMMENTS	JVG

1:600 0 6 18 30m

PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

DRAWING TITLE

SITE SERVICING PLAN

DATE Oct. 13, 2011

SCALE 1:600

REVISION # 4

DRAWING No. C01

CLIENT PARTNERSHIP

Ottawa
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Ottawa Sports and Entertainment Group

CONSULTANT TEAM

CANNONDESIGN
AN IDEAS BASED PRACTICE

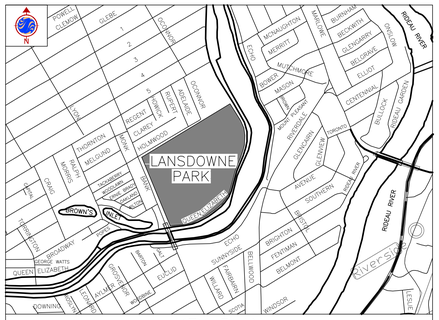
CORUSH SUNDERLAND WRIGHT

DSEL
david schaeffer engineering ltd
SMART SUBDIVISIONS

GreenbergFarrow

Stantec

PHILLIPS FAREVAAG SMALLENBERG
PLANNING + URBAN DESIGN
LANDSCAPE ARCHITECTURE

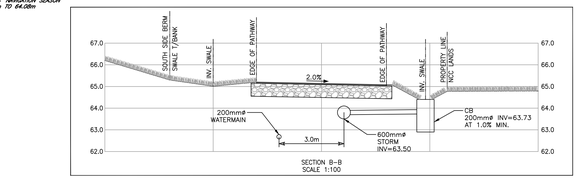


LEGEND

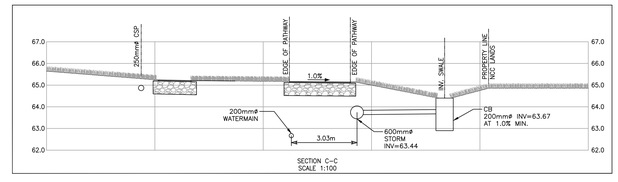
- PROPOSED STORM MAINTENANCE HOLE
- PROPOSED SANITARY MAINTENANCE HOLE
- PROPOSED CATCH BASIN
- 0.5% 65.00 PROPOSED SURFACE SWALE AND DIRECTION OF FLOW
- + 65.81 PROPOSED GRADE
- + 65.81 EX PROPOSED GRADE = EXISTING GRADE
- 65.00 EXISTING GRADE
- EXTENT OF PAH IMPACTED SOIL

HOLMWOOD AVENUE
LANSDOWNE WAY
ABERDEEN AVENUE
BANK STREET
QUEEN ELIZABETH DRIVEWAY
BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK G
BLOCK H
BLOCK J
BLOCK K
BLOCK K INTERFACE ZONE
RELOCATED HORTICULTURE BUILDING
ABERDEEN SQUARE
ABERDEEN PAVILION
WEST COURT
EAST COURT
EVENT SQUARE
HEIRLOOM ORCHARD
SHUTTLE LOOP
SKATING COURT
CHILDREN'S GARDEN
GREAT PORCH
GREAT LAWN
THE BEACON
THE CROSSING
THE SCREEN
THE HILL
EAST BERM
SOUTH BERMS
EXISTING FIELD
NORTH SIDE STANDS
CIVIC ARENA + SALONS BELOW
NCC LANDS
JOB BENCH MARK #1 MAGNETIC NAIL SET IN TOP OF CONCRETE CANAL WALL ELEVATION=64.581
JOB BENCH MARK #2 MAGNETIC NAIL SET IN TOP OF OLD CONCRETE BASE ELEVATION=65.380
JOB BENCH MARK #3 MAGNETIC NAIL SET IN TOP OF CONCRETE SLAB ELEV=67.193
JOB BENCH MARK #4 TOP CORNER OF CONCRETE STAIR ELEVATION=67.337
JOB BENCH MARK #5 TOP OF SOUTHWEST BOLT OF LAMP STANDARD ELEV=65.51
100 YEAR FLOOD ELEVATION = 64.90m
100 YEAR FLOOD ELEVATION = 64.70m
CANAL OUTLET INV=62.58
OPERATING LEVEL OF CANAL DURING 'NAVIGATION SEASON' 64.03m TO 64.08m

SECTION B-B
SCALE 1:100



SECTION C-C
SCALE 1:100



SITE GRADING

1. ALL GRANULAR BASE & SUB BASE COURSE MATERIALS SHALL BE COMPACTED TO 100% STANDARD PROCTOR MAX. DRY DENSITY.
2. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER, WITH 300 DIA. 100mm TOPSOIL. THE RELOCATION OF TREES AND SHRUBS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR ENGINEER.
3. PAVEMENT CONSTRUCTION AS PER DETAILS ON DRAWING No. C07
4. ALL BARRIER CURBS AND SIDEWALKS TO BE CONSTRUCTED PER CITY OF OTTAWA STANDARD DRAWING SC1 AND SC8 UNLESS OTHERWISE NOTED OR DETAIL PROVIDED.
5. INSPECTIONS: ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMAINS AND SEWERS TO BE INSPECTED BY THE MUNICIPALITY WHEN REQUIRED.
6. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
7. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE IF REQUIRED BY THE MUNICIPALITY.
8. PARKING AREA PONDING DEPTH TO BE 0.30m (MAXIMUM).
9. EMBANKMENTS TO BE SLOPED AT MIN. 3:1, UNLESS OTHERWISE SPECIFIED.
10. ALL PAVEMENT MARKING, LINE PAINTING, DIRECTIONAL LINES/ARROWS ETC. SHALL BE PLACED IN ACCORDANCE WITH THE ARCHITECTURAL SITE PLAN OR THE OWNER'S TRAFFIC ENGINEERING CONSULTANT'S DRAWINGS. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT BASED PAINT.
11. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS CONSTRUCTED SITE SERVICING, GRADING, AND SITE ELECTRICAL DWGS.
12. SITE SIGNAGE TO BE INSTALLED AS PER ARCHITECTURAL SITE PLAN.
13. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH ARCHITECT AND THE CITY OF OTTAWA PRIOR TO TREE CUTTING.
14. SUB-EXCAVATE SOFT AREAS & FILL WITH GRANULAR 'B' COMPACTED IN 0.15m LAYERS.
15. FOR ALL LANDSCAPING FEATURES (ie. TREES, WALKWAYS, PARK DETAILS, NOISE BARRIERS, FENCES etc.) REFER TO LANDSCAPE ARCHITECT PLAN.
16. ROUGH GRADING FOR LANDSCAPED ISLANDS TO BE LEFT 150mm BELOW CURB AND COMPACTED TO 95%.
17. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS FOR RETAINING WALLS (INCLUDE RAILINGS IF APPLICABLE) TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENCED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY STRUCTURAL AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.
18. ALL SWALES LESS THAN 0.50% SHALL INCLUDE A 250mmø PERFORATED SUBDRAIN AS PER CITY STANDARD S29.

CLIENT PARTNERSHIP

Ottawa

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AN IDEAS BASED PRACTICE

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david schaeffer engineering ltd
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4	2012-01-26	REVISED AS PER CITY COMMENTS	JVG

1:600 0 6 18 30m

PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

DRAWING TITLE

GRADING PLAN

DATE	DRAWING No.
Oct. 13, 2011	C02
SCALE 1:600	
REVISION # 4	

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KEY PLAN
N.T.S.

LEGEND

- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED CATCH BASIN
- 65.00 PROPOSED SURFACE SWALE AND DIRECTION OF FLOW
- + 65.81 PROPOSED GRADE
- EXISTING GRADE
- STORM CATCHMENT BOUNDARY AREA
- B / 0.82 STORM CATCHMENT AREA ID / AREA (ha)

HOLMWOOD AVENUE
LANSDOWNE WAY
ABERDEEN SQUARE
ABERDEEN AVENUE
BANK STREET
QUEEN ELIZABETH DRIVEWAY
BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK H
BLOCK G
BLOCK J
BLOCK I
BLOCK K
BLOCK K INTERFACE ZONE
RELOCATED HORTICULTURE BUILDING
HEIRLOOM ORCHARD
NCC LANDS
SHUTTLE LOOP
SKATING COURT
CHILDREN'S GARDEN
ABERDEEN PAVILION
WEST COURT
EAST COURT
EVENT SQUARE
GREAT PORCH
GREAT LAWN
EAST BERM
THE SCREEN
THE HILL
THE CROSSING
THE BEACON
SOUTH BERMS
EXISTING FIELD
NORTH SIDE STANDS
CIVIC ARENA + SALONS BELOW
N.STANDS
S.STANDS
BLDG A 0.266 0.90
BLDG B 0.345 0.90
BLDG C 0.315 0.90
BLDG D 0.142 0.90
BLDG G1 0.182 0.90
BLDG G2 0.039 0.90
BLDG H 0.365 0.90
BLDG I 0.254 0.90
BLDG J 0.134 0.90
BLDG K 0.164 0.90
A1 1.555 0.75
A2 1.181 0.75
A3 0.948 0.80
A4 0.931 0.80
A5 0.254 0.75
N.STANDS 1.343 0.90
S.STANDS 0.840 0.90
102 0.432
107AA 0.283
AA 0.36
108 0.34
109A 0.051
109 0.30
109C 0.243
116 0.255
U 0.02
BB 0.87
GG 0.30
P 0.18
O 0.26
V 0.14
N 0.07
T 0.11
L 0.08
M 0.08
K 0.11
G 0.10
F 0.11
FF 0.10
E 0.10
I 0.16
H 0.11
EE 0.32
A 0.85
D 0.52
D1 0.43
JOB BENCH MARK #1 MAGNETIC NAIL SET IN TOP OF CONCRETE CANAL WALL ELEVATION=64.581
JOB BENCH MARK #2 MAGNETIC NAIL SET IN TOP OF OLD CONCRETE BASE ELEVATION=65.380
JOB BENCH MARK #3 MAGNETIC NAIL SET IN TOP OF CONCRETE SLAB ELEV=67.851
JOB BENCH MARK #4 TOP OF CURB ELEV=67.531
JOB BENCH MARK #5 TOP OF SOUTHWEST BOLT OF LAMP STANDARD ELEV=65.51
CANAL OUTLET INV=62.58
OPERATING LEVEL OF CANAL DURING NAVIGATION SEASON 64.03m TO 64.08m
UNDERGROUND STORAGE TANK DEPTH = 1.20m AREA = 1790m² VOL = 2220m³ (-3)
UNDERGROUND STORAGE TANK LENGTH = 113m AREA = 480m² VOL = 620m³ (-3)
PLUG EXISTING STORM LEAD IN 600mm Ø PIPE AND REMOVE REMAINING LEAD.
EX. 1500mm Ø MH (EXISTING) 600mm Ø PIPE NORTH OF MH TO BE REMOVED
EX. STM MH W.INV=64.08 E.INV=64.08
EX. STM MH W.INV=63.42 E.INV=63.40
EX. STM MH W.INV=62.34 E.INV=62.45 E.INV=62.37
EX. STM MH W.INV=62.80 N.INV=62.81 W.INV=62.22 E.INV=62.26 S.INV=62.57

CLIENT PARTNERSHIP

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4	2012-01-26	REVISED AS PER CITY COMMENTS	JVG

1:600 0 6 18 30m

PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

DRAWING TITLE

CATCHMENT AREA PLAN

DATE

SCALE 1:600

REVISION # 4

DRAWING No. C03

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LEGEND

PROPOSED STORM SEWER AND MAINTENANCE HOLE

PROPOSED CATCH BASIN

HOLMWOOD AVENUE

LANSDOWNE WAY

ABERDEEN WAY

ABERDEEN SQUARE

ABERDEEN PAVILION

BLOCK A

BLOCK B

BLOCK C

BLOCK D

BLOCK G

BLOCK H

BLOCK I

BLOCK J

BLOCK K

BLOCK K INTERFACE ZONE

RELOCATED HORTICULTURE BUILDING

CIVIC GARDEN

HEIRLOOM ORCHARD

NCC LANDS

SHUTTLE LOOP

SKATING COURT

CHILDREN'S GARDEN

THE BEACON

GREAT LAWN

GREAT PORCH

EAST BERM

THE SCREEN

THE HILL

THE CROSSING

WEST COURT

EAST COURT

EVENT SQUARE

NORTH SIDE STANDS
CIVIC ARENA + SALONS BELOW

EXISTING FIELD

SOUTH BERMS

BANK STREET

BANK STREET EXPLANADE

QUEEN ELIZABETH DRIVEWAY

RIDEAU RIVER

JOB BENCH MARK #5
TOP OF SOUTHWEST BOLT OF LAMP STANDARD ELEV=65.51

JOB BENCH MARK #2
MAGNETIC NAIL SET IN TOP OF OLD CONCRETE BASE
ELEVATION=65.350

JOB BENCH MARK #3
MAGNETIC NAIL SET IN TOP OF CONCRETE SLAB ELEV=67.553

JOB BENCH MARK #4
TOP CORNER OF CONCRETE WALL ELEVATION=67.617

JOB BENCH MARK #1
MAGNETIC NAIL SET IN TOP OF CONCRETE CANAL WALL
ELEVATION=64.581

CANAL OUTLET
INV=62.50

OPERATING LEVEL OF CANAL DURING "MAXIMUM SEASON"
64.03m TO 64.08m

GENERAL NOTES

1. ALL WORK SHALL BE CARRIED OUT IN CONFORMITY WITH THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. ALL WORK AND MATERIALS TO CONFORM WITH CURRENT SPECIFICATIONS OF THE CORPORATION & DISTRICT OF ONTARIO, CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, LOCAL UTILITY STANDARDS AND AMENDITY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL CO-ORDINATE HIS CONSTRUCTION ACTIVITIES AND CO-OPERATION WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE TO THE LOCATIONS SHOWN ON THE DRAWINGS MUST BE REPORTED TO THE ENGINEER. IT IS THE RESPONSIBILITY OF THE UTILITY LOCATORS AND NOTIFY THE ENGINEER OF POSSIBLE CONFLICTS PRIOR TO EXCAVATION. NO ALL OF UTILITY LOCATIONS ARE SHOWN.
5. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF SAME, INCLUDING WATER PERMIT AND ASSOCIATED COSTS.
7. ALL DISTURBED AREAS SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION - THE ENGINEER AND THE CITY. PAVEMENT REINSTATEMENT AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPSD 500.010 AND OPSD 310.010.
8. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE, SEE THE STORMWATER MANAGEMENT REPORT PREPARED BY GREENBERG FARROW LTD. ROOF DRAINAGE TO BE PROVIDED VIA RESTRICTED RELEASE ROOF DRAINS AS DETAILED IN THE REPORT.
9. ENCROACHING IS AT THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE ENCROACHMENTS HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON DRAWING GP-1.
10. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS CONSTRUCTED SITE SERVICING, GRADING AND SITE ELECTRICAL DWGS.
11. REFER TO RISK MANAGEMENT PLANS FOR CAPPING OF LANDFILL AREAS.

STORM AND SANITARY SEWERS

1. STORM AND SANITARY MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010 TO 701.014. STORM MANHOLES TO HAVE FRAME AND COVER PER OPSD 401.020, CATCH BASIN MANHOLES TO HAVE FRAME AND COVER PER OPSD 400.020. SANITARY MANHOLES TO HAVE FRAME AND COVER AS PER OPSD 401.030 UNLESS OTHERWISE NOTED. MANHOLES SHALL BE BENCHED AS PER OPSD 701.021 AND OPSD 701.030 TO 33 TO BE USED. SAFETY PLATFORM TO BE INSTALLED IN ALL MANHOLES WHERE DEPTH EXCEEDS 7.0m.
2. ALL CATCH BASINS TO BE PRECAST TO OPSD 705.010 c/w FRAME AND GRATE AS PER OPSD 400.020.
3. SEWER TRENCH SHALL CONSIST OF CLASS 'B' BEDDING PER CITY OF OTTAWA STANDARDS SB AND ST.
4. ALL STORM SEWER PIPES UP TO AND INCLUDING 375mm DIA. SHALL BE PVC DR35 OR APPROVED EQUIVALENT UNLESS OTHERWISE NOTED. ALL STORM SEWER PIPES 450mm DIA. AND LARGER SHALL BE CONCRETE AND EQUAL TO C.S.A. SPECIFICATIONS A257.2 REINFORCED CLASSES AS SPECIFIED 135-IL, 150-IL, 165-IL OR LATEST AMENDMENT UNLESS OTHERWISE NOTED.
5. ALL SANITARY PVC SEWER PIPES SHALL BE SDR-35 EQUAL TO CSA SPECIFICATIONS B182.2-M1990 OR LATEST AMENDMENT UNLESS OTHERWISE NOTED.
6. ALL MANHOLES AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR.
7. STORM MANHOLES SHALL NOT BE BENCHED UNLESS OTHERWISE SPECIFIED. SANITARY MANHOLES SHALL BE BENCHED TO CREATE MINIMUM WIDTH OF BENCHING TO BE 225mm OR AS SPECIFIED ON DRAWINGS. GRANULAR 'A' SHALL BE PLACED TO A MIN. THICKNESS OF 200mm AROUND ALL STRUCTURES IN PAVEMENT AREA. MANHOLE DROP STRUCTURES TO BE INSTALLED PER OPSD 1050.01.
8. "MODIFIED" OR APPROVED PRE-CAST MANHOLE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICK AND MORTAR ADJUSTING UNITS ON THE ROAD WORKS.
9. FOR CONSTRUCTION DETAILS NOT SHOWN ON DRAWINGS, REFERENCE SHALL BE MADE TO THE ONTARIO PROVINCIAL STANDARDS AND THE CITY OF OTTAWA STANDARDS.
10. CONDUITS TO BUILDING TO BE TERMINATED 1.0m FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE SPECIFIED.
11. ALL SINGLE CATCH BASIN LEADS TO BE 200mmØ PVC, SDR-35 OR APPROVED EQUIVALENT UNLESS OTHERWISE SPECIFIED. CATCH BASIN LEADS TO HAVE MINIMUM GRADE OF 1.0%.
12. ALL CB LEAD INVERTS TO BE 1.5m BELOW FINISHED GRADE UNLESS OTHERWISE SPECIFIED.
13. THE CONTRACTOR IS TO PROVIDE CITY CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING LEADS, AS PER CITY OF OTTAWA SPEC. 407 AND 408. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION ENGINEER 72 HOURS PRIOR TO CAMERA INSPECTION. ASPHALT BASE COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS & NECESSARY REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE CONSTRUCTION ENGINEER.
14. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
15. EXISTING MANHOLES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
16. FROST PROTECTION PER CITY OF OTTAWA STANDARD DRAWING R12 WHERE LESS THAN 1.5m OF COVER.
17. ALL CATCH BASINS AND CATCH BASIN MANHOLES TO HAVE 3.0m LONG SUB-DRAINS RUNNING NORTH IN A DIRECTION IN PARKING AREAS AND UNDER SIDEWALK ADJACENT TO BUILDING. SUBDRAINS TO BE PLACED UNDER THE CATCH BASIN LEAD AND CONNECTED TO THE CATCH BASIN. SUBDRAIN TO BE 150mm DIA. PERFORATED DRAINAGE TUBE OF MIN. 150mm THICKNESS, WRAPPED WITH SINGLE LAYER NON-WOVEN GEOTEXTILE MEMP-MEDIUM.
18. CONTRACTOR SHALL PERFORM LEAKAGE TESTING IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 410 AND OPSS 407 & 408 AND 421, AS PART OF THE INSPECTION REPAIR SHALL BE DONE TO THE CONSULTANT'S SATISFACTION.
19. STORM SEWER INLET CONTROL DEVICES TO BE INSTALLED AS OUTLINED IN THE ICD SCHEDULE ON THIS DRAWING. INLET CONTROL DEVICES TO BE INSTALLED AT THE DOWNSTREAM MANHOLE OF CATCH BASIN SHOWN.
20. MAIN SEWER CONNECTIONS ARE CONCRETE TO CONCRETE UNLESS CROWN STRUCTURE IS TO BE USED.
21. 100mmØ PERFORATED SUB-DRAIN AROUND LANDSCAPED TREE ISLANDS TO BE CONNECTED TO STORM SEWER. REFER TO LANDSCAPE PLANS L1-14 AND L1-26 PREPARED BY LANDSCAPE ARCHITECTS.
22. ALL SEWERS LESS THAN 0.60% SHALL INCLUDE A 250mmØ PERFORATED SUBDRAIN AS PER CITY STANDARD S28.
23. ALL CATCH BASINS SHALL INCLUDE A FLEXIBLE TRAP ICD ASSEMBLY. THE ICD SHALL BE EQUAL TO THE PIPE SIZE.
24. ALL SANITARY SEWER MANHOLES SHALL BE PRESSURE RATED. THE MANHOLE SHALL BE TESTED TO ENSURE NO LEAKAGE AT A PRESSURE OF 35 kPa. MAN FRAME AND COVER SHALL BE SECURED TO RESIST UPLIFT PRESSURES OF 100 kPa. OF HEAD.
25. A STORM WATER QUALITY CONTROL STRUCTURE SHALL BE ADDED BY THE OWNER ONCE THE COMBINED SEWER SYSTEM IS SEPARATED.

WATERMAINS

1. WATERMAIN SHALL BE 150/100mL CHLORIDE (PVC) CLASS 150 DR-18 PIPE MANUFACTURED TO AWWA C900-89 AND CSA B137.3-M1986 WITH GASKETED BELL END C/W #14 AWG SOLID COPPER TRACER WIRE.
2. ALL WATERMAINS, WATER SERVICES, CONNECTIONS AND APPURTENANCES AS PER CITY OF OTTAWA STANDARDS. THE CONTRACTOR SHALL CO-ORDINATE AND PAY ALL RELATED COSTS INCLUDING THE COST OF CONNECTION, DISINFECTION AND INSPECTION BY CITY OF OTTAWA PERSONNEL. WATERMAIN TESTING TO BE IN ACCORDANCE WITH CITY OF OTTAWA SPEC.
3. ALL WATERMAINS SHALL HAVE MIN. COVER OF 2.4m. WATERMAINS ARE TO BE INSTALLED TO THE ELEVATIONS SHOWN ON THE APPROVED SITE SERVICING DRAWING. WHERE SPECIFIED, WATERMAIN ELEVATIONS ARE NOT SHOWN ON SERVICING DRAWINGS, A MINIMUM COVER OF 2.4m FROM PROPOSED GRADES, AS SHOWN ON THE GRADING PLAN, MUST BE MAINTAINED AT ALL TIMES. IN PREVIOUS AREAS, WATERMAIN TRENCH TO BE IN ACCORDANCE WITH
4. ALL WATERMAIN BENDS, JOINTS, TEES AND PLUGS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
5. ALL FIRE HYDRANT INSTALLATIONS SHALL BE PER CITY OF OTTAWA W10. HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH OTTAWA STANDARDS. CONTRACTOR SHALL ORDER HYDRANTS AS DIRECTED BY LOCAL FIRE DEPARTMENT.
6. ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.15m ABOVE PROPOSED FINISHED GRADE AT HYDRANT.
7. BUILDING SERVICE TO BE CAPPED 1.0m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 10m BACK FROM STUB.
8. WATERMAINS MUST COMPLY WITH MINIMUM HORIZONTAL AND VERTICAL CLEARANCES IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS AND MOE GUIDELINES. WHERE THESE CLEARANCES CANNOT BE ACHIEVED, WATERMAIN CANNOT BE ACCEPTED. APPROVAL FROM THE ENGINEER MUST BE OBTAINED AND A MINIMUM 150mm VERTICAL SEPARATION MUST BE MAINTAINED.
9. ALL WATERMAINS TO BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL DISINFECTANT WATER TO BE DECHLORINATED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE TO THE ENVIRONMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
10. ALL WATERMAIN TESTING SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
11. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
12. CATHODIC PROTECTION PER CITY OF OTTAWA W40 AND W42.
13. THE SITE WATER SYSTEM IS TO BE BULK METERED AND FOR COST SHARING PURPOSES INDIVIDUAL WATER CONSUMPTION METERS ARE REQUIRED ON ALL INDIVIDUAL BUILDING CONNECTIONS.

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1	2011-11-21	ISSUED TO CITY FOR REVIEW	JVG
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3	2012-01-11	REVISED FOR COORDINATION WITH DSEL	JVG
4	2012-01-26	REVISED AS PER CITY COMMENTS	JVG

1:600 0 6 18 30m

PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

DRAWING TITLE

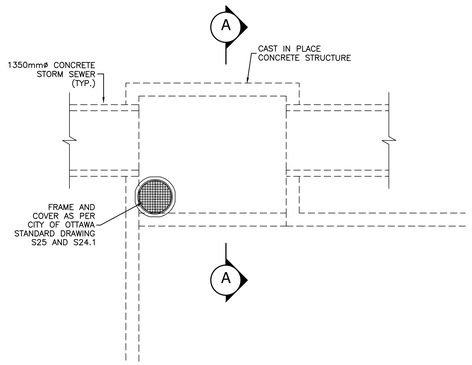
INTERIM STORM SEWER CONNECTION PLAN

DATE Oct. 13, 2011

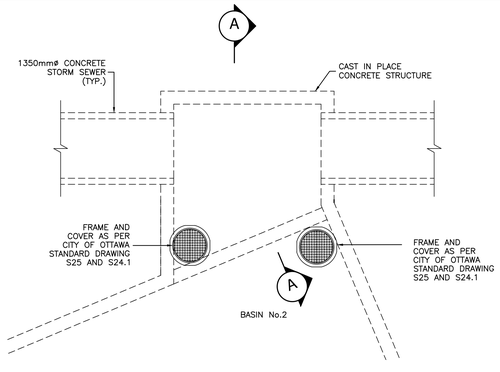
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REVISION # 4

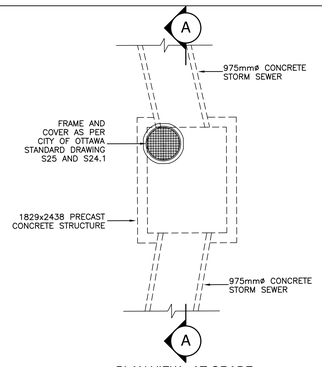
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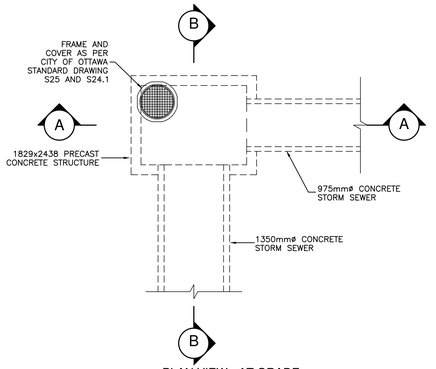
PLAN VIEW - AT GRADE



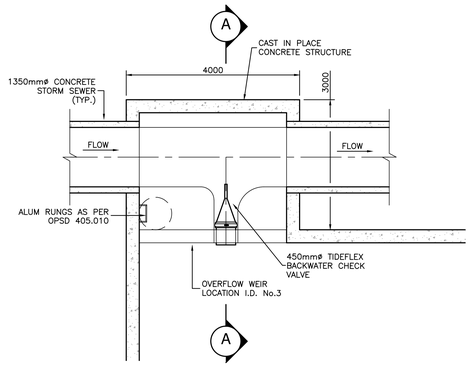
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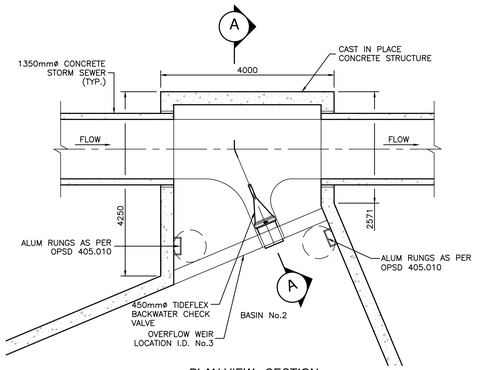
PLAN VIEW - AT GRADE



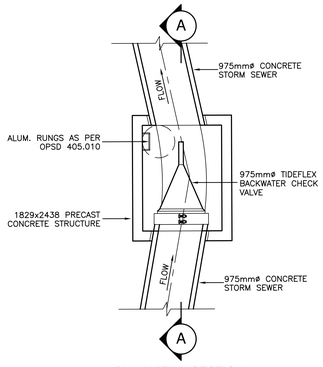
PLAN VIEW - AT GRADE



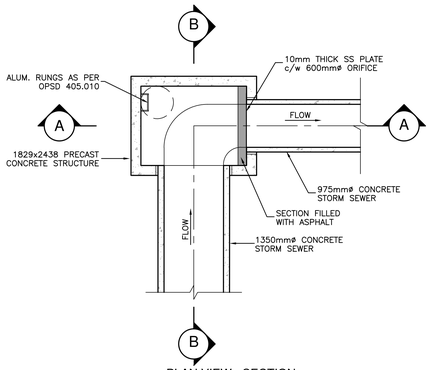
PLAN VIEW - SECTION



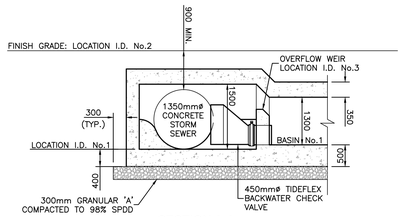
PLAN VIEW - SECTION



PLAN VIEW - SECTION



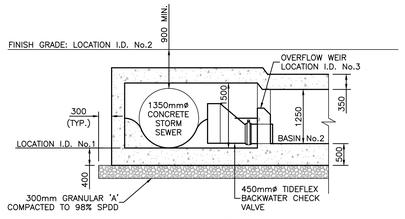
PLAN VIEW - SECTION



SECTION A-A

ELEVATION TABLE–BASIN No.1	
LOCATION I.D. No.	NORTH MANHOLE 1
1	62.71
2	65.04
3	63.65

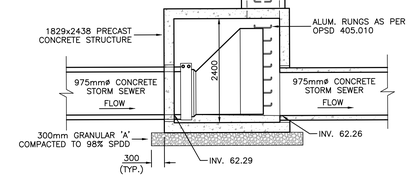
FLOW CONTROL MANHOLE TO SWM
BASIN No.1 DETAIL
N.T.S.



SECTION A-A

ELEVATION TABLE–BASIN No.2	
LOCATION I.D. No.	WEST MANHOLE 1
1	62.85
2	65.14
3	63.75

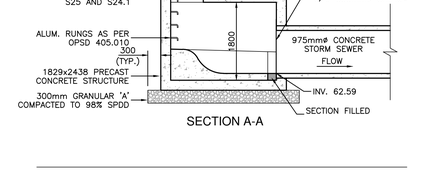
FLOW CONTROL MANHOLE TO SWM
BASIN No.2 DETAIL
N.T.S.



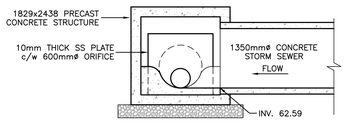
SECTION A-A

FLOW CONTROL MANHOLE No.101
DETAIL

0 500 1500 2500mm



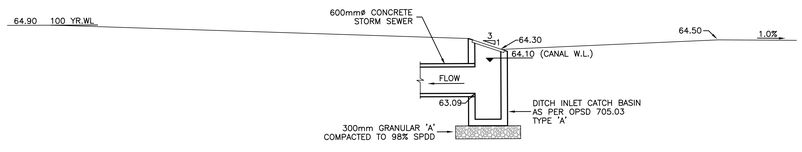
SECTION A-A



SECTION B-B

FLOW CONTROL MANHOLE No.105
DETAIL

0 500 1500 2500mm



CANAL FLOW CONTROL MANHOLE

0 500 1500 2500mm

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PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

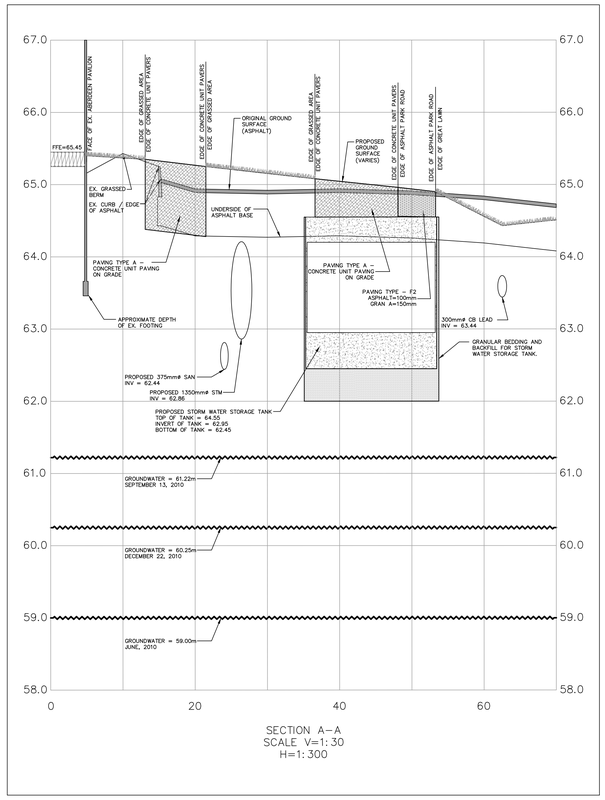
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DETAILS

DATE

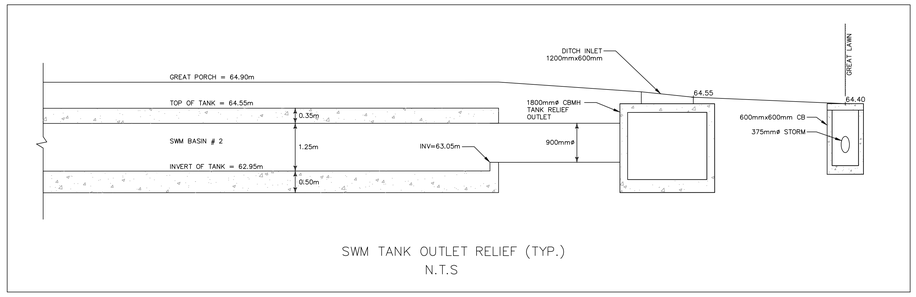
SCALE
AS SHOWN

REVISION #
3

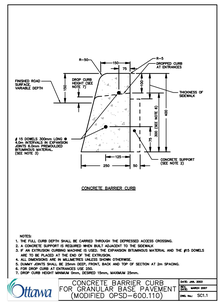
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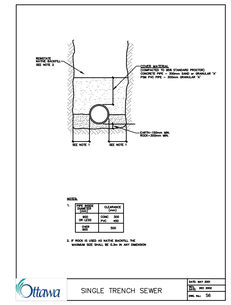
SECTION A–A
SCALE V=1:30
H=1:300

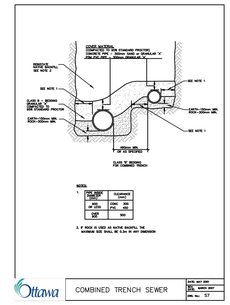


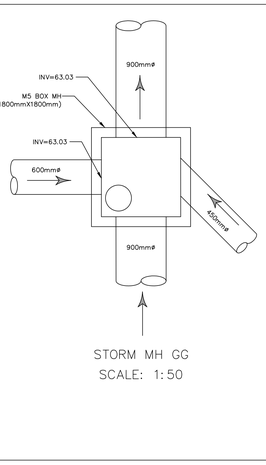
SWM TANK OUTLET RELIEF (TYP.)
N.T.S



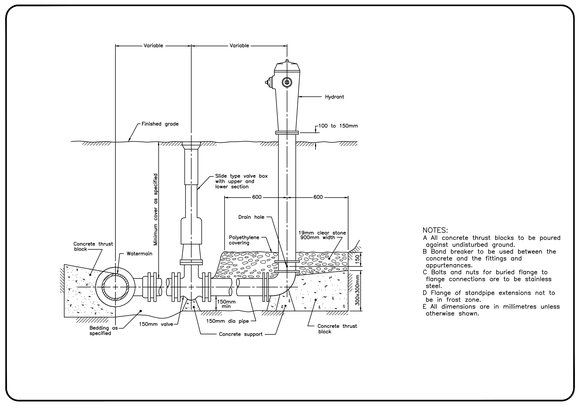
CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT (MODIFIED OPSD-600.110)



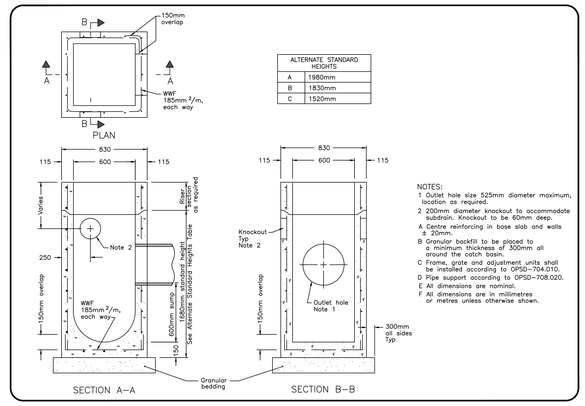




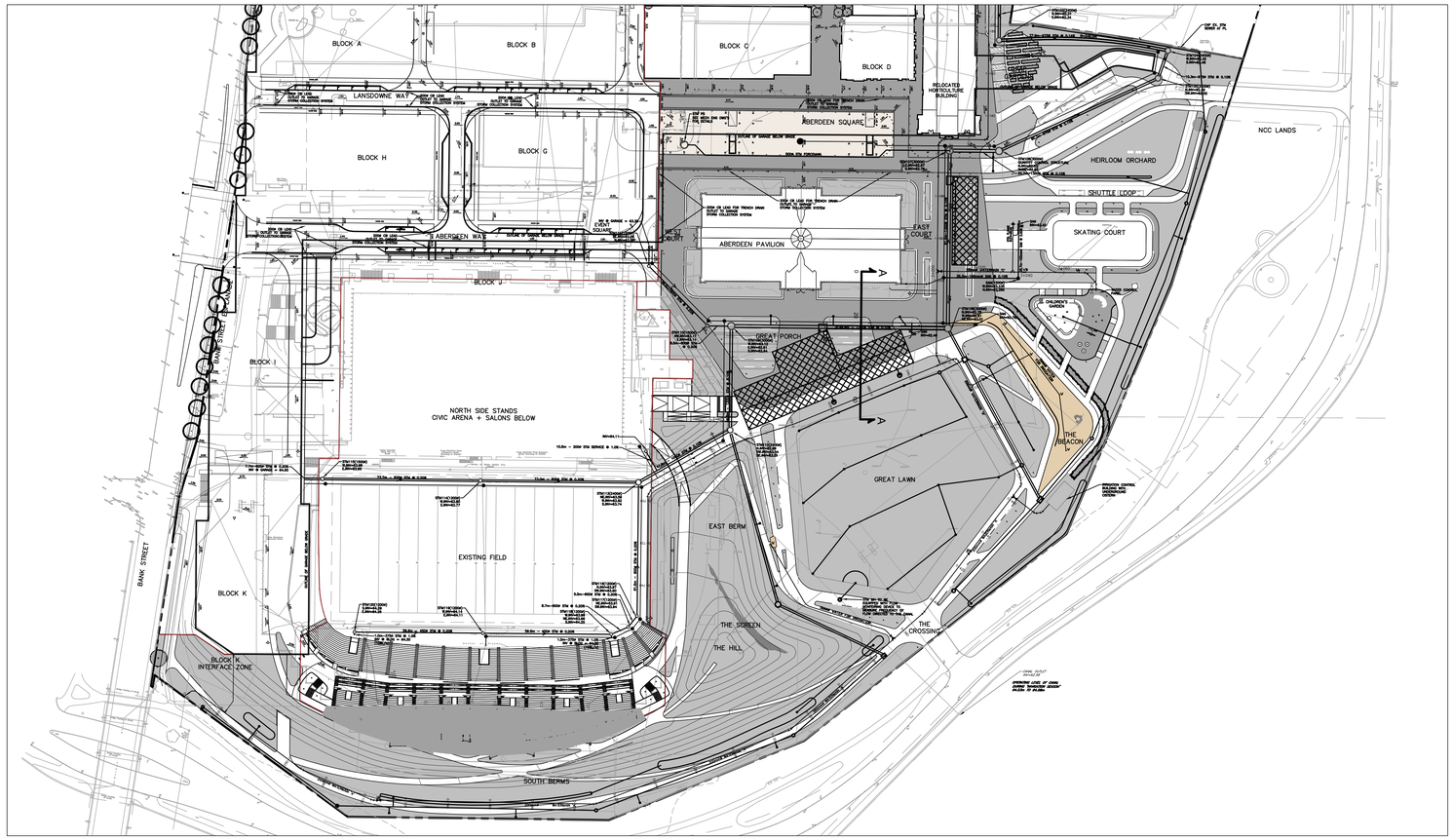
STORM MH GG
SCALE: 1:50



NOTES:
A All concrete thrust blocks to be poured against undisturbed ground.
B Bond breaker to be used between the concrete and the fittings and appurtenances.
C Bolts and nuts for buried flange to flange connections are to be stainless steel.
D Flange of standpipe extensions not to be in frost zone.
E All dimensions are in millimetres unless otherwise shown.



