CITY OF OTTAWA

LANSDOWNE PARK REDEVELOPMENT 2.0 OTTAWA, ON

FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT STUDY

SEPTEMBER 22, 2023

CONFIDENTIAL

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FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT STUDY

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CONFIDENTIAL

PROJECT NO.: CA0000286.1662
DATE: SEPTEMBER 22, 2023

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September 22, 2023

Confidential

City of Ottawa

Attention: Sean Moore

Dear Sir:

Subject: Lansdowne 2.0 Re-development for Zoning By-Law Amendment (ZBLA)

We are pleased to deliver this enclosed Functional Servicing Study in support of the application for Zoning By-law Amendment for the subject institutional development project. This study compared estimations of civil demand (potable water, sanitary, and stormwater) based on current conceptual design of the site compared to existing municipal capacities in coordination with the City.

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

Yours sincerely,

Winston Yang, P.Eng.
Senior Civil Engineer

WSP ref.: CA0000286.1662

SIGNATURES

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September 22nd, 2023
Date

Kathryn Kerker, M.A.Sc., EIT
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September 22nd, 2023
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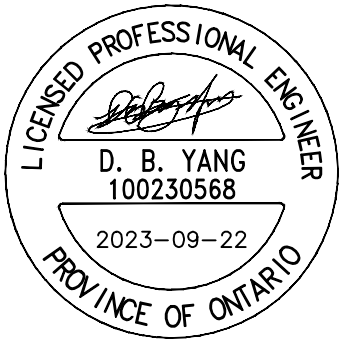
Winston Yang, P.Eng., PMP
Senior Project Engineer

September 22nd, 2023
Date



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1 INTRODUCTION

As a result of comments received through public consultant efforts, and City Staff review, as well as an internal revaluation of the development program, the proposed development has been amended as detailed below.

The proposed concept, as outlined in the June 2023 submission, has been revised to remove the third residential tower located closest to the Aberdeen Pavilion, resulting in a two-tower concept of 40 and 25 storeys in height. In addition to the removal of one residential tower, the proposed floorplate sizes of the remaining two-towers have been reduced from approximately 900 square metres to approximately 800 square metres.

These two major revisions to the plan have resulted in a decrease in residential unit yield from 1,200 units to approximately 770 units (distributed between the two towers and potential residential podium). The revised design has also allowed for additional tower separation, with an opportunity to now provide spacing between towers ranging from 40 to 60 metres, exceeding the distance required in the Zoning By-law and the Urban Design Guidelines for High Rise Buildings. Associated parking for the residential towers has also been reduced from the June 2023 proposal by almost half, decreasing from 739 spaces to 386 spaces. Of the 386 spaces proposed, approximately 35 spaces allocated to non-residential uses. The remaining parking spaces will be allocated to the two residential towers. No visitor or commercial parking will be provided in the proposed new parking garage, as the existing 1,089 paid underground spaces (including the 230 nested Whole Foods / LCBO spaces) are expected to accommodate those vehicles. A bicycle parking count ratio of one space per unit continues to be proposed.

The retail podium is proposed to be developed as a two-storey built form; consistent with the June 2023 submission. As in the previous submission, the residential portion of the podium will be stepped back from the edge of the retail podium, providing a terrace for the residents of the building. The revised design also results in the podium to decrease in size from approximately 10,003 square metres to approximately 4,611 square metres. This decrease is a result of the removal of the music hall and one upper-level of retail space, which has been replaced by residential amenity area on the second floor of the podium. The reduction in the retail space still allows for an active ground floor that contributes to the year-round activation of Lansdowne.

The removal of the third residential tower adjacent to Aberdeen Pavilion has created an opportunity for the introduction of a new public realm space approximately 1,858 square metres in size. This new public realm space provides an opportunity for activation between the Aberdeen Pavilion and the new Event Centre. Key elements of the proposal such as the ceremonial stairs and raised promenade, as well as views to protected heritage assets are retained in the revised design.