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout to be 60mm deep.
A Centre reinforcing in base slab and walls ± 20mm.
B Granular backfill to be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate and adjustment units shall be installed according to OPSD–704.010.
D Pipe support according to OPSD–708.020.
E All dimensions are nominal.
F All dimensions are in millimetres or metres unless otherwise shown.



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PROJECT

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

DRAWING TITLE

DETAILS

DATE

SCALE
AS SHOWN

REVISION #
3

DRAWING No.
C06

REDEVELOPMENT OF LANSDOWNE PARK

HOLMWOOD AVENUE

BANK STREET

BUILDING A

BUILDING B

BUILDING C

BUILDING D

BUILDING G

BUILDING H

BUILDING I

BUILDING K

Actual Location of Meter Chamber and Connection To Parking Garage

FIRE HYDRANT ABOVE PARKING GARAGE

500mm Storm Sewer

250mm Sanitary

250mm Storm Sewer FM

Manhole buried

Actual Hydrant leed

Manholes Buried Under Field

Manholes Buried under field

900mm DICB Leed

150mm San

200mm San

100mm San

200mm Storm Sewer
2 - 250mm Storm Forcemains

actual Watermain connection detail

Manhole not installed 300mm Pipe connected with 2 - 45 deg. bends

CONTRACTOR TO COMPLETE ALL WORKS WITHOUT ENCROACHMENT NEIGHBORING PROPERTIES

REFER TO SITE SERVICING NOTES ON DRAWING SS 01008

Lansdowne
THE TRANSFORMATION OF LANSDOWNE PARK
LA TRANSFORMATION DU PARC LANSDOWNE

Ottawa

OSEG
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1505 Laperriere Avenue
Ottawa, Ontario, K1Z 7T1
Tel. (613) 722-4420
Fax. (613) 722-2799
www.stantec.com

Drawings are not to be scaled.

Contractors must verify all dimensions on the job and report any discrepancy to architects before proceeding with the work.

All drawings and specifications are the property of the architect and must be returned at the completion of the work.

This drawing is not to be used for construction until countersigned.

Signature: Date:

Seals:

PROFESSIONAL ENGINEER — A.D. ROBERT — 100090626 — PROVINCE OF ONTARIO

DESIGNED — PROFESSIONAL ENGINEER — W. McFARLANE — PROVINCE OF ONTARIO

GENERAL NOTES

1. ALL MATERIALS AND WATERMAIN SHALL CONFORM TO THE LATEST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARDS (OPSD) AND SPECIFICATIONS, INCLUDING WHERE APPLICABLE, CANADA STATE STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO THE EXISTING UTILITIES OR THEIR APPURTENANCES, OR TO UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OF UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
4. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
5. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DIRECTED BY THE ENGINEER AT THE EXPENSE OF THE DEVELOPER.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS" AND ALL OTHER APPLICABLE LAWS.
7. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
8. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES TO PREVENT CONFLICTS.
9. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
10. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
11. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
12. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE, REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
13. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
14. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
15. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
16. ALL PIPE / CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
17. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
18. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING / REMOVAL.
19. DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL PLANS.
20. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ONE SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
21. BENCHMARKS IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY FAIRHALL, MOFFATT & WOODLAND LTD.
PROJ. NO. P15500
DATED 2011-09-27

SITE PLAN INFORMATION

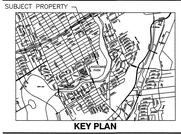
TOPOGRAPHIC INFORMATION PROVIDED BY CORUSH, SUNDERLAND AND WRIGHT
PROJ. NO. 1766
DATED 2013-09-14

BENCH MARK

MAGNETIC NAIL SET IN TOP OF CONCRETE WALL OF CANAL LOCATED AT SOUTH EAST SITE ACCESS
ELEV=64.581

No.	Description	Date
21	Issued to City	Jan 27/15
20	Issued to City	Sept 04/14
19	Revised Bldg G1 Siamese connection	June 17/14
18	Revised Siamese connections	May 8/14
17	Revised FH Bank Street	Feb 2/14
16	Revised per municipal comments	Dec 10/13
15	Added Meter and Remote Meter locations	Dec 4/13
14	Revised water meter at Bank street, updated per CCN-SS-9r3, SCN-SS-10, CD-SS-3, CD-SS-4	Nov 26/13

SUBJECT PROPERTY



KEY PLAN

Drawing Title:

LANSDOWNE PARK

SITE SERVICING PLAN

Scale.: 1:500 Date Created: MM/DD/YR

Project No.: 09-378 Checked by: CHK

SS 01003

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01 January, 2012

z:\projects\09-378 lansdowne park\design\c detailed design\c.2 drawings\c.2.1 cod drawings\spa_base\spa_378-2015-01-27_adf.dwg

REDEVELOPMENT OF LANSDOWNE PARK

1015 Bank Street
Ottawa, Ontario
K1S 3W7

120 Iber Road Unit 203
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

1505 Laperriere Avenue
Ottawa, Ontario, K1Z 7T1
Tel. (613) 722-4420
Fax. (613) 722-2799
www.stantec.com

Drawings are not to be scaled.

Contractor must verify all dimensions on the job and report any discrepancy to architects before proceeding with the work.

All drawings and specifications are the property of the architect and must be returned at the completion of the work.

This drawing is not to be used for construction until countersigned.

Signature: Date:

Seals:

GENERAL NOTES

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, OPSS, OPSD, SPECIFICATIONS, STANDARD SPECIFICATIONS AND ANY SPECIFICATIONS, TOPSES, STANDARD SPECIFICATIONS, LOCAL STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
4. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
5. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DIRECTED BY THE ENGINEER AT THE EXPENSE OF THE DEVELOPER.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS." THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE "CONSTRUCTOR" AS DEFINED IN THE ACT.
7. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE MINISTRY OF TRANSPORTATION ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
8. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
9. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
10. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS GIVEN BY THE CONSULTANT.
11. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
12. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
13. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE FLOATED. ALL GRADES SHALL BE CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
14. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
15. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR GRANULAR MATERIAL WHERE THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
16. ALL PIPE / CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
17. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
18. ALL TREE REMOVAL, CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING / REMOVAL.
19. DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL SITE PLAN.
20. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ONE SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
21. ENTRANCE TO BE CONSTRUCTED BY THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN DISTURBED OR DESTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY FAIRHALL, MOFFATT & WOODLAND LTD.
PROJ. NO. 119500
DATED 2011-09-27

SITE PLAN INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY CORUSH, SUNDERLAND , AND WRIGHT
PROJ. NO. 1766
DATED 2013-06-14

BENCH MARK

MAGNETIC NAIL SET IN TOP OF CONCRETE WALL OF CANAL LOCATED AT SOUTH EAST SITE ACCESS
ELEV=64.581

GEOTECHNICAL REPORT

PREPARED BY PATERSON GROUP
"GEOTECHNICAL INVESTIGATION – PROPOSED LANSDOWNE PARK REDEVELOPMENT BANK STREET AT HOLMWOOD AVENUE, OTTAWA, ONTARIO" DATED MARCH 17, 2010
PROJ. NO.: PG1744-1

No.	Description	Date
17	Revised grading at BLDG A per Trinity request	Mar 14/14
16	Added area drain detail	Dec 10/13
15	Add area drains at Building K	Nov 22/13
14	Revised GP per IBI request	Jul 10/13
13	SI-SS-1R2: Modification to Building Locations on Plan	Mar 13/13

SUBJECT PROPERTY

KEY PLAN

Drawing Title:

LANSDOWNE PARK

SITE GRADING PLAN

Scale.: 1:500 Date Created: MM/DD/YR

Project No.: 09-378 Checked by: CHK

SS 01002

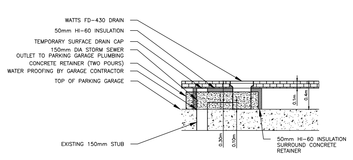
LEGEND

x00.00	PROPOSED SPOT ELEVATION		LIMITS OF CONTRACT
x00.00T/C	PROPOSED TOP OF CURB ELEVATION	P1 =64.10	APPROX. GARAGE FLOOR ELEVATION
x00.00B/W	PROPOSED BOTTOM OF WALL ELEVATION		PROPOSED TRENCH DRAIN "ACO DRAIN KI100S/KS100S" (REFER TO MECHANICAL AND LANDSCAPE DRAWINGS)
x00.00T/W	PROPOSED TOP OF WALL ELEVATION		PROPOSED DRAIN LOCATION "MATTS DRAINAGE FD-430" (REFER TO MECHANICAL AND LANDSCAPE DRAWINGS)
x00.00T/L	PROPOSED TOP OF LID ELEVATION		PROPOSED CATCH BASIN (OPSD 705.010)
1.0%	PROPOSED GRADE AND DIRECTION		PROPOSED STORM MAINTENANCE HOLE
			PROPOSED SANITARY MAINTENANCE HOLE
100.00 / 100.00	PROPOSED/EXISTING SPOT ELEVATION		

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC1.1. PROVISION SHALL BE MADE FOR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN ON THIS DRAWING ARE TO BE PRICED IN THE SITEWORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010, AND OPSS 310.
6. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300mm LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED IN TWO COATS, A MINIMUM OF 450 GRAMS PER SQUARE METRE.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 20mm BELOW THE FINISHED FLOOR SLAB AT ENTRANCES UNLESS OTHERWISE NOTED.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWS FOR RETAINING WALL (INCLUDE RAILINGS IF APPLICABLE) TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY STRUCTURAL AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

AREA DRAIN DETAIL



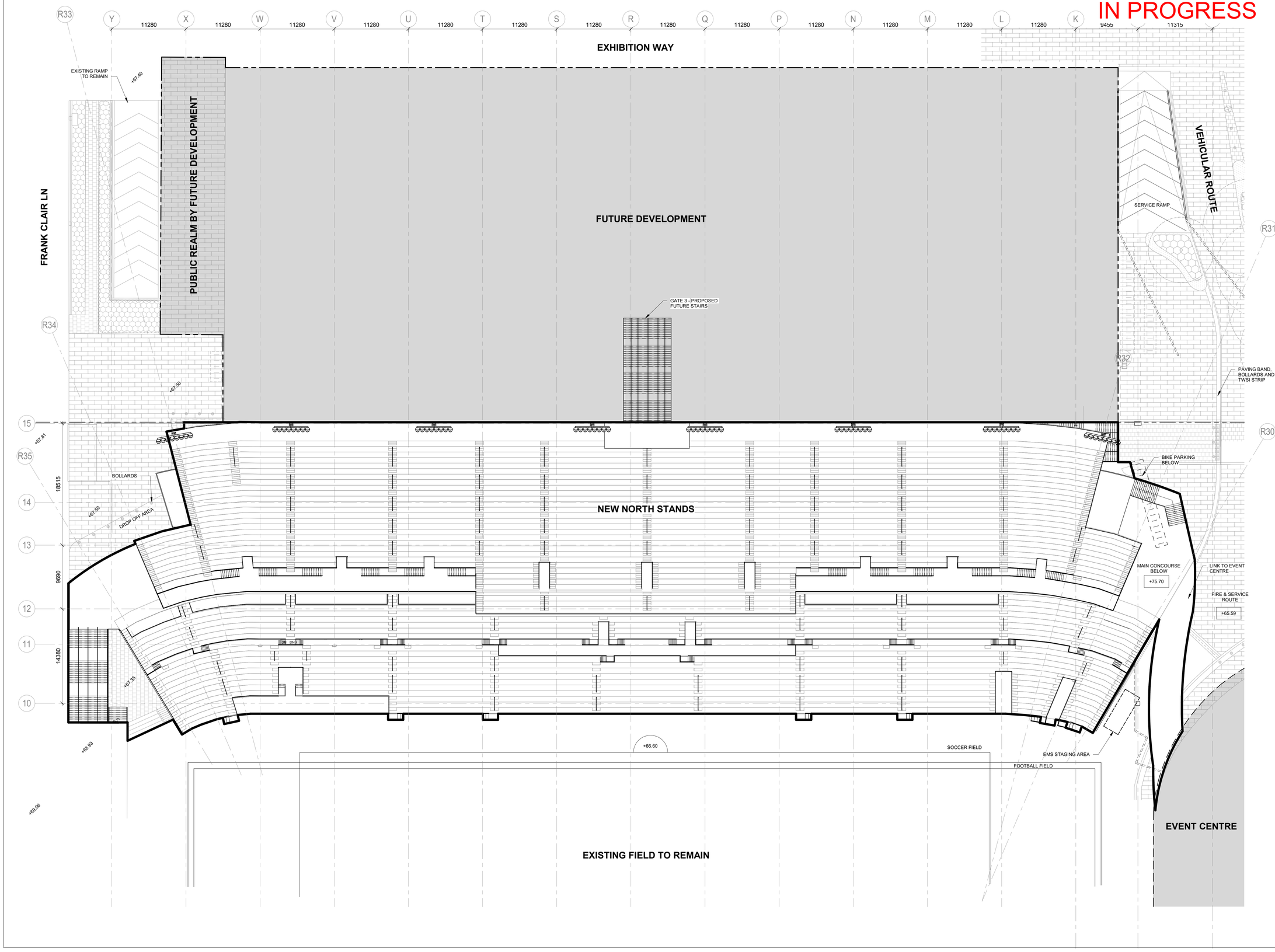
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01 January, 2012

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IN PROGRESS



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DATE PLOTTED: 2024-10-18 6:18:05 PM

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BBB ARCHITECTS
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TORONTO, ON M5H 3G8
(416) 591-8999
ARCHITECT

ENTUITIVE
275 SLATER STREET, SUITE 1001
OTTAWA, ON K1P 5H9
(613) 900-6219
STRUCTURAL ENGINEER

TMP
200 KING. ST. WEST, SUITE 310
TORONTO, ON M5H 3T4
(416) 499-8000
MECH, PLUMB, FIRE PROTECTION ENGINEER

MULVEY & BANANI
90 SHEPPARD AVE EAST, SUITE 500
TORONTO, ON M2N 3A
(416) 751-2520
ELEC, LIGHTING ENGINEER

CSW
319 MCRAE AVENUE, SUITE 502
OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

NO.	DESCRIPTION	DATE
3	ISSUED FOR SITE PLAN APPROVAL	TBD
2	ISSUED FOR DD PROGRESS SET - 50%	2024/10/18
1	ISSUED FOR DD PROGRESS SET	2024/10/04

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS

A B C

SEAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PRELIMINARY SUBMITTAL

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES

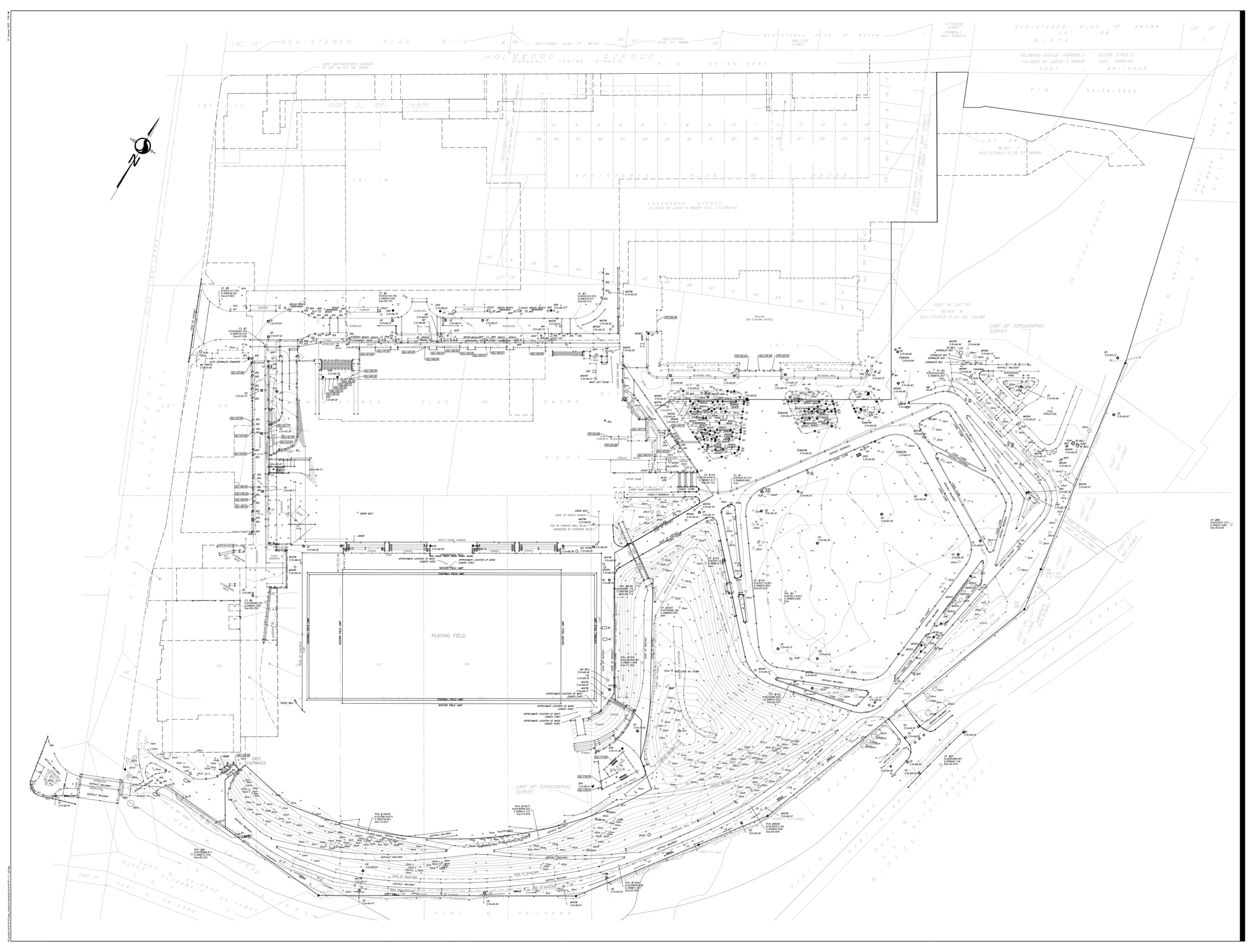
DRAWN: MM
DATE: 24/10/04
CHECKED: TF

LANSDOWNE 2.0 EVENT CENTRE, NORTH SIDE STANDS AND PUBLIC REALM ENHANCMENTS

1015 Bank st, Ottawa, ON K1S 5J3

DWG. TITLE
SITE PLAN

SCALE: 1 : 250
DWG. NO.: NS-A1-002
PROJ. NO.: 2008.3



Stantec

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300-1331 Clyde Avenue
Ottawa ON
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www.stantec.com

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TOPOGRAPHIC SKETCH OF
LANDSDOWNE PARK
CITY OF OTTAWA

Scale: 1:500

0 30 METRES

Stantec Geomatics Ltd.
ONTARIO LAND SURVEYORS

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

HORIZONTAL DATUM NOTE
PROJECTION: MODIFIED TRANSVERSE MERCATOR (MTM, ZONE 9, CM 76°30'W)
DATUM: NAD 83 (CSRS)(MSA)

DISTANCES ON THIS PLAN MAY BE CONVERTED TO GROUND DISTANCES BY DIVIDING BY A COMBINED SCALE FACTOR OF 0.999933.

VERTICAL DATUM NOTE
ELEVATIONS ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928:1978)

BOUNDARY NOTE
BOUNDARY LINEWORK AND INFORMATION IS COMPILED FROM PLAN 4R-26505. VARIOUS SOURCES AND IS NOT BASED ON ACTUAL SURVEY.

LEGEND

■	DENOTES	FOUND MONUMENTS
□	-	SET MONUMENTS
IB	-	IRON BAR
SIB	-	STANDARD IRON BAR
SIB	-	STANDARD IRON BAR
SSIB	-	SHORT STANDARD IRON BAR
CC	-	CUT CROSS
CP	-	CONCRETE PIN
WIT	-	WITNESS
PIN	-	PROPERTY IDENTIFICATION NUMBER
M/MEAS	-	MEASURED
PROP	-	PROPORTIONED
OU	-	ORIGIN UNKNOWN
SG	-	STANTEC GEOMATICS LTD.
P1	-	PLAN 4R-26505
ACU	-	AIR CONDITIONING UNIT
AN	-	ANCHOR
AP	-	AIR PUMP
ANT	-	ANTENNA
BH	-	BORE HOLE
BRI	-	BRICK
BRK	-	BIKE RACK
BENCH	-	BENCH
BOL	-	BOLLARD
BOUL	-	BOULDER
CB	-	CATCH BASIN
DICB	-	DOUBLE CB
CBMH	-	CB MANHOLE
DCBMH	-	DOUBLE CB MANHOLE
SICB	-	SIDE INLET CB
CHM	-	CHIMNEY
COL	-	COLUMN
COV	-	CURB STOP VALVE
DRN	-	DRAIN
ENTRST	-	ELECTRICAL OUTLET
FP	-	FLAG POLE
FL	-	FLOOD LIGHT
FTP	-	FUEL TANK FILLER CAP
GC	-	GARBAGE CAN
GFL	-	PIPE FLANGE (GAS)
GFP	-	GAS FUEL PUMP
GP	-	POLE GUYWIRE
GSR	-	GAS SERVICE REGULATOR
GV	-	GAS VALVE
HH	-	HANDHOLE/BOTTOM
HED	-	HEADSTONE
HLS	-	HYDRO LIGHT STANDARD
HM	-	HYDRO METER
HTN	-	HYDRO TRANSFORMER
HW	-	HAND WELL
HYD	-	FIRE HYDRANT
JBX	-	JUNCTION BOX
LS	-	LIGHT STANDARD
MB	-	MAILBOX
MP	-	MONITORING PIN
MHU	-	MAINTENANCE HOLE UNIDENTIFIED
MHB	-	MAINTENANCE HOLE BELL
MHF	-	MAINTENANCE HOLE FIBRE OPTIC
MHH	-	MAINTENANCE HOLE HYDRO
MHSAN	-	MAINTENANCE HOLE SANITARY
MHSTM	-	MAINTENANCE HOLE STORM
MHT	-	MAINTENANCE HOLE TRAFFIC
MW	-	MONITORING WELL
NPB	-	NEWS PAPER BOX
OLS	-	LIGHT STANDARD ORNAMENTAL
OW	-	OBSERVATION WELL
PKM	-	PARKING METER
PLBX	-	PULL BOX
PLE	-	PULL EYE
PLR	-	PILLAR
PZ	-	PIEZOMETER
RLC	-	RED LIGHT CAMERA
RWSL	-	RAILWAY SIGNAL LIGHT
RWSS	-	RAILWAY SWITCH STAND
SAT	-	SATELLITE DISH
SCLP	-	SCULPTURE
SCP	-	SUMP/CATCH PIT
SCV	-	SPRINKLER CONTROL VALVE
SH	-	SPRINKLER HEAD
SN	-	SIAMESE CONNECTION
SPAN	-	SIGN
SPT	-	SOLAR PANEL
TBL	-	SEPTIC TANK LID
TB BELL	-	TABLE
TB CATV	-	TERMINAL BOX - BELL
TB ELEC	-	TERMINAL BOX - CABLE
TBT	-	ELECTRIC CONTROL BOX
TEE	-	TEST PIT
TSL	-	TRAFFIC SIGNAL LIGHT
UMB	-	MARKER BELL UNDERGROUND
UMC	-	MARKER CABLE UNDERGROUND
UMG	-	MARKER GAS UNDERGROUND
UMO	-	MARKER OIL UNDERGROUND
UP	-	UTILITY POLE
VB	-	VALVE BOX
VC	-	VALVE CHAMBER
WV	-	WATER VALVE
WS	-	TREE STUMP
ICV	-	IRRIGATION CONTROL VALVE
	-	TREE CONIFEROUS (D.B.H. SHOWN)
	-	TREE DECIDUOUS (D.B.H. SHOWN)
T	-	UNDERGROUND TELEPHONE
P	-	UNDERGROUND HYDRO
WTN	-	WATERMAIN
G	-	GASMAIN
STN	-	STORM SEWER
FOTS	-	UNDERGROUND FIBRE OPTIC

REVISION NOTE

OCT 4, 2024	EXTRA TOPOGRAPHIC INFORMATION ADDED TO PLAN
OCT 11 2024	ADDITIONAL TOPOGRAPHIC DATA ADDED TO THE WEST SIDE OF THE STADIUM AROUND THE SCOREBOARD

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

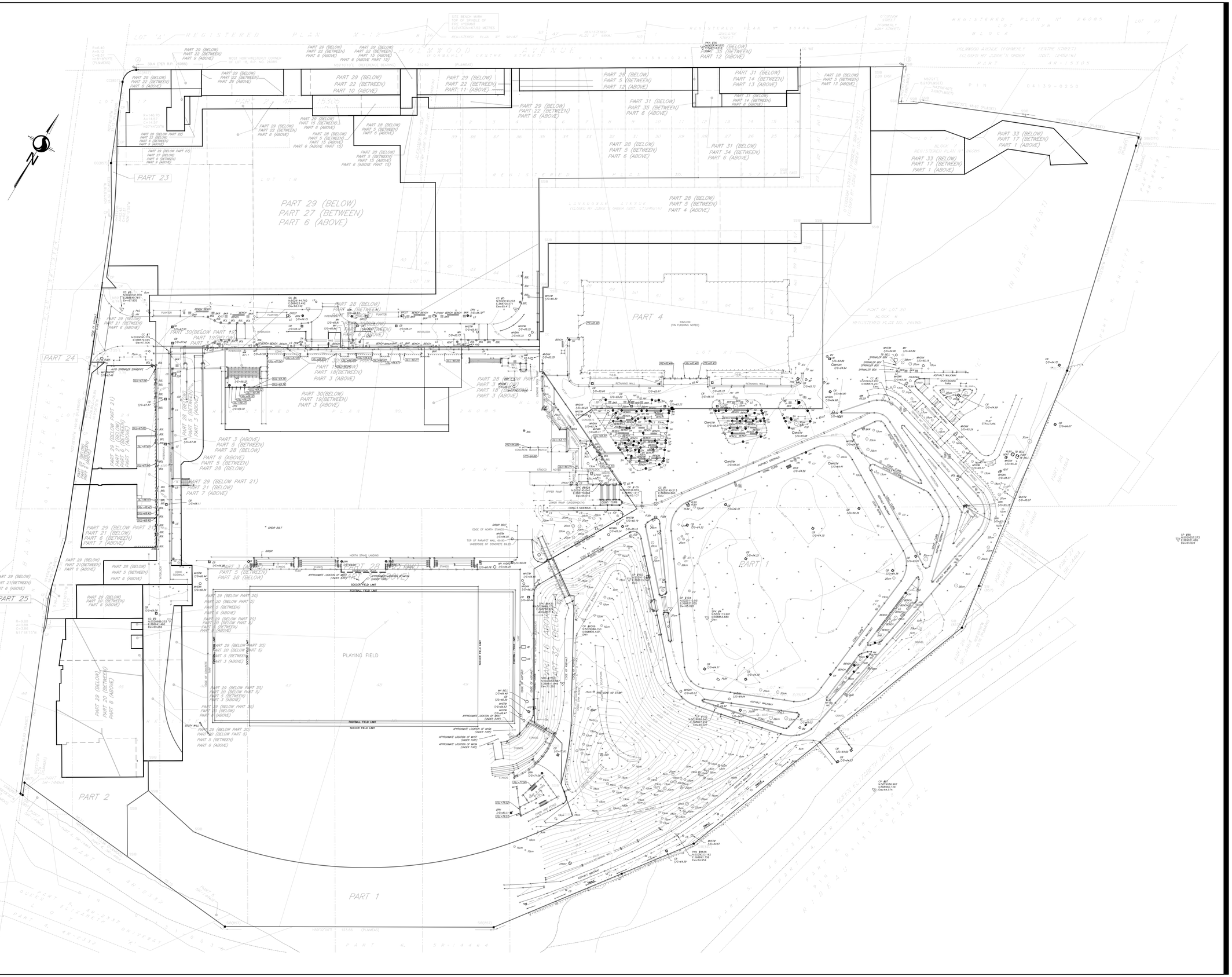
1. THE SURVEY WAS COMPLETED ON THE 11th DAY OF OCTOBER , 2024.

January 22, 2025
DATE

R.G. BENNETT
ONTARIO LAND SURVEYOR

DRAWN: DM CHECKED: CT PM: CT FIELD: CA/DJR/JAW PROJECT No.: 161614737-111

22 January 2025 - 7:04 AM
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PART 23
PART 24
PART 25
PART 2
PART 1
PART 4
PLAYING FIELD
PAVILION (TIN FLASHING NOTED)
PART 29 (BELOW) PART 27 (BETWEEN) PART 6 (ABOVE)
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PART 29 (BELOW PART 20) PART 20 (BELOW PART 5) PART 5 (BETWEEN) PART 6 (ABOVE)
PART 29 (BELOW PART 20) PART 20 (BELOW PART 5) PART 5 (BETWEEN) PART 3 (ABOVE)
PART 30 (BELOW PART 20) PART 20 (BELOW) PART 5 (ABOVE)
PART 29 (BELOW PART 20) PART 20 (BELOW PART 5) PART 5 (BETWEEN) PART 6 (ABOVE)
PART 29 (BELOW) PART 21 (BETWEEN) PART 6 (ABOVE)
PART 29 (BELOW) PART 20 (BETWEEN) PART 8 (ABOVE)
PART 30(BELOW PART 19) PART 19(BETWEEN) PART 3

GENERAL

1. DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS.
2. ALL SERVICES, MATERIALS, CONSTRUCTION METHODS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND REGULATIONS OF THE: CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS, ONTARIO PROVINCIAL SPECIFICATION STANDARD SPECIFICATION (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), UNLESS OTHERWISE SPECIFIED, TO THE SATISFACTION OF THE CITY AND THE CONSULTANT.
3. THE POSITION OF EXISTING POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES, STRUCTURES AND APPURTENANCES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SATISFY HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM DURING THE COURSE OF CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF SUBJECT LANDS IS TO BE UNDERTAKEN AT CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR MUST NOTIFY ALL EXISTING UTILITY COMPANY OFFICIALS FIVE (5) BUSINESS DAYS PRIOR TO START OF CONSTRUCTION AND HAVE ALL EXISTING UTILITIES AND SERVICES LOCATED IN THE FIELD OR EXPOSED PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO HYDRO, BELL, CABLE TV, AND CONSUMERS GAS LINES.
5. ALL TRENCHING AND EXCAVATIONS TO BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, ELEVATIONS, LAYOUT AND REMOVALS. REFER TO LANDSCAPE PLAN FOR LANDSCAPED DETAILS AND OTHER RELEVANT INFORMATION. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7. TOPOGRAPHIC SURVEY COMPLETED AND PROVIDED BY STANTEC GEOMATICS LTD. DATED JUNE 18, 2024. CONTRACTOR TO VERIFY IN THE FIELD PRIOR TO CONSTRUCTION OF ANY WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
8. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. VERIFY THAT JOB BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED.
9. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR DRAIN OUTLETS ARE PROVIDED.
10. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
11. ALL DISTURBED AREAS OUTSIDE PROPOSED GRADING LIMITS TO BE RESTORED TO ORIGINAL ELEVATIONS AND CONDITIONS UNLESS OTHERWISE SPECIFIED. EXISTING PARKING LOT SHALL BE RE-ASPHALTED AT EXISTING GRADES EXCEPT AS NOTED TO EVEN OUT GRADES. ALL RESTORATION SHALL BE COMPLETED WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION.
12. ABUTTING PROPERTY GRADES TO BE MATCHED.
13. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION, INCLUDING WATER PERMIT AND ROAD CUT PERMIT.
14. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
15. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. PRIOR TO CONSTRUCTION, A GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO IS TO INSPECT ALL SUB-SURFACES FOR FOOTINGS, SERVICES AND PAVEMENT STRUCTURES.
18. CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY PERFORMED BY CERTIFIED OLS OR P.ENG. CONFIRMING COMPLIANCE WITH DESIGN GRADING AND SERVICING. SURVEY IS TO INCLUDE LOCATION AND INVERTS FOR BURIED UTILITIES.
19. PROVIDE CCTV INSPECTION REPORT FOR ALL SEWERS AND CATCHBASIN LEADS 200MM DIAMETER AND LARGER. REPEAT CCTV INSPECTION FOLLOWING RECTIFICATION OF ANY DEFICIENCIES.
20. REPORT REFERENCES
    - 20.1. GEOTECHNICAL INVESTIGATION - PROPOSED EVENT CENTRE LANSDOWNE PARK REDEVELOPMENT, REPORT NO. PG6655-1, MAY 2024, BY PATTERSON GROUP.
    - 20.2. FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT FOR LANSDOWNE LIVE OTTAWA SPORT AND ENTERTAINMENT GROUP, PROJECT NO. 09-378, JANUARY 2012, BY DSEL.
    - 20.3. FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT STUDY FOR LANSDOWNE PARK REDEVELOPMENT 2.0, PROJECT NO. CA0000286.1662, SEPTEMBER 2023, BY WSP
    - 20.4. STORMWATER MANAGEMENT DESIGN REPORT FOR LANSDOWNE URBAN PARK, FEBRUARY 2012, BY STANTEC CONSULTING LTD.
    - 20.5. SERVICING REPORT FOR LANSDOWNE PARK EVENT CENTRE, REPORT NO.CA0033920.1056, FEBRUARY 2025, PREPARED BY WSP.
    - 20.6. SOTRMWATER MANAGEMENT DESIGN REPORT FOR LANSDOWNE PARK EVENT CENTRE, REPORT NO.CA0033920.1056 FEBRUARY 2025, PREPARED BY WSP.
    - 20.7. DRAFT ENVIRONMENTAL PROVISIONS - LANSDOWNE PARK 2.0 - EVENT CENTRE LANDS AND GREAT LAWN, JANUARY 20, 2024, BY WSP.

ROADWORKS AND WORK IN PUBLIC RIGHTS OF WAY

1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. GEOTECHNICAL INVESTIGATION - PROPOSED EVENT CENTRE LANSDOWNE PARK REDEVELOPMENT, REPORT NO. PG6655-1, MAY 2024, BY PATTERSON GROUP.
3. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
4. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.
5. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR B MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
6. GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR B PLACEMENT.
7. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR A MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
8. ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR A PLACEMENT.
9. CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF ASPHALT MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
10. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE CONSULTANT WITH VERIFICATION PRIOR TO PLACEMENT.
11. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY CONSULTANT. CONSULTANT TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.
12. PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESS) TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT.

STORM SEWERS AND STRUCTURES

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW STORM SEWERS, SERVICES AND CB LEADS.
2. STORM SEWERS 450mm DIAMETER AND SMALLER SHALL BE PVC SDR-35, WITH RUBBER GASKET PER CSA A-257.3.
3. STORM SEWER LARGER THAN 450mm SHALL BE REINFORCED CONCRETE CLASS 100D. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE ACCORDANCE WITH CSA A257.2. PIPE SHALL BE JOINTED WITH STD. RUBBER GASKETS AS PER CSA A257.3.
4. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
5. ALL STORM MANHOLES TO BE AS PER STORM STRUCTURE TABLE.
6. ANY NEW OR EXISTING STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. ALL CATCHBASIN LEADS TO BE MINIMUM 200mm DIAMETER AT MINIMUM 1.0% SLOPE UNLESS OTHERWISE SPECIFIED.
8. SAFETY PLATFORMS SHALL BE AS PER OPSD 404.02.
9. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS AND OPSD 1003.01.
10. STORM SEWER MANHOLES SERVICING LOCAL SEWERS LESS THAN 900mm SHALL BE CONSTRUCTED WITH A 300mm SUMP. FOR STORM SEWERS 900mm AND OVER USE BENCHING IN ACCORDANCE WITH OPSD 701.021.
11. STORM CATCHBASINS AS PER OPSD 705.010 AND FRAME/COVER AS PER CITY STANDARD DRAWINGS S19. STORM CBMH'S AS INDICATED IN TABLE WITH SUMP, ADJUSTMENT SECTIONS SHALL BE AS PER OPSD 704.010.
12. INSTALLATION OF FLOW CONTROL ICD'S TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.
13. PROVIDE BACKWATER VALVE ON FOUNDATION DRAIN, STORM DISCHARGE, AND OVERFLOW DISCHARGE PER S14
14. ALL CATCHBASINS EXCLUDING LANDSCAPE CATCHBASINS TO HAVE 150 MMØ PERFORATED PIPE FOR 3.0M ON ALL AVAILABLE SIDES AT AN ELEVATION OF 300mm BELOW SUBGRADE LEVEL AS PER CITY OF OTTAWA STANDARD DRAWING 'R1'

SANITARY SEWER AND STRUCTURES

1. ALL SANITARY SEWER, SANITARY SEWER APPURTENANCES AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW SANITARY PIPING.
2. SANITARY SEWER PIPE SIZE 150mm DIAMETER AND GREATER TO BE PVC SDR-35 (UNLESS SPECIFIED OTHERWISE) WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA B-182.2,3,4.
3. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
4. ALL SANITARY MANHOLES 1200mm IN DIAMETER TO BE AS PER OPSD 701.01. FRAME AND COVER TO BE AS PER CITY OF OTTAWA STANDARD S25 AND S24.
5. MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES AS PER THE OPSD 701.021
6. ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. SAFETY PLATFORMS SHALL BE AS PER OPSD 404.02.
8. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS AND OPSD 1003.01.
9. PROVIDE BACKWATER VALVE FOR BUILDING SANITARY SERVICES PER S14.1

WATERMAIN

1. ALL WATERMAIN AND WATERMAIN APPURTANANCES, MATERIALS, CONSTRUCTION AND TESTING METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA AND MINISTRY OF ENVIRONMENT STANDARDS AND SPECIFICATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING AWWA SPECIFICATION C900.
3. ALL WATERMAIN TO BE INSTALLED AT MINIMUM COVER OF 2.4m BELOW FINISHED GRADE. WHERE WATERMAINS CROSS OVER OTHER UTILITIES, A MINIMUM 0.30m CLEARANCE SHALL BE MAINTAINED; WHERE WATERMAINS CROSS UNDER OTHER UTILITIES, A MINIMUM 0.50m CLEARANCE SHALL BE MAINTAINED. WHERE THE MINIMUM SEPARATION CANNOT BE ACHIEVED, THE WATERMAIN SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W25 AND W25.2. WHERE 2.4m MINIMUM DEPTH CANNOT BE ACHIEVED, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W22. WHERE A WATERMAIN IS IN CLOSE PROXIMITY TO AN OPEN STRUCTURE, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W23.
4. CONCRETE THRUST BLOCKS AND MECHANICAL RESTRAINTS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, REDUCERS, ENDS OF MAINS AND CONNECTIONS 100mm AND LARGER, IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS W25.3 & W25.4.
5. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS AS PER CITY OF OTTAWA STANDARD W40 & W42.
6. ALL VALVES AND VALVE BOXES AND CHAMBERS, HYDRANTS, AND HYDRANT VALVES AND ASSEMBLES SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD
7. FIRE HYDRANT LOCATION AND INSTALLATION AS PER CITY OF OTTAWA STANDARD W18 & W19. CONTRACTOR TO PROVIDE FLOW TEST AND PAINTING OF NEW HYDRANT IN ACCORDANCE WITH CITY STANDARDS.
8. IF WATER MAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.

EROSION AND SEDIMENT CONTROL

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES. **

1. PRIOR TO START OF CONSTRUCTION:
   - 1.1. INSTALL SILT FENCE IN LOCATION SHOWN.
   - 1.2. INSTALL SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE.
   - 1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
   - 1.4. INSTALL MUD MAT AT CONSTRUCTION ENTRANCES.
2. DURING CONSTRUCTION:
   - 2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
   - 2.2. PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
   - 2.3. PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
   - 2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
   - 2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
   - 2.6. DOWNSTREAM STORM INFRASTRUCTURE SHALL BE PROTECTED FROM UNFILTERED RUNOFF DURING ON-SITE STORM INFRASTRUCTURE DEMOLITION.
   - 2.7. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
   - 2.8. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
   - 2.9. DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
   - 2.10. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
   - 2.11. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
   - 2.12. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
   - 2.13. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
   - 2.14. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
   - 2.15. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
   - 2.16. ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
   - 2.17. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

STORM WATER MANAGEMENT STRUCTURE

1. CHAMBERS SHALL BE STORMTECH MC-3500, OR APPROVED EQUIVALENT AS APPROVED BY THE ENGINEER. REFER TO ADS CHAMBER DRAWINGS, PROJECT S426399 FOR DETAILS, WHICH INCLUDE REQUIRED QA/QC, TESTING AND INSPECTION REQUIREMENTS WHICH SHALL BE FOLLOWED BY THE CONTRACTOR.

THERMOPLASTIC LINER

1. THERMOPLASTIC LINER UNDERLYING STORM WATER CHAMBERS SHALL BE TERRAFIX ENVIRONMENTAL TECHNOLOGY INC. 40 MIL LLDPE GEOMEMBRANE, OR APPROVED EQUIVALENT AS APPROVED BY THE ENGINEER.
2. LINER INSTALLATION. QA/QC, TESTING AND INSPECTIONS SHALL BE IN STRICT ACCORDANCE WITH ALL MANUFACTURER SPECIFICATIONS AND INCLUDE (BUT NOT BE LIMITED TO) SUBGRADE BASE PREPARATION, FUSION WELDING OF ALL SEAMS, VACUUM TESTING, PEEL TESTING, DOCUMENTATION (INCLUDE PHOTOGRAPHS). UNLESS OTHERWISE APPROVED BY THE GEOTECHNICAL ENGINEER, CONTRACTOR SHALL REFERRENCE AND FOLLOW TERRAFIX INSTALLATION & QUALITY CONTROL MANUAL, REVISED FEBRUARY 6, 2024, OR EQUIVALENT/BETTER AS APPROVED BY THE ENGINEER.
3. SUPPLIER SHALL INSPECT AND APPROVE IN WRITING ALL COMPONENTS OF TESTING.
4. SUBGRADE PREPARATION SHALL BE APPROVED IN WRITTING BY MANUFACTURER AND GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THERMOPLASTIC LINER.

RETAINING WALLS

1. PRE-CAST UNIT RETAINING WALL TYPE TO BE SPECIFIED BY PROJECT LANDSCAPE ARCHITECT AT LOCATIONS, AS SPECIFIED ON THE GRADING PLAN TO BE APPROVED BY AUTHORITYIES HAVING JURISDICTION PRIOR TO EARLY SERVICING.
2. ALL RETAINING WALL SHALL BE CONCRETE, CONCRETE PRODUCT WITH TIE-BACK SYSTEM OR HEAVY BLOCK SYSTEM.
3. ALL TYPICAL RETAINING WALLS GREATER THAN 1.0m HEIGHT ARE TO BE DESIGNED, APPROVED AND STAMPED BY A CONSULTING ENGINEER SPECIALIZING IN STRUCTURAL ENGINEERING.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS CERTIFIED BY A STRUCTURAL ENGINEER.
5. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A CERTIFICATE FROM A STRUCTURAL ENGINEER CERTIFYING THAT THE WALL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED ENGINEERING DRAWINGS AND THE CERTIFIED SHOP DRAWINGS.
6. FENCES OR RAILINGS ARE REQUIRED FOR WALLS HIGHER THAN 0.6m. REFER TO LANDSCAPING PLAN FOR DETAILS.

Table 2 - Recommended Light Duty Asphalt Pavement Structure - Car Only Parking Areas

Tickness (mm)	Material Description
50	**Wear Course** - HL-3 or Superpave 12.5 Asphaltic Concrete
150	**Base** - OPSS Granular A Crushed Stone
300	**SUBBASE** - OPSS Granular B Type II
SUBGRADE - Either approved fill, in-situ, or OPSS Granular B Type I or II material placed on in-situ soil or fill.	

Table 3 - Recommended Asphalt Pavement Structure - Access Lanes and Heavy Loading Parking Areas

Tickness (mm)	Material Description
40	**Wear Course** - Superpave 12.5 Asphaltic Concrete
50	**Binder Course** - Superpave 19.0 Asphaltic Concrete
150	**Base** - OPSS Granular A Crushed Stone
300	**SUBBASE** - OPSS Granular B Type II
SUBGRADE - Either approved fill, in-situ, or OPSS Granular B Type I or II material placed on in-situ soil or fill	

EXISTING LEGEND:

- EXISTING CURB
- EXISTING BOTTOM OF SLOPE
- EXISTING TOP OF SLOPE
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING SWALE
- EXISTING PERFORATED DRAIN
- EXISTING FENCE
- SITE TEMPORARY CONTROL POINT
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING ELEVATION
- EXISTING TREES TO REMAIN
- EXISTING CATCHBASIN
- EXISTING CATCHBASIN MANHOLE
- EXISTING STORM MANHOLE

REMOVALS LEGEND:

- CURB REMOVAL
- STORM REMOVAL
- STORM REMOVAL
- WATERMAIN REMOVAL
- RETAINING WALL REMOVAL
- RETAINING WALL REMOVAL
- SUB DRAIN REMOVAL
- FULL DEPTH ASPHALT REMOVAL
- GREEN AREA/ INTERLOCK AREA REMOVAL
- CONCRETE SIDEWALK REMOVAL
- GRAVEL ROAD REMOVAL
- RAMP REMOVAL
- CLEAN SOIL REMOVAL
- TREE PROTECTION FENCE
- CATCH BASIN REMOVAL STORM MANHOLE REMOVAL
- SANITARY MANHOLE REMOVAL
- FIRE HYDRANT REMOVAL
- EXISTING TREES REMOVAL
- BOLLAR REMOVAL
- LIGHT STAND REMOVAL

PROPOSED LEGEND:

- EXISTING BOUNDARY
- NEW WATERMAIN
- NEW STORM SEWER
- NEW HDPE SUBDRAIN
- NEW SANITARY SEWER
- HIGH POINT
- 100 YEAR PONDING LIMIT
- NEW STORM CATCH BASIN MANHOLE
- NEW STORM MANHOLE
- NEW CATCH BASIN/ DITCH INLET
- NEW SANITARY MANHOLE
- NEW WATERMAIN VALVE
- NEW WATERMAIN CONNECTION
- NEW WATERMAIN 45° BEND
- NEW SERVICING CAP
- PROPOSED ELEVATION
- PROPOSED SURFACE SLOPE
- OVER FLOW DIRECTION
- PROPOSED TRENCH DRAIN
- PROPOSED INTERLOCK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED INSULATION
- PROPOSED TREES

ESC LEGEND:

- LIGHT DUTY SILT FENCE (OPSD 219.110)
- FILTER CLOTH PROTECTION
- MUD MAT

DRAINAGE AREA LEGEND:

- DRAINAGE AREA SYMBOL
- DRAINAGE AREA BOUNDARY

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ELEC, LIGHTING ENGINEER

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FOOD AND BEVERAGE

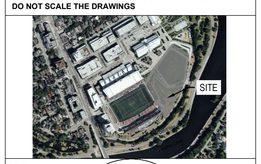
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LANDSCAPE ARCHITECT

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CIVIL ENGINEER

NO.	DESCRIPTION	DATE
13	REVISED AS PER CITY COMMENTS	2025-09-24
12	REVISED AS PER CITY COMMENTS	2025-06-20
12	ISSUED FOR PERMIT	2025-06-16
11	ISSUED FOR 100% CDS FOR TENDER	2025-06-12
10	ISSUED FOR CD UPDATE	2025-05-09
9	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
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7	REVISED AS PER CITY COMMENTS	2025-03-07
6	ISSUED FOR CD UPDATE	2025-02-28
5	ISSUED FOR CD UPDATE	2025-01-17
4	REVISED AS PER CITY COMMENTS	2025-01-15
3	ISSUED FOR 90% DD - CLASS B ESTIMATE	2024-11-15
2	REVISED AS PER CITY COMMENTS	2024-09-13
1	ISSUED FOR SPA	2024-08-07

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

DRAWN	J.T
DATE	2025/09/24
CHECKED	W.Y

LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

DWG. TITLE

NOTES AND DETAILS

SCALE	DWG. NO.
AS SHOWN	C01A
PROJ. NO.	
CA0033920.1056	

DATE PLOTTED:

#007-12-24-0082

#19172

STORM STRUCTURE TABLE

STRUCTURE	TOP OF GRATE	STRUC							OUTLET	
		INLET	INLET	INLET	OUTLET	SIZE	OPSD	COVER	DIAMETER	TYPE
CB01	65.00				63.603	600X600mm	OPSD 705.010	S19.1	250	PVC SDR-35
CB02	65.58				64.014	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB03	66.28				64.191	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB04	66.02				64.222	600X600mm	OPSD 705.010	S19.1	250	PVC SDR-35
CB05	64.91				63.745	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB06	64.91				63.755	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB07	64.90				63.690	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB08	64.90				63.188	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB09	65.20				64.220	K300 REFER TO ACO TRENCH DRAIN DESIGN			300	PVC SDR-35
CB10	65.30				63.620	600X600mm	OPSD 705.010	S19.1	250	PVC SDR-35
CB11	65.93				63.470	K300 REFER TO ACO TRENCH DRAIN DESIGN			300	PVC SDR-35
CB12	66.36				65.100	600X600mm	OPSD 705.010	S19.1	250	PVC SDR-35
CB13	65.79				63.754	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB14	67.22				64.288	K200 REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB15	65.15				63.835	600X600mm	OPSD 705.010	S19.1	250	PVC SDR-35
STMH201(OGS)	65.39			63.080	63.058	1800mm DIA.	OPSD 701.012	S24.1	900	PVC SDR-35
STMH202	65.38		63.380	63.167	63.060	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH203	68.26			63.227	63.207	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH204	71.50			63.277	63.257	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH205	66.72			63.324	63.304	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH206	67.09			63.368	63.348	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH207	66.28			63.394	63.394	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH208	66.30		63.928	63.490	63.415	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC
STMH209	66.71		64.730	63.620	63.583	1800mm DIA.	OPSD 701.012	S24.1	900	CONC
CBMH210	64.90		63.525	63.205	63.175	1200mm DIA.	OPSD 701.010	S28.1	600	CONC
STMH211	65.75		63.243	63.223	63.223	1200mm DIA.	OPSD 701.010	S24.1	600	CONC
STMH212	65.37			63.365	63.287	1200mm DIA.	OPSD 701.010	S24.1	600	CONC
STMH213	65.05	63.380	63.380	63.108	63.060	1200mm DIA.	OPSD 701.010	S24.1	250	PVC SDR-35
STMH214	66.19		64.110	63.600	63.060	1200mm DIA.	OPSD 701.010	S24.1	250	PVC SDR-35
STMH215	66.13		64.110	63.380	63.060	1200mm DIA.	OPSD 701.010	S24.1	250	PVC SDR-35
STMH216	65.40			63.080	63.080	1200mm DIA.	OPSD 701.010	S24.1	250	PVC SDR-35
STMH218	66.43		64.288	63.560	63.550	1800mm DIA.	OPSD 701.012	S24.1	900	CONC
STMH219	66.90			64.680	62.999	2400mm DIA.	OPSD 701.013	S24.1	1200	CONC
STMH220	66.84			63.579	63.569	1800mm DIA.	OPSD 701.012	S24.1	1200	CONC
STMH221	66.19			63.406	63.406	1800mm DIA.	OPSD 701.012	S24.1	1050	CONC

SAN STRUCTURE TABLE

STRUCTURE ID	TOP OF GRATE	INVERT				DESCRIPTION		
		INLET	INLET	INLET	OUTLET	SIZE	OPSD	COVER
SAMH201	65.34			62.396	62.386	1200mm DIA.	OPSD-701.010	S24
SAMH202	66.13			62.476	62.466	1200mm DIA.	OPSD-701.010	S24
SAMH202A	67.01		64.907	62.540	62.530	1200mm DIA.	OPSD-701.010	S24
SAMH203	71.50			62.645	62.635	1200mm DIA.	OPSD-701.010	S24
SAMH204	66.65			62.696	62.686	1200mm DIA.	OPSD-701.010	S24
SAMH205	66.22		63.022	62.757	62.747	1200mm DIA.	OPSD-701.010	S24
SAMH206	66.15			62.790	62.780	1200mm DIA.	OPSD-701.010	S24
SAMH207	66.29		63.334	62.841	62.831	1200mm DIA.	OPSD-701.010	S24
SAMH208	66.65		64.886	63.017	62.997	1200mm DIA.	OPSD-701.010	S24
SAMH208A	66.40		64.907	62.931	62.921	1200mm DIA.	OPSD-701.010	S24
SAMH209	65.67			62.679	62.659	1200mm DIA.	OPSD-701.010	S24
SAMH210	65.36			62.815	62.755	1200mm DIA.	OPSD-701.010	S24
SAMH211	66.47			63.127	63.117	1200mm DIA.	OPSD-701.010	S24
SAMH212	66.37		65.095	63.220	63.210	1200mm DIA.	OPSD-701.010	S24
SAMH213	66.43			63.238	63.228	1200mm DIA.	OPSD-701.010	S24
SAMH214	66.73			62.967	62.947	1200mm DIA.	OPSD-701.010	S24
SAMH215	66.56			62.993	62.973	1200mm DIA.	OPSD-701.010	S24
SAMH216	66.18			62.817	62.807	1200mm DIA.	OPSD-701.010	S24

		Obvert	Invert			Obvert	Invert	
1	1050mmØ CONC STM	64.388	63.205	0.240	Clearance Above	62.965	62.590	375mmØ PVC SAN
2	375mmØ PVC SAN	62.566	62.191	0.269	Clearance Under	64.344	62.835	*EX. 1350mmØ CONC STM*
3	375mmØ PVC SAN	62.757	62.382	0.542	Clearance Above	61.840	61.640	200mmØ PVC W/M
4	375mmØ PVC SAN	62.775	62.400	0.283	Clearance Under	64.079	63.058	900mmØ CONC STM
5	*EX.200mmØ PVC W/M*	62.130	61.930	0.925	Clearance Under	64.076	63.055	900mmØ CONC STM
6	375mmØ PVC SAN	62.836	62.461	1.313	Clearance Under	64.399	64.149	250mmØ PVC STM
7	375mmØ PVC SAN	63.131	62.756	1.349	Clearance Under	64.680	64.480	200mmØ PVC W/M
8	1050mmØ CONC STM	64.561	63.378	0.568	Clearance Above	62.810	62.610	200mmØ PVC W/M
9	375mmØ PVC SAN	63.204	62.829	0.436	Clearance Under	63.840	63.640	200mmØ PVC W/M
10	200mmØ PVC W/M	64.330	64.130	0.482	Clearance Above	63.648	63.348	300mmØ PVC SAN
11	200mmØ PVC W/M	63.430	63.230	0.514	Clearance Under	64.639	63.944	600mmØ CONC STM
12	200mmØ PVC W/M	64.000	63.800	0.492	Clearance Above	63.308	62.933	375mmØ PVC SAN
13	200mmØ PVC SAN	65.121	64.921	0.338	Clearance Above	64.582	63.561	900mmØ CONC STM
14	250mmØ PVC STM	63.757	63.507	0.665	Clearance Above	62.842	62.592	*EX.250mmØ PVC SAN*
15	250mmØ PVC STM	64.443	64.193	1.358	Clearance Above	62.835	62.460	*EX.375mmØ PVC SAN*
17	375mmØ PVC SAN	63.218	62.843	0.713	Clearance Under	64.626	63.931	600mmØ CONC STM
18	1050mmØ CONC STM	64.471	63.288	0.588	Clearance Above	62.700	62.500	200mmØ PVC W/M
19	1050mmØ CONC STM	64.466	63.283	0.404	Clearance Under	65.070	64.870	200mmØ PVC W/M
20	375mmØ PVC SAN	63.052	62.677	1.748	Clearance Under	65.000	64.800	200mmØ PVC W/M
21	375mmØ PVC SAN	63.059	62.684	1.161	Clearance Under	64.420	64.220	200mmØ PVC W/M
22	900mmØ CONC STM	64.434	63.413	0.503	Clearance Above	62.910	62.710	200mmØ PVC W/M
23	900mmØ CONC STM	64.410	63.389	0.349	Clearance Above	63.040	62.840	200mmØ PVC W/M
24	200mmØ PVC W/M	62.120	61.920	0.530	Clearance Under	63.345	62.650	*EX.600mmØ CONC STM*
25	200mmØ PVC W/M	63.420	63.220	0.375	Clearance Above	62.845	62.595	*EX.250mmØ PVC SAN*
26	250mmØ PVC STM	64.516	64.266	1.192	Clearance Above	63.073	62.698	375mmØ PVC SAN
27	200mmØ PVC W/M	61.800	61.600	0.550	Clearance Under	62.725	62.350	375mmØ PVC SAN
28	*EX.200mmØ PVC W/M*	62.710	62.510	0.521	Clearance Under	63.926	63.231	600mmØ CONC STM
29	*EX.200mmØ PVC W/M*	62.660	62.460	1.170	Clearance Under	64.080	63.830	250mmØ PVC STM
30	*EX.1200mmØ CONC STM*	64.330	62.984	0.320	Clearance Under	64.850	64.650	200mmØ PVC W/M
31	100mmØ PVC SAN	63.248	63.148	0.382	Clearance Under	63.830	63.630	200mmØ PVC W/M
32	200mmØ PVC W/M	63.090	62.890	0.537	Clearance Under	64.566	63.627	*EX.825mmØ CONC STM*
33	375mmØ PVC SAN	63.340	62.965	0.283	Clearance Under	64.562	63.623	*EX.825mmØ CONC STM*
34	375mmØ PVC SAN	63.558	63.183	0.198	Clearance Under	64.695	63.756	*EX.825mmØ CONC STM*

*Note: Provide Concrete Encased for crossing clearance less than 0.30m

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (FROM CONNECT TO EX.W/M TO BUILDING) - W1			
0+000	Connect to EX. W/M	71.27	68.870	2.40
0+003.36	Crossing with 100mm PVC SAN	66.50	64.100	2.40
0+006.99	200mm VB	67.11	64.710	2.40
0.009.55	Crossing with 1050mm CONC STM Refer to crossing table #8	67.12	62.800	**4.32**
0+11.06	Connect to building	67.13	64.730	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (FROM BUILDING TO END) - W2			
1+000	Connect to proposed building	66.21	63.810	2.40
1+001.37	Crossing with 900mm CONC STM Refer to crossing table #22	66.21	63.010	**3.20**
1+002.33	Crossing with 375mm PVC SAN	66.25	63.850	2.40
1+002.91	45° Bend	66.23	63.830	2.40
1+004.09	45° Bend	66.31	63.910	2.40
1+005.02	Crossing with 300mm PVC SAN	66.31	63.910	2.40
1+006.59	Crossing with 600mm CONC STM	66.31	63.910	2.40
1+007.95	150X200mm Tee connection	66.33	63.930	2.40
1+008.79	200mm VB	66.35	63.950	2.40
1+009.52	45° Bend	66.37	63.970	2.40
1+063.64	150X200mm Tee connection	66.43	64.030	2.40
1+066.22	200mm VB	66.43	64.030	2.40
1+070.55	45° Bend	66.49	64.090	2.40
1+075.76	45° Bend	66.42	64.020	2.40
1+075.45	Crossing with EX.825mm CONC STM	66.39	62.890	**3.50**
1+078.76	Watermain cap	66.37	63.970	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (TEE CONNECTION TO BUILDING) -W3			
2+000	200x200mm TEE Connection	66.48	64.080	2.40
2+000.41	200mm VB	66.43	64.030	2.40
2+002.13	Crossing with 375mm PVC SAN	66.40	64.000	2.40
2+004.08	Crossing with 900mm CONC STM Refer to crossing table #23	66.37	63.040	**3.33**
2+004.92	Connect to proposed building	66.37	63.970	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (FROM CONNECT TO EX.W/M TO BUILDING) - W4			
3+000	Connect to EX. W/M	64.91	62.510	2.40
3+001.24	200mm VB	64.98	62.580	2.40
3+018.61	Crossing with 375mm PVC SAN	66.82	64.420	2.40
3+020.35	Crossing with 1050mm CONC STM Refer to crossing table #18	66.90	62.700	**4.20**
3+024.84	22.5° Bend	67.12	64.720	2.40
3+028.01	Connect to proposed building	67.29	64.890	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (FROM CONNECT TO EX.W/M TO BUILDING) - W5			
4+000	Connect to EX. W/M	64.94	62.540	2.40
4+000.82	200mm VB	64.99	62.590	2.40
4+019.58	Crossing with 375mm PVC SAN	67.40	65.000	2.40
4+021.36	Crossing with 1050mm CONC STM	67.47	65.070	2.40
4+024.32	22.5° Bend	67.40	65.000	2.40
4+027.07	Connect to building	67.86	65.460	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	150mm FIRE HYDRANT (CLOSE TO EVENT CENTER) - W6			
5+000	150x200mm Tee connection	66.37	64.090	2.28
5+004.22	Crossing with 600mm CONC STM Refer to crossing table #11	66.62	66.430	**3.20**
5+006.02	45° Bend	66.59	64.190	2.40
5+007.17	Crossing with 300mm PVC SAN with insulation Refer to crossing table #10	66.67	64.330	2.40
5+008.43	150mm VB	66.76	64.360	2.40
5+009.61	Conncet to Fire Hydrant	66.84	64.440	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	150mm FIRE HYDRANT (ON LANDSCAPE AREA) -W7			
6+000	Connect to EX.W/M with Tee Connection	65.17	62.770	2.40
6+002.61	Crossing with 1200mm CONC STM with insulation Refer to crossing table #30	66.65	64.850	**1.80**
6+010.95	45° Bend	66.81	64.410	2.40
6+016.07	150mm VB	66.86	64.460	2.40
6+019.92	Conncet to Fire Hydrant	67.00	64.600	2.40

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
	200mm W/M (FROM CONNECT TO EX.W/M TO END) - W8			
7+000	Connect to EX. W/M	65.36	62.960	2.40
7+009.51	22.5° Bend	65.91	63.510	2.40
7+012.50	Crossing with 600mm CONC STM Refer to crossing table#24	65.82	62.120	**3.70**
7+016.18	Crossing with 250mm PVC SAN with insulation Refer to crossisng table #25	65.72	63.420	**2.30**
7+051.88	45° Bend	65.37	62.970	2.40
7+053.12	22.5° Bend	65.37	62.970	2.40
7+060.79	200mm VB	65.32	62.920	2.40
7+065.36	Watermain cap	65.32	62.920	2.40

DATE PLOTTED:

Ottawa

OSEG
Ottawa Sports and Entertainment Group

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530 N. WOOD STREET #C
CHICAGO, IL 60622
(224) 717-1999
FOOD AND BEVERAGE

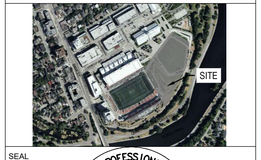
CSW
319 MCRAE AVENUE, SUITE 502
OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

msp
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

NO.	DESCRIPTION	DATE
13	REVISED AS PER CITY COMMENTS	2025-09-24
12	REVISED AS PER CITY COMMENTS	2025-06-20
12	ISSUED FOR PERMIT	2025-06-16
11	ISSUED FOR 100% CDS FOR TENDER	2025-06-12
10	ISSUED FOR CD UPDATE	2025-05-09
9	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
8	ISSUED FOR CD UPDATE	2025-03-19
7	REVISED AS PER CITY COMMENTS	2025-03-07
6	ISSUED FOR CD UPDATE	2025-02-28
5	ISSUED FOR CD UPDATE	2025-01-17
4	REVISED AS PER CITY COMMENTS	2025-01-15
3	ISSUED FOR 90% DD - CLASS B ESTIMATE	2024-11-15
2	REVISED AS PER CITY COMMENTS	2024-09-13
1	ISSUED FOR SPA	2024-08-07

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

DRAWN: J.T
DATE: 2025/09/24
CHECKED: W.Y

LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

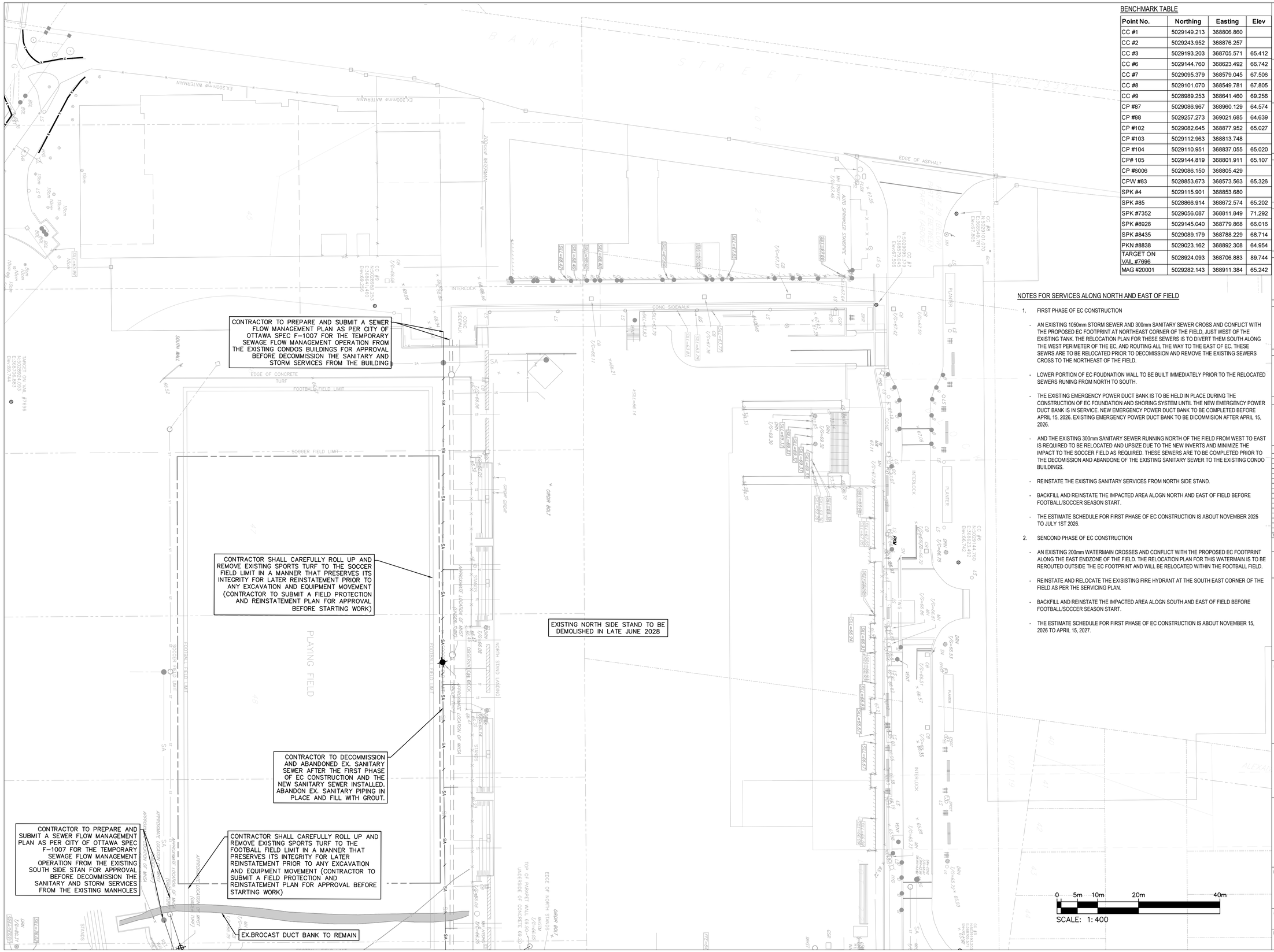
DWG. TITLE

DATA TABLES

SCALE: AS SHOWN
DWG. NO.: C02
PROJ. NO.: CA0033920.1056

#D07-12-24-0082

#19172



BENCHMARK TABLE

Point No.	Northing	Easting	Elev
CC #1	5029149.213	368806.860	
CC #2	5029243.952	368876.257	
CC #3	5029193.203	368705.571	65.412
CC #6	5029144.760	368623.492	66.742
CC #7	5029095.379	368579.045	67.506
CC #8	5029101.070	368549.781	67.805
CC #9	5028989.253	368641.460	69.256
CP #87	5029086.967	368960.129	64.574
CP #88	5029257.273	369021.685	64.639
CP #102	5029082.645	368877.952	65.027
CP #103	5029112.963	368813.748	
CP #104	5029110.951	368837.055	65.020
CP# 105	5029144.819	368801.911	65.107
CP #6006	5029086.150	368805.429	
CPW #83	5028853.673	368573.563	65.326
SPK #4	5029115.901	368853.680	
SPK #85	5028866.914	368672.574	65.202
SPK #7352	5029056.087	368811.849	71.292
SPK #8928	5029145.040	368779.868	66.016
SPK #8435	5029089.179	368788.229	68.714
PKN #8838	5029023.162	368892.308	64.954
TARGET ON VAIL #7696	5028924.093	368706.883	89.744
MAG #20001	5029282.143	368911.384	65.242

NOTES FOR SERVICES ALONG NORTH AND EAST OF FIELD

1. FIRST PHASE OF EC CONSTRUCTION

- AN EXISTING 1050mm STORM SEWER AND 300mm SANITARY SEWER CROSS AND CONFLICT WITH THE PROPOSED EC FOOTPRINT AT NORTHEAST CORNER OF THE FIELD, JUST WEST OF THE EXISTING TANK. THE RELOCATION PLAN FOR THESE SEWERS IS TO DIVERT THEM SOUTH ALONG THE WEST PERIMETER OF THE EC, AND ROUTING ALL THE WAY TO THE EAST OF EC. THESE SEWRS ARE TO BE RELOCATED PRIOR TO DECOMISSION AND REMOVE THE EXISTING SEWERS CROSS TO THE NORTHEAST OF THE FIELD.

- LOWER PORTION OF EC FOUDNATION WALL TO BE BUILT IMMEDIATELY PRIOR TO THE RELOCATED SEWERS RUNING FROM NORTH TO SOUTH.

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- REINSTATE THE EXISTING SANITARY SERVICES FROM NORTH SIDE STAND.

- BACKFILL AND REINSTATE THE IMPACTED AREA ALOGN NORTH AND EAST OF FIELD BEFORE FOOTBALL/SOCCER SEASON START.

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- REINSTATE AND RELOCATE THE EXISISTING FIRE HYDRANT AT THE SOUTH EAST CORNER OF THE FIELD AS PER THE SERVICING PLAN.

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LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

DWG. TITLE

REMOVAL PLAN

SCALE 1:400
DWG. NO. C03A
PROJ. NO. CA0033920.1056

DATE PLOTTED:

#D07-12-24-0082
#19172

MATCHING LINE
SEE DRAWING C03A

REMOVE EX.SOUTH SIDE STAND (REFER TO BUILDING DEMOLITION PLAN FOR DETAIL)

REMOVE ALL EX.ITEMS IN LANDSCAPE AREA

REMOVE EX.ASPHALT WALKWAY

CONTRACTOR TO PREPARE AND SUBMIT A SEWER FLOW MANAGEMENT PLAN AS PER CITY OF OTTAWA SP F-1007 FOR THE TEMPORARY SEWAGE FLOW MANAGEMENT OPERATION FROM THE EXISTING STORM AND SEWER FOR APPROVAL BEFORE DECOMMISSION THE EXISTING SEWER CROSSING THE EVENT CENTRE FOOTPRINT.

EX. EMERGENCY POWER DUCT BANK TO REMAIN UNTIL THE NEW EMERGENCY POWER DUCT BANK IS IN SERVICE.

REMOVE EX. BRIDGE (REFER TO BUILDING DEMOLITION PLAN FOR DETAIL)

REMOVE ALL EX.ITEMS IN LANDSCAPE AREA

CONTRACTOR TO DECOMMISSION AND ABANDONED EX.STORM AND SANITARY SEWER AFTER THE FIRST PHASE OF EC CONSTRUCTION.

REMOVE EX.CONCRETE SIDEWALK

REMOVE EX.THE RAMP (REFER TO BUILDING DEMOLITION PLAN FOR DETAIL)

REMOVE EX.GRAVEL ROAD

REMOVE EX.THE RETAINING WALL

REMOVE EX.THE INTERLOCK

REMAIN EX.STORM AND SANITARY MANHOLE TO REMAIN

CONTRACTOR TO PROTECT EX. CONCRETE CISTERN WHILE REMOVING THE EX. PAVEMENT AND SOIL

REMOVE AND RESERVE 1m CLEAN SOIL CAP FOR FUTURE RE-USE. REMOVE EAST BERM IN ITS ENTIRETY WITHIN LIMITS SHOWN AND DISPOSE OFF-SITE. REFER TO ENVIRONMENTAL PROVISIONS AND RISK MANAGEMENT PACKAGE FOR FURTHER DETAILS.

CONTRACTOR TO PROVIDE CCTV TO VERIFY THE STATUS OF THE EX.600mm STORM PRIOR TO CONSTRUCTION. REMOVE THE EX.600mm STORM LEAD ALL THE WAY TO THE PROPERTY, PLUG AND FILL THE REMAINING PORTION TO THE CANAL WITH GROUT IF IT WAS YET TO BE ABANDONED

APPROXIMATE LOCATION OF EX.600mm STORM TO CANAL

REMOVE CLEAN SOIL CAP AND RESERVE FOR RE-USE. EXCAVATE SOIL WITHIN EXCAVATION LIMIT TO REQUIRED DEPTH FOR NEW STORMWATER RETENTION STRUCTURE AS PER SOIL MANAGEMENT PLAN, REFER TO ENVIRONMENTAL PROVISIONS AND RISK MANAGEMENT PACKAGE FOR FURTHER DETAILS.

TREE PROTECTION FENCING, REFER TO LANDSCAPE DRAWINGS AND SPECIFICATIONS FOR DETAILS.

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TARGET ON VAIL #7696	5028924.093	368706.883	89.744
MAG #20001	5029282.143	368911.384	65.242

NOTES FOR EXISTING SITE FURNITURE

EXISTING SITE FURNITURE TO BE CAREFULLY REMOVED AND DELIVERED TO THE CITY'S YARD FOR STORAGE:
B = BENCH WITH BACK
BB = BACKLESS BENCH
CB = CONCRETE BENCH
BR = BIKE RACK
G = GARBAGE - STANDALONE
GL = GARBAGE ON LIGHT

EXISTING FURNITURE ITEMS TO BE REMOVED AND STORED IN CONTRACTORS YARD FOR RE-INSTALLATION ON SITE IN NEW LOCATIONS AS SHOWN ON THE LANDSCAPE DRAWINGS:
WF = WATER FOUNTAIN
PL = PLAQUE

NOTES FOR SERVICES ALONG NORTH AND EAST OF FIELD

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0 5m 10m 20m 40m
SCALE: 1:400

DATE PLOTTED:

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DRAWN J.T
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CHECKED W.Y

LANSDOWNE EVENT CENTRE

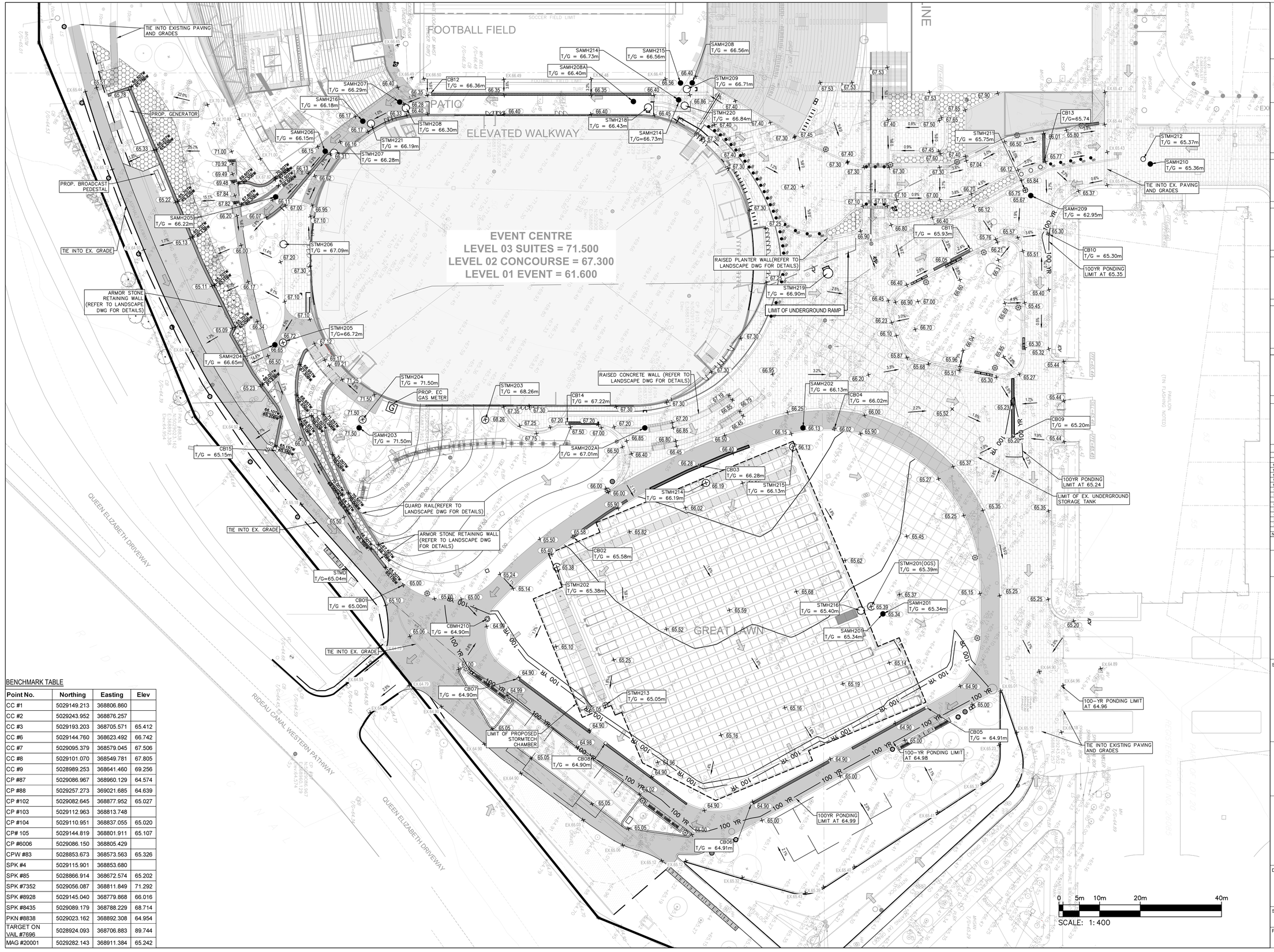
945 & 1015 BANK STREET

DWG. TITLE

REMOVAL PLAN

SCALE 1:400
PROJ. NO. CA0033920.1056
DWG. NO. C03B

#D07-12-24-0082
#19172



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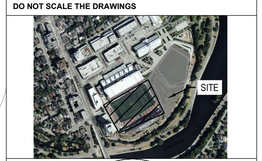
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5	ISSUED FOR CD UPDATE	2025-01-17
4	REVISED AS PER CITY COMMENTS	2025-01-15
3	ISSUED FOR 90% DD - CLASS B ESTIMATE	2024-11-15
2	REVISED AS PER CITY COMMENTS	2024-09-13
1	ISSUED FOR SPA	2024-08-07

REVISIONS/ ISSUES

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DO NOT SCALE THE DRAWINGS



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LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

DRAWN	J.T
DATE	2025/09/24
CHECKED	W.Y

LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

DWG. TITLE

SERVICING PLAN

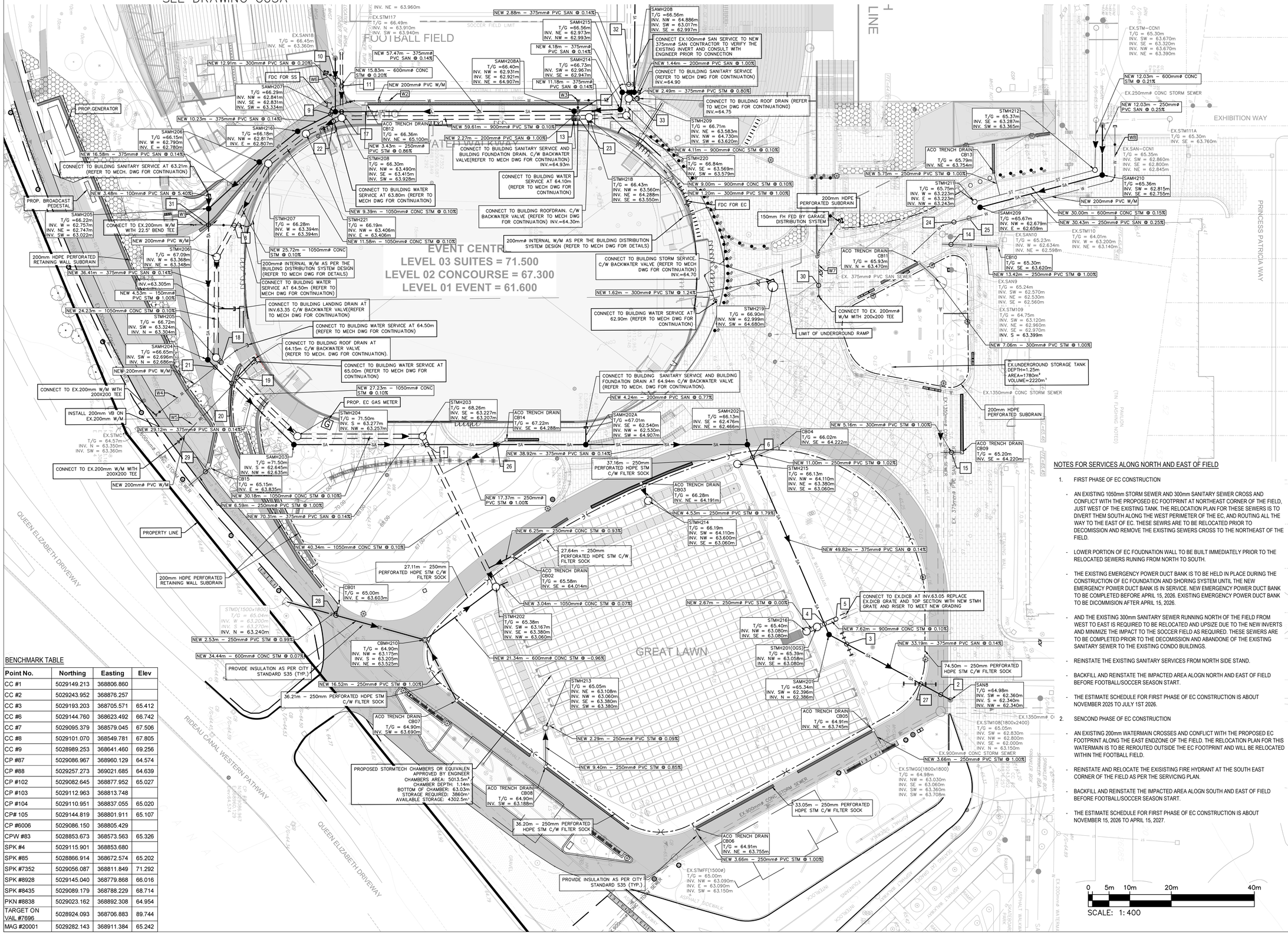
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1:400	C05A
PROJ. NO.	
CA0033920.1056	

#D07-12-24-0082

#19172

DATE PLOTTED:

MATCH LINE
SEE DRAWING C05A



BENCHMARK TABLE

Point No.	Northing	Easting	Elev
CC #1	5029149.213	368806.860	
CC #2	5029243.952	368876.257	
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PKN #8838	5029023.162	368892.308	64.954
TARGET ON VAIL #7696	5028924.093	368706.883	89.744
MAG #20001	5029282.143	368911.384	65.242

DATE PLOTTED:

NOTES FOR SERVICES ALONG NORTH AND EAST OF FIELD

1. FIRST PHASE OF EC CONSTRUCTION

- AN EXISTING 1050mm STORM SEWER AND 300mm SANITARY SEWER CROSS AND CONFLICT WITH THE PROPOSED EC FOOTPRINT AT NORTHEAST CORNER OF THE FIELD. JUST WEST OF THE EXISTING TANK. THE RELOCATION PLAN FOR THESE SEWERS IS TO DIVERT THEM SOUTH ALONG THE WEST PERIMETER OF THE EC, AND ROUTING ALL THE WAY TO THE EAST OF EC. THESE SEWRS ARE TO BE RELOCATED PRIOR TO DECOMISSION AND REMOVE THE EXISTING SEWERS CROSS TO THE NORTHEAST OF THE FIELD.