1.1 SITE DESCRIPTION

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 proposed development includes a new event centre, reconstruction of the north stands, new retail space, and two residential towers. See Appendix A for the architectural conceptual design upon which this report is based.

Figure 1-1 Lansdowne Site Location

1.2 EXISTING INFRASTRUCTURE

The site is currently serviced by a network of watermains, storm, and sanitary sewers constructed during the Lansdowne redevelopment project completed between 2012 and 2015. The Sport and Entertainment Group provided an as-built services plan after its completion, contained in Appendix A.

Based on the previous design information by DSEL and Stantec, portable water supply is available within the site, and there should be adequacy fire protection supply. The existing Lansdowne Park has a peak dry weather flow of 42.1 L/s and wet weather flow of 45.3 L/s. The existing storm conveyance system has been designed to convey all storms up to and including a 5-year storm event.

1.3 REFERENCES

This functional servicing study was 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 (June 20, 2012)
    - Technical Bulletin ISDTB-2014-01 (February 5, 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)
    - Technical Bulletin ISDTB-2018-01 (March 21,2018)
    - Technical Bulletin ISDTB-2018-04 (June 27, 2018)
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:

    - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
    - Technical Bulletin ISTB-2018-02 (March 21, 2018)
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020.
- 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.

In addition, this is a second submission, the city and NCC comments for this Zoning By Law Amendment is provided for reference in Appendix A.

2 WATER SUPPLY SERVICING

2.1 EXISTING WATER SUPPLY SERVICES

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

The Ottawa Sports and Entertainment Group has completed fire hydrant testing on site in September 2022. Table 2-1 summarized the results of the hydrant testing.

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	2689/1659.6
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

The existing water supply network is illustration on Figure F1 and the associated hydrant testing results are located Appendix B. Table 2-2 summarized the existing water demand and boundary conditions under existing conditions.

Table 2-2 Existing Water Demand and Existing Boundary Conditions

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

2.2 PROPOSED WATER SUPPLY

No significant change to the existing water network except the 200mm watermain 'C' where running through the proposed Event Centre. The portion of the pipe will be running internally with fitting and hydrant lead from garage.

2.3 DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development is considered as commercial and residential. A water demand calculation sheet is included in Appendix B, and the total water demands are summarized as follows:

	Proposed Retail and Residential	Proposed plus Existing
Average Day	5.51 L/s	17.31 L/s
Maximum Day	13.61 L/s	33.51 L/s
Peak Hour	29.86 L/s	67.86 L/s

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.

2.4 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 non combustible construction for Towers 1 and 2, fire resistive construction for North Stands and Event Centre and a fully supervised sprinkler system, a fire flow demand of 7,000 l/min (117.0 l/s) for the proposed residential Tower 1 and 2. The fire flow rate of 6,000 l/min (100 l/s) for North Stands and 5,000 l/min (83 l/s) for Event Centre are calculated. Copy of the FUS calculations are included in Appendix B. The existing available fire flow for the nearby private hydrants at 20 psi ranging from 131.6 L/s to 176.0 L/s. Each proposed building 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.

2.5 CHECK OF HIGH PRESSURE

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.

2.6 WATER SUPPLY CONCLUSION

Ottawa Sports and Entertainment Group completed fire hydrant testing in 2022. The testing indicated that water supply is available between 7896.4 l/min and 10561 l/min at 140 kPa. Therefore, supply is available per FUS recommendations. The existing water supply design conforms to all relevant City Guidelines and Policies. Upgrade of the existing water network is not necessary.

3 WASTEWATER SERVICING

3.1 EXISTING WASTEWATER SERVICES

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 42.1 L/s while the wet weather peak is 45.3 L/s. The peak discharge from the development assumes that both the retail and stadium will be operating at maximum capacity.

3.2 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.

3.3 DEMAND ESTIMATION

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 as follows.