- LOWER PORTION OF EC FOUDNATION WALL TO BE BUILT IMMEDIATELY PRIOR TO THE RELOCATED SEWERS RUNING FROM NORTH TO SOUTH.

- THE EXISTING EMERGENCY POWER DUCT BANK IS TO BE HELD IN PLACE DURING THE CONSTRUCTION OF EC FOUNDATION AND SHORING SYSTEM UNTIL THE NEW EMERGENCY POWER DUCT BANK IS IN SERVICE. NEW EMERGENCY POWER DUCT BANK TO BE COMPLETED BEFORE APRIL 15, 2026. EXISTING EMERGENCY POWER DUCT BANK TO BE DICOMMISION AFTER APRIL 15, 2026.

- AND THE EXISTING 300mm SANITARY SEWER RUNNING NORTH OF THE FIELD FROM WEST TO EAST IS REQUIRED TO BE RELOCATED AND UPSIZE DUE TO THE NEW INVERTS AND MINIMIZE THE IMPACT TO THE SOCCER FIELD AS REQUIRED. THESE SEWERS ARE TO BE COMPLETED PRIOR TO THE DECOMISSION AND ABANDONE OF THE EXISTING SANITARY SEWER TO THE EXISTING CONDO BUILDINGS.

- REINSTATE THE EXISTING SANITARY SERVICES FROM NORTH SIDE STAND.

- BACKFILL AND REINSTATE THE IMPACTED AREA ALOGN NORTH AND EAST OF FIELD BEFORE FOOTBALL/SOCCER SEASON START.

- THE ESTIMATE SCHEDULE FOR FIRST PHASE OF EC CONSTRUCTION IS ABOUT NOVEMBER 2025 TO JULY 1ST 2026.

2. SENCOND PHASE OF EC CONSTRUCTION

- AN EXISTING 200mm WATERMAIN CROSSES AND CONFLICT WITH THE PROPOSED EC FOOTPRINT ALONG THE EAST ENDZONE OF THE FIELD. THE RELOCATION PLAN FOR THIS WATERMAIN IS TO BE REROUTED OUTSIDE THE EC FOOTPRINT AND WILL BE RELOCATED WITHIN THE FOOTBALL FIELD.

- REINSTATE AND RELOCATE THE EXISISTING FIRE HYDRANT AT THE SOUTH EAST CORNER OF THE FIELD AS PER THE SERVICING PLAN.

- BACKFILL AND REINSTATE THE IMPACTED AREA ALOGN SOUTH AND EAST OF FIELD BEFORE FOOTBALL/SOCCER SEASON START.

- THE ESTIMATE SCHEDULE FOR FIRST PHASE OF EC CONSTRUCTION IS ABOUT NOVEMBER 15, 2026 TO APRIL 15, 2027.

0 5m 10m 20m 40m

SCALE: 1: 400

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(613) 729-4536
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wsp
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OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

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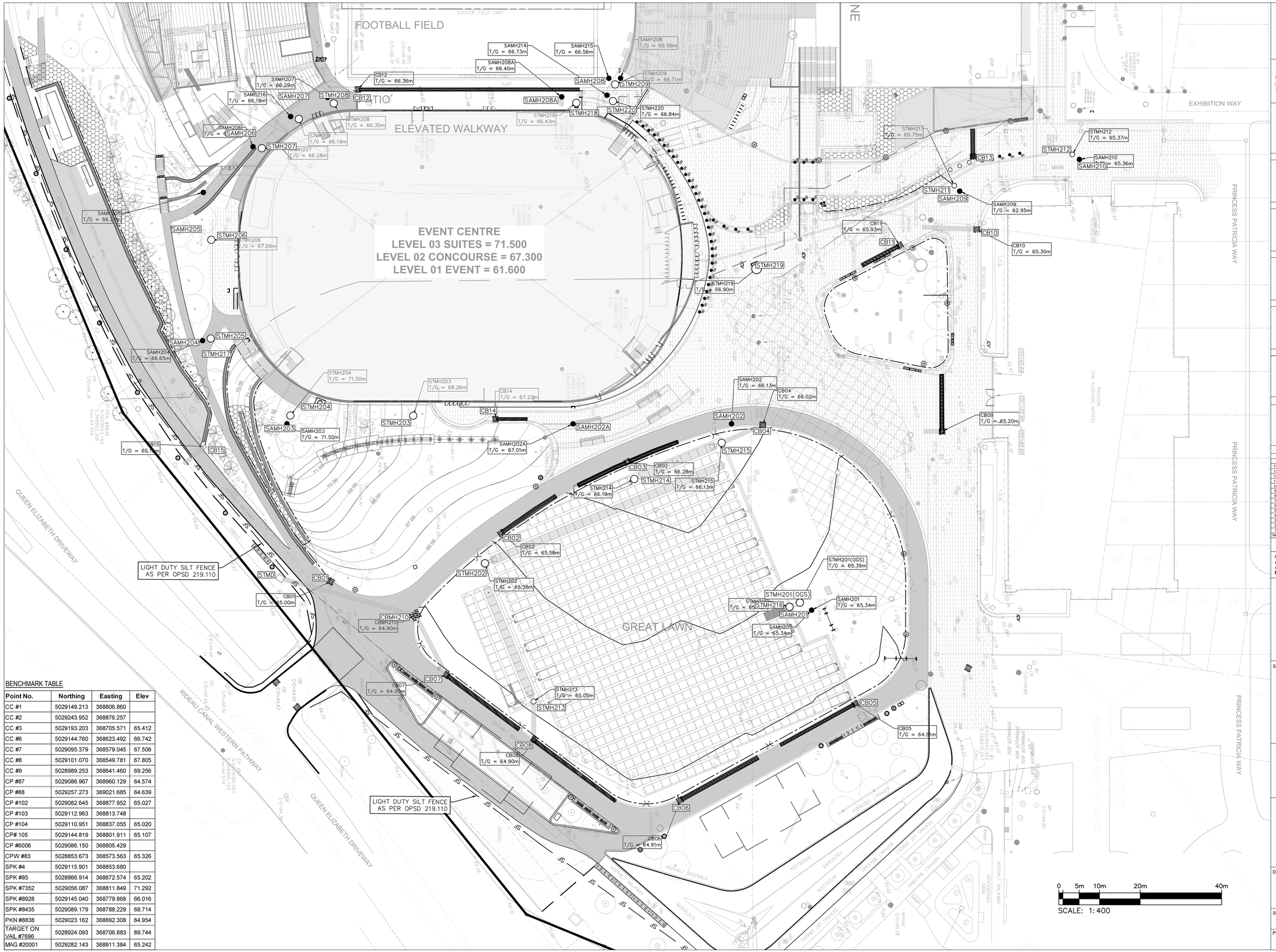
DWG. TITLE

SERVICING PLAN

SCALE	DWG. NO.
1:400	C05B
PROJ. NO. CA0033920.1056	

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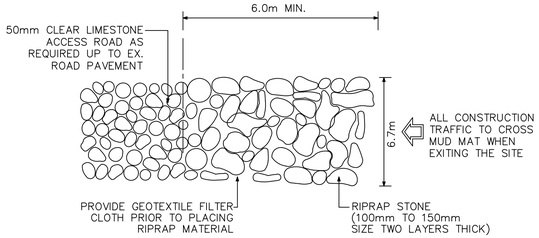
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EROSION AND SEDIMENT CONTROL PLAN

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DWG. NO.	C06B

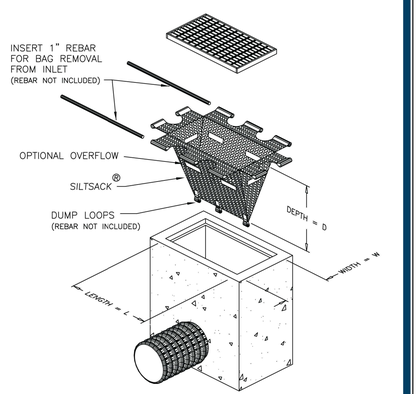
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1 C06A **MUD MAT DETAIL - PLAN VIEW**
SCALE: N.T.S

Typical Siltsack® Construction - Type B



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MITIGATION MEASURES ON NCC LAND

1. EROSION AND SEDIMENT CONTROL

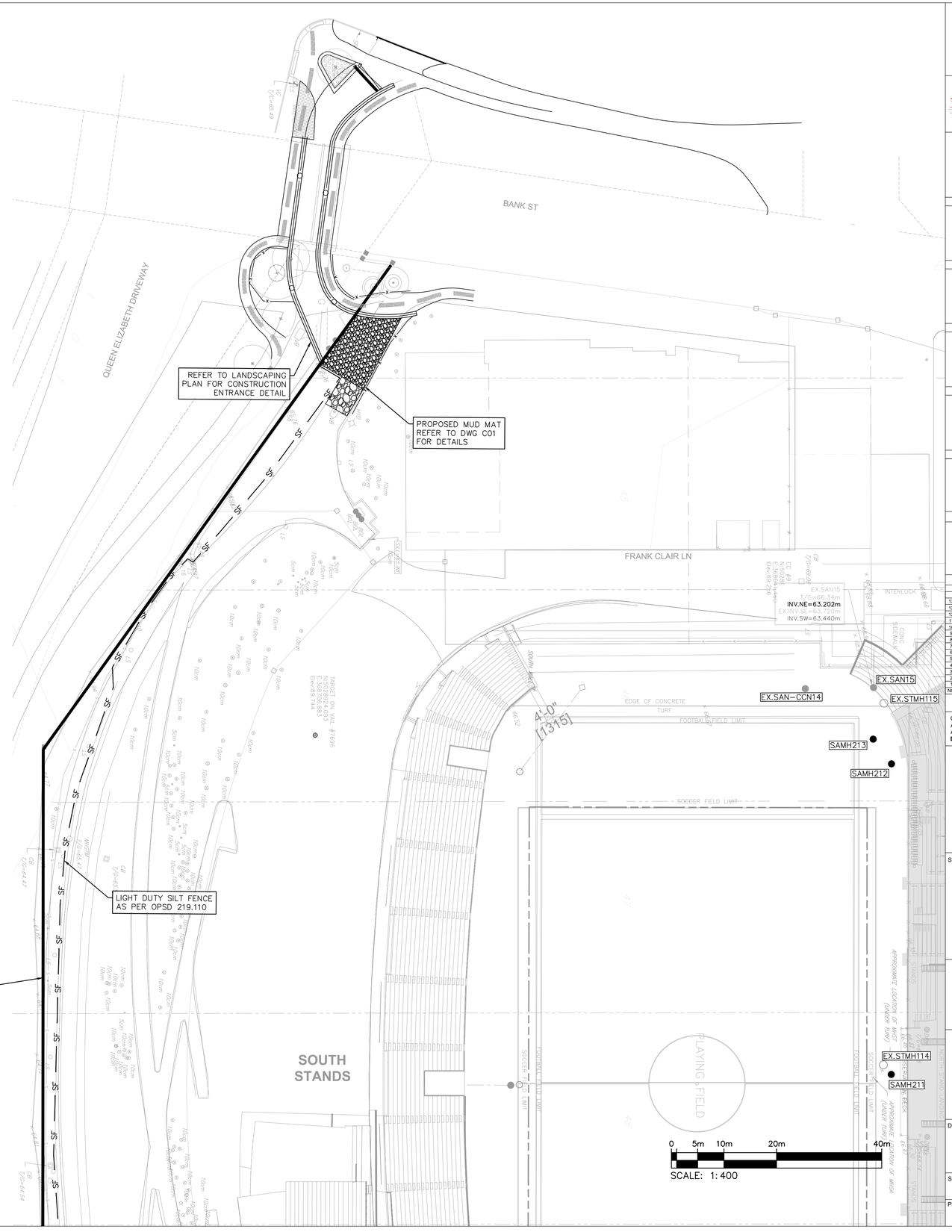
1.1. ALL EFFORTS SHOULD BE MADE TO KEEP VEGETATION IN PLACE IN ORDER TO PREVENT EXPOSURE OF SOILS AND EROSION.
1.2 . MATERIALS STORAGE SITES AND EQUIPMENT PARKING WILL BE LOCATED AT A MINIMUM DISTANCE OF 30 M FROM ANY WATERBODY, WATERCOURSE OR WETLAND.
1.3 ANY ACTIVITY THAT TAKES PLACE WITHIN 30 M OF A WATERBODY, WATERCOURSE OR WETLAND (THIS INCLUDES PROJECT AREAS WITH CATCHBASINS ON-SITE OR NEARBY) AND MAY RELEASE SEDIMENT, SOIL, OR ANY OTHER POTENTIALLY POLLUTING CHEMICAL OR PRODUCT WILL REQUIRE THE DEVELOPMENT AND IMPLEMENTATION OF AN EROSION AND SEDIMENT CONTROL PLAN AND AN EMERGENCY RESPONSE PLAN.
1.4. THE EROSION AND SEDIMENT CONTROL PLAN MUST INCLUDE MEASURES RECOMMENDED FOR THE PREVENTION OF EROSION AND SEDIMENTATION FOR THE ENTIRE DURATION OF THE PROJECT WORKS, AND MUST BE APPROVED BY THE NCC PRIOR TO THE COMMENCEMENT OF ANY WORKS.
1.5. EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE MAINTAINED UNTIL ALL DISTURBED GROUND HAS BEEN PERMANENTLY STABILIZED, SUSPENDED SEDIMENT HAS RESETTLED TO THE BED OF THE WATERBODY OR SETTLING BASIN AND RUNOFF WATER IS CLEAR.
1.6. THE EROSION AND SEDIMENT CONTROL PLAN MUST INCLUDE MEASURES RECOMMENDED FOR THE PREVENTION OF EROSION AND SEDIMENTATION FOR THE ENTIRE DURATION OF THE PROJECT WORKS, AND MUST BE APPROVED BY THE NCC PRIOR TO THE COMMENCEMENT OF ANY WORKS.
1.7. A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE WORK SITE AT ALL TIMES. THE CONTRACTOR MUST ENSURE THAT ALL WORKERS UNDERSTAND THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS THE CONSEQUENCES OF REFRAINING TO RESPECT THE REQUIREMENTS.
1.8. THE EROSION AND SEDIMENT CONTROL PLAN SHOULD, WHERE APPLICABLE, INCLUDE THE FOLLOWING MITIGATION MEASURES:
1.8.1. LIMIT THE SURFACE AREA OF EXPOSED SOIL.
1.8.2. MINIMIZE MOVEMENT OF MACHINERY ON EXPOSED SOILS
1.8.3. REVEGETATE EXPOSED AREAS AS SOON AS POSSIBLE.
1.8.4. SLOPES SUSCEPTIBLE TO FAILURE, INCLUDING EXPOSED SLOPES 3H:1V OR STEEPER, OR OF 3 M AND HIGHER, SHOULD BE REINFORCED USING APPROPRIATE MEASURES APPROVED BY THE NCC.
1.8.5. INSTALL FILTRATING MATERIALS IN BETWEEN THE COVER AND FRAME OF ALL COLLECTOR BASINS AND MANHOLES THAT COULD BE IMPACTED BY SEDIMENT FROM THE WORK SITE.
1.8.6. INSTALL SILT FENCES OR SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN ALONG SHORELINES, DITCHES, AND WETLANDS TO PREVENT SEDIMENTS FROM BEING DEPOSITED.
1.8.7. INSTALL SUPPORT MECHANISMS IN ORDER TO ENSURE SOIL STABILITY AND TO AVOID ANY RISK OF LANDSLIDES.
1.8.8. INTERVENTIONS ON FRAGILE SURFACES, SLOPES OR AREAS SUSCEPTIBLE TO EROSION SHOULD BE LIMITED.
1.8.9. AN ANTI-EROSION FENCE SHOULD BE INSTALLED AROUND THE PERIMETER OF ALL EXCAVATED SOIL. ALL EXCAVATED SOIL SHOULD BE STORED OUTSIDE OF FLOODPLAINS IN AREAS APPROVED BY THE NCC.
1.8.10. EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED, MAINTAINED AND REPAIRED ON A WEEKLY BASIS AND AFTER ANY RAINFALL EVENT.
1.8.11. ANY WATER FOUND IN EXCAVATED TRENCHES MUST BE PUMPED INTO AN APPROVED COLLECTION BASIN FOR DECANTATION BEFORE RETURNED TO A WATER BODY.
1.8.12. FOLLOWING PROJECT WORKS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESTORE THE SITE TO ITS ORIGINAL CONDITIONS.

2. PROTECTION OF SURFACE WATER QUALITY

2.1. MACHINERY SHOULD NOT CROSS OR COME IN CLOSE CONTACT WITH ANY WATERBODY OR WATERCOURSE.
2.2. MACHINERY WILL BE CLEAN AND FREE OF FLUID LEAKS, INVASIVE SPECIES AND NOXIOUS WEEDS ON ARRIVAL AT THE CONSTRUCTION SITE AND WILL BE MAINTAINED IN THIS CONDITION THROUGH REGULAR INSPECTIONS.
2.3. REFUELLING, MAINTENANCE AND NECESSARY REPAIRS WILL BE CARRIED OUT ON A SITE DESIGNATED FOR THIS PURPOSE LOCATED AT LEAST 60 M AWAY FROM ANY WATERBODY, UP TO THE HIGH-WATER MARK.
2.4. A TARP WILL BE PLACED UNDER THE MACHINERY DURING REFUELLING.
2.5. MACHINERY WILL NOT BE WASHED AT THE SITE.
2.6. LITTER OR DEBRIS MUST NEVER BE SWEPT OR PUSHED INTO A WATERBODY OR WATERCOURSE.
2.7. THE PROPONENT WILL ENSURE THAT ALL DEBRIS AND SOLID WASTE LEFT ON SITE, AS WELL AS TEMPORARY FENCING AND SIGNS ARE REMOVED AFTER COMPLETION OF THE WORKS.
2.8. DO NOT USE TREATED WOOD IN OR WITHIN 15 M OF A WATERBODY OR WATERCOURSE.
2.9. CLEARING OF RIPARIAN VEGETATION SHOULD BE KEPT TO A MINIMUM: USE EXISTING TRAILS, ROADS OR CUT LINES WHEREVER POSSIBLE TO AVOID DISTURBANCE TO THE RIPARIAN VEGETATION AND PREVENT SOIL COMPACTION. WHEN PRACTICABLE, PRUNE OR TOP THE VEGETATION INSTEAD OF GRUBBING/UPROOTING.
2.10. MINIMIZE THE REMOVAL OF NATURAL WOODY DEBRIS, ROCKS, SAND OR OTHER MATERIALS FROM THE BANKS, THE SHORELINE OR THE BED OF THE WATERBODY BELOW THE ORDINARY HIGH WATER MARK.
2.11. IF MATERIAL IS REMOVED FROM THE WATERBODY, SET IT ASIDE AND RETURN IT TO THE ORIGINAL LOCATION ONCE CONSTRUCTION ACTIVITIES ARE COMPLETED.
2.12. LIMIT MACHINERY FORDING OF THE WATERCOURSE TO A ONE-TIME EVENT (I.E., OVER AND BACK), AND ONLY IF NO ALTERNATIVE CROSSING METHOD IS AVAILABLE. IF REPEATED CROSSINGS OF THE WATERCOURSE ARE REQUIRED, CONSTRUCT A TEMPORARY CROSSING STRUCTURE.
2.13. USE TEMPORARY CROSSING STRUCTURES OR OTHER PRACTICES TO CROSS STREAMS OR WATERBODIES WITH STEEP AND HIGHLY ERODIBLE (E.G., DOMINATED BY ORGANIC MATERIALS AND SILTS) BANKS AND BEDS. FOR FORDING EQUIPMENT WITHOUT A TEMPORARY CROSSING STRUCTURE, USE STREAM BANK AND BED PROTECTION METHODS (E.G., SWAMP MATS, PADS) IF MINOR RUTTING IS LIKELY TO OCCUR DURING FORDING.
2.14. WASH, REFUEL AND SERVICE MACHINERY AND STORE FUEL AND OTHER MATERIALS FOR THE MACHINERY IN SUCH A WAY AS TO PREVENT ANY DELETERIOUS SUBSTANCES FROM ENTERING THE WATER.
2.15. DO NOT APPLY FERTILIZERS OR OTHER PRODUCTS CONTAINING PHOSPHORUS OR NITROGEN WITHIN 15 M OF A WATERBODY OR WATERCOURSE.

3. PROTECTION OF SURFACE WATER FLOWS/ QUANTITY

3.1. MEASURES WILL BE TAKEN TO MAINTAIN OR REDUCE OVERLAND SURFACE WATER VELOCITIES (E.G. FILTER BERMS, HAY BALES, ETC.) AND THESE MEASURES WILL BE REMOVED ONCE THE PROJECT IS COMPLETE.
3.2. WEIGHT BEARING MATERIALS (E.G. SPREADING MULCH, WOOD FIBRE BLANKETS, GEOTEXTILE MEMBRANES, AND GRANULAR MATERIAL) MAY BE ADDED TO THE EXISTING GROUND SURFACE IN ORDER TO SUPPORT MACHINERY WEIGHT AND TO AVOID CREATING HOLES AND RUTS TO THE SOIL SURFACE.
3.3. WEIGHT BEARING MATERIALS SHOULD BE PROMPTLY REMOVED ONCE THE PROJECT HAS BEEN COMPLETED.
3.4. FOR WATER PUMPING OR EXTRACTION IN EXCESS OF THE PROVINCIAL THRESHOLD, A PERMIT AUTHORIZING THE TAKING OF WATER WILL BE OBTAINED FROM THE MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP ONTARIO) OR THE MINISTÈRE DE L'ENVIRONNEMENT, DE LA LUTTE CONTRE LES CHANGEMENTS CLIMATIQUES, DE LA FAUNE ET DES PARCS (MELCCFP QUÉBEC) PRIOR TO WATER TAKING.



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CIVIL ENGINEER

NO	DESCRIPTION	DATE
13	REVISED AS PER CITY COMMENTS	2025-09-24
12	REVISED AS PER CITY COMMENTS	2025-06-20
12	ISSUED FOR PERMIT	2025-06-16
11	ISSUED FOR 100% CDS FOR TENDER	2025-06-12
10	ISSUED FOR CD UPDATE	2025-05-09
9	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
8	ISSUED FOR CD UPDATE	2025-03-19
7	REVISED AS PER CITY COMMENTS	2025-03-07
6	ISSUED FOR CD UPDATE	2025-02-28
5	ISSUED FOR CD UPDATE	2025-01-17
4	REVISED AS PER CITY COMMENTS	2025-01-15
3	ISSUED FOR 90% DD - CLASS B ESTIMATE	2024-11-15
2	REVISED AS PER CITY COMMENTS	2024-09-13
1	ISSUED FOR SPA	2024-08-07

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LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

HUDON

DRAWN J.T
DATE 2025/09/24
CHECKED W.Y

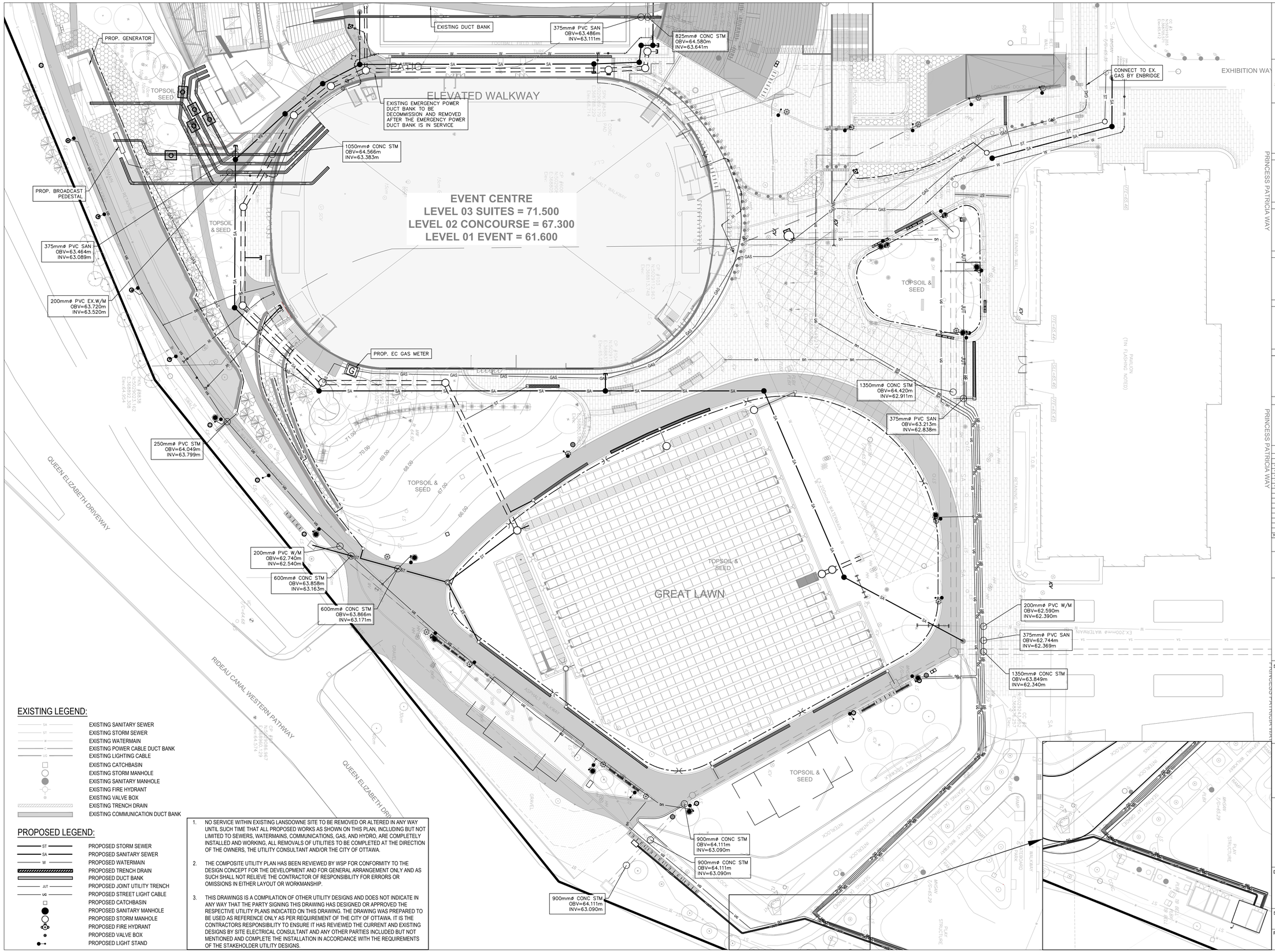
LANSDOWNE EVENT CENTRE
945 & 1015 BANK STREET

DWG. TITLE
EROSION AND SEDIMENT CONTROL PLAN

SCALE 1:400
PROJ. NO. CA0033920.1056
DWG. NO. C06A

#D07-12-24-0082
#19172

DATE PLOTTED:



EXISTING LEGEND:

- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING POWER CABLE DUCT BANK
- EXISTING LIGHTING CABLE
- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING VALVE BOX
- EXISTING TRENCH DRAIN
- EXISTING COMMUNICATION DUCT BANK

PROPOSED LEGEND:

- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED TRENCH DRAIN
- PROPOSED DUCT BANK
- PROPOSED JOINT UTILITY TRENCH
- PROPOSED STREET LIGHT CABLE
- PROPOSED CATCHBASIN
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE BOX
- PROPOSED LIGHT STAND

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Ottawa

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Ottawa Sports and Entertainment Group

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S2O
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CHICAGO, IL 60622
(224) 717-1999
FOOD AND BEVERAGE

CSW
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OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

wsp
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

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13	REVISED AS PER CITY COMMENTS	2025-09-24
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D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

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DRAWN	J.T
DATE	2025/09/24
CHECKED	W.Y

LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

DWG. TITLE

COMPOSITE UTILITY PLAN

SCALE	1:400
PROJ. NO.	CA0033920.1056
DWG. NO.	C07

#D07-12-24-0082

#19172

APPENDIX

B

- BOUNDARY CONDITIONS AND CORRESPONDENCE
- FIRE FLOW CALCULATION FOR NORTH STANDS
- EXISTING WATER DEMANDS AND FUS
- OSEG CARMA METER REPORT
- HYDRAULIC ANALYSIS
- FIRE HYDRANT TEST RESULTS
- HYDRANT COVERAGE FIGURE

From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: December 19, 2024 8:43 AM
To: Ali, Zarak
Cc: Moore, Sean; Yang, Winston; Mottalib, Abdul
Subject: RE: Lansdowne Park - Existing Building Water Demands
Attachments: Lansdowne 2.0 Redevelopment REVISED December 2024.pdf

Good morning Ali,

Please find the results of the boundary condition request below:

Not much change in results from last BC that was provided. Fire flow governs. Since FF was the same there's no significant change in the BC.

Information Provided: (Water demands with New Additions)
Average Day= 5.2 L/s
Max Day= 13.0 L/s
Peak Hour= 28.6 L/s
Fire flow (RFF)= 150 L/s
Development type: Commercial - New North Stands and New Event Center (Lansdowne 2.0 Redevelopment excluding Towers 1&2)

The following are boundary conditions, HGL, for hydraulic analysis at 1015 Bank Street, Lansdowne 2.0 Redevelopment (excluding Towers 1 &2), (zone 1W) assumed to be privately connected to the 305 mm watermain on Bank Street, AND the 406 mm watermain on Holmwood Avenue (see attached PDF for location).

Both Connections:
Min HGL: 105.7 m
Max HGL: 114.6 m
Max Day + FF (150L/s): 107.8 m (Connection 1-Holmwood Avenue), 106.5 m (Connection 2-Bank Street)

These are for current conditions and are based on computer model simulation.
Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

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From: Whelan, Amy
Sent: December 17, 2024 9:18 AM
To: Ali, Zarak <Zarak.Ali@wsp.com>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Yang, Winston <winston.yang@wsp.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: RE: Lansdowne Park - Existing Building Water Demands

Hi Ali,

Thank you for your email. We have sent the request to our water resources group as an urgent request last week. We have not received a response, however we will follow up with the status.
I will let you know as soon as possible.

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

From: Ali, Zarak <Zarak.Ali@wsp.com>
Sent: December 16, 2024 3:54 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Yang, Winston <winston.yang@wsp.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: RE: Lansdowne Park - Existing Building Water Demands

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Hi Amy,

I am following up on my request below.

Please note that we will be using the Metered Totals readings from the CARMA Metering report spreadsheet instead of the City Main Totals readings. This is because the Metered Totals reading will allow us to determine the individual demands of each of the buildings. This slightly changes the overall water demands of the site to the following:

NEW: Water Demands (using residential peaking factors and OSEG CARMA Metering Data):
Avg Day Demand = 5.41 L/s
Max Day + Fire Flow Demand = 13.53 + 150 = 163.53 L/s
Peak Hour Demand = 29.77 L/s

Let me know if you have any questions.

Regards,

Zarak Ali
Designer E.I.T
Land Development & Municipal Engineering - Ontario

T+ 1 343-227-9179
Zarak.ali@wsp.com

WSP Canada Inc.
2611 Queensview Drive, Suite 300
Ottawa, Ontario
K2B 8K2 Canada

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From: Ali, Zarak
Sent: December 11, 2024 12:02 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Yang, Winston <Winston.Yang@wsp.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: RE: Lansdowne Park - Existing Building Water Demands

Hi Amy,

Thank you for the confirmation below. We will include the spreadsheet in the appendix and include discussion and assumptions in the body regarding the approach. We will also use the residential peaking factors to be conservative.

We will need to request new boundary conditions as now the water demands are different from boundary request submitted in September 2024. Can you please take of this as soon as possible?

OLD: Sept 5, 2024 Boundary Condition Request:
Avg Day Demand = 12.3 L/s
Max Day + Fire Flow Demand = 20.8 + 150 = 170.8 L/s
Peak Hour Demand = 39.3 L/s

NEW: Water Demands (using residential peaking factors and OSEG CARMA Metering Data):
Avg Day Demand = 5.2 L/s
Max Day + Fire Flow Demand = 13 + 150 = 163 L/s
Peak Hour Demand = 28.6 L/s

Regards,

Zarak Ali
Designer E.I.T
Land Development & Municipal Engineering - Ontario

T+ 1 343-227-9179
Zarak.ali@wsp.com

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2611 Queensview Drive, Suite 300
Ottawa, Ontario
K2B 8K2 Canada

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From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: December 10, 2024 1:29 PM
To: Ali, Zarak <Zarak.Ali@wsp.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Yang, Winston <Winston.Yang@wsp.com>
Subject: RE: Lansdowne Park - Existing Building Water Demands

Hi Winston and Zarak,

The average daily demand of 5.2L/s from the metering data is acceptable, please be sure to include the spread sheet information in the appendix of the report and include a discussion of the approach in the body of the report.

Additionally, we are okay with the assumptions detailed in Winston's email, again please be sure to include discussion of all assumptions in the body of the report.

What peaking factor are you proposing to use for the calculation will the average daily demands from the entire site be multiplied by one peaking factor or will the demands be segregated by each type of use? For simplicity and to remain conservative we would accept that the total site max day demand is calculated with the residential peaking factor. unless it is calculated individually for each use type.

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
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613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

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---

From: Ali, Zarak <Zarak.Ali@wsp.com>
Sent: December 10, 2024 9:16 AM
To: Whelan, Amy <amy.whelan@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Yang, Winston <winston.yang@wsp.com>
Subject: RE: Lansdowne Park - Existing Building Water Demands

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Hi Amy/Abdul,

Based on the OSEG CARMA Metering City Main Total readings (see attached spreadsheet), I have calculated an average day demand of **5.2 L/s** over a 12 month span of data for the entire site.

I took the City Main Totals readings from January to October from 2024 data and November/December City Main Totals readings from 2023 data to determine an average 12-month consumption of 13,443,083 L/month or about 5.2 L/s.

Please let us know your thoughts.

Regards,

Zarak Ali
Designer E.I.T
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Ottawa, Ontario
K2B 8K2 Canada

wsp.com

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From: Yang, Winston <Winston.Yang@wsp.com>
Sent: December 9, 2024 1:33 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Ali, Zarak <Zarak.Ali@wsp.com>
Subject: RE: Lansdowne Park - Existing Building Water Demands

Hi Amy,

We can update the calculation with the provided overall water meter data without knowing the consumption from each building as long as you are satisfied with the assumption we are going to make. We will assume that the future water demand will be equivalent in value to the existing demand or less.

Then we will just need to plug the number in to the current calculation. If the result shows minimum pressure is achieved, then further computer modeling includes the looping is not required for Phase 1 and 2.

Kindly let me know what's your thought.

Yours truly,

Winston Yang
Lead Engineer – Technical Lead
Land Development & Municipal Engineering, Ontario
P.Eng., PMP.

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T+ 1 613-690-0538 (Direct)
M+ 1 647-628-8108

WSP Canada Inc.
2611 Queensview Drive, Suite 300
Ottawa, Ontario,
K2B 8K2 Canada

wsp.com

From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: December 9, 2024 12:56 PM
To: Yang, Winston <Winston.Yang@wsp.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Ali, Zarak <Zarak.Ali@wsp.com>
Subject: RE: Lansdowne Park - Existing Building Water Demands

Hi Winston,

Thank you for your email, have you received more information about the meter account locations? Sean informed me that two chamber meters relating to four account numbers were identified. Please let me know if you would like me to reach out to Rick Nelson from facilities.

Unfortunately, although we understand that the approach is conservative we cannot accept fire flow calculations that do not meet the minimum pressure requirements under max day + fire flow. Since, the analysis does not meet the minimum pressure requirements with out analyzing the looping we suggest that you wait for the metering data or provide a computer model that includes the looping.

Understanding, that we are operating under tight timelines we could consider that the servicing report will be required to be updated as a condition of approval prior to building permit. The condition would require that you update the calculations with the metering data, if the minimum pressure under max day + fire flow is still not achieved then a hydraulic watermain analysis of the entire site would be required, finally if the hydraulic watermain analysis shows that minimum pressure still can not be achieved then the private infrastructure would need to be upsized accordingly. We would have to work on the exact wording with our legal team.

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

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From: Yang, Winston <Winston.Yang@wsp.com>
Sent: December 06, 2024 4:58 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Ali, Zarak <Zarak.Ali@wsp.com>
Subject: RE: Lansdowne Park - Existing Building Water Demands

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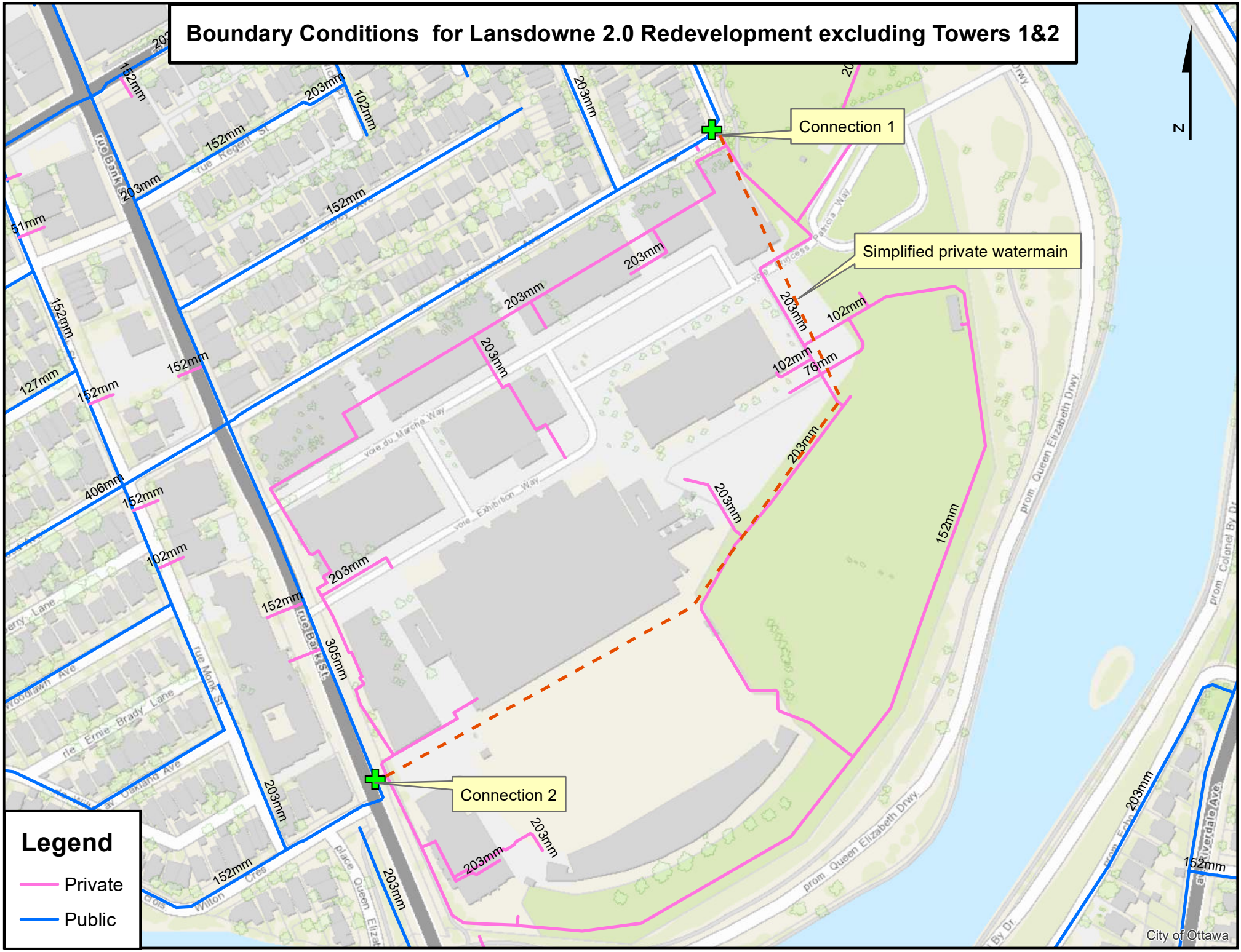
Hi Amy and Abdul,

If it takes time to sort out the water meter data and to identify the usage from different buildings, I would suggest to proceed with the below approach.

I have updated the calculation to include the overall demand for the entire Lansdowne site for both fire flow and minimum pressure check. Please see the below results for the updated residual pressure for each scenario.

	EC		NNS	
	Max Day+Fire Flow	Peak Hour	Max Day+Fire Flow	Peak Hour
BC from Bank	131 kPa < 140 kPa	334 kPa > 276 kPa	299 kPa > 140 kPa	363 kPa > 276 kPa
BC from Holmwood Ave	158 kPa > 140 kPa	337 kPa > 276 kPa	122 kPa < 140 kPa	353 kPa > 276 kPa

There are two feeds from City main to the Lansdowne Site. One at Bank Street near scoreboard and the other at the NE corner of Horticulture at Holmwood Ave. And there is an internal watermain looping system at Lansdowne.
As you can tell from the above results, most of the design pressures exceeds the minimum requirement except the boundary condition from Bank St to EC and boundary condition from Holmwood Ave to NNS. These two scenarios show the resulting pressures drop slightly below the


Boundary Conditions for Lansdowne 2.0 Redevelopment excluding Towers 1&2
Connection 1
Simplified private watermain
Connection 2
Legend
Private
Public
N
City of Ottawa

Fire Flow Design Sheet (FUS)
Lansdwone Park Redevelopment
City of Ottawa
WSP Project No. CA000286.1662
Date: 22-Sep-23

Proposed North Stands
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 2020

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
- 1.5 for **Type V** Wood Frame Construction
- 0.8 for **Type IV-A** Mass Timber Construction
- 0.9 for **Type IV-B** Mass Timber Construction
- 1.0 for **Type IV-C** Mass Timber Construction
- 1.5 for **Type IV-D** Mass Timber Construction
- 1.0 for **Type III** Ordinary Construction
- 0.8 for **Type II** Noncombustible Construction
- 0.6 for **Type I** Fire resistive Construction

A =2-b) The single largest Floor Area plus 25% of each of the two immediately adjoining floors

A = 9318.1 m^2
C = 0.6
F = 12742.0 L/min

rounded off to 13,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -25% x 13,000 = 9,750 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -50% x 9,750 = -4,875 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	0%

Side 1	10	0%	north side	(fire resistive wall with residential towers)
Side 2	16	0%	east side	(fire resistive wall with Event Centre)
Side 3	85	0%	south side	
Side 4	13	15%	west side	
		15%		(Total shall not exceed 75%)

Increase due to separation 15% x 9,750 = 1,463 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 6,000 L/min (Rounded to nearest 1000 L/min)
or **100 L/sec**
or 1,585 gpm (us)
or 1,320 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 2020
by Fire Underwriters Survey

The proposed water supply network is illustration on ***Drawing C01003*** and the associated hydraulic analysis is located ***Appendix B***. ***Table 3*** summarizes the anticipated Water Demand and Boundary Conditions under proposed conditions.

Table 4
Water Demand and Boundary Conditions
Proposed Conditions

Design Parameter	Anticipated Demand[1] (L/s)	Boundary Condition[2] (m H_2O / kPa)
Average Daily Demand	11.8	115.6 / 481.7
Max Day + Fire Flow	19.9 + 150 = 169.9	106.4 / 391.4
Peak Hour	38.0	103.1 / 359.0

1) Water demand calculation per Water Supply Guidelines. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa. Assumed ground elevation ***65.50m***. See ***Appendix B.***

3.3 Fire Flow Requirements

Section 4.2.11 of the City Design guidelines for water distribution provides guidance for determining the method for estimating Fire Demand. As indicated, the requirements for levels of fire protection on private property are covered in the Ontario Building code. Section 7.2.11 of the OBC addresses the installation of water service pipes and fire service mains. Part 3 of the OBC outlines the requirement for Fire Protection, Occupant Safety, and Accessibility; and sub-section A-3.2.5.7 provides the provisions for fire fighting. Based on trained personnel responding to the emergency, and water supply being delivered through a municipal system, the required minimum provision for water supply shall not be less than 2,700L/min or greater than 9000L/min (OBC Section A.3.2.5.7, Table 2). Therefore, a conservative estimate for the required fire supply is 9000L/min (150L/s). A certified fire protection system specialist shall be employed to design the building fire suppression system(s) and confirm the actual fire flow demand.

City of Ottawa completed fire hydrant testing in ***2007***. The testing indicated that water supply is available between ***8,610/min*** and ***11,610L/min*** at ***140kPa***.

3.4 Water Supply Conclusion

Anticipated water demand under proposed conditions were submitted to the City of Ottawa for establishing boundary conditions considering the existing and proposed zoning.

As demonstrated in ***Table 4***, the recommended pressure range is respected during Maximum Day plus Fire Flow as well as Peak Hour demands. A pressure check should be conducted at the completion of construction to determine if pressure control is required.

© DSEL

Carma Metering Report - MM0781 - Lansdowne Stadium - Water - 2023

Less than 20% of previous month | **More than 20% of previous month**

<-- 1st to 1st (Jun.14 city bill) | (Jun.14 city bill) 9th to 9th-->

Tenant Name	Tenant Number	CARMA Plus Meter Number	Service Description [Real Meter]	Percentage (%)	January			February			March			April			May			June			July			August	
					End Read Date: Feb.1		Rate $/unit	End Read Date: Mar.1		Rate $/unit	End Read Date: Apr.1		Rate $/unit	End Read Date: May.1		Rate $/unit	End Read Date: May.9		Rate $/unit	End Read Date: Jun.9		Rate $/unit	End Read Date: Jul.9		Rate $/unit	End Read Date: Aug.8		Rate $/unit	End Read Date: Sep.7	
					Units = Litres		$0.0040	Units = Litres		$0.0040	Units = Litres		$0.0059	Units = Litres		$0.0059	Units = Litres		$0.0059	Units = Litres		$0.0056	Units = Litres		$0.0056	Units = Litres		$0.0055	Units = Litres	
					Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption
City-Ottawa-Aberdeen	City-Aber	No Reader	[No Meter] 1" Mdl-70-Badger in Aberdeen SE Fire H	100			$0.00			$0.00	33,835,600		$0.00	33,946,800	111,200	$660.92	34,005,400	58,600	$348.29	34,120,700	115,300	$675.68	34,340,000	219,300	$1,238.27	34,423,400	83,400	$460.72	34,549,500	126,100
		Total			0	0	$0.00	0	0	$0.00	33,835,600	0	$0.00	33,946,800	111,200	$660.92	34,005,400	58,600	$348.29	34,120,700	115,300	$675.68	34,340,000	219,300	$1,238.27	34,423,400	83,400	$460.72	34,549,500	126,100
City-Ottawa-Horticulture	City-Hort	E249M01	[E249M01] 1.5in T-10 (2.5in pipe) in Horticulture 1	100	10,659,900	66,900	$267.60	10,742,100	82,200	$328.80	10,824,000	81,900	$483.21	10,981,500	157,500	$936.10	11,021,000	156,100	$927.78	11,175,200	154,200	$903.65	11,325,900	150,700	$850.92	11,455,500	129,600	$715.94	11,583,100	129,300
		Total			10,659,900	66,900	$267.60	10,742,100	82,200	$328.80	10,824,000	81,900	$483.21	10,981,500	157,500	$936.10	11,021,000	156,100	$927.78	11,175,200	154,200	$903.65	11,325,900	150,700	$850.92	11,455,500	129,600	$715.94	11,583,100	129,300
City-Ottawa-Plaza	City-Plaza	E249M02	[E249M02] 3in HPT (3in pipe) in Garage Room P161	100	2,262,300	0	$0.00	2,262,300	0	$0.00	2,262,300	0	$0.00	2,262,300	0	$0.00	2,265,900	3,600	$21.40	2,289,900	24,000	$140.65	2,312,200	22,300	$125.92	2,329,200	17,000	$93.91	2,343,100	14,000
		Total			2,262,300	0	$0.00	2,262,300	0	$0.00	2,262,300	0	$0.00	2,262,300	0	$0.00	2,265,900	3,600	$21.40	2,289,900	24,000	$140.65	2,312,200	22,300	$125.92	2,329,200	17,000	$93.91	2,343,100	14,000
City-Ottawa-Serv-Bunk-Ice-Rink	City-Serv-Bunk	No Reader	[No Meter] 2in T-10 (4in pipe) in Urban Park East C	100			$0.00			$0.00			$0.00	75,853,408		$0.00	77,173,615	1,320,207	$7,846.68	79,047,974	1,874,359	$10,984.18	80,958,065	1,910,091	$10,785.26	83,962,772	3,004,707	$16,598.78	87,270,548	3,307,776
		Total			0	0	$0.00	0	0	$0.00	0	0	$0.00	75,853,408	0	$0.00	77,173,615	1,320,207	$7,846.68	79,047,974	1,874,359	$10,984.18	80,958,065	1,910,091	$10,785.26	83,962,772	3,004,707	$16,598.78	87,270,548	3,307,776
I-Office BTB_REIT	Office-I	E921M00	[E252M02] 2in T-10 (4in pipe) in Garage Bldg I Fire	100	51,341,910	461,480	$1,845.92	51,787,900	445,990	$1,783.96	53,956,930	2,169,030	$12,797.28	55,381,630	1,424,700	$8,467.74	55,960,640	1,260,820	$7,493.71	58,202,170	2,241,530	$13,135.89	59,076,210	874,040	$4,935.23	59,905,600	829,390	$4,581.76	60,579,730	696,170
		Total			51,341,910	461,480	$1,845.92	51,787,900	445,990	$1,783.96	53,956,930	2,169,030	$12,797.28	55,381,630	1,424,700	$8,467.74	55,960,640	1,260,820	$7,493.71	58,202,170	2,241,530	$13,135.89	59,076,210	874,040	$4,935.23	59,905,600	829,390	$4,581.76	60,579,730	696,170
A-Condo Vibe OCSCC 967	Res-A-Condo	E910M00	[E218M08] 2in T-10 (4in pipe) in Garage Bldg A Fire	100	36,090,100	376,800	$1,507.20	36,416,700	326,600	$1,306.40	36,771,500	354,800	$2,093.32	37,087,100	315,600	$1,875.78	37,190,800	319,700	$1,900.14	37,650,600	459,800	$2,694.53	38,103,600	453,000	$2,557.85	38,560,800	457,200	$2,525.69	39,018,500	470,900
		Total			36,090,100	376,800	$1,507.20	36,416,700	326,600	$1,306.40	36,771,500	354,800	$2,093.32	37,087,100	315,600	$1,875.78	37,190,800	319,700	$1,900.14	37,650,600	459,800	$2,694.53	38,103,600	453,000	$2,557.85	38,560,800	457,200	$2,525.69	39,018,500	470,900
K-Condo Rideau OCSCC 1003	Res-K-Condo (needs replacement)	E919M00	[E213M06] Hi-Flo and [E213M07] Low-Flo 3in Nep	100	57,869,960	90,085	$360.34	57,943,660	73,700	$294.80	58,032,960	89,300	$526.87	58,133,160	100,200	$595.54	58,163,460	103,500	$615.15	Roll-up submeter	929,927	$5,449.59	Roll-up submeter	849,910	$4,798.98	Roll-up submeter	890,594	$4,919.87	Roll-up submeter	931,432
		Total			57,869,960	90,085	$360.34	57,943,660	73,700	$294.80	58,032,960	89,300	$526.87	58,133,160	100,200	$595.54	58,163,460	103,500	$615.15	Roll-up submeter	929,927	$5,449.59	Roll-up submeter	849,910	$4,798.98	Roll-up submeter	890,594	$4,919.87	Roll-up submeter	931,432
NorthTH-Condo OCSCC 1010	Res-NTH-Condo	E909M00	[TH-Total] Virtual Meter Total of Townhomes	100	24,998,220	359,130	$1,436.52	25,335,900	337,680	$1,350.72	25,704,300	368,400	$2,173.56	26,091,430	387,130	$2,300.92	26,203,510	381,140	$2,265.31	26,589,300	385,790	$2,260.82	26,954,210	364,910	$2,060.45	27,294,510	340,300	$1,879.90	27,625,950	342,860
		Total			24,998,220	359,130	$1,436.52	25,335,900	337,680	$1,350.72	25,704,300	368,400	$2,173.56	26,091,430	387,130	$2,300.92	26,203,510	381,140	$2,265.31	26,589,300	385,790	$2,260.82	26,954,210	364,910	$2,060.45	27,294,510	340,300	$1,879.90	27,625,950	342,860
A-Retail Trinity	Ret-A-Retail (needs electrician)	E911M00	[E160M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	4,782,424	60,430	$241.72	4,837,006	54,582	$218.33	4,897,436	60,430	$356.53	4,955,916	58,480	$347.58	4,973,460	58,480	$347.58	5,023,529	50,069	$293.42	5,062,584	39,055	$220.52	Estimate	50,069	$276.60	5,117,062	25,154
		Total			4,782,424	60,430	$241.72	4,837,006	54,582	$218.33	4,897,436	60,430	$356.53	4,955,916	58,480	$347.58	4,973,460	58,480	$347.58	5,023,529	50,069	$293.42	5,062,584	39,055	$220.52	Estimate	50,069	$276.60	5,117,062	25,154
B-Retail Trinity	Ret-B-Retail	E912M00	[E162M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	60,659,200	53,700	$214.80	60,721,400	62,200	$248.80	60,775,200	53,800	$317.42	61,063,100	287,900	$1,711.14	61,172,000	374,400	$2,225.25	62,010,500	838,500	$4,913.80	63,302,300	1,291,800	$7,294.10	64,639,300	1,337,000	$7,385.93	65,852,300	1,213,000
		Total			60,659,200	53,700	$214.80	60,721,400	62,200	$248.80	60,775,200	53,800	$317.42	61,063,100	287,900	$1,711.14	61,172,000	374,400	$2,225.25	62,010,500	838,500	$4,913.80	63,302,300	1,291,800	$7,294.10	64,639,300	1,337,000	$7,385.93	65,852,300	1,213,000
C-Retail Trinity	Ret-C-Retail	E913M00	[E137M04] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	67,706,100	764,300	$3,057.20	68,366,200	660,100	$2,640.40	69,061,200	695,000	$4,100.50	70,062,800	1,001,600	$5,953.03	70,326,700	978,300	$5,814.55	71,206,200	879,500	$5,154.07	72,012,300	806,100	$4,551.61	72,942,700	930,400	$5,139.77	73,804,400	861,700
		Total			67,706,100	764,300	$3,057.20	68,366,200	660,100	$2,640.40	69,061,200	695,000	$4,100.50	70,062,800	1,001,600	$5,953.03	70,326,700	978,300	$5,814.55	71,206,200	879,500	$5,154.07	72,012,300	806,100	$4,551.61	72,942,700	930,400	$5,139.77	73,804,400	861,700
D-Retail Trinity	Ret-D-Retail	E914M00	[E156M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	30,698,800	493,100	$1,972.40	31,152,100	453,300	$1,813.20	31,653,900	501,800	$2,960.62	32,216,500	562,600	$3,343.83	32,366,400	536,900	$3,191.08	32,893,800	527,400	$3,090.69	33,436,400	542,600	$3,063.77	33,918,200	481,800	$2,661.59	34,388,300	470,100
		Total			30,698,800	493,100	$1,972.40	31,152,100	453,300	$1,813.20	31,653,900	501,800	$2,960.62	32,216,500	562,600	$3,343.83	32,366,400	536,900	$3,191.08	32,893,800	527,400	$3,090.69	33,436,400	542,600	$3,063.77	33,918,200	481,800	$2,661.59	34,388,300	470,100
G-Retail Trinity	Ret-G-Retail	E915M00	[E139M08] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	108,047,900	1,134,000	$4,536.00	109,111,300	1,063,400	$4,253.60	110,316,900	1,205,600	$7,113.04	111,731,700	1,414,800	$8,408.90	112,149,500	1,414,300	$8,405.92	113,564,100	1,414,600	$8,289.88	114,306,166	742,066	$4,190.05	115,632,200	1,202,356	$6,642.12	116,969,600	1,337,400
		E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G	-100	13,066,590	0	$0.00	13,066,590	0	$0.00	13,066,590	0	$0.00	13,089,650	-23,060	-$137.06	13,110,930	-44,340	-$263.54	13,280,590	-169,660	-$994.25	13,441,040	-160,450	-$905.97	13,589,350	-148,310	-$819.30	13,736,410	-147,060
		Total			121,114,490	1,134,000	$4,536.00	122,177,890	1,063,400	$4,253.60	123,383,490	1,205,600	$7,113.04	124,821,350	1,391,740	$8,271.84	125,260,430	1,369,960	$8,142.39	126,844,690	1,244,940	$7,295.64	127,747,206	581,616	$3,284.07	102,042,850	1,054,046	$6,148.80	1,190,340	
H-Retail Trinity	Ret-H-Retail	E916M00	[E155M02] 1st-Flr_Tenants 1.5in T-10 and [E154M0	100	88,316,100	1,270,300	$5,081.20	89,426,200	1,110,100	$4,440.40	90,682,800	1,256,600	$7,413.94	91,862,000	1,179,200	$7,008.60	92,218,400	1,162,100	$6,906.97	93,726,900	1,508,500	$8,840.16	95,768,300	2,041,400	$11,526.69	97,749,200	1,980,900	$10,943.00	98,995,400	1,246,200
		Total			88,316,100	1,270,300	$5,081.20	89,426,200	1,110,100	$4,440.40	90,682,800	1,256,600	$7,413.94	91,862,000	1,179,200	$7,008.60	92,218,400	1,162,100	$6,906.97	93,726,900	1,508,500	$8,840.16	95,768,300	2,041,400	$11,526.69	97,749,200	1,980,900	$10,943.00	98,995,400	1,246,200
J-Retail Trinity	Ret-J-Retail	E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Lev	100	62,435,770	724,930	$2,899.72	63,003,860	568,090	$2,272.36	63,647,950	644,090	$3,800.13	64,258,810	610,860	$3,630.66	64,448,130	613,850	$3,648.43	65,119,700	671,570	$3,935.56	65,775,610	655,910	$3,703.57	66,239,990	464,380	$2,565.35	66,805,040	565,050
		Total			62,435,770	724,930	$2,899.72	63,003,860	568,090	$2,272.36	63,647,950	644,090	$3,800.13	64,258,810	610,860	$3,630.66	64,448,130	613,850	$3,648.43	65,119,700	671,570	$3,935.56	65,775,610	655,910	$3,703.57	66,239,990	464,380	$2,565.35	66,805,040	565,050
Stadium OSEG Stadium	Stad-OSEG	No Reader	[No Meter] North Stad 4in HPT (4in pipe) in North	100	1,116,161,000		$0.00	1,118,931,000	2,770,000	$11,080.00	1,125,337,000	6,406,000	$37,795.40	1,129,092,000	3,755,000	$22,317.93	1,131,432,000	2,340,000	$13,907.84	1,134,320,000	2,888,000	$16,924.35	1,138,119,000	3,799,000	$21,450.91	1,141,057,000	2,938,000	$16,230.27	1,146,263,000	5,206,000
		No Reader	[No Meter] South Stad 2in T-10 (4in pipe) in Urban	100	68,059,000		$0.00	68,096,000	37,000	$148.00	68,209,000	113,000	$666.70	68,436,000	227,000	$1,349.18	68,924,000	488,000	$2,900.44	69,778,000	854,000	$5,004.64	71,113,000	1,335,000	$7,538.03	72,439,000	1,326,000	$7,325.17	73,729,000	1,290,000
		E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Lev	-100			$0.00	63,003,860	-568,090	-$2,272.36	63,647,950	-644,090	-$3,800.13	64,258,810	-610,860	-$3,630.66	64,448,130	-613,850	-$3,648.43	65,119,700	-671,570	-$3,935.56	65,775,610	-655,910	-$3,703.57	66,239,990	-464,380	-$2,565.35	66,805,040	-565,050
		Total			1,184,220,000	0	$0.00	.	2,238,910	$8,955.64	.	5,874,910	$34,661.97	.	3,371,140	$20,036.45	.	2,214,150	$13,159.85	.	3,070,430	$17,993.43	.	4,478,090	$25,285.36	.	3,799,620	$20,990.08	.	5,930,950	
Stadium Public Realm	Stad-PubRealm	E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G	100	13,066,590	0	$0.00	13,066,590	0	$0.00	13,066,590	0	$0.00	13,089,650	23,060	$137.06	13,110,930	44,340	$263.54	13,280,590	169,660	$994.25	13,441,040	160,450	$905.97	13,589,350	148,310	$819.30	13,736,410	147,060
		E922M00	[E252M06] 1in Dwyer (1.5in pipe) in Garage Bldg I	100	7,846,007	0	$0.00	7,846,007	0	$0.00	7,846,007	0	$0.00	7,855,028	9,022	$53.62	7,870,822	24,815	$147.49	7,927,056	56,235	$329.55	7,983,307	56,251	$317.62	8,041,859	58,552	$323.46	8,098,836	58,919
		E923M00	[E213M05] 0.75" Dwyer WMT2-A-C-03 in Garage N	100	1,786,880	0	$0.00	1,786,880	0	$0.00	1,786,880	0	$0.00	1,793,219	6,339	$37.68	1,807,938	21,058	$125.16	1,860,305	52,367	$306.88	1,910,093	49,788	$281.12	1,962,510	52,417	$289.57	2,011,183	50,353
		Total			22,699,476	0	$0.00	22,699,476	0	$0.00	22,699,476	0	$0.00	22,737,897	38,421	$228.36	22,789,689	90,213	$536.18	23,067,951	278,262	$1,630.68	23,334,439	266,488	$1,504.72	23,593,719	259,280	$1,432.33	.	256,332	
City Total			**City Total**			**66,900**	$267.60		**82,200**	$328.80		**81,900**	$483.21		**268,700**	$1,597.02		**1,538,507**	$9,144.15		**2,167,859**	$12,704.16		**2,302,391**	$13,000.36		**3,234,707**	$17,869.35		**3,577,176**	
Office Total			**Office Total**			**461,480**	$1,845.92		**445,990**	$1,783.96		**2,169,030**	$12,797.28		**1,424,700**	$8,467.74		**1,260,820**	$7,493.71		**2,241,530**	$13,135.89		**874,040**	$4,935.23		**829,390**	$4,581.76		**696,170**	
Residential Total			**Residential Total**			**826,015**	$3,304.06		**737,980**	$2,951.92		**812,500**	$4,793.75		**802,930**	$4,772.23		**804,340**	$4,780.61		**1,775,517**	$10,404.94		**1,667,820**	$9,417.28		**1,688,094**	$9,325.47		**1,745,192**	
Retail Total			**Retail Total**			**4,500,760**	$18,003.04		**3,971,772**	$15,887.09		**4,417,320**	$26,062.19		**5,092,380**	$30,266.68		**5,093,990**	$30,276.25		**5,720,479**	$33,523.34		**5,958,481**	$33,644.33		**6,298,595**	$34,795.06		**5,571,544**	
Stadium / OSEG Total			**Stadium / OSEG Total**			**0**	$0.00		**2,238,910**	$8,955.64		**5,874,910**	$34,661.97		**3,409,561**	$20,264.80		**2,304,363**	$13,696.03		**3,348,692**	$19,624.11		**4,744,578**	$26,790.08		**4,058,900**	$22,422.41		**6,187,282**	
Metered Total					5,855,154	$23,420.62		7,476,852	$29,907.41		13,355,660	$78,788.39		10,998,271	$65,368.47		11,002,020	$55,350.76		15,254,077	$89,392.44		15,547,310	$87,707.29		16,100,585	$89,320.03		17,777,264	
City Main Utility Meter1			**City Account 1of4 (0270300 - 10077975)**			536,809,000					543,564,000	6,755,000	$28,249.56	550,235,000	6,671,000	$28,414.09	550,235,000	6,671,000	$28,414.09	557,764,000	7,529,000	$32,069.17	565,059,000	7,295,000	$31,072.33	572,554,000	7,495,000	$31,924.33	580,154,000	7,600,000
City Main Utility Meter2			**City Account 2of4 (0270300 - 10077976)**			121,996,000					124,112,000	2,116,000	$8,847.67	126,394,000	2,282,000	$9,716.95	126,394,000	2,282,000	$9,716.95	128,587,000	2,193,000	$9,337.81	130,766,000	2,179,000	$9,278.17	132,934,000	2,168,000	$9,231.31	135,098,000	2,164,000
City Main Utility Meter3			**City Account 3of4 (0270300 - 10077977)**			92,829,000					93,425,000	596,000	$19,693.78	94,117,000	692,000	$21,390.57	94,117,000	692,000	$21,390.57	95,866,000	1,749,000	$32,069.17	97,338,000	1,472,000	$24,713.37	98,925,000	1,587,000	$25,203.27	100,474,000	1,549,000
City Main Utility Meter4			**City Account 4of4 (0270300 - 10077978)**			missing bill					286,175,000	missing bill	missing bill	290,772,000	4,597,000	$25,126.04	290,772,000	4,597,000	$25,126.04	296,471,000	5,699,000	$27,144.04	300,888,000	4,417,000	$21,682.72	306,486,000	5,598,000	$26,713.78	312,434,000	5,948,000
City Mains Total						0	$0.00		0	$0.00		9,467,000	$56,791.01		14,242,000	$84,647.65		14,242,000	$84,647.65		17,170,000	$100,620.19		15,363,000	$86,746.59		16,848,000	$93,072.69		17,261,000	
% Difference Submeter to Mains						**100.0%**			**100.0%**			**29.1%**			**-29.5%**			**-29.4%**			**-12.6%**			**1.2%**			**-4.6%**			**2.9%**	

Carma Metering Report - MM0781 - Lansdowne Stadium - Water - 2023

Less than 20% of previous month | **More than 20% of previous month**

Tenant Name	Tenant Number	CARMA Plus Meter Number	Service Description [Real Meter]	Percentage (%)	Rate $/unit	September		Rate $/unit	October		Rate $/unit	November		Rate $/unit	December		Rate $/unit	Total YTD	Total YTD
					$0.0055	End Read Date: Oct.7		$0.0057	End Read Date: Nov.6		$0.0063	End Read Date: Dec.6		$0.0066	End Read Date: Jan.5		$0.0065	Litres	$
					Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Consumption	Cost
City-Ottawa-Aberdeen	City-Aber	No Reader	[No Meter] 1" Mdl-70-Badger in Aberdeen SE Fire R	100	$692.79	34,663,900	114,400	$649.65	34,799,500	135,600	$852.84	35,003,500	**204,000**	$1,343.41	35,158,000	**154,500**	$1,010.74	1,322,400	$7,933.32
		Total			$692.79	34,663,900	114,400	$649.65	34,799,500	135,600	$852.84	35,003,500	204,000	$1,343.41	.	154,500	$1,010.74	1,322,400	$7,933.32
City-Ottawa-Horticulture	City-Hort	E249M01	[E249M01] 1.5in T-10 (2.5in pipe) in Horticulture 1	100	$710.38	11,700,200	117,100	$664.99	11,803,600	103,400	$650.32	11,889,300	85,700	$564.36	12,012,600	**123,300**	$806.63	1,537,900	$8,810.69
		Total			$710.38	.	117,100	$664.99		103,400	$650.32	.	85,700	$564.36	.	**123,300**	$806.63	1,537,900	$8,810.69
City-Ottawa-Plaza	City-Plaza	E249M02	[E249M02] 3in HPT (3in pipe) in Garage Room P16	100	$76.92	2,355,200	12,100	$68.71	2,362,700	**7,500**	$47.17	2,362,700	**0**	$0.00	2,362,700	0	$0.00	100,500	$574.67
		Total			$76.92		12,100	$68.71		**7,500**	$47.17		**0**	$0.00		0	$0.00	100,500	$574.67
City-Ottawa-Serv-Bunk-Ice-Rink	City-Serv-Bunk	No Reader	[No Meter] 2in T-10 (4in pipe) in Urban Park East C	100	$18,172.95	89,437,035	**2,166,487**	$12,303.01	90,114,773	**677,738**	$4,262.54	90,135,137	**20,364**	$134.10	90,135,137	**0**	$0.00	14,281,729	$81,087.50
		Total			$18,172.95	89,437,035	2,166,487	$12,303.01	90,114,773	677,738	$4,262.54	90,135,137	20,364	$134.10	.	0	$0.00	14,281,729	$81,087.50
I-Office BTB_REIT	Office-I	E921M00	[E252M02] 2in T-10 (4in pipe) in Garage Bldg I Fire	100	$3,824.76	61,326,900	747,170	$4,243.02	61,876,840	**549,940**	$3,458.77	62,389,060	512,220	$3,373.15	63,045,940	**656,880**	$4,297.31	12,869,360	$74,238.50
		Total			$3,824.76	.	747,170	$4,243.02	.	**549,940**	$3,458.77	.	512,220	$3,373.15	.	**656,880**	$4,297.31	12,869,360	$74,238.50
A-Condo Vibe OCSCC 967	Res-A-Condo	E910M00	[E218M08] 2in T-10 (4in pipe) in Garage Bldg A Fire	100	$2,587.13	39,414,400	395,900	$2,248.23	39,744,400	330,000	$2,075.49	40,083,300	338,900	$2,231.78	40,407,200	323,900	$2,118.95	4,923,100	$27,722.49
		Total			$2,587.13	.	395,900	$2,248.23	.	330,000	$2,075.49	.	338,900	$2,231.78	.	323,900	$2,118.95	4,923,100	$27,722.49
K-Condo Rideau OCSCC 1003	Res-K-Condo (needs replacement)	E919M00	[E213M06] Hi-Flo and [E213M07] Low-Flo 3in Nep	100	$5,117.29	Roll-up submete	887,086	$5,037.57	Roll-up submete	870,583	$5,475.41	Roll-up submete	803,710	$5,292.71	Roll-up submete	840,330	$5,497.44	7,460,357	$43,981.58
		Total			$5,117.29	Roll-up submete	887,086	$5,037.57	Roll-up submete	870,583	$5,475.41	Roll-up submete	803,710	$5,292.71	Roll-up submete	840,330	$5,497.44	7,460,357	$43,981.58
NorthTH-Condo OCSCC 1010	Res-NTH-Condo	E909M00	[TH-Total] Virtual Meter Total of Townhomes	100	$1,883.68	27,995,380	369,430	$2,097.91	28,353,920	358,540	$2,254.99	28,716,020	362,100	$2,384.56	29,090,990	374,970	$2,453.05	4,732,380	$26,802.39
		Total			$1,883.68	.	369,430	$2,097.91	.	358,540	$2,254.99	.	362,100	$2,384.56	.	374,970	$2,453.05	4,732,380	$26,802.39
A-Retail Trinity	Ret-A-Retail (needs electrician)	E911M00	[E160M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	$138.20	5,149,300	**32,238**	$183.08	5,186,402	37,102	$233.35	5,220,800	34,398	$226.52	5,261,700	40,900	$267.57	601,387	$3,350.98
		Total			$138.20	.	**32,238**	$183.08	.	37,102	$233.35	.	34,398	$226.52	.	40,900	$267.57	601,387	$3,350.98
B-Retail Trinity	Ret-B-Retail	E912M00	[E162M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	$6,664.23	66,796,200	**943,900**	$5,360.20	67,075,231	**279,031**	$1,754.93	67,353,700	278,469	$1,833.82	67,727,900	**374,200**	$2,448.02	7,387,900	$42,372.45
		Total			$6,664.23	.	**943,900**	$5,360.20	.	**279,031**	$1,754.93	.	278,469	$1,833.82	.	**374,200**	$2,448.02	7,387,900	$42,372.45
C-Retail Trinity	Ret-C-Retail	E913M00	[E137M04] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	$4,734.19	74,534,600	730,200	$4,146.65	75,228,940	694,340	$4,366.96	75,975,700	746,760	$4,917.68	76,743,900	768,200	$5,025.57	10,516,500	$59,602.17
		Total			$4,734.19	.	730,200	$4,146.65	.	694,340	$4,366.96	.	746,760	$4,917.68	.	768,200	$5,025.57	10,516,500	$59,602.17
D-Retail Trinity	Ret-D-Retail	E914M00	[E156M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	$2,582.73	34,860,900	472,600	$2,683.79	35,332,900	472,000	$2,968.58	35,831,000	498,100	$3,280.16	36,353,400	522,400	$3,417.54	6,534,700	$37,029.98
		Total			$2,582.73	.	472,600	$2,683.79	.	472,000	$2,968.58	.	498,100	$3,280.16	.	522,400	$3,417.54	6,534,700	$37,029.98
G-Retail Trinity	Ret-G-Retail	E915M00	[E139M08] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	$7,347.69	118,405,300	1,435,700	$8,153.03	119,670,300	1,265,000	$7,956.05	120,799,000	1,128,700	$7,432.89	122,073,100	1,274,100	$8,335.17	16,032,022	$91,064.33
		E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G	-100	-$807.95	13,921,030	**-184,620**	-$1,048.42	13,982,850	**-61,820**	-$388.81	13,982,850	**0**	$0.00	13,982,850	0	$0.00	-939,320	-$5,365.29
		Total			$6,539.74	.	1,251,080	$7,104.61	.	1,203,180	$7,567.24	.	1,128,700	$7,432.89	.	1,274,100	$8,335.17	15,092,702	$86,025.02
H-Retail Trinity	Ret-H-Retail	E916M00	[E155M02] 1st-Flr_Tenants 1.5in T-10 and [E154M0	100	$6,846.63	99,992,100	**996,700**	$5,660.04	101,073,300	1,081,200	$6,800.06	102,043,300	970,000	$6,387.79	103,077,400	1,034,100	$6,765.08	16,837,300	$94,620.57
		Total			$6,846.63	.	**996,700**	$5,660.04	.	1,081,200	$6,800.06	.	970,000	$6,387.79	.	1,034,100	$6,765.08	16,837,300	$94,620.57
J-Retail Trinity	Ret-J-Retail	E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Lev	100	$3,104.39	67,414,600	609,560	$3,461.56	67,989,980	575,380	$3,618.77	68,618,230	628,250	$4,137.25	69,201,250	583,020	$3,814.12	7,914,940	$44,591.87
		Total			$3,104.39	.	609,560	$3,461.56	.	575,380	$3,618.77	.	628,250	$4,137.25	.	583,020	$3,814.12	7,914,940	$44,591.87
Stadium OSEG Stadium	Stad-OSEG	No Reader	[No Meter] North Stad 4in HPT (4in pipe) in North	100	$28,601.81	1,150,723,000	4,460,000	$25,327.38	1,154,021,000	**3,298,000**	$20,742.32	1,158,023,000	**4,002,000**	$26,354.57	1,161,290,000	3,267,000	$21,372.72	45,129,000	$262,105.50
		No Reader	[No Meter] South Stad 2in T-10 (4in pipe) in Urban	100	$7,087.27	75,353,000	**1,624,000**	$9,222.35	75,828,000	**475,000**	$2,987.45	75,990,000	**162,000**	$1,066.83	76,080,000	**90,000**	$588.78	8,021,000	$45,884.82
		E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Lev	-100	-$3,104.39	67,414,600	-609,560	-$3,461.56	67,989,980	-575,380	-$3,618.77	68,618,230	0	$0.00	69,201,250	0	$0.00	-5,978,740	-$33,740.79
		Total			$32,584.69	.	5,474,440	$31,088.16	.	3,197,620	$20,111.00	.	4,164,000	$27,421.40	.	3,357,000	$21,961.50	47,171,260	$274,249.53
Stadium Public Realm	Stad-PubRealm	E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G	100	$807.95	13,921,030	**184,620**	$1,048.42	13,982,850	**61,820**	$388.81	13,982,850	**0**	$0.00	13,982,850	0	$0.00	939,320	$5,365.29
		E922M00	[E252M06] 1in Dwyer (1.5in pipe) in Garage Bldg I	100	$323.70	8,156,710	57,874	$328.65	8,181,175	**24,465**	$153.87	8,181,176	**2**	$0.01	8,181,176	**0**	$0.00	346,134	$1,977.97
		E923M00	[E213M05] 0.75" Dwyer WMT2-A-C-03 in Garage N	100	$276.64	2,037,986	**26,803**	$152.21	2,058,121	**20,135**	$126.64	2,058,121	**0**	$0.00	2,058,121	0	$0.00	279,261	$1,595.90
		Total			$1,408.29	.	269,297	$1,529.28	.	**106,420**	$669.32	.	**2**	$0.01	.	**0**	$0.00	1,564,715	$8,939.16
City Total			**City Total**		$19,653.03		**2,410,087**	$13,686.36		**924,238**	$5,812.87		**310,064**	$2,041.88		**277,800**	$1,817.37	**17,242,529**	$98,406.18
Office Total			**Office Total**		$3,824.76		**747,170**	$4,243.02		**549,940**	$3,458.77		**512,220**	$3,373.15		**656,880**	$4,297.31	**12,869,360**	$74,238.50
Residential Total			**Residential Total**		$9,588.10		**1,652,416**	$9,383.71		**1,559,123**	$9,805.89		**1,504,710**	$9,909.04		**1,539,200**	$10,069.45	**17,115,837**	$98,506.46
Retail Total			**Retail Total**		$30,610.11		**5,036,278**	$28,599.94		**4,342,233**	$27,309.89		**4,284,677**	$28,216.10		**4,596,920**	$30,073.06	**64,885,428**	$367,267.06
Stadium / OSEG Total			**Stadium / OSEG Total**		$33,992.98		**5,743,737**	$32,617.44		**3,304,040**	$20,780.31		**4,164,002**	$27,421.41		**3,357,000**	$21,961.50	**48,735,975**	$283,188.69
Metered Total					$97,668.93		15,589,688	$88,530.48		10,679,575	$67,157.74		10,775,672	$70,961.58		10,427,800	$68,218.69	160,849,328	$921,932.87
City Main Utility Meter1			**City Account 1of4 (0270300 - 10077975)**		**$32,371.63**	**587,548,000**	**7,394,000**	**$31,494.07**	**594,033,000**	**6,485,000**	**$27,621.73**	**599,997,000**	**5,964,000**	**$25,402.27**	**605,971,000**	**5,974,000**	**$25,444.87**	**75,833,000**	**$322,478.14**
City Main Utility Meter2			**City Account 2of4 (0270300 - 10077976)**		**$9,214.27**	**137,238,000**	**2,140,000**	**$9,112.03**	**139,362,000**	**2,124,000**	**$9,043.87**	**141,423,000**	**2,061,000**	**$8,775.49**	**143,460,000**	**2,037,000**	**$8,673.25**	**23,746,000**	**$100,947.77**
City Main Utility Meter3			**City Account 3of4 (0270300 - 10077977)**		**$25,041.39**	**101,642,000**	**1,168,000**	**$23,418.33**	**102,017,000**	**375,000**	**$20,040.15**	**102,235,000**	**218,000**	**$19,371.33**	**102,566,000**	**331,000**	**$19,852.71**	**10,429,000**	**$252,184.64**
City Main Utility Meter4			**City Account 4of4 (0270300 - 10077978)**		**$28,204.78**	**316,745,000**	**4,311,000**	**$21,231.16**	**318,257,000**	**1,512,000**	**$9,307.42**	**319,174,000**	**917,000**	**$6,772.72**	**320,166,000**	**992,000**	**$7,092.22**	**38,588,000**	**$198,400.92**
City Mains Total					$94,832.07		15,013,000	$85,255.59		10,496,000	$66,013.17		9,160,000	$60,321.81		9,334,000	$61,063.05	148,596,000	$874,011.47
% Difference Submeter to Mains							**3.7%**			**1.7%**			**15.0%**			**10.5%**		**14.8%**	