- Residential 280 L/Cap/day = 0.324 L/Ha/s
- Total units count for Podium, Tower 1 and 2 752
- Assumes 1/3 of one bed, 1/3 of two beds and 1/3 of 3 beds

The proposed Lansdowne 2.0 increases the peak dry weather flow from 42.1 L/s to 48.92 L/s. Under wet weather flow condition, the peak discharge is also increased from 45.3 L/s to 53.54 L/s.

3.4 EXISTING CAPACITY

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 include both existing and proposed. Please refer to sanitary sewer design sheet in Appendix C.

4 STORMWATER MANAGEMENT

4.1 DESIGN CRITERIA

Design criteria for the proposed development will follow the same criteria as identified in the Stantec 2012 as per OSDG 8.3.7.2. Design criteria are as follows:

- 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
- Stormwater shall be treated to MOE "enhanced" standard (80% TSS removal)
- The "first flush" (i.e. 10mm event) shall be directed to the O'Connor Street sewer for the entire site drainage area.
- The 600mm pipe to the Rideau Canal may be used as an overflow, with a peak flow of 480 L/s once the water level is above the operating level of the canal (64.08 m).
- 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.
- Minor system shall be design for a 5-year level of service with minimal surface ponding.
- Major system shall provide a 100-year level of service while minimizing outflow to the canal.

4.2 EXISTING CONDITIONS

The existing conditions on the Lansdowne site are as designed in the Stantec Stormwater Management Design Report – Lansdowne Urban Park (2012). 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. greater than the 5-year return period) runoff is directed to the Rideau Canal through an overflow pipe.

The stormwater management system consists of two subsurface storage tanks, surface storage on the Great Lawn, outlet controls, and quality control structures. The two underground storage tanks provide 600 m^3 in Basin 1 and 2200 m^3 in Basin 2, with 700 m^3 provided in pipe storage (total of 3500 m^3 subsurface storage). A minimum storage volume of 3000 m^3 is also provided on the surface of the Great Lawn.

A schematic of the existing stormwater management strategy is included in **Appendix D**.

A PCSWMM model was created to represent the existing conditions on the site based on the documentation provided in the Stantec 2012 report, the DSEL function servicing report (2012), and the As-Built servicing drawings.

4.2.1 MODELLING METHODOLOGY

A PCSWMM model of existing conditions was created as a baseline with which to compare the proposed design.

Catchment Areas: Catchment areas were delineated based on the Stantec catchment area plan (C03). Subcatchment imperviousness was determined by creating a land use shapefile and using the PCSWMM spatial weighting tool. Subcatchment parameters are included in Appendix D.

Storm Sewers: Storm sewers were modelled as conduits with their size and inverts based on the as-built servicing drawing. A roughness coefficient of 0.013 was used.

Weirs: Weirs were used to direct runoff along the major flow route when storm sewer capacity is exceeded. Weirs are also used within the underground storm chamber inlet/outlet structures.

Orifices: An orifice was modelled at the quantity control structure with a discharge coefficient of 0.62. Orifices were also used in the model to represent the 450 mm backflow preventers within the underground storage chamber inlet/outlet structures.

Storage: Underground storage chambers were modelled using storage nodes with storage curves based on their storage area. The Great Lawn was modelled as a storage node with storage defined as the average area available for storage. Roof storage was also modelled based on the documentation in the DSEL FSR report (2012).

Ditches: Ditches shown in the Stantec grading plan were modelled as conduits. Ditches were connected to storm sewers with a catch basin and discharge curve as per MTO design chart 4.19.

Rainfall: The 3-hour Chicago storm using the IDF parameters from the Ottawa Sewer Design Guidelines was used in the analysis.

Tailwater Conditions: Tailwater conditions at O'Connor Street were set as a timeseries with a peak at the 5-year peak HGL of 65.2 m. The timeseries was calibrated to produce similar results to those shown in the Stantec report. This tailwater condition will be revised as more information becomes available. Tailwater conditions at the Rideau Canal were fixed at 64.08 which is the maximum operating level of the canal during navigation season.