Carma Metering Report - MM0781 - Lansdowne Stadium - Water - 2024

Less than 20% of previous month | More than 20% of previous month

Tenant Name	Tenant Number	CARMA Plus Meter Number	Service Description [Real Meter]	Percentage (%)	January			February			March			April			May			June			July			August			September		
					End Read Date: Feb.4		Rate $/unit	End Read Date: Mar.5		Rate $/unit	End Read Date:Apr.4		Rate $/unit	End Read Date: May3		Rate $/unit	End Read Date: Jun.2		Rate $/unit	End Read Date: Jul.2		Rate $/unit	End Read Date: Aug.1		Rate $/unit	End Read Date: Aug.31		Rate $/unit	End Read Date: Sep.30		Rate $/unit
					Units = Litres		$0.0067	Units = Litres		$0.0064	Units = Litres		$0.0067	Units = Litres		$0.0064	Units = Litres		$0.0058	Units = Litres		$0.0053	Units = Litres		$0.0055	Units = Litres		$0.0058	Units = Litres		$0.0060
					Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost
City-Ottawa-Aberdeen	City-Aber	No Reader	[No Meter] 1" Mdl-70-Badger in Aberdeen SE Fire Room	100	35,196,700	38,700	$258.09	35,328,400	131,700	$848.58	35,408,100	79,700	$531.56	35,492,000	83,900	$538.47	35,746,400	254,400	$1,480.11	35,920,900	174,500	$925.27	36,019,600	98,700	$543.06	36,121,000	101,400	$592.55	36,244,400	123,400	$735.37
			Total		.	38,700	$258.09	.	131,700	$848.58	.	79,700	$531.56	.	83,900	$538.47	.	254,400	$1,480.11	.	174,500	$925.27	.	98,700	$543.06	.	101,400	$592.55	.	123,400	$735.37
City-Ottawa-Horticulture	City-Hort	E249M01	[E249M01] 1.5in T-10 (2.5in pipe) in Horticulture 1st Fl Mechanical Room	100	12,076,400	63,800	$425.48	12,163,300	86,900	$559.92	12,234,800	71,500	$476.87	12,319,000	84,200	$540.40	12,445,800	126,800	$737.73	12,593,400	147,600	$782.64	12,694,200	100,800	$554.61	12,783,200	89,000	$520.09	12,886,800	103,600	$617.37
			Total		.	63,800	$425.48	.	86,900	$559.92	.	71,500	$476.87	.	84,200	$540.40	.	126,800	$737.73	.	147,600	$782.64	.	100,800	$554.61	.	89,000	$520.09	.	103,600	$617.37
City-Ottawa-Plaza	City-Plaza	E249M02	[E249M02] 3in HPT (3in pipe) in Garage Room P161	100	2,362,700	0	$0.00	2,362,700	0	$0.00	2,362,700	0	$0.00	2,364,000	1,300	$8.34	2,379,300	15,300	$89.02	2,393,500	14,200	$75.29	2,405,500	12,000	$66.03	2,414,400	8,900	$52.01	2,427,400	13,000	$77.47
			Total		.	0	$0.00	.	0	$0.00	.	0	$0.00	.	1,300	$8.34	.	15,300	$89.02	.	14,200	$75.29	.	12,000	$66.03	.	8,900	$52.01	.	13,000	$77.47
City-Ottawa-Serv-Bunk-Ice-Rink	City-Serv-Bunk	No Reader	[No Meter] 2in T-10 (4in pipe) in Urban Park East Court Manhole	100	90,135,137	0	$0.00	90,153,671	18,534	$119.42	90,153,702	31	$0.21	91,228,877	1,075,175	$6,900.47	95,280,237	4,051,360	$23,571.00	98,478,137	3,197,900	$16,956.62	104,001,615	5,523,478	$30,390.80	106,566,599	2,564,984	$14,989.05	108,027,897	1,461,298	$8,708.18
			Total		.	0	$0.00	.	18,534	$119.42	.	31	$0.21	.	1,075,175	$6,900.47	.	4,051,360	$23,571.00	.	3,197,900	$16,956.62	.	5,523,478	$30,390.80	.	2,564,984	$14,989.05	.	1,461,298	$8,708.18
I-Office BTB_REIT	Office-I	E921M00	[E252M02] 2in T-10 (4in pipe) in Garage Bldg I Fire Room P119	100	63,530,010	484,070	$3,228.25	64,041,010	511,000	$3,292.52	64,620,120	579,110	$3,862.36	65,293,274	673,154	$4,320.30	66,067,715	774,441	$4,505.74	66,867,910	800,195	$4,242.97	67,595,080	727,170	$4,000.97	68,240,480	645,400	$3,771.54	68,881,310	640,830	$3,818.84
			Total		.	484,070	$3,228.25	.	511,000	$3,292.52	.	579,110	$3,862.36	.	673,154	$4,320.30	.	774,441	$4,505.74	.	800,195	$4,242.97	.	727,170	$4,000.97	.	645,400	$3,771.54	.	640,830	$3,818.84
A-Condo Vibe OCSCC 967	Res-A-Condo	E910M00	[E218M08] 2in T-10 (4in pipe) in Garage Bldg A Fire Room P144B	100	40,746,400	339,200	$2,262.12	41,087,900	341,500	$2,200.38	41,422,700	334,800	$2,232.94	41,725,500	302,800	$1,943.37	42,181,100	455,600	$2,650.70	42,689,300	508,200	$2,694.69	43,228,300	539,000	$2,965.64	43,675,700	447,400	$2,614.48	44,128,200	452,500	$2,696.54
			Total		.	339,200	$2,262.12	.	341,500	$2,200.38	.	334,800	$2,232.94	.	302,800	$1,943.37	.	455,600	$2,650.70	.	508,200	$2,694.69	.	539,000	$2,965.64	.	447,400	$2,614.48	.	452,500	$2,696.54
K-Condo Rideau OCSCC 1003	Res-K-Condo	E919M00	[E213M07] 3in Neg (3in pipe) in Garage Bldg K Water Room P119	100	Roll-up submeter	885,620	$5,906.18	1,404,787,000	790,000	$5,090.20	3,405,591,000	804,000	$5,362.25	3,406,519,000	813,000	$5,217.83	3,407,523,000	1,004,000	$5,841.32	3,408,694,000	1,171,000	$6,209.14	3,409,867,000	1,173,000	$6,453.98	3,411,027,000	1,160,000	$6,778.72	3,412,125,000	1,098,000	$6,543.21
			Total		Roll-up submeter	885,620	$5,906.18	.	790,000	$5,090.20	.	804,000	$5,362.25	.	813,000	$5,217.83	.	1,004,000	$5,841.32	.	1,171,000	$6,209.14	.	1,173,000	$6,453.98	.	1,160,000	$6,778.72	.	1,098,000	$6,543.21
NorthTH-Condo OCSCC 1010	Res-NTH-Condo	E909M00	[TH-Total] Virtual Meter Total of Townhomes	100	29,459,430	368,440	$2,457.12	29,805,130	345,700	$2,227.45	30,181,810	376,680	$2,512.26	30,547,860	366,050	$2,349.31	30,926,520	378,660	$2,203.06	31,344,780	418,260	$2,217.79	31,729,210	384,430	$2,115.18	32,112,640	383,430	$2,240.66	32,489,690	377,050	$2,246.92
			Total		.	368,440	$2,457.12	.	345,700	$2,227.45	.	376,680	$2,512.26	.	366,050	$2,349.31	.	378,660	$2,203.06	.	418,260	$2,217.79	.	384,430	$2,115.18	.	383,430	$2,240.66	.	377,050	$2,246.92
A-Retail Trinity	Ret-A-Retail	E911M00	[E160M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	5,296,700	35,000	$233.41	5,326,700	30,000	$193.30	5,350,100	23,400	$156.07	5,375,700	25,600	$164.30	5,418,100	42,400	$246.69	5,500,700	82,600	$437.98	5,526,700	26,000	$143.05	5,552,600	25,900	$151.35	5,579,400	26,800	$159.71
			Total		.	35,000	$233.41	.	30,000	$193.30	.	23,400	$156.07	.	25,600	$164.30	.	42,400	$246.69	.	82,600	$437.98	.	26,000	$143.05	.	25,900	$151.35	.	26,800	$159.71
B-Retail Trinity	Ret-B-Retail	E912M00	[E162M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	68,022,400	294,500	$1,964.01	68,316,700	294,300	$1,896.26	68,593,900	277,200	$1,848.78	68,937,000	343,100	$2,202.01	69,918,800	981,800	$5,712.16	71,398,400	1,479,600	$7,845.47	73,126,900	1,728,500	$9,510.40	74,649,900	1,523,000	$8,899.99	75,859,400	1,209,500	$7,207.67
			Total		.	294,500	$1,964.01	.	294,300	$1,896.26	.	277,200	$1,848.78	.	343,100	$2,202.01	.	981,800	$5,712.16	.	1,479,600	$7,845.47	.	1,728,500	$9,510.40	.	1,523,000	$8,899.99	.	1,209,500	$7,207.67
C-Retail Trinity	Ret-C-Retail	E913M00	[E137M04] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	77,351,300	607,400	$4,050.74	78,091,500	740,200	$4,769.33	78,774,500	683,000	$4,555.25	79,359,200	584,700	$3,752.60	80,059,000	699,800	$4,071.47	80,988,900	929,900	$4,930.72	82,018,200	1,029,300	$5,663.33	83,059,100	1,040,900	$6,082.73	83,785,500	726,400	$4,328.77
			Total		.	607,400	$4,050.74	.	740,200	$4,769.33	.	683,000	$4,555.25	.	584,700	$3,752.60	.	699,800	$4,071.47	.	929,900	$4,930.72	.	1,029,300	$5,663.33	.	1,040,900	$6,082.73	.	726,400	$4,328.77
D-Retail Trinity	Ret-D-Retail	E914M00	[E156M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	36,833,000	479,600	$3,198.44	37,336,100	503,100	$3,241.62	37,785,600	449,500	$2,997.93	38,268,900	483,300	$3,101.82	38,797,100	528,200	$3,073.09	39,316,600	519,500	$2,754.61	39,765,100	448,500	$2,467.70	40,215,400	450,300	$2,631.43	40,658,400	443,000	$2,639.93
			Total		.	479,600	$3,198.44	.	503,100	$3,241.62	.	449,500	$2,997.93	.	483,300	$3,101.82	.	528,200	$3,073.09	.	519,500	$2,754.61	.	448,500	$2,467.70	.	450,300	$2,631.43	.	443,000	$2,639.93
G-Retail Trinity	Ret-G-Retail	E915M00	[E139M08] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	123,106,400	1,033,300	$6,891.06	124,171,200	1,064,800	$6,860.82	125,256,000	1,084,800	$7,235.04	126,360,200	1,104,200	$7,086.75	127,702,200	1,342,000	$7,807.82	129,204,200	1,502,000	$7,964.24	130,582,100	1,377,900	$7,581.36	131,951,600	1,369,500	$8,002.98	133,307,400	1,355,800	$8,079.50
		E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G 1st Fl Fire Room f.f. E139M08	-100	13,982,850	0	$0.00	13,982,850	0	$0.00	13,982,850	0	$0.00	14,011,540	0	$0.00	14,106,800	0	$0.00	14,312,200	0	$0.00	14,492,460	0	$0.00	14,694,830	0	$0.00	14,900,720	0	$0.00
			Total		.	1,033,300	$6,891.06	.	1,064,800	$6,860.82	.	1,084,800	$7,235.04	.	1,104,200	$7,086.75	.	1,342,000	$7,807.82	.	1,502,000	$7,964.24	.	1,377,900	$7,581.36	.	1,369,500	$8,002.98	.	1,355,800	$8,079.50
H-Retail Trinity	Ret-H-Retail	E916M00	[E155M02] 1st-Flr_Tenants 1.5in T-10 and [E154M01] 2nd-Flr_WholeFoods (4in	100	104,173,200	1,095,800	$7,307.87	105,215,900	1,042,700	$6,718.42	106,172,300	956,400	$6,378.68	107,054,100	881,800	$5,659.39	108,028,700	974,600	$5,670.27	109,038,500	1,009,800	$5,354.39	110,052,800	1,014,300	$5,580.79	111,013,500	960,700	$5,614.06	111,967,100	953,600	$5,682.70
			Total		.	1,095,800	$7,307.87	.	1,042,700	$6,718.42	.	956,400	$6,378.68	.	881,800	$5,659.39	.	974,600	$5,670.27	.	1,009,800	$5,354.39	.	1,014,300	$5,580.79	.	960,700	$5,614.06	.	953,600	$5,682.70
J-Retail Trinity	Ret-J-Retail	E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Level Boiler Room	100	69,853,340	652,090	$4,348.78	70,504,520	651,180	$4,195.74	71,129,660	625,140	$4,169.35	71,755,560	625,900	$4,017.02	72,375,960	620,400	$3,609.52	72,967,730	591,770	$3,137.81	73,538,920	571,190	$3,142.75	74,119,040	580,120	$3,390.06	74,984,230	865,190	$5,155.85
			Total		.	652,090	$4,348.78	.	651,180	$4,195.74	.	625,140	$4,169.35	.	625,900	$4,017.02	.	620,400	$3,609.52	.	591,770	$3,137.81	.	571,190	$3,142.75	.	580,120	$3,390.06	.	865,190	$5,155.85
Stadium OSEG Stadium	Stad-OSEG	No Reader	[No Meter] North Stad 4in HPT (4in pipe) in North Side SE Room	100	1,165,096,000	3,806,000	$25,382.14	1,169,148,000	4,052,000	$26,108.22	1,173,250,000	4,102,000	$27,358.17	1,177,900,000	4,650,000	$29,843.68	1,181,723,000	3,823,000	$22,242.39	1,184,955,000	3,232,000	$17,137.43	1,187,932,000	2,977,000	$16,379.79	1,191,252,000	3,320,000	$19,401.16	1,195,268,000	4,016,000	$23,932.19
		No Reader	[No Meter] South Stad 2in T-10 (4in pipe) in Urban Park East Court Manhole	100	76,135,000	55,000	$366.79	76,213,000	78,000	$502.58	76,386,000	173,000	$1,153.82	77,194,000	808,000	$5,185.74	79,202,000	2,008,000	$11,682.64	81,279,000	2,077,000	$11,013.13	83,607,000	2,328,000	$12,808.92	85,141,000	1,534,000	$8,964.27	86,541,000	1,400,000	$8,342.89
		E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Level Boiler Room	-100	69,853,340	0	$0.00	70,504,520	0	$0.00	71,129,660	0	$0.00	71,755,560	0	$0.00	72,375,960	0	$0.00	72,967,730	0	$0.00	73,538,920	0	$0.00	74,119,040	0	$0.00	74,984,230	0	$0.00
			Total		.	3,861,000	$25,748.94	.	4,130,000	$26,610.80	.	4,275,000	$28,511.99	.	5,458,000	$35,029.42	.	5,831,000	$33,925.02	.	5,309,000	$28,150.56	.	5,305,000	$29,188.71	1,276,393,000	4,854,000	$28,365.43	1,281,809,000	5,416,000	$32,275.09
Stadium Public Realm	Stad-PubRealm	E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G 1st Fl Fire Room f.f. E139M08	100	13,982,850	0	$0.00	13,982,850	0	$0.00	13,982,850	0	$0.00	14,011,540	28,690	$184.13	14,106,800	95,260	$554.23	14,312,200	205,400	$1,089.12	14,492,460	180,260	$991.81	14,694,830	202,370	$1,182.59	14,900,720	205,890	$1,226.94
		E922M00	[E252M06] 1in Dwyer (1.5in pipe) in Garage Bldg I Fire Room P119	100	8,181,176	0	$0.00	8,181,176	0	$0.00	8,181,176	0	$0.00	8,210,489	29,313	$188.13	8,278,222	67,733	$394.07	8,312,690	34,468	$182.76	8,362,584	49,894	$274.52	8,428,863	66,279	$387.32	8,484,588	55,725	$332.07
		E923M00	[E213M05] 0.75" Dwyer WMT2-A-C-03 in Garage Near RB player entrance vent s	100	2,058,121	0	$0.00	2,058,121	0	$0.00	2,058,121	0	$0.00	2,074,981	16,860	$108.21	2,126,060	51,079	$297.18	2,177,589	51,529	$273.23	2,228,362	50,773	$279.36	2,277,866	49,504	$289.29	2,317,199	39,333	$234.39
			Total		.	0	$0.00	.	0	$0.00	.	0	$0.00	.	74,863	$480.47	.	214,071	$1,245.48	.	291,397	$1,545.11	.	280,927	$1,545.69	.	318,153	$1,859.20	.	300,947	$1,793.41
City Total			**City Total**			**102,500**	$683.57		**237,134**	$1,527.92		**151,231**	$1,008.63		**1,244,575**	$7,987.68		**4,447,860**	$25,877.85		**3,534,200**	$18,739.82		**5,734,978**	$31,554.50		**2,764,284**	$16,153.71		**1,701,298**	$10,138.39
Office Total			**Office Total**			**484,070**	$3,228.25		**511,000**	$3,292.52		**579,110**	$3,862.36		**673,154**	$4,320.30		**774,441**	$4,505.74		**800,195**	$4,242.97		**727,170**	$4,000.97		**645,400**	$3,771.54		**640,830**	$3,818.84
Residential Total			**Residential Total**			**1,593,260**	$10,625.42		**1,477,200**	$9,518.03		**1,515,480**	$10,107.45		**1,481,850**	$9,510.51		**1,838,260**	$10,695.08		**2,097,460**	$11,121.62		**2,096,430**	$11,534.80		**1,990,830**	$11,633.86		**1,927,550**	$11,486.68
Retail Total			**Retail Total**			**4,197,690**	$27,994.31		**4,326,280**	$27,875.49		**4,099,440**	$27,341.10		**4,048,600**	$25,983.89		**5,189,200**	$30,191.00		**6,115,170**	$32,425.22		**6,195,690**	$34,089.39		**5,950,420**	$34,772.60		**5,580,290**	$33,254.12
Stadium / OSEG Total			**Stadium / OSEG Total**			**3,861,000**	$25,748.94		**4,130,000**	$26,610.80		**4,275,000**	$28,511.99		**5,532,863**	$35,509.89		**6,045,071**	$35,170.50		**5,600,397**	$29,695.67		**5,585,927**	$30,734.41		**5,172,153**	$30,224.62		**5,716,947**	$34,068.49
Metered Total						10,238,520	$68,280.50		10,681,614	$68,824.77		10,620,261	$70,831.52		12,981,042	$83,312.26		18,294,833	$106,440.17		18,147,422	$96,225.31		20,340,195	$111,914.07		16,523,087	$96,556.33		15,566,915	$92,766.53
City Main Utility Meter1	**Bank - 50mm Low Flow**		**City Account 1of4 (0270300 - 10077975)**		**611,806,000**	**5,835,000**	**$24,852.73**	**617,838,000**	**6,032,000**	**$25,691.95**	**623,795,000**	**5,957,000**	**$25,428.99**	**630,370,000**	**6,576,000**	**$28,667.37**	**637,961,000**	**7,590,000**	**$33,088.41**	**646,265,000**	**8,304,000**	**$36,201.45**	**2,578,000**	**2,578,000**	**$11,297.05**	**5,189,000**	**2,611,000**	**$11,379.97**	**7,856,000**	**2,667,000**	**$11,624.13**
City Main Utility Meter2	**Holmwood - 50mm Low Flow**		**City Account 2of4 (0270300 - 10077976)**		**145,514,000**	**2,054,000**	**$8,745.67**	**147,567,000**	**2,053,000**	**$8,741.41**	**149,614,000**	**2,047,000**	**$8,735.39**	**151,719,000**	**2,105,000**	**$9,173.81**	**153,853,000**	**2,134,000**	**$9,300.25**	**155,981,000**	**2,128,000**	**$9,274.09**	**158,075,000**	**2,094,000**	**$9,125.85**	**160,156,000**	**2,081,000**	**$9,069.17**	**162,236,000**	**2,080,000**	**$9,064.81**
City Main Utility Meter3	**Bank - 200mm High Flow**		**City Account 3of4 (0270300 - 10077977)**		**102,809,000**	**243,000**	**$19,477.83**	**103,186,000**	**377,000**	**$20,048.67**	**103,429,000**	**243,000**	**$19,679.39**	**104,076,000**	**647,000**	**$23,259.06**	**105,335,000**	**1,259,000**	**$25,927.38**	**108,299,000**	**2,964,000**	**$33,361.18**	**111,605,000**	**3,306,000**	**$34,852.30**	**113,857,000**	**2,252,000**	**$30,256.86**	**115,735,000**	**1,878,000**	**$28,626.22**
City Main Utility Meter4	**Holmwood - 200mm High Flow**		**City Account 4of4 (0270300 - 10077978)**		**320,876,000**	**710,000**	**$5,890.90**	**322,170,000**	**1,294,000**	**$8,378.74**	**322,886,000**	**716,000**	**$5,934.70**	**324,939,000**	**2,053,000**	**$11,942.96**	**330,020,000**	**5,081,000**	**$25,145.04**	**341,477,000**	**11,457,000**	**$52,944.40**	**354,060,000**	**12,583,000**	**$57,853.76**	**362,902,000**	**8,842,000**	**$41,543.00**	**370,923,000**	**8,021,000**	**$37,963.44**
City Mains Total						8,842,000	$58,967.13		9,756,000	$62,860.77		8,963,000	$59,778.47		11,381,000	$73,043.20		16,064,000	$93,461.08		24,853,000	$131,781.12		20,561,000	$113,128.96		15,786,000	$92,249.00		14,646,000	$87,278.60
% Difference Submeter to Mains						**13.6%**			**8.7%**			**15.6%**			**12.3%**			**12.2%**			**-37.0%**			**-1.1%**			**4.5%**			**5.9%**		

Carma Metering Report - MM0781 - Lansdowne Stadium - Water - 2024

Less than 20% of previous month | **More than 20% of previous month**

Tenant Name	Tenant Number	CARMA Plus Meter Number	Service Description [Real Meter]	Percantage (%)	October			November			December			Total YTD
					End Read Date: Oct.30		Rate $/unit	End Read Date: CNov.1		Rate $/unit	End Read Date: Dec.1		Rate $/unit	
					Units = Litres		$0.0063	Units = Litres		#DIV/0!	Units = Litres		#DIV/0!	Litres
					Reading	Consumption	Cost	Reading	Consumption	Cost	Reading	Consumption	Cost	Consumption
City-Ottawa-Aberdeen	City-Aber	No Reader	[No Meter] 1" Mdl-70-Badger in Aberdeen SE Fire Room	100	36,398,000	153,600	$970.22		-36,398,000	#DIV/0!		0	#DIV/0!	-35,158,000
		Total			36,398,000	153,600	$970.22	0	-36,398,000	#DIV/0!	0	0	#DIV/0!	-35,158,000
City-Ottawa-Horticulture	City-Hort	E249M01	[E249M01] 1.5in T-10 (2.5in pipe) in Horticulture 1st Fl Mechanical Room	100	12,962,800	76,000	$480.06			#DIV/0!			#DIV/0!	950,200
		Total			.	76,000	$480.06			#DIV/0!			#DIV/0!	950,200
City-Ottawa-Plaza	City-Plaza	E249M02	[E249M02] 3in HPT (3in pipe) in Garage Room P161	100	2,434,400	7,000	$44.22			#DIV/0!			#DIV/0!	71,700
		Total			.	7,000	$44.22			#DIV/0!			#DIV/0!	71,700
City-Ottawa-Serv-Bunk-Ice-Rink	City-Serv-Bunk	No Reader	[No Meter] 2in T-10 (4in pipe) in Urban Park East Court Manhole	100	108,986,140	958,243	$6,052.80		-108,986,140	#DIV/0!		0	#DIV/0!	-90,135,137
		Total			108,986,140	958,243	$6,052.80	0	-108,986,140	#DIV/0!	0	0	#DIV/0!	-90,135,137
I-Office BTB_REIT	Office-I	E921M00	[E252M02] 2in T-10 (4in pipe) in Garage Bldg I Fire Room P119	100	69,402,180	520,870	$3,290.11			#DIV/0!			#DIV/0!	6,356,240
		Total			.	520,870	$3,290.11			#DIV/0!			#DIV/0!	6,356,240
A-Condo Vibe OCSCC 967	Res-A-Condo	E910M00	[E218M08] 2in T-10 (4in pipe) in Garage Bldg A Fire Room P144B	100	44,504,700	376,500	$2,378.19			#DIV/0!			#DIV/0!	4,097,500
		Total			.	376,500	$2,378.19			#DIV/0!			#DIV/0!	4,097,500
K-Condo Rideau OCSCC 1003	Res-K-Condo	E919M00	[E213M07] 3in Nep (3in pipe) in Garage Bldg K Water Room P119	100	3,412,936,000	811,000	$5,122.73			#DIV/0!			#DIV/0!	9,709,620
		Total			.	811,000	$5,122.73			#DIV/0!			#DIV/0!	9,709,620
NorthTH-Condo OCSCC 1010	Res-NTH-Condo	E909M00	[TH-Total] Virtual Meter Total of Townhomes	100	32,873,440	383,750	$2,423.98			#DIV/0!			#DIV/0!	3,782,450
		Total			.	383,750	$2,423.98			#DIV/0!			#DIV/0!	3,782,450
A-Retail Trinity	Ret-A-Retail	E911M00	[E160M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	5,604,800	25,400	$160.44			#DIV/0!			#DIV/0!	343,100
		Total			.	25,400	$160.44			#DIV/0!			#DIV/0!	343,100
B-Retail Trinity	Ret-B-Retail	E912M00	[E162M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	76,497,500	638,100	$4,030.60			#DIV/0!			#DIV/0!	8,769,600
		Total			.	638,100	$4,030.60			#DIV/0!			#DIV/0!	8,769,600
C-Retail Trinity	Ret-C-Retail	E913M00	[E137M04] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	84,418,000	632,500	$3,995.23			#DIV/0!			#DIV/0!	7,674,100
		Total			.	632,500	$3,995.23			#DIV/0!			#DIV/0!	7,674,100
D-Retail Trinity	Ret-D-Retail	E914M00	[E156M05] 1.5in T-10 (4in pipe) in 1st Fl Fire Room	100	41,064,300	405,900	$2,563.89			#DIV/0!			#DIV/0!	4,710,900
		Total			.	405,900	$2,563.89			#DIV/0!			#DIV/0!	4,710,900
G-Retail Trinity	Ret-G-Retail	E915M00	[E139M08] 2in T-10 (4in pipe) in 1st Fl Fire Room	100	134,554,000	1,246,600	$7,874.23			#DIV/0!			#DIV/0!	12,480,900
		E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G 1st Fl Fire Room f.f. E139M08	-100	15,005,280	0	$0.00			#DIV/0!			#DIV/0!	0
		Total			.	1,246,600	$7,874.23			#DIV/0!			#DIV/0!	12,480,900
H-Retail Trinity	Ret-H-Retail	E916M00	[E155M02] 1st-Flr_Tenants 1.5in T-10 and [E154M01] 2nd-Flr_WholeFoods (4in	100	112,984,800	1,017,700	$6,428.37			#DIV/0!			#DIV/0!	9,907,400
		Total			.	1,017,700	$6,428.37			#DIV/0!			#DIV/0!	9,907,400
J-Retail Trinity	Ret-J-Retail	E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Level Boiler Room	100	75,901,250	917,020	$5,792.42			#DIV/0!			#DIV/0!	6,700,000
		Total			.	917,020	$5,792.42			#DIV/0!			#DIV/0!	6,700,000
Stadium OSEG Stadium	Stad-OSEG	No Reader	[No Meter] North Stad 4in HPT (4in pipe) in North Side SE Room	100	1,199,390,000	4,122,000	$26,036.88		-1,199,390,000	#DIV/0!		0	#DIV/0!	-1,161,290,000
		No Reader	[No Meter] South Stad 2in T-10 (4in pipe) in Urban Park East Court Manhole	100	87,678,000	1,137,000	$7,181.93		-87,678,000	#DIV/0!		0	#DIV/0!	-76,080,000
		E917M00	[E133M05] 2in GWF (2in pipe) in Arena Service Level Boiler Room	-100	75,901,250	0	$0.00	0	0	#DIV/0!	0	0	#DIV/0!	0
		Total			1,287,068,000	5,259,000	$33,218.82	0	-1,287,068,000	#DIV/0!	0	0	#DIV/0!	-1,237,370,000
Stadium Public Realm	Stad-PubRealm	E915M01	[E144M02] 1in Mdl-70-Badger (2in pipe) in Bldg G 1st Fl Fire Room f.f. E139M08	100	15,005,280	104,560	$660.46			#DIV/0!			#DIV/0!	1,022,430
		E922M00	[E252M06] 1in Dwyer (1.5in pipe) in Garage Bldg I Fire Room P119	100	8,507,538	22,950	$144.96			#DIV/0!			#DIV/0!	326,362
		E923M00	[E213M05] 0.75" Dwyer WMT2-A-C-03 in Garage Near RB player entrance vent s	100	2,317,202	4	$0.02			#DIV/0!			#DIV/0!	259,081
		Total			.	127,514	$805.45			#DIV/0!			#DIV/0!	1,607,873
City Total			**City Total**			**1,194,843**	$7,547.30		**-145,384,140**	#DIV/0!		**0**	#DIV/0!	**-124,271,237**
Office Total			**Office Total**			**520,870**	$3,290.11		**0**	#DIV/0!		**0**	#DIV/0!	**6,356,240**
Residential Total			**Residential Total**			**1,571,250**	$9,924.90		**0**	#DIV/0!		**0**	#DIV/0!	**17,589,570**
Retail Total			**Retail Total**			**4,883,220**	$30,845.18		**0**	#DIV/0!		**0**	#DIV/0!	**50,586,000**
Stadium / OSEG Total			**Stadium / OSEG Total**			**5,386,514**	$34,024.26		**-1,287,068,000**	#DIV/0!		**0**	#DIV/0!	**-1,235,762,127**
Metered Total						13,556,697	$85,631.76		-1,432,452,140	#VALUE!		0	#VALUE!	-1,285,501,554
City Main Utility Meter1	**Bank - 50mm Low Flow**		**City Account 1of4 (0270300 - 10077975)**		**10,510,000**	**2,654,000**	**$11,567.45**			**$0.00**				**50,804,000**
City Main Utility Meter2	**Holmwood - 50mm Low Flow**		**City Account 2of4 (0270300 - 10077976)**		**164,397,000**	**2,161,000**	**$9,417.97**			**$0.00**				**20,937,000**
City Main Utility Meter3	**Bank - 200mm High Flow**		**City Account 3of4 (0270300 - 10077977)**		**116,950,000**	**1,215,000**	**$25,735.54**			**$0.00**				**14,384,000**
City Main Utility Meter4	**Holmwood - 200mm High Flow**		**City Account 4of4 (0270300 - 10077978)**		**376,864,000**	**5,941,000**	**$28,894.64**			**$0.00**				**56,698,000**
City Mains Total						11,971,000	$75,615.60		1	$0.00		1	$0.00	142,823,000
% Difference Submeter to Mains						**11.7%**			**100.0%**					**13.3%**

Table B1 - 200mm Fire Service Pipe Sizing

WATERMAIN SIZING CALCULATIONS					COMMENTS
Average Day Flow:					
Project Area		Ha			
ADF_{BLDG} =	467,424	L/d	=	5.41 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
ADF_{TOTAL} =	467,424	L/d	=	5.41 L/s	Sum of ADF
Maximum Day Flow:					
Maximum Day Factor =	2.50				
MDF_{BLDG} =	1,168,128	L/d	=	13.52 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
MDF_{TOTAL} =	1,168,128	L/d	=	13.52 L/s	Sum of MDF
Peak Hour Flow:					
Peak Hour Factor =	2.20				
PHF_{BLDG} =	2,568,672	L/d	=	29.73 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
PHF_{TOTAL} =	2,568,672	L/d	=	29.7 L/s	Sum of PHF
Fire Flow =	100	L/s			The FUS (2020) calculated Fire Flow
Max Day + Fire Flow > Peak Hour Flow =	114	L/s	>	29.7 L/s	Max Day + Fire Flow for sizing calculations - Note: No upgrade to existing network Required
Maximum Pressure =	552	kPa			As per City of Ottawa Water Distribution Guidelines
Minimum Pressure =	276	kPa			As per City of Ottawa Water Distribution Guidelines
Minimum Pressure under Fire Flow =	140	kPa			As per City of Ottawa Water Distribution Guidelines
Existing Static Pressure =	481	kPa			Boundary Condition provided by City at Holmwood Ave
Existing Residual Pressure =	415	kPa			Boundary Condition provided by City at Holmwood Ave
Hazen-Williams Equation Parameters					
Design Flow =	114	L/s			MDF + Fire Flow from above
Length =	360	m			Measured (length from the Holmwood Watermain to Building Connection)
C =	110				As per City of Ottawa Water Distribution Guidelines
Inside Diameter of Watermain =	204	mm			Assuming a PVC DR18 Watermain is used.
Solve for Friction Headloss =	26.06	m			Calculated using Hazen Williams Equation
Static Head =	0.50	m			Estimated elevation difference (from boundary connection to building)
Total Headloss =	26.56	m	=	261 kPa	
Residual Pressure for Site =	154	kPa	>	140 kPa	Existing Residual pressure minus total headloss

The residual pressure for the proposed building is calculated by subtracting the total headloss from the residual pressure measured on the connection on Holmwood Ave from City Boundary Condition. The residual pressure for the site is above the minimum pressure for the given pipe size.

To present a conservative scenario, the above calculations assume that the service connection must supply 100% of the building fire sprinkler demand and that the watermain would not be looped or interconnected.

Designed By: Ding Bang Yang, P.Eng.	**Project:** **Lansdowne Park 2.0 Redevelopment - New North Stand**
Checked By: Ding Bang Yang, P.Eng.	**Location:** **1015 Bank Street** **Ottawa, ON**
Project Number: CA0033920.1056	**Dwg. Reference:**

Table B2 - 200mm Domestic Service Pipe Sizing

WATERMAIN SIZING CALCULATIONS						COMMENTS
Average Day Flow:						
Project Area		Ha				
ADF_{BLDG} =	467,424	L/d	=	5.41	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
ADF_{TOTAL} =	467,424	L/d	=	5.41	L/s	Sum of ADF
Maximum Day Flow:						
Maximum Day Factor =	2.50					
MDF_{BLDG} =	1,168,128	L/d	=	13.52	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
MDF_{TOTAL} =	1,168,128	L/d	=	13.52	L/s	Sum of MDF
Peak Hour Flow:						
Peak Hour Factor =	2.20					
PHF_{BLDG} =	2,568,672	L/d	=	29.73	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
PHF_{TOTAL} =	2,568,672	L/d	=	29.7	L/s	Sum of PHF
Maximum Pressure =	552	kPa				As per City of Ottawa Water Distribution Guidelines
Minimum Pressure =	276	kPa				As per City of Ottawa Water Distribution Guidelines
Minimum Pressure under Fire Flow =	140	kPa				As per City of Ottawa Water Distribution Guidelines
Existing Static Pressure =	481	kPa				Boundary Condition provided by City at Holmwood Ave
Existing Residual Pressure =	394	kPa				Boundary Condition provided by City at Holmwood Ave
Hazen-Williams Equation Parameters						
Design Flow =	29.7	L/s				From above - Peak Hour Flow
Length =	360	m				Measured (length from the Holmwood Watermain to Building Connection)
C =	110					As per City of Ottawa Water Distribution Guidelines
Inside Diameter of Watermain =	204	mm				Assuming a PVC DR18 Watermain is used.
Solve for Friction Headloss =	2.18	m				Calculated using Hazen Williams Equation
Static Head =	0.50	m				Estimated elevation difference (from boundary connection to building)
Total Headloss =	2.68	m	=	26	kPa	
Residual Pressure for Site =	368	kPa	>	276	kPa	Existing Residual pressure minus total headloss

The residual pressure for the proposed building is calculated by subtracting the total headloss from the residual pressure measured on the connection on Holmwood Ave from City Boundary Condition. The residual pressure for the site is above the minimum pressure for the given pipe size.

To present a conservative scenario, the above calculations assume that the service connection must supply 100% of the building Peak Hour Flow and that the watermain would not be looped or interconnected.

Designed By: Ding Bang Yang, P.Eng.	**Project:** **Lansdowne Park 2.0 Redevelopment - New North Stand**
Checked By: Ding Bang Yang, P.Eng.	**Location:** **1015 Bank Street** **Ottawa, ON**
Project Number: CA0033920.1056	**Dwg. Reference:**

Table A3 - 200mm Fire Service Pipe Sizing

WATERMAIN SIZING CALCULATIONS					COMMENTS
Average Day Flow:					
Project Area		Ha			
ADF_{BLDG} =	467,424	L/d	=	5.41 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
ADF_{TOTAL} =	467,424	L/d	=	5.41 L/s	Sum of ADF
Maximum Day Flow:					
Maximum Day Factor =	2.50				
MDF_{BLDG} =	1,168,128	L/d	=	13.52 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
MDF_{TOTAL} =	1,168,128	L/d	=	13.52 L/s	Sum of MDF
Peak Hour Flow:					
Peak Hour Factor =	2.20				
PHF_{BLDG} =	2,568,672	L/d	=	29.73 L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
PHF_{TOTAL} =	2,568,672	L/d	=	29.7 L/s	Sum of PHF
Fire Flow =	100.0	L/s			The FUS (2020) calculated Fire Flow
Max Day + Fire Flow > Peak Hour Flow =	113.5	L/s	>	29.73 L/s	Max Day + Fire Flow for sizing calculations - Note: No upgrade to existing network Required
Maximum Pressure =	552	kPa			As per City of Ottawa Water Distribution Guidelines
Minimum Pressure =	276	kPa			As per City of Ottawa Water Distribution Guidelines
Minimum Pressure under Fire Flow =	140	kPa			As per City of Ottawa Water Distribution Guidelines
Existing Static Pressure =	466	kPa			Boundary Condition provided by City at Bank Street
Existing Residual Pressure =	386	kPa			Boundary Condition provided by City at Bank Street
Hazen-Williams Equation Parameters					
Design Flow =	113.5	L/s			MDF + Fire Flow from above
Length =	125	m			Measured (length from the Bank Watermain to Building Connection)
C =	110				As per City of Ottawa Water Distribution Guidelines
Inside Diameter of Watermain =	204	mm			Assuming a PVC DR18 Watermain is used.
Solve for Friction Headloss =	9.05	m			Calculated using Hazen Williams Equation
Static Head =	0.50	m			Estimated elevation difference (from boundary connection to building)
Total Headloss =	9.55	m	=	94 kPa	
Residual Pressure for Site =	292	kPa	>	140 kPa	Existing Residual pressure minus total headloss

The residual pressure for the proposed building is calculated by subtracting the total headloss from the residual pressure measured on the connection on Bank Street from City Boundary Condition. The residual pressure for the site is above the minimum pressure for the given pipe size.

To present a conservative scenario, the above calculations assume that the service connection must supply 100% of the building fire sprinkler demand and that the watermain would not be looped or interconnected.

Designed By: Ding Bang Yang, P.Eng.	**Project:** **Lansdowne Park 2.0 Redevelopment - New North Stand**
Checked By: Ding Bang Yang, P.Eng.	**Location:** **1015 Bank Street** **Ottawa, ON**
Project Number: CA0033920.1056	**Dwg. Reference:**

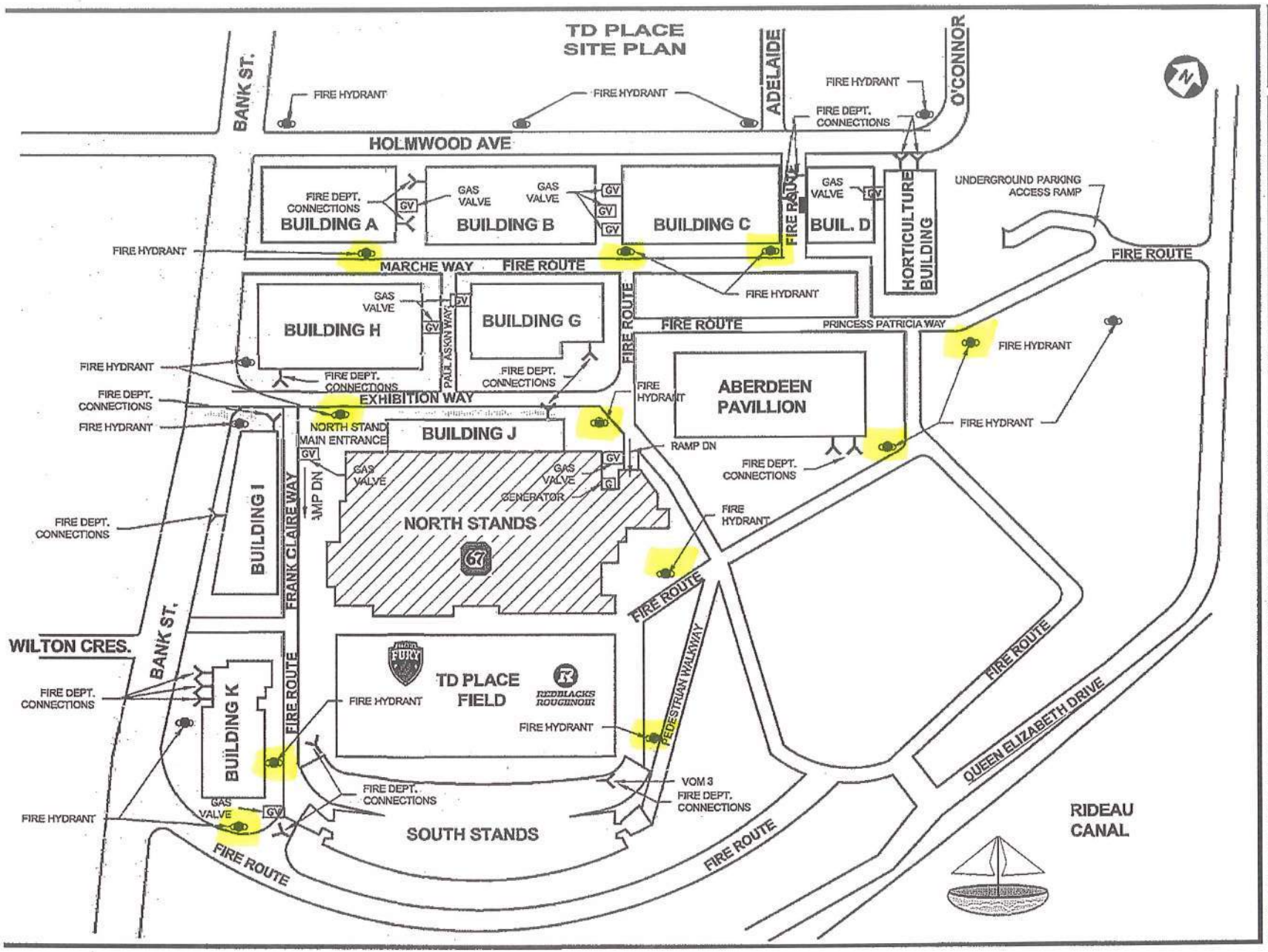
Table A4 - 200mm Domestic Service Pipe Sizing

WATERMAIN SIZING CALCULATIONS						COMMENTS
Average Day Flow:						
Project Area		Ha				
ADF_{BLDG} =	467,424	L/d	=	5.41	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
ADF_{TOTAL} =	467,424	L/d	=	5.41	L/s	Sum of ADF
Maximum Day Flow:						
Maximum Day Factor =	2.50					
MDF_{BLDG} =	1,168,128	L/d	=	13.52	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
MDF_{TOTAL} =	1,168,128	L/d	=	13.52	L/s	Sum of MDF
Peak Hour Flow:						
Peak Hour Factor =	2.20					
PHF_{BLDG} =	2,568,672	L/d	=	29.73	L/s	As per City of Ottawa Water Distribution Guidelines and Existing Consumption Data from Lansdowne 1.0
PHF_{TOTAL} =	2,568,672	L/d	=	29.7	L/s	Sum of PHF
Maximum Pressure =	552	kPa				As per City of Ottawa Water Distribution Guidelines
Minimum Pressure =	276	kPa				As per City of Ottawa Water Distribution Guidelines
Minimum Pressure under Fire Flow =	140	kPa				As per City of Ottawa Water Distribution Guidelines
Existing Static Pressure =	466	kPa				Boundary Condition provided by City at Bank Street
Existing Residual Pressure =	378	kPa				Boundary Condition provided by City at Bank Street
Hazen-Williams Equation Parameters						
Design Flow =	29.7	L/s				From above - Peak Hour Flow
Length =	100	m				Measured (length from the Bank Watermain to Building Connection)
C =	110					As per City of Ottawa Water Distribution Guidelines
Inside Diameter of Watermain =	204	mm				Assuming a PVC DR18 Watermain is used.
Solve for Friction Headloss =	0.76	m				Calculated using Hazen Williams Equation
Static Head =	0.50	m				Estimated elevation difference (from boundary connection to building)
Total Headloss =	1.26	m	=	12	kPa	
Residual Pressure for Site =	365	kPa	>	276	kPa	Existing Residual pressure minus total headloss

The residual pressure for the proposed building is calculated by subtracting the total headloss from the residual pressure measured on the connection on Bank Street from City Boundary Condition. The residual pressure for the site is above the minimum pressure for the given pipe size.

To present a conservative scenario, the above calculations assume that the service connection must supply 100% of the building Peak Hour Flow and that the watermain would not be looped or interconnected.

Designed By: Ding Bang Yang, P.Eng.	**Project:** **Lansdowne Park 2.0 Redevelopment - New North Stand**
Checked By: Ding Bang Yang, P.Eng.	**Location:** **1015 Bank Street** **Ottawa, ON**
Project Number: CA0033920.1056	**Dwg. Reference:**



LEGEND.

- FIRE DEPT. CONNECTION
- FIRE HYDRANT
- GV GAS VALVE
- G GENERATOR

FIRE SAFETY PLAN

SITE PLAN

TD PLACE NORTH STANDS
OTTAWA, ONTARIO

NOT TO SCALE

MAY 2014

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Apartment Facing Field** **Hydrant Type: DARLING**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **68 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **39 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 875**
Gallons Per Minute at 20 PSI: **2689**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Back Entrance** **Hydrant Type: McAvity**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **44 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 929**
Gallons Per Minute at 20 PSI: **2499**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Behind Apartment (Bank St)** **Hydrant Type: DARLING**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**61 PSI**
Flowing Hydrant Pitot Pressure: **41 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 897**
Gallons Per Minute at 20 PSI: **2264**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Behind Apartment (Parkway)** **Hydrant Type: DARLING**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **38 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 863**
Gallons Per Minute at 20 PSI: **2323**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Box Office** **Hydrant Type: McAvity**

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **Buried**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **68 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **42 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 908**
Gallons Per Minute at 20 PSI: **2790**
Color Code: BLUE

Remarks: OK
Isolation valve-could not locate

HYDRANTS-R-US Inc.

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53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Cattle Castle** **Hydrant Type: McAvity**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **38 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 863**
Gallons Per Minute at 20 PSI: **2323**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Cineplex** **Hydrant Type: DARLING**

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **66 PSI**
Residual Hydrant Flowing Pressure:**61 PSI**
Flowing Hydrant Pitot Pressure: **38 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 86**
Gallons Per Minute at 20 PSI: **2739**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

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53 Forest Creek Drive
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613-804-0088
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Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Field Entrance** **Hydrant Type: McAvity**

Paint: **Paint to code**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **Partially Paved over**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**60 PSI**
Flowing Hydrant Pitot Pressure: **39 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 875**
Gallons Per Minute at 20 PSI: **2086**
Color Code: BLUE

Remarks: OK

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Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **On Field** **Hydrant Type: McAvity**

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **70 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **43 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 918**
Gallons Per Minute at 20 PSI: **2471**
Color Code: BLUE

Remarks: OK

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Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Goodlife** **Hydrant Type: Darling**

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **67 PSI**
Residual Hydrant Flowing Pressure:**60 PSI**
Flowing Hydrant Pitot Pressure: **37 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 852**
Gallons Per Minute at 20 PSI: **2382**
Color Code: BLUE

Remarks: OK

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53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Milestones** **Hydrant Type: DARLING**

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **OK**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **67 PSI**
Residual Hydrant Flowing Pressure:**62 PSI**
Flowing Hydrant Pitot Pressure: **34 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 817**
Gallons Per Minute at 20 PSI: **2739**
Color Code: BLUE

Remarks: OK

HYDRANTS-R-US Inc.

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53 Forest Creek Drive
K2S 1M1
613-804-0088
dalton@hydrantsrus.com

Sept 20th 2022

HYDRANT INSPECTION REPORT

Owner: **Ottawa Sports and Entertainment Group (TD PLACE)**

Hydrant Location: **Sporting Life**

Hydrant Type: DARLING

Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **Partially Paved Over**
Flow test: **Complete**
Caps:**OK**

Residual Hydrant Static Pressure: **65 PSI**
Residual Hydrant Flowing Pressure:**58 PSI**
Flowing Hydrant Pitot Pressure: **41 PSI**

Number of Ports Flowed: **1**
Nozzle Size: **2 ½ in.**

Gallons Per Minute**: 897**
Gallons Per Minute at 20 PSI: **2450**
Color Code: BLUE

Remarks: OK

BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING G
BUILDING H
ABERDEEN SQUARE
HOLMWOOD AVE
MARCHE WAY
PRINCESS PATRICIA WAY
BANK ST
PAUL ASKIN WAY
EXHIBITION WAY
FRANK CLAIR LN
COMMERCIAL / RESIDENTIAL BLOCK
NEW NORTH PROPERTY LINE
NORTH STANDS
SOUTH STANDS
FOOTBALL FIELD
PLAYING FIELD
ELEVATED WALKWAY
EVENT CENTRE
GREAT LAWN
QUEEN ELIZABETH DRIVEWAY
RIDEAU CANAL WESTERN PATHWAY
HYDRANT CONSIDERED TO MEET PROPOSED EVENT CENTRE'S REQUIRED FIRE FLOW
HYDRANT CONSIDERED TO MEET PROPOSED EVENT CENTRE'S REQUIRED FIRE FLOW

LEGEND

- FIRE HYDRANT
- HYDRANT COVERAGE (75m RADIUS)

Meters
22.5 0 22.5 45
1:750

DATE PLOTTED:

Ottawa

OSEG
Ottawa Sports and Entertainment Group

BRISBIN BROOK BEYNON ARCHITECTS
14 DUNCAN ST 4TH FLOOR
TORONTO, ON M5H 3G8
(416) 591-8999
ARCHITECT

ENTUITIVE
135 LAURIER AVE WEST, SUITE 413
OTTAWA, ON K1P 5J2
(343) 308-9274
STRUCTURAL ENGINEER

ТИР
200 KING. ST. WEST, SUITE 310
TORONTO, ON M5H 3T4
(416) 499-8000
MECH, PLUMB, FIRE PROTECTION ENGINEER

MULVEY & BANANI
90 SHEPPARD AVE EAST, SUITE 500
TORONTO, ON M2N 3A
(416) 751-2520
ELEC, LIGHTING ENGINEER

S2O
530 N. WOOD STREET #C
CHICAGO, IL 60622
(224) 717-1999
FOOD AND BEVERAGE

CSW
319 MCRAE AVENUE, SUITE 502
OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

wsp
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

NO.	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

DRAWN	J.T
DATE	2024/08/07
CHECKED	W.Y

LANSDOWNE EC

DWG. TITLE
HYDRANT COVERAGE SKETCH

SCALE	1:750
DWG. NO.	F01
PROJ. NO.	CA0033920.1056

APPENDIX

C

- STORM SEWER DESIGN SHEET
- DWG C06 – STORM DRAINAGE AREA PLAN
- EXISTING STORM SEWER DESIGN SHEET AND DRAINAGE AREA PLAN BY WSP
- EXISTING SANITARY DESIGN SHEET BY WSP AND DSEL
- DWG C03 – GRADING PLAN
- DWG C04 – SERVICING PLAN

STORM SEWER DESIGN SHEET
LANSDOWNE 2.0
REDEVELOPMENT
CITY OF OTTAWA
Project: CA0033920.1056
Date: September 2025

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
BLDG FLOW	AREA ID	FROM	TO	C= 0.20	C= 0.35	C= 0.75	C= 0.85	C= 0.90	C= 1.00	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	BLDG FLOW (L/s)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	ICD FIXED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (5yr) (L/s)	AVAIL CAP (5yr) (%)
Lansdowne 2.0 - New North Side Stands																															
	NS R1	Roof	*Ex. 825mm CONC. STM*	0.000				0.356		0.891	0.891	10.00	10.02	76.81	104.19	178.56			92.81			92.81		PVC	350.0	1.00	1.84	146.01	1.52	0.02	53.21	36.44%
	NS R2	Roof	*Ex. 825mm CONC. STM*	0.000				0.274		0.686	0.686	10.00	10.03	76.81	104.19	178.56			71.43			71.43		PVC	350.0	1.00	2.78	146.01	1.52	0.03	74.58	51.08%
	NS 4-1, A3-1, A4-1	ACO Trench Drain CB01	*Ex. 825mm CONC. STM*				0.373	0.036		0.297	0.297	10.00	10.04	76.81	104.19	178.56			30.94			30.94		PVC	250.0	2.00	3.75	84.18	1.71	0.04	53.24	63.25%
	NS 4-2, A3-2, A4-2	ACO Trench Drain CB02	*Ex. 825mm CONC. STM*				0.113	0.015		0.305	0.305	10.00	10.04	76.81	104.19	178.56			31.73			31.73		PVC	200.0	2.00	3.76	46.43	1.48	0.04	14.70	31.66%
	NS 4-3, A3-3, A4-3	ACO Trench Drain CB03	*Ex. 825mm CONC. STM*				0.128	0.016		0.342	0.342	10.00	10.04	76.81	104.19	178.56			35.69			35.69		PVC	200.0	2.00	3.80	46.43	1.48	0.04	10.75	23.14%
	NS 4-4, A3-4, A4-4	ACO Trench Drain CB04	*Ex. 825mm CONC. STM*				0.135	0.017		0.362	0.362	10.00	10.04	76.81	104.19	178.56			37.67			37.67		PVC	200.0	2.00	3.84	46.43	1.48	0.04	8.76	18.87%
	NS 4-5, A3-5, A4-5	ACO Trench Drain CB05	*Ex. 825mm CONC. STM*				0.120	0.016		0.324	0.324	10.00	10.04	76.81	104.19	178.56			33.72			33.72		PVC	200.0	2.00	3.97	46.43	1.48	0.04	12.71	27.38%
	NS 4-6, A3-6, A4-6	ACO Trench Drain CB06	*Ex. 825mm CONC. STM*				0.127	0.017		0.343	0.343	10.00	10.05	76.81	104.19	178.56			35.70			35.70		PVC	200.0	2.00	4.06	46.43	1.48	0.05	10.73	23.11%
	NS 4-7, A3-7, A4-7	ACO Trench Drain CB07	*Ex. 825mm CONC. STM*				0.305	0.034		0.806	0.806	10.00	10.03	76.81	104.19	178.56			83.96			83.96		PVC	250.0	3.00	4.20	103.10	2.10	0.03	19.15	18.57%

Definition:
Q=2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall Intensity in millimeters per hour (mm/hr)
i = 732.951/(TC+6.199)^0.810 — 2 Year
i = 1174.184/(TC+6.014)^0.816 — 5 Year
i = 1735.688/(TC+6.014)^0.820 — 100 Year

Notes:
1. Mannings coefficient (n) = 0.013

Time-of-Concentration in the Swale
FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^.33]
Where: Longest Watercourse Length, L (m). S (%)
Runoff Coef.C = Impervious

No.	L (m)	S %	Tc (min)

Designed: Z.A.
Checked: D.B.Y.
Dwg. Reference: C05

No.	Revision	Date
1.	City Submission No. 1	2024-12-19
2.	City Submission No. 2	2025-02-28
3.	City Submission No. 3	2025-09-24

File Reference: CA0043476.7969
Date: 2025-09-24
Sheet No: 1 of 1

STORM SEWER DESIGN SHEET
LANSDOWNE 2.0
REDEVELOPMENT
CITY OF OTTAWA
Project: CA0033920.1056
Date: September 2025

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
BLDG FLOW	AREA ID	FROM	TO	C= 0.20	C= 0.35	C= 0.75	C= 0.85	C= 0.90	C= 1.00	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	BLDG FLOW (L/s)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	ICD FIXED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
Lansdowne 2.0																															
+106 l/s	*S. STANDS 1 & S. STANDS 2*	*Ex. STM 120*	*Ex. STM 119*							0.000	0.000	20.00	21.24	52.03	70.25	119.95			0.00			0.00	106.00	CONC	*450.0*	*0.20*	*59.60*	127.63	0.80	1.24	21.63	16.95%
		Ex. STM 119	*Ex. STM 118*							0.000	0.000	21.24	22.48	50.12	67.64	115.46			0.00			0.00	106.00	CONC	*450.0*	*0.20*	*59.60*	127.63	0.80	1.24	21.63	16.95%
+106 l/s		*Ex. STM 118*	*Ex. STM 117*							0.000	0.000	22.48	22.63	48.36	65.24	111.33			0.00			0.00	212.00	CONC	*600.0*	*0.20*	*8.70*	274.87	0.97	0.15	62.87	22.87%
		Ex. STM 117	STMH 208							0.000	0.000	22.63	22.90	48.16	64.97	110.85			0.00			0.00	212.00	CONC	600.0	0.20	15.83	274.87	0.97	0.27	62.87	22.87%
+232.6 l/s	A3-1 to A3-7, A4-1 to A4-7, A5, BLDG I, K, N. STANDS AREAS (NS R1, NS R2, NS 4-1 to NS 4-7)	*Ex. STM 115*	*Ex. STM 114*				1.135	0.367		3.600	3.600	20.00	21.02	52.03	70.25	119.95			252.92			252.92	485.52	CONC	*825.0*	*0.20*	*73.70*	642.59	1.20	1.02	157.07	24.44%
		Ex. STM 114	STMH 209							0.000	3.600	21.02	22.06	50.44	68.08	116.22			245.12			245.12	477.72	CONC	*825.0*	*0.20*	*74.50*	642.59	1.20	1.03	164.88	25.66%
		SMH209	STMH220							0.000	3.600	22.06	22.13	48.94	66.04	112.69			237.75			237.75	470.35	CONC	900.0	0.10	4.11	573.05	0.90	0.08	102.70	17.92%
		STMH220	STMH218							0.000	3.600	22.13	22.30	48.83	65.89	112.44			237.23			237.23	469.83	CONC	900.0	0.10	9.00	573.05	0.90	0.17	103.22	18.01%
	NEC 1, NEC 3, A3-8	STMH218	STMH 208	0.000				0.466		1.166	4.766	22.30	23.40	48.60	65.58	111.90			312.55			312.55	545.15	CONC	900.0	0.10	59.61	573.05	0.90	1.10	27.90	4.87%
$Q_{bldg\ Tot}$ = 444.6 l/s		STMH 208	STMH221							0.000	4.766	23.40	23.56	47.13	63.57	108.45			302.98			302.98	747.58	CONC	1050.0	0.10	9.39	864.40	1.00	0.16	116.82	13.51%
		STMH221	STMH207							0.000	4.766	23.56	23.75	46.93	63.29	107.97			301.67			301.67	746.27	CONC	1050.0	0.10	11.58	864.40	1.00	0.19	118.13	13.67%
		STMH 207	STMH 206							0.000	4.766	23.75	24.18	46.68	62.96	107.40			300.08			300.08	744.68	CONC	1050.0	0.10	25.72	864.40	1.00	0.43	119.72	13.85%
		STMH 206	STMH 205							0.000	4.766	24.18	24.59	46.15	62.23	106.14			296.60			296.60	741.20	CONC	1050.0	0.10	24.23	864.40	1.00	0.40	123.20	14.25%
	NEC 2	STMH 205	STMH 204	0.000				0.353		0.883	5.649	24.59	25.04	45.65	61.56	104.99			347.78			347.78	792.38	CONC	1050.0	0.10	27.23	864.40	1.00	0.46	72.03	8.33%
		STMH 204	STMH 203							0.000	5.649	25.04	25.55	45.12	60.83	103.73			343.63			343.63	788.23	CONC	1050.0	0.10	30.18	864.40	1.00	0.50	76.17	8.81%
	Great Lawn 5a and 5b	STMH 203	STMH 202	0.090				0.024		0.110	5.759	25.55	26.22	44.53	60.03	102.37			345.77			345.77	790.37	CONC	1050.0	0.10	40.34	864.40	1.00	0.67	74.04	8.57%
	Great Lawn 6, A-1, A-2, D, D1-1, D1-2	*Ex. STMD*	CBMH 210	1.214				0.638		2.271	2.271	20.00	21.00	52.03	70.25	119.95			159.56			159.56		CONC	600.0	0.07	34.44	162.62	0.57	1.00	3.06	1.88%
	Great Lawn 4	CBMH 210	STMH 202	0.160				0.024		0.149	2.420	21.00	21.52	50.48	68.13	116.30			164.90			164.90		CONC	600.0	0.10	21.34	194.36	0.69	0.52	29.47	15.16%
$Q_{bldg\ Tot}$ = 444.6 l/s		CBMH 202	CHAMBER / *Ex. Chamber*							0.000	8.180	26.22	26.22	43.78	59.01	100.61			482.70			482.70	927.30	REFER TO STORMTECH DESIGN								
	OPGG5, Great Lawn 3	CHAMBER / *Ex. Chamber*	*Ex. 1350 PIPE*	0.219				0.120		0.422	8.602	26.22	26.22	43.78	59.01	100.61			507.60			507.60	952.20	REFER TO STORMTECH DESIGN								
+23.1 l/s	A1, BLDGS H, G, J, J1, J2	*Ex. STM-CCN1*	NEW STMH 212	0.015				0.901		2.263	2.263	20.00	20.20	52.03	70.25	119.95			158.95			158.95	182.05	CONC	600.0	0.21	12.00	281.66	1.00	0.20	99.61	35.36%
	N1	NEW STMH 212	NEW STMH 211	0.000				0.034		0.085	2.348	20.20	20.80	51.71	69.81	119.20			163.90			163.90	187.00	CONC	600.0	0.15	30.00	238.05	0.84	0.59	51.04	21.44%
		NEW STMH 211	*Ex. STM 110*							0.000	2.348	20.80	20.98	50.79	68.55	117.02			160.94			160.94	184.04	CONC	600.0	0.20	11.00	274.87	0.97	0.19	90.83	33.04%
	OPGG1, OPGG4	*Ex. STM 110*	*Ex. STM 109*	0.079				0.222		0.599	2.947	20.98	21.19	50.50	68.16	116.35			200.88			200.88	223.98	CONC	*600.0*	*0.20*	*11.70*	274.87	0.97	0.20	50.89	18.51%
$Q_{bldg\ Tot}$ = 467.7 l/s	OPGG2	*Ex. STM 109*	*Ex. STM 108*	0.065				0.224		0.597	12.145	26.22	27.50	43.78	59.01	100.61			716.72			716.72	1184.42	CONC	*1350.0*	*0.13*	*103.30*	1926.37	1.34	1.28	741.95	38.52%
	102, AA, BB, EE	*Ex. STMDD*	*Ex. STMFF*	1.226				0.778		2.628	2.628	21.70	22.27	49.45	66.73	113.88			175.37			175.37		CONC	*900.0*	*0.10*	*31.00*	573.05	0.90	0.57	397.67	69.40%
	Great Lawn 1 & 2, T1, T2, V1, V2	*Ex. STMFF*	*Ex. STMGG*	0.553				0.258		0.952	3.581	22.27	23.33	48.64	65.62	111.98			234.98			234.98		CONC	*900.0*	*0.10*	*57.00*	573.05	0.90	1.06	338.07	59.00%
		Ex. STMGG	*Ex. STM 108*							0.000	3.581	23.33	23.74	47.23	63.70	108.67			228.08			228.08		CONC	*900.0*	*0.10*	*22.00*	573.05	0.90	0.41	344.97	60.20%
$Q_{bldg\ Tot}$ = 467.7 l/s	OPGG3, 108	*Ex. STM 108*	*Ex. STM 107*	0.143				0.340		0.930	16.656	27.50	28.65	42.43	57.17	97.44			952.27			952.27	1419.97	CONC	*1350.0*	*0.10*	*81.40*	1689.54	1.18	1.15	269.57	15.96%
+34.4 l/s, Qbldg Tot = 502.1 l/s	A2, BLDGS A, B, C, D	*Ex. STM 107*	*Ex. STM 106*	0.049				1.508		3.800	20.456	28.65	28.95	41.29	55.62	94.78			1137.88			1137.88	1639.98	CONC	*1350.0*	*0.10*	*20.70*	1689.54	1.18	0.29	49.56	2.93%
		Ex. STM 106	*Ex. STM 105*																			298.00		CONC	*975.0*	*0.10*	*80.20*	709.40	0.95	1.41	411.40	57.99%
		Ex. STM 105	*Ex. STM 104*																			298.00		CONC	*975.0*	*0.10*	*12.10*	709.40	0.95	0.21	411.40	57.99%
Controlled Flow*		*Ex. STM 104*	*Ex. STM 103*																			298.00		CONC	*975.0*	*0.10*	*19.20*	709.40	0.95	0.34	411.40	57.99%
		Ex. STM 103	*Ex. STM 102*																			298.00		CONC	*975.0*	*0.10*	*54.20*	709.40	0.95	0.95	411.40	57.99%
		Ex. STM 102	*Ex. STM 101*																			298.00		CONC	*975.0*	*0.10*	*24.20*	709.40	0.95	0.42	411.40	57.99%
		Ex. STM 101	*Ex. STM MH (O'Connnor)*																			298.00		CONC	*975.0*	*0.10*	*5.80*	709.40	0.95	0.10	411.40	57.99%

Definition:
Q=2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall Intensity in millimeters per hour (mm/hr)
i = 732.951/(TC+6.199)^0.810 — 2 Year
i = 1174.184/(TC+6.014)^0.816 — 5 Year
i = 1735.688/(TC+6.014)^0.820 — 100 Year

Notes:
1. Mannings coefficient (n) = 0.013

*5-Yr Flow controlled to 298 l/s (refer to SWM report for details)

Time-of-Concentration in the Swale
FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^.33]
Where: Longest Watercourse Length, L (m). S (%)

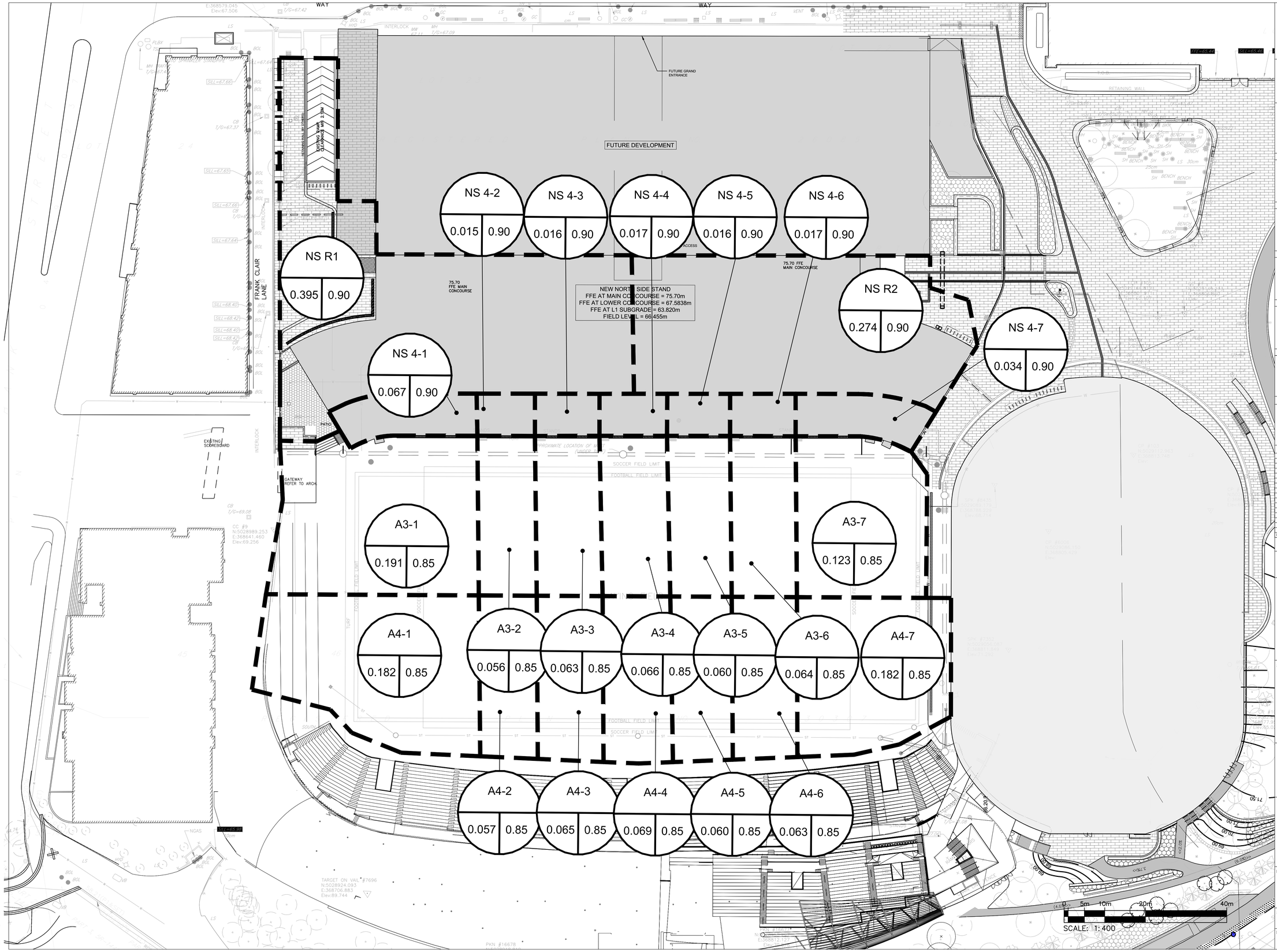
Runoff Coef.C = Impervious

No.	L (m)	S %	Tc (min)
			#DIV/0!

Designed: Z.A.
Checked: D.B.Y.
Dwg. Reference: C05A/C05B

No.	Revision	Date
2.	City Submission No. 2	2023-09-22
3.	City Submission No. 3	2024-08-07
4.	City Submission No. 4	2025-01-14
5.	City Submission No. 5	2025-03-07
6.	City Submission No. 6	2025-06-20
7.	City Submission No. 7	2025-09-24

File Reference: CA0002045.0622
Date: 2025-09-24
Sheet No: 1 of 1



OSEG
Ottawa Sports and Entertainment Group

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OTTAWA, ON K1P 5J2
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STRUCTURAL ENGINEER

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TORONTO, ON M5H 3T4
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MECH, PLUMB, FIRE PROTECTION ENGINEER

MULVEY & BANANI
90 SHEPPARD AVE EAST, SUITE 500
TORONTO, ON M2N 3A
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ELEC, LIGHTING ENGINEER

S2O
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(224) 717-1999
FOOD AND BEVERAGE

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(613) 729-4536
LANDSCAPE ARCHITECT

WSP
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

NO	DESCRIPTION	DATE
12	REVISED PER CITY COMMENTS	2025-09-24
11	REVISED PER CITY COMMENTS	2025-06-20
10	ISSUED FOR PERMIT	2025-06-16
9	ISSUED FOR 100% CD FOR TENDER	2025-06-12
8	ISSUED FOR CD UPDATE	2025-05-09
7	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
6	ISSUED FOR CD UPDATE	2025-03-19
5	ISSUED FOR CD UPDATE	2025-02-28
4	REVISED PER CITY DEFICIENCY COMMENTS	2025-01-22
3	ISSUED FOR CD UPDATE	2025-01-17
2	ISSUED FOR SITE PLAN APPLICATION	2024-11-20
1	ISSUED FOR UDRP	2024-11-19

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

NORTH

DRAWN	J.T
DATE	2025/09/24
CHECKED	W.Y

LANSDOWNE NSS

DWG. TITLE

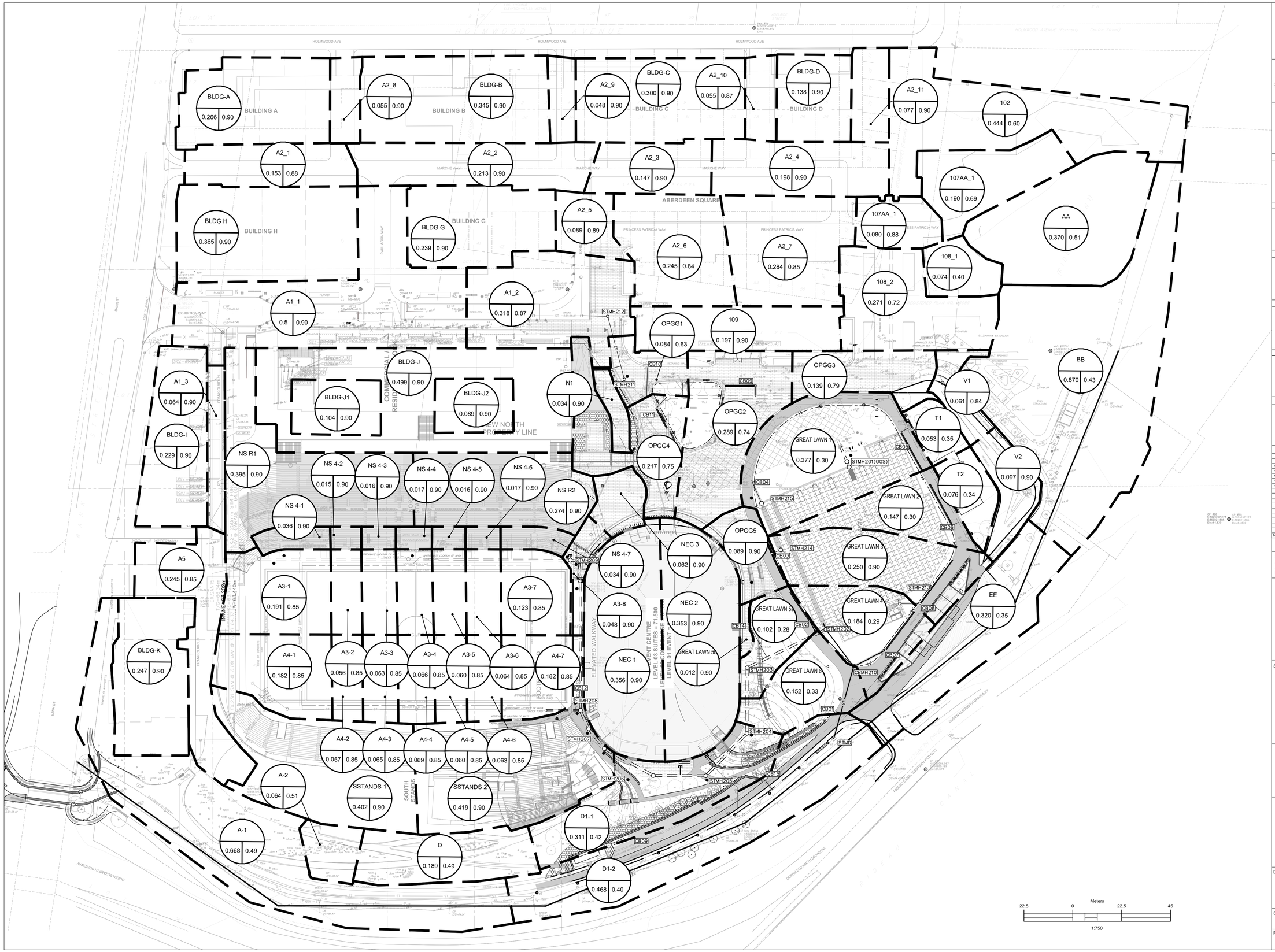
POST DRAINAGE AREA PLAN

SCALE	1:400
DWG. NO.	C06
PROJ. NO.	CA0043476.7969

DATE PLOTTED:

D07-12-24-0178

#19220



DATE PLOTTED:

Ottawa

OSEG
Ottawa Sports and Entertainment Group

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(416) 591-8999
ARCHITECT

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FOOD AND BEVERAGE

CSW
319 MCRAE AVENUE, SUITE 502
OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

wsp
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

NO	DESCRIPTION	DATE
13	REVISED AS PER CITY COMMENTS	2025-09-24
12	REVISED AS PER CITY COMMENTS	2025-06-20
12	ISSUED FOR PERMIT	2025-06-16
11	ISSUED FOR 100% CDS FOR TENDER	2025-06-12
10	ISSUED FOR CD UPDATE	2025-05-09
9	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
8	ISSUED FOR CD UPDATE	2025-03-19
7	REVISED AS PER CITY COMMENTS	2025-03-07
6	ISSUED FOR CD UPDATE	2025-02-28
5	ISSUED FOR CD UPDATE	2025-01-17
4	REVISED AS PER CITY COMMENTS	2025-01-15
3	ISSUED FOR 90% DD - CLASS B ESTIMATE	2024-11-15
2	REVISED AS PER CITY COMMENTS	2024-09-13
1	ISSUED FOR SPA	2024-08-07

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

NORTH

DRAWN	J.T
DATE	2025/09/24
CHECKED	W.Y

LANSDOWNE EVENT CENTRE

945 & 1015 BANK STREET

DWG. TITLE

POST-DRAINAGE AREA PLAN

SCALE	1:750
PROJ. NO.	CA0033920.1056
DWG. NO.	C08

#D07-12-24-0082

#19172

SANITARY SEWER DESIGN SHEET
Lansdowne Redevelopment 2.0
Ottawa, ON
Project: CA0000286.1662
Date: June 2025