The results of the existing conditions PCSWMM model are not expected to exactly match those of the Stantec 2012 report due to the following:

1. Data regarding tailwater condition – In the Stantec analysis, they were provided with the City of Ottawa Infoworks model for the Holmwood and O'Connor sewer system so were able to incorporate a dynamic tailwater condition at the site outlet. The PCSWMM model can be refined as more information becomes available.
2. Infoworks Model – Stantec modelling for the existing site was completed in Infoworks. WSP has requested this model to review catchment parameters and model setup. Without the model or detailed documentation, differences in modelling parameters and methodology are inevitable leading to variations in model results.
3. SWMM Engines – Developments in stormwater management modelling software engines have been made since 2012, which affects the ability to replicate results.

The focus of this analysis is on the comparison between storage and outflows in the existing conditions PCSWMM model versus the proposed conditions PCSWMM model. The design intent is to match the outflows from the existing conditions PCSWMM model. PCSWMM modelling output is included in **Appendix D**.

4.2.2 EXISTING CONDITIONS MODEL RESULTS

The existing conditions PCSWMM model was run for the 5-year and the 100-year events. Storage volumes for Basin 1, Basin 2, and the Great Lawn are shown in Table 4-1, and peak flows at the outfalls are shown in Table 4-2.

Table 4-1: Existing condition storage results

	5-year		100-year	
	Peak Volume (m^3)	Peak HGL (m)	Peak Volume (m^3)	Peak HGL (m)
Basin 1	600	64.47	600	64.68
Basin 2	2200	64.47	2200	64.67
Great Lawn	264	64.43	2088	64.66

Table 4-2: Existing Condition Peak Flows

	5-year Peak Flow (m^3/s)	100-year Peak Flow (m^3/s)
O'Connor Sewer	0.534	0.607
Rideau Canal	0	0.142

As shown, there is no flow to the canal during the 5-year event, and flow to the canal during the 100-year is lower than shown in the Stantec report. Flows to O'Connor Street are similar to those shown in the Stantec report.

4.3 PROPOSED CONDITIONS

Under proposed conditions the majority of the site land use remains as it is under existing conditions, except for the new event centre with a green roof. The new event centre requires some rerouting of storm sewers and encroaches on the surface storage previously provided in the Great Lawn. The proposed design involves routing storm sewers south of the new event centre and installing subsurface storage beneath the Great Lawn to account for the additional storage required from the change in land use and elimination of storage available on the surface.

4.3.1 MINOR SYSTEM

The subject site will be serviced by a storm sewer system designed in accordance with the amendment to the storm sewer and stormwater management elements of the Ottawa Design Guidelines. The minor system has been designed to convey the 5-year storm without ponding on the surface. Storm sewer design sheets are included in **Appendix D**.

The site outlets remain the same as they are in existing conditions. The primary outlet is to O'Connor Street to the north. During large storm events runoff is directed to the Rideau Canal through an overflow pipe.

4.3.2 MAJOR SYSTEM

The major system will remain similar to how it is in existing conditions. The site is graded toward to Great Lawn where catch basins around the perimeter will intercept overland runoff and direct it to the underground storm chamber under the Great Lawn. Emergency overland flow is directed toward the Rideau Canal during extreme events exceeding the 100-year design storm.

4.3.3 QUANTITY CONTROL

Additional storage is required to account for the addition of the new event centre and the removal of surface storage on the Great Lawn. The proposed storm system was modelled in PCSWMM according to the same methodology presented in Section 4.2.1. Subcatchment areas and parameters were modified based on the proposed development. The new event centre will have a green roof, however with the steep slopes and limited infiltration, a conservative runoff coefficient of 0.8 (86% impervious in PCSWMM model) was used. The size of the new underground storage chamber (Basin 3) was modelled iteratively to determine the required area and volume to match the existing conditions PCSWMM model results.

The new underground storage chamber beneath the Great Lawn will have a volume of 4100 m^3. The addition of underground storage will improve the useability of the Great Lawn for recreation and events as the ground surface will no longer be used to pond runoff. Overland flow directed to the Great Lawn will be captured by catch basins around the perimeter, and the lawn will be graded to avoid ponding.

Storage volumes and peak HGL during the 5-year and 100-year events for Basin 1, Basin 2, and the new Basin 3 are shown in Table 4-3. Peak flows at the outfalls are shown in Table 4-4.

Table 4-3: Proposed condition storage results

	5-year		100-year	
	Peak Volume (m^3)	Peak HGL (m)	Peak Volume (m^3)	Peak HGL (m)
Basin 1	535	63.93	600	64.53
Basin 2	1617	63.86	2200	64.53
Basin 3	2191	63.86	4083	64.52

Table 4-4: Proposed Condition Peak Flows

	5-year Peak Flow (m^3/s)	100-year Peak Flow (m^3/s)
O'Connor Sewer	0.425	0.594
Rideau Canal	0	0.131

As shown, peak outflows in proposed conditions are lower than those in existing conditions based on the PCSWMM modelling.

5 CONCLUSION

The Ottawa Sport and Entertainment Group in collaboration with the City of Ottawa are proposed to demolish the existing Civic Arena and North Stands. The proposed Lansdowne 2.0 will include a new 5,500 seat Event Centre, a new 11,200 to 12,000 seat spectator North Stadium Stands and the addition of rental and owned residential units with approx. 1199 units, and associated subsurface parking, as well as the significant landscaping east of the new Event Centre.

Portable water supply is available within the recommended pressure range and 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.

The Ottawa Sport and Entertainment Group completed fire hydrant testing in 2022. The testing indicated that water supply is available between 7896.4 l/min and 10561 l/min at 140 kPa. Therefore, fire protection supply is available.

The proposed Lansdowne 2.0 increases the peak dry weather flow from 42.1 L/s to 54.82 L/s. Under wet weather flow condition, the peak discharge is also increased from 45.3 L/s to 59.90 L/s.

The site will be required by the City to limit the discharge of stormwater to the existing conditions peak flow rate, with stormwater up to the post-development 100yr storm stored on-site. Preliminary estimates of the runoff rates lead to an approximate maximum site discharge rate of 594 L/s, with additional required storage of approximately 4100 m^3.

Therefore, it is confirmed the existing infrastructure is sufficient to support the proposed development. It should be noted that all demand calculations are estimates based on conceptual architectural plans and are subject to change during the design phase.

The proposed water, wastewater, and stormwater management designs conform to all relevant City guidelines and policies.

APPENDIX

A

- CITY AND NCC COMMENTS
- CONCEPTUAL ARCHITECTUAL PLAN
- AS-BUILT DRAWINGS

File Number: D01-01-23-0009
D02-02-23-0047

August 3, 2023

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

Subject: **Official Plan and Zoning By-law Amendment Application – 945 & 1015 Bank Street – Formal Review Comments**

Please find below the consolidated comments from the formal review of the above noted applications.

1. Planning

Comments:

1.1. Generally, the proposal is in keeping with the Official Plan adopted by Council.

1.2. The Policy team is supportive of the proposed OPA, but requested that a minor change be made.

> "Rather than stating that the Special District policies supersede the Greenspace designation, it would be more appropriate to simply list in the area-specific policy the desired permitted uses on lands designated as Greenspace within the Special District (i.e., an event centre with a green roof etc.).
>
> The preamble in Section 6.6 – Special Districts of the Official Plan states: "[…] They are distinct areas that transcend the role and function of Hubs, Corridors and Neighbourhoods, and warrant unique planning approaches." Notably, Greenspaces are