LOCATION				RESIDENTIAL AREA AND POPULATION												OTHER				RETAIL		OFFICE		I+C+I	INFILTRATION			TOTAL	PIPE					
LOCATION	FROM M.H.	TO M.H.	SANITARY DRAINAGE AREA ID	INDV AREA (ha)	ACCU AREA (ha)	NUMBER OF UNITS						POPULATION		PEAK FACT.	PEAK FLOW (l/s)	GROSS AREA (ha)	DEVEL. AREA (ha)	PEAK FLOW (l/s)	ACCU. PEAK FLOW (l/s)	INDIV AREA (ha)	ACCU. AREA (ha)	INDIV AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	INDIV AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	**TOTAL FLOW (l/s)**	LENGTH (m)	DIA. (mm)	SLOPE (%)	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)	AVAIL. CAP. (%)
						SINGLES	SEMIS	AVG TOWNS	AVG APT.	2-BED APT.	3-BED APT.	INDIV POP.	ACCU POP.																				
EXISTING DEVELOPMENT																																
South Stands		*Ex.19*										0	0	3.80	0.00			11.60	11.60					11.60	0.000	0.00	0.00	**11.60**	*4.50*	*200*	*1.00*	32.80	1.04	**64.63%**
	Ex.19	*Ex.18*										0	0	3.80	0.00				11.60					11.60	0.000	0.00	0.00	**11.60**	*9.30*	*300*	*0.20*	43.25	0.61	**73.18%**
	Ex.18	*Ex.17*										0	0	3.80	0.00				11.60					11.60	0.000	0.00	0.00	**11.60**	*9.30*	*300*	*0.20*	43.25	0.61	**73.18%**
	Ex.17	*Ex.16*										0	0	3.80	0.00				11.60					11.60	0.000	0.00	0.00	**11.60**	*5.80*	*300*	*0.20*	43.25	0.61	**73.18%**
	Ex.16	*Ex.13*										0	0	3.80	0.00				11.60					11.60	0.000	0.00	0.00	**11.60**	*62.60*	*300*	*0.20*	43.25	0.61	**73.18%**
Bldg K, I, N Stands		*Ex.15*							190			342	342	3.44	3.82			7.60	7.60	0.25	0.25	0.84	0.84	7.95	0.000	0.00	0.00	**11.77**	*9.80*	*250*	*1.00*	59.47	1.21	**80.21%**
	Ex.15	*Ex.14*										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	*74.90*	*300*	*0.20*	43.25	0.61	**72.79%**
	Ex.14	*Ex.13*										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	*74.90*	*300*	*0.20*	43.25	0.61	**72.79%**
	Ex.13	*Ex.12*										0	342	3.44	3.82				19.20		0.25		0.84	19.55	0.000	0.00	0.00	**23.37**	*44.40*	*300*	*0.20*	43.25	0.61	**45.96%**
	Ex.12	*Ex.9*										0	342	3.44	3.82				19.20		0.25		0.84	19.55	0.000	0.00	0.00	**23.37**	*56.60*	*300*	*0.20*	43.25	0.61	**45.96%**
Bldg G1, G2, H, J		*Ex.11*										0	0	3.80	0.00				0.00	1.59	1.59			0.51	0.000	0.00	0.00	**0.51**	*8.40*	*250*	*0.38*	36.66	0.75	**98.60%**
Salon, Civic Centre		*Ex.11*										0	0	3.80	0.00			5.20	5.20		0.00			5.20	0.000	0.00	0.00	**5.20**	*30.80*	*250*	*0.38*	36.66	0.75	**85.81%**
	Ex.11	*Ex.10*										0	0	3.80	0.00				5.20		1.59			5.71	0.000	0.00	0.00	**5.71**	*38.20*	*250*	*0.38*	36.66	0.75	**84.41%**
	Ex.10	*Ex.9*										0	0	3.80	0.00				5.20		1.59			5.71	0.000	0.00	0.00	**5.71**	*7.50*	*250*	*0.38*	36.66	0.75	**84.41%**
	Ex.9	*Ex.8*										0	342	3.44	3.82				24.40		1.84		0.84	25.27	0.000	0.00	0.00	**29.08**	*84.00*	*375*	*0.15*	67.91	0.61	**57.17%**
Aberdeen Pavilion	*Ex.8*	*Ex.7*										0	342	3.44	3.82				24.40	0.41	2.25		0.84	25.40	0.000	0.00	0.00	**29.21**	*23.30*	*375*	*0.15*	67.91	0.61	**56.98%**
Bldg A, B, C, D, Horticulture	*Ex.7*	*Ex.6*						40	50			198	540	3.37	5.89				24.40	2.25	4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*23.30*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.6	*Ex.5*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*83.50*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.5	*Ex.4*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*10.10*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.4	*Ex.3*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*17.50*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.3	*Ex.2*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*60.00*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.2	*Ex.1*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*24.70*	*375*	*0.15*	67.91	0.61	**52.85%**
	Ex.1	*EX*										0	540	3.37	5.89				24.40		4.50		0.84	26.13	0.000	0.00	0.00	**32.02**	*9.70*	*375*	*0.15*	67.91	0.61	**52.85%**

DESIGN PARAMETERS

RESIDENTIAL AVG. DAILY FLOW =	280	l/cap/day	COMMERCIAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)	PEAK POPULATION FLOW, (l/s) =	P*q*M/86400	UNIT TYPE	PERSONS/UNIT
COMMERCIAL AVG. DAILY FLOW =	28,000	l/ha/day		1.0	(WHEN AREA < 20%)	PEAK EXTRANEOUS FLOW, (l/s) =	I*Ac	SINGLES	3.4
	0.324	l/ha/s				RESIDENTIAL PEAKING FACTOR, M =	1+(14/(4+P^0.5))*K	SEMI-DETACHED	2.7
INSTITUTIONAL AVG. DAILY FLOW =	28,000	l/ha/day	INSTITUTIONAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)	Ac = CUMULATIVE AREA (ha)		TOWNHOMES	2.7
	0.324	l/ha/s		1.0	(WHEN AREA < 20%)	P = POPULATION (THOUSANDS)		WALK UP TOWNS	1.8
LIGHT INDUSTRIAL FLOW =	35,000	l/ha/day						2-BED APT. UNIT	2.1
	0.405	l/ha/s	RESIDENTIAL CORRECTION FACTOR, K =	0.80		SEWER CAPACITY, Qcap (l/s) =	1/N S^(1/2) R^(2/3) Ac	3-BED APT. UNIT	3.1
HEAVY INDUSTRIAL FLOW =	55,000	l/ha/day	MANNING N =	0.013		(MANNING'S EQUATION)			
	0.637	l/ha/s	PEAK EXTRANEOUS FLOW, I (l/s/ha) =	0.33					

DESIGNED:	**NO.**	**REVISION**	**DATE**
D.B.Y	1.	City Submission No.1	2023-05-25
CHECKED:	2.	City Submission No.2	2023-09-22
D.B.Y	3.	City Submission No.3	2024-08-07
PROJECT:	4.	City Submission No.4	2025-01-15
Lansdowne Redevelopment 2.0	5.	City Submission No.5	2025-03-07
	6.	City Submission No.6	2025-06-20
LOCATION:			
Ottawa, Ontario			
PAGE NO:	**FILE & DWG. REFERENCE:**		
1 of 2			

SANITARY SEWER DESIGN SHEET
Lansdowne Redevelopment 2.0
Ottawa, ON
Project: CA0000286.1662
Date: June 2025

LOCATION				RESIDENTIAL AREA AND POPULATION												OTHER				RETAIL		OFFICE		I+C+I	INFILTRATION			TOTAL	PIPE					
LOCATION	FROM M.H.	TO M.H.	SANITARY DRAINAGE AREA ID	INDV AREA (ha)	ACCU AREA (ha)	NUMBER OF UNITS						POPULATION		PEAK FACT.	PEAK FLOW (l/s)	GROSS AREA (ha)	DEVEL. AREA (ha)	PEAK FLOW (l/s)	ACCU. PEAK FLOW (l/s)	INDIV AREA (ha)	ACCU. AREA (ha)	INDIV AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	INDIV AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	**TOTAL FLOW (l/s)**	LENGTH (m)	DIA. (mm)	SLOPE (%)	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)	AVAIL. CAP. (%)
						SINGLES	SEMIS	AVG TOWNS	AVG APT.	2-BED APT.	3-BED APT.	INDIV POP.	ACCU POP.																				
POST DEVELOPMENT																																	
BLDG I, K, North Stands		*Ex. SAN 15*							190			342	342	3.44	3.82			7.60	7.60	0.25	0.25	0.84	0.84	7.95	0.000	0.00	0.00	**11.77**						
	Ex. SAN 15	SAMH 213										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	9.82	375	0.14	65.60	0.59	**82.06%**
	SAMH 213	SAMH 212										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	5.85	375	0.14	65.60	0.59	**82.06%**
	SAMH 212	SAMH 211										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	59.08	375	0.14	65.60	0.59	**82.06%**
	SAMH 211	SAMH 208										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	71.22	375	0.14	65.60	0.59	**82.06%**
	SAMH 208	SAMH 215										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	2.80	375	0.14	65.60	0.59	**82.06%**
	SAMH 215	SAMH 208A										0	342	3.44	3.82				7.60		0.25		0.84	7.95	0.000	0.00	0.00	**11.77**	4.18	375	0.14	65.60	0.59	**82.06%**
New Event Centre (half flow)	Bldg	SAMH 208A										0	0	3.80	0.00			2.60	2.60		0.00		0.00	2.60	0.000	0.00	0.00	**2.60**	2.27	200	1.00	32.80	1.04	**92.07%**
	SAMH 208A	SANMH 207										0	342	3.44	3.82				10.20		0.25		0.84	10.55	0.000	0.00	0.00	**14.37**	57.47	375	0.14	65.60	0.59	**78.10%**
South Stands	*Ex. SAN 18*	SAMH 207										0	0	3.80	0.00			11.60	11.60		0.00		0.00	11.60	0.000	0.00	0.00	**11.60**	12.91	300	0.20	43.25	0.61	**73.18%**
	SAMH 207	SAMH 216										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	10.23	375	0.14	65.60	0.59	**60.41%**
	SAMH 216	SAMH 206										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	11.95	375	0.14	65.60	0.59	**60.41%**
	SAMH 206	SAMH 205										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	16.58	375	0.14	65.60	0.59	**60.41%**
	SAMH 205	SAMH 204										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	36.41	375	0.14	65.60	0.59	**60.41%**
	SAMH 204	SAMH 203										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	29.12	375	0.14	65.60	0.59	**60.41%**
	SAMH 203	SAMH 202A										0	342	3.44	3.82				21.80		0.25		0.84	22.15	0.000	0.00	0.00	**25.97**	70.31	375	0.14	65.60	0.59	**60.41%**
New Event Centre (half flow)	Bldg	SAMH 202A										0	0	3.80	0.00			2.60	2.60		0.00		0.00	2.60	0.000	0.00	0.00	**2.60**	4.24	200	1.00	32.80	1.04	**92.07%**
	SAMH 202A	SAMH 202										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	38.92	375	0.14	65.60	0.59	**56.45%**
	SAMH 202	SAMH 201										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	49.82	375	0.14	65.60	0.59	**56.45%**
	SAMH 201	*Ex.8*										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	33.19	375	0.14	65.60	0.59	**56.45%**
Tower 1 & 2, BLDG G1, G2, H, J	*Ex. SAN-CCN1*	SAMH 210							252	250	250	1754	1754	3.10	17.64				0.00	2.33	2.33	0.08	0.08	0.78	0.000	0.00	0.00	**18.42**	12.03	250	0.25	29.73	0.61	**38.07%**
	SAMH 210	SAMH 209										0	1754	3.10	17.64				0.00		2.33		0.08	0.78	0.000	0.00	0.00	**18.42**	30.43	250	0.25	29.73	0.61	**38.07%**
	SAMH 209	*Ex. 10*										0	1754	3.10	17.64				0.00		2.33		0.08	0.78	0.000	0.00	0.00	**18.42**	10.07	250	0.38	36.66	0.75	**49.76%**
	Ex. 10	*Ex.9*										0	1754	3.10	17.64				0.00		2.33		0.08	0.78	0.000	0.00	0.00	**18.42**	*8.00*	*250*	*0.35*	35.18	0.72	**47.66%**
	Ex. CAP	*Ex.9*										0	0	3.80	0.00				0.00		0.00		0.00	0.00	0.000	0.00	0.00	**0.00**	*20.20*	*375*	*0.14*	65.60	0.59	**100.00%**
	Ex.9	*Ex.8*										0	1754	3.10	17.64				0.00		2.33		0.08	0.78	0.000	0.00	0.00	**18.42**	*103.59*	*375*	*0.16*	70.13	0.63	**73.74%**
Aberdeen Pavilion	*Ex.8*	*Ex.7*										0	2096	3.06	20.75				24.40	0.41	2.99		0.92	25.66	0.000	0.00	0.00	**46.42**	*23.30*	*375*	*0.15*	67.91	0.61	**31.64%**
Bldg A, B, C, D, Horticulture	*Ex.7*	*Ex.6*							40	50		198	2294	3.03	22.53				24.40	2.25	5.24		0.92	26.39	14.000	14.00	4.62	**53.54**	*23.30*	*375*	*0.15*	67.91	0.61	**21.15%**

DESIGN PARAMETERS

RESIDENTIAL AVG. DAILY FLOW =	280	l/cap/day
COMMERCIAL AVG. DAILY FLOW =	28,000	l/ha/day
	0.324	l/ha/s
INSTITUTIONAL AVG. DAILY FLOW =	28,000	l/ha/day
	0.324	l/ha/s
LIGHT INDUSTRIAL FLOW =	35,000	l/ha/day
	0.405	l/ha/s
HEAVY INDUSTRIAL FLOW =	55,000	l/ha/day
	0.637	l/ha/s

COMMERCIAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)
	1.0	(WHEN AREA < 20%)
INSTITUTIONAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)
	1.0	(WHEN AREA < 20%)
RESIDENTIAL CORRECTION FACTOR, K =	0.80	
MANNING N =	0.013	
PEAK EXTRANEOUS FLOW, I (l/s/ha) =	0.33	

PEAK POPULATION FLOW, (l/s) =	P*q*M/86400
PEAK EXTRANEOUS FLOW, (l/s) =	I*Ac
RESIDENTIAL PEAKING FACTOR, M =	1+(14/(4+P^0.5))*K
Ac = CUMULATIVE AREA (ha)	
P = POPULATION (THOUSANDS)	
SEWER CAPACITY, Qcap (l/s) =	1/N S^(1/2) R^(2/3) Ac
(MANNING'S EQUATION)	

UNIT TYPE	PERSONS/UNIT
SINGLES	3.4
SEMI-DETACHED	2.7
TOWNHOMES	2.7
WALK UP TOWNS	1.8
2-BED APT. UNIT	2.1
3-BED APT. UNIT	3.1

DESIGNED:	
D.B.Y	
CHECKED:	
D.B.Y	
PROJECT:	
Lansdowne Redevelopment 2.0	
LOCATION:	
Ottawa, Ontario	
PAGE NO:	
2 of 2	

NO.	REVISION	DATE
1.	City Submission No.1	2023-05-25
2.	City Submission No.2	2023-09-22
3.	City Submission No.3	2024-08-07
4.	City Submission No.4	2025-01-15
5.	City Submission No.5	2025-03-07
6.	City Submission No.6	2025-06-20

FILE & DWG. REFERENCE:

Lansdowne Park
Building Service Summary

Building	Retail (m^2)	Residential # towns	Residential # apts	Office (m^2)	Estimated WTR / SAN / STM per Mechancal Eng. WTR (L/s)	FIRE (L/s)	SAN (L/s)	STM (L/s)	Estimated Per City of Ottawa Design Guidelines WTR AVG (L/s)	MAX. DAY (L/s)	PEAK HR (L/s)	FIRE (L/s)	SAN (L/s)	STM (L/s)	Notes
A	4,129	7	50		16.7		5.4	8.3	0.6	1.3	2.7	150	2.5	8.6	Mech Eng values provided by LKM 2011-11-29 (Includes retail and residential)
B	5,401	15			6.9		5.7	8.6	0.3	0.6	1.3	150	1.6	11.1	Mech Eng values provided by LKM 2011-11-29 (Includes retail and residential)
C	9,262	11			13.9		5.4	19.6	0.4	0.7	1.4	150	2.1	10.1	Mech Eng values provided by LKM 2011-11-29 (Includes retail and residential)
D	2,131	7			6.3		3.8	5.2	0.1	0.3	0.6	150	0.7	4.6	Mech Eng values provided by LKM 2011-11-29 (Includes retail and residential)
G1	3,507				6.3		5.4	5.5	0.1	0.2	0.3	150	0.6	5.8	Mech Eng values provided by LKM 2011-11-29 (Includes retail)
G2	399				5.0		2.6	2.4	0.0	0.0	0.0	150	0.1	1.3	Mech Eng values provided by LKM 2011-11-29 (Includes retail)
H	7,294				9.5		500FU	9.5	0.2	0.3	0.6	150	1.3	11.7	Mech Eng values provided by LKM 2011-11-29 (Includes retail)
I	2,505			8,361					0.9	1.3	2.3	150	1.6	8.1	
J	1,220								0.0	0.1	0.1	150	0.2	4.3	
J - Salon	3,425								0.1	0.1	0.3	150	0.6	N/A	Roof covered in North Stands flow.
K			190						1.4	3.5	7.6	150	5.5	5.3	
North Stands									2.8	4.2	7.6	150	7.6	219.2	No City standard for estimating flow from stadium / civic centre. Used monitored data
South Stands					25.2	31.5	11.6	211	2.8	4.2	7.5	150	11.6	212.0	No City standard for estimating flow from stadium / civic centre. Used monitored data
Civil Centre									1.9	2.9	5.2	150	5.2	N/A	No City standard for estimating flow from stadium / civic centre. Used monitored data
Aberdeen	4,098								0.1	0.2	0.3	150	0.7	N/A	Peaked Roof, storm runoff included in surface drainage.
Horticulture	1,591								0.0	0.1	0.1	150	0.3	N/A	Peaked Roof, storm runoff included in surface drainage.
Total	**44,962**	**40**	**240**	**8,361**	**89.9**	**31.5**	**39.8**	**270.1**	**11.8**	**19.9**	**38.0**		**42.1**	**502.2**	

Notes

1) Retail floor areas for buildings A, B, C, D, G1, G2, H, I, J, J - Salon provided by Perkins Eastman - Novemeber 18, 2011. Above table uses total GFA.

2) Residential for Buildings A, B, C, D, and K component extracted from RFO Addendum 3 - October 20, 2011 as follows:

Parcel A1 = Residential Tower above Bldg A. 240units (280units max less townhomes) proportionate between Bldg A and K. Therefore, 240units x 66,000/316,000 = 50units.

Parcel A2 = Townhomes abutting buildings A, B, C, D. Assuming 1,225sq.ft townhomes = 40units. Divided between buildings per ground floor area shown on Perkins Eastman November 19, 2011 merchandising plan.

Bldg A = 3,426/19,104 x 40 = 7 units

Bldg B = 7,188/19,104 = 15 units

Bldg C = 5,096/19,104 = 11 units

Bldg D = 3,394/19,104 = 7units

Parcel B = Office tower above Building I, 90,000sq.ft.

Parcel C = Building K 240units (280units max less townhomes) proportionate between Bldg A and K. Therefore, 240units x 250,000/316,000 = 190units.

3) Mech. Eng. Servcing for Bldgs A, B, C, D, G1, G2, H provided by LKM, dated July 19, 2011. Revised Storm and Sanitary flow per November 29, 2011 email.

4) City of Ottawa rates were estimated accordingly

Water Supply

Retail: Average Day 2.5L/m^2/d, Max Day = Avg Day x 1.5, Peak Hour = Avg Day x 2.7

Residential:

Townhouse Avg Day = 2.7p/unit x 350m^3/d, Max Day = Avg Day x 2.5, Peak Hour = Avg Day x 5.5

Apartement Avg Day = 1.8p/unit x 350m^3/d, Max Day = Avg Day x 2.5, Peak Hour = Avg Day x 5.5

Office: Average Day 75L/9.3m^2/d, Max Day = Avg Day x 1.5, Peak Hour = Avg Day x 2.7

North and South Stands: City of Ottawa completed Flow Monitoring in 2005. A peak dry weather flow for a capacity game was recorded to be 15.1L/s.

Report titled "Lansdowne Park - 2005, Combined Sewer Flow Monitoring Report," G.A. Clark & Associates Limited, Proj. No: 200524

Interpolated Average Day, Max Day and, Peak Hour accordingly: Peak Hour = 15.1L/s, Max Day = Peak Hour / 1.8, Average Day = Peak Hour / 2.7

North and South stands flow proportioned by number of seating: North Stands = 14,542 South Stands = 14,284, as decribed in Lansdowne Park information material.

Civil Centre: Flow monitoring completed in 2005 indicated a peak a 4L/s. However, this recorded flow did not account for wastewater directed to Holmwood.

Civil Centre Flow estimated based on Stadium monitored flow and seating: 9,836 / 28,826 x 15.1 = 5.2L/s

Interpolated Average Day, Max Day and, Peak Hour accordingly: Peak Hour = 5.2L/s, Max Day = Peak Hour / 1.8, Average Day = Peak Hour / 2.7

Wastewater

Retail: Average Day 5L/m^2/d x 24hour day / 12hour operation, Peak = Average Day x 1.5

Residential:

Townhouse Avg Day = 2.7p/unit x 350m^3/d, Peak = Avg Day x 3.95

Apartment Avg Day = 1.8p/unit x 350m^3/d, Peak = Avg Day x 3.95

Office: Average Day 75L/9.3m^2/d, Peak = Avg Day x 1.5

North and South Stands: City of Ottawa completed Flow Monitoring in 2005. A peak dry weather flow for a capacity game was recorded to be 15.1L/s.

Report titled "Lansdowne Park - 2005, Combined Sewer Flow Monitoring Report," G.A. Clark & Associates Limited, Proj. No: 200524

Peak flow interpreted as peak monitored flow (15.1L/s)

North stands flow proportioned by number of seating: North Stands = 14,542 South Stands = 14,284, as decribed in Lansdowne Park information material.

Civil Centre: Flow monitoring completed in 2005 indicated a peak a 4L/s. However, this recorded flow did not account for wastewater directed to Holmwood.

Civil Centre Flow estimated based on Stadium monitored flow and seating: 9,836 / 28,826 x 15.1 = 5.2L/s

South Stands - Mechanical Consultant provided estimated peak Wastewater Flow Rate (Smith and Anderson (2011-12-02) servicing sketch)

Storm

See Separate Analysis - Estimated per City of Ottawa IDF curves and Control Flow roof drains where appropriate

North and South Stands assumed to have roof drains sized to accommodate 5-year storm only. To be confirmed by DSEL through modeling.

PROJECT: **Lansdowne Park Re-Development**
LOCATION: **City of Ottawa**
FILE REF: **10-378**
DATE: **19-Dec-11**

DESIGN PARAMETERS

Avg. Daily Flow Res.	350	L/p/d	Peak Fact Res. Per Harmons: Min = 2.0, Max =4.0		Infiltration / Inflow	0.28	L/s/ha
Avg. Daily Flow Retail	5	$L/m^2/d$	Peak Fact. Retail	1.5	Min. Pipe Velocity	0.60	m/s full flowing
Avg. Office Flow	75	$L/9.3m^2/d$	Peak Fact. Office	1.5	Max. Pipe Velocity	3.00	m/s full flowing
					Mannings N	0.013	

Location			Residential Area and Population								Retail		Office		Other			Infiltration				Pipe Data							
Area ID	Up	Down	Area			Pop.	Cumulative		Peak.	Q_{res}	Area	Accu.	Incr.	Accu.	Area	Accu.	Q_{C+I+I}	Total	Accu.	Infiltration	Total	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
							Area	Pop.	Fact.			Area	Area	Area		Area		Area	Area	Flow	Flow								
			(ha)	Town's	Apt's		(ha)		(-)	(L/s)	(m^2)	(m^2)	(m^2)	(m^2)	(L/s)	(L/s)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
South Stands	19	18				0.0	0.000	0.0	4.00	0.0		-		-	11.6	11.6	11.6	0.000	0.000	0.000	11.6	300	0.20	61.0	0.071	0.075	0.61	43.2	0.27
	18	17				0.0	0.000	0.0	4.00	0.0		-		-		11.6	11.6	0.000	0.000	0.000	11.6	300	0.20	9.3	0.071	0.075	0.61	43.2	0.27
	17	16				0.0	0.000	0.0	4.00	0.0		-		-		11.6	11.6	0.000	0.000	0.000	11.6	300	0.20	5.8	0.071	0.075	0.61	43.2	0.27
	16	13				0.0	0.000	0.0	4.00	0.0		-		-		11.6	11.6	0.000	0.000	0.000	11.6	300	0.20	62.6	0.071	0.075	0.61	43.2	0.27
BLDG K, I, N.Stands	15	14			190	342.0	0.000	342.0	4.00	5.5	2,505	2,505	8,361	8,361	7.6	7.6	9.2	0.000	0.000	0.000	14.8	300	0.20	74.9	0.071	0.075	0.61	43.2	0.34
	14	13				0.0	0.000	342.0	4.00	5.5		2,505		8,361		7.6	9.2	0.000	0.000	0.000	14.8	300	0.20	74.9	0.071	0.075	0.61	43.2	0.34
	13	12				0.0	0.000	342.0	4.00	5.5		2,505		8,361		19.2	20.8	0.000	0.000	0.000	26.4	300	0.20	44.4	0.071	0.075	0.61	43.2	0.61
	12	9				0.0	0.000	342.0	4.00	5.5		2,505		8,361		19.2	20.8	0.000	0.000	0.000	26.4	300	0.20	56.6	0.071	0.075	0.61	43.2	0.61
BLDG G1, G2, H, J, Salon, Civic Cen	11	10				0.0	0.000	0.0	4.00	0.0	15,845	15,845		-	5.2	5.2	8.0	0.000	0.000	0.000	8.0	250	0.38	38.2	0.049	0.063	0.75	36.7	0.22
	10	9				0.0	0.000	0.0	4.00	0.0		15,845		-		5.2	8.0	0.000	0.000	0.000	8.0	250	0.38	7.5	0.049	0.063	0.75	36.7	0.22
	9	8				0.0	0.000	342.0	4.00	5.5		18,350		8,361		24.4	28.8	0.000	0.000	0.000	34.3	375	0.15	84.0	0.110	0.094	0.61	67.9	0.51
Aberdeen Pavilion	8	7				0.0	0.000	342.0	4.00	5.5	4,098	22,448		8,361		24.4	29.5	0.000	0.000	0.000	35.0	375	0.15	23.3	0.110	0.094	0.61	67.9	0.52
BLDG A, B, C, D, Horticulture	7	5		40	50	198.0	0.000	540.0	3.96	8.7	22,514	44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	83.5	0.110	0.094	0.61	67.9	0.62
	5	4				0.0	0.000	540.0	3.96	8.7		44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	10.1	0.110	0.094	0.61	67.9	0.62
	4	3				0.0	0.000	540.0	3.96	8.7		44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	17.5	0.110	0.094	0.61	67.9	0.62
	3	2				0.0	0.000	540.0	3.96	8.7		44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	60.0	0.110	0.094	0.61	67.9	0.62
	2	1				0.0	0.000	540.0	3.96	8.7		44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	24.7	0.110	0.094	0.61	67.9	0.62
	1	EX				0.0	0.000	540.0	3.96	8.7		44,962		8,361		24.4	33.4	0.000	0.000	0.000	42.0	375	0.15	9.7	0.110	0.094	0.61	67.9	0.62

EXHIBITION WAY

EXHIBITION WAY

FUTURE GRAND ENTRANCE

FUTURE DEVELOPMENT

GATE 3 FUTURE ACCESS

NEW NORTH SIDE STAND
FFE AT MAIN CONCOURSE = 75.70m
FFE AT LOWER CONCOURSE = 67.5838m
FFE AT L1 SUBGRADE = 63.820m
FIELD LEVEL = 66.455m

75.70 FFE MAIN CONCOURSE

75.70 FFE MAIN CONCOURSE

FRANK CLAIR LANE

PLAZA

PATIO

GATEWAY REFER TO ARCH

EXISTING SCOREBOARD

TIE INTO EX. GRADES

EXISTING RAMP CLEARANCE MIN 2.10M

RETAINING WALL (BY OTHERS)

TIE INTO EXISTING ELEVATION AT THE LIMIT OF THE CONSTRUCTION

CONTRACTOR TO REINSTATE THE SPORT TURF AS PER EXISTING CONDITION

REINSTATE THE SOCCER FIELD TURF AS PER EXISTING CONDITION

REFER TO WSP PROJ.CA003920.1056 LANSDOWNE 2.0 EVEN CENTRE FOR DETAIL GRADING DESIGN

CC #3
N:5029193.203
E:368705.571
Elev:65.412

CC #5
N:5029101.070
E:368549.781
Elev:67.805

CC #6
E:368623.492
Elev:66.742

CC #7
N:5029095.379
E:368579.045
Elev:67.506

CC #9
N:5028989.615
E:368641.460
Elev:69.256

SAN212 T/G=66.37
SAN213 T/G=66.43
SAN208 T/G=66.56
SAN215 T/G=66.56
SAN208A T/G=66.40
STMH209 T/G=66.71
STMH220 T/G=66.84
STMH218 T/G=66.37
SAMH211 T/G=66.47
CB01 T/G=66.30
CB02 T/G=66.30
CB03 T/G=66.30
CB04 T/G=66.30
CB05 T/G=66.30
CB06 T/G=66.30
CB07 T/G=66.30

SCALE: 1: 300

DATE PLOTTED:

Ottawa

OSEG
Ottawa Sports and Entertainment Group

BRISBIN BROOK BEYNON ARCHITECTS
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TORONTO, ON M5H 3G8
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FOOD AND BEVERAGE

GSW
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OTTAWA, ONTARIO K1Z 0B9
(613) 729-4536
LANDSCAPE ARCHITECT

wsp
2011 QUEENSVIEW DR.
OTTAWA, ONTARIO K2B 8K2
(613) 829-2800
CIVIL ENGINEER

NO.	DESCRIPTION	DATE
12	REVISED PER CITY COMMENTS	2025-09-24
11	REVISED PER CITY COMMENTS	2025-06-20
10	ISSUED FOR PERMIT	2025-06-16
9	ISSUED FOR 100% CD FOR TENDER	2025-06-12
8	ISSUED FOR CD UPDATE	2025-05-09
7	ISSUED FOR CD UPDATE - CLASS A ESTIMATE	2025-04-11
6	ISSUED FOR CD UPDATE	2025-03-19
5	ISSUED FOR CD UPDATE	2025-02-28
4	REVISED PER CITY DEFICIENCY COMMENTS	2025-01-22
3	ISSUED FOR CD UPDATE	2025-01-17
2	ISSUED FOR SITE PLAN APPLICATION	2024-11-20
1	ISSUED FOR UDRP	2024-11-19

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS



SEAL

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2025-09-24
PROVINCE OF ONTARIO

NOT FOR CONSTRUCTION

NORTH

DRAWN: J.T
DATE: 2025/09/24
CHECKED: W.Y

LANSDOWNE NSS

DWG. TITLE
GRADING PLAN

SCALE: 1:300
DWG. NO.: C03
PROJ. NO.: CA0043476.7969

D07-12-24-0178

#19220

STORM STRUCTURE TABLE

STRUCTURE	TOP OF GRATE	STRUC INLET	STRUC INLET	STRUC INLET	OUTLET	SIZE	OPSD	COVER	OUTLET DIAMETER	TYPE
CB01	66.30				64.590	REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35
CB02	66.30				64.550	REFER TO ACO TRENCH DRAIN DESIGN			200	PVC SDR-35
CB03	66.30				64.550	REFER TO ACO TRENCH DRAIN DESIGN			200	PVC SDR-35
CB04	66.30				64.550	REFER TO ACO TRENCH DRAIN DESIGN			200	PVC SDR-35
CB05	66.30				64.550	REFER TO ACO TRENCH DRAIN DESIGN			200	PVC SDR-35
CB06	66.30				64.550	REFER TO ACO TRENCH DRAIN DESIGN			200	PVC SDR-35
CB07	66.30				64.590	REFER TO ACO TRENCH DRAIN DESIGN			250	PVC SDR-35

		Obvert	Invert			Obvert	Invert	
1	250mmø CB LEAD	64.779	64.529	0.579	Clearance Above	63.950	63.750	200mmø PVC W/M
2	250mmø CB LEAD	64.813	64.563	1.048	Clearance Above	63.515	63.140	375mmø PVC SAN
3	250mmø CB LEAD	64.773	64.523	1.028	Clearance Above	63.495	63.120	375mmø PVC SAN
4	250mmø CB LEAD	64.773	64.523	1.050	Clearance Above	63.473	63.098	375mmø PVC SAN
5	250mmø CB LEAD	64.772	64.522	1.072	Clearance Above	63.450	63.075	375mmø PVC SAN
6	250mmø CB LEAD	64.771	64.521	1.092	Clearance Above	63.429	63.054	375mmø PVC SAN
7	250mmø CB LEAD	64.769	64.519	1.112	Clearance Above	63.407	63.032	375mmø PVC SAN
8	250mmø CB LEAD	64.807	64.557	1.175	Clearance Above	63.383	63.008	375mmø PVC SAN

*Note: Provide Concrete Encased for crossing clearance less than 0.30m

WATERMAIN SCHEDULE

STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	COVER
200mm W/M (FROM NSS TO EX.W/M CONNECTION)				
0+000	North Side Stand Connection	66.32	63.920	2.40
0+000.97	45° Bend	66.34	63.940	2.40
0+001.74	45° Bend	66.36	63.960	2.40
0+003.92	Crossing with 250mmØ CB Lead	66.35	63.950	2.40
0+015.88	45° Bend	66.33	63.930	2.40
0+016.59	45° Bend	66.34	63.940	2.40
0+017.17	Connect to ex.w/m	66.35	63.950	2.40

EXHIBITION WAY

FRANK CLAIR LANE

FUTURE GRAND ENTRANCE

FUTURE DEVELOPMENT

GATE 3 FUTURE ACCESS

NEW NORTH SIDE STAND
FFE AT MAIN CONCOURSE = 75.70m
FFE AT LOWER CONCOURSE = 67.5838m
FFE AT L1 SUBGRADE = 63.820m
FIELD LEVEL = 66.455m

75.70 FFE MAIN CONCOURSE

75.70 FFE MAIN CONCOURSE

PLAZA

PATIO

PLAYING FIELD

BUILDING DECK DRAIN 01

BUILDING TRENCH DRAIN

BUILDING DECK DRAIN 02

BUILDING TRENCH DRAIN

EXISTING RAMP CLEARANCE MIN. 2.10M

RETAINING WALL (BY OTHERS)

CONNECT TO BUILDING WATER SERVICE (SEE MECH DWG FOR CONTINUATION) INV.=66.32m

PROP.NNS GAS METER

CONNECT TO GARAGE SANITARY @ INV.63.52

EXISTING SCOREBOARD

GATEWAY REFER TO ARCH.

7.58 – 375mmø PVC SAN @ 1.0%

CONNECT TO BUILDING ROOF DRAIN (REFER TO MECH DWG FOR CONTINUATION) INV.=64.90m

CONNECT TO BUILDING SANITARY SERVICE (REFER TO MECH DWG FOR CONTINUATION) INV=65.10m

1.84m – 350mmø PVC @ 1%

1.98m – 200mmø SAN PVC @ 1%

NEW 59.08m – 375mmø PVC SAN @ 0.15%

3.75m – 250mmø CB LEAD @ 2.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51m

ACO TRENCH DRAIN CB01 T/G=66.30m INV.=64.59m

ACO TRENCH DRAIN CB02 T/G=66.30m INV.=64.55m

3.76m – 200mmø CB LEAD @ 1.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51m

SAMH212 T/G=66.37m INV.NE=63.17m INV.NW=65.10m INV.SW=63.18m

5.76m – 375mmø PVC SAN @ 0.15%

SAMH213 T/G=66.43m INV.SW=63.208m INV.NE=63.188m

9.82m – 375mmø PVC SAN @ 0.15%

CONNECT TO EX.STMH115 AT INV.64.88m

SAMH211 T/G=66.47m INV.SW=63.087m INV.NE=63.077m

ACO TRENCH DRAIN CB03 T/G=66.30 INV.=64.55

3.80m – 200mmø CB LEAD @ 1.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51

ACO TRENCH DRAIN CB04 T/G=66.30 INV.=64.55

3.84m – 200mmø CB LEAD @ 1.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51

NEW 71.22m – 375mmø PVC SAN @ 0.15%

ACO TRENCH DRAIN CB05 T/G=66.30 INV.=64.55

CONNECT TO BUILDING WATER SERVICE (REFER TO MECH DWG FOR CONTINUATION) INV.=63.72

3.97m – 200mmø CB LEAD @ 1.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51

ACO TRENCH DRAIN CB06 T/G=66.30 INV.=64.55

4.06m – 200mmø CB LEAD @ 1.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51

ACO TRENCH DRAIN CB07 T/G=66.30 INV.=64.59

4.20m – 250mmø CB LEAD @ 2.0% CONNECT TO EX. 825mmø CONC STM AT INV.64.51

CONNECT TO PH1 W/M STUB

NEW 200mmø W/M

NEW 1.44m – 200mmø PVC SAN @ 1.00%

SAMH208 T/G=66.56m INV.NW=64.89m INV.SW=63.02m INV.=63.00m

SAMH215 T/G=66.56m INV.NE=62.97m INV.NW=62.99m

NEW 11.18m – 375mmø PVC SAN @ 0.15%

SAMH214 T/G=66.71m INV.SW=63.10m INV.SE=63.07m

NEW 11.18m – 375mmø PVC SAN @ 0.15%

SAMH208A T/G=66.40m INV.NW=62.931m INV.SE=62.921m INV.NE=64.907m

NEW 57.47m – 375mmø PVC SAN @ 0.15%

CONNECT TO BUILDING SANITARY SERVICE (REFER TO MECH DWG FOR CONTINUATION) INV.=64.90

FDC (REFER TO MECH DWG FOR EXACT LOCATION)

CONNECT TO BUILDING ROOF DRAIN (REFER TO MECH DWG FOR CONTINUATION) INV.=64.74

STMH209 T/G=66.71 INV.NE=63.58m INV.NW=64.73m INV.SW=63.62m

NEW 4.11m – 900mmø CONC STM @ 0.10%

STMH220 T/G=66.84m INV.SE=63.57m INV.SW=63.58m

NEW 9.00m – 900mmø CONC STM @ 0.10%

CONNECT TO BUILDING ROOF AND FOUNDATION DRAIN. SEE MECH. PLAN FOR CONTINUATION INV.=63.648m

NEW 1.20m – 300mmø PVC STM @ 1.00%

STMH218 T/G=66.37m INV.NW=63.56m INV.NE=64.25m INV.SE=63.56m

CONNECT TO BUILDING WATER SERVICE AT 64.10m (REFER TO MECH DWG FOR CONTINUATION)

CONNECT TO BUILDING SANITARY SERVICE. SEE MECH. PLANS FOR CONTINUATION. INV.=64.93

NEW 2.76m – 200mmø PVC SAN @ 1.09%

REFER TO WSP PROJ.CA003920.1056 LANSDOWNE 2.0 EVEN CENTRE FOR DETAIL SERVICING DESIGN

CC #7 N:5029095.379 E:368579.045 Elev:67.506

CC #9 N:5028989.253 E:368641.460 Elev:69.256

CP #6006 N:5029086.150 E:368805.429 Elev:

0 5m 10m 20m 30m

SCALE: 1:300

DATE PLOTTED:



Ottawa

OSEG
Ottawa Sports and Entertainment Group

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NORTH

DRAWN: J.T
DATE: 2025/09/24
CHECKED: W.Y

LANSDOWNE NSS

DWG. TITLE
SERVICING PLAN

SCALE: 1:300
DWG. NO.: C04
PROJ. NO.: CA0043476.7969

D07-12-24-0178

#19220

APPENDIX

D

- DWG C05 – EROSION AND SEDIMENTATION CONTROL PLAN

Servicing study guidelines for development applications

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

- ☒ Executive Summary (for larger reports only).
- ☒ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☒ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☒ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☒ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.
- ☒ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☒ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).
- ☒ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
- ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
- ☐ Proposed phasing of the development, if applicable.

☒ Reference to geotechnical studies and recommendations concerning servicing.

☒ All preliminary and formal site plan submissions should have the following information:
- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

☒ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☒ Identification of system constraints
☒ Identify boundary conditions
☒ Confirmation of adequate domestic supply and pressure
☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.
☒ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
☒ Address reliability requirements such as appropriate location of shut-off valves
☒ Check on the necessity of a pressure zone boundary modification.
☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

- ☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.
- ☒ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

- ☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).
- ☒ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☒ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.
- ☒ Description of existing sanitary sewer available for discharge of wastewater from proposed development.
- ☒ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)
- ☒ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix ‘C’) format.
- ☒ Description of proposed sewer network including sewers, pumping stations, and forcemains.
- ☒ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).
- ☒ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☒ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- ☒ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.
- ☒ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

- ☒ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)
- ☒ Analysis of available capacity in existing public infrastructure.
- ☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.
- ☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.
- ☒ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.
- ☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.
- ☐ Set-back from private sewage disposal systems.
- ☐ Watercourse and hazard lands setbacks.
- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.
- ☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
- ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
- ☒ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.
- ☐ Any proposed diversion of drainage catchment areas from one outlet to another.
- ☒ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
- ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.
- ☐ Identification of potential impacts to receiving watercourses
- ☒ Identification of municipal drains and related approval requirements.
- ☒ Descriptions of how the conveyance and storage capacity will be achieved for the development.
- ☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.

- ☒ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- ☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.
- ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

- ☐ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.
- ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.
- ☐ Changes to Municipal Drains.
- ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

4.6 Conclusion Checklist

- ☒ Clearly stated conclusions and recommendations
- ☒ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.
- ☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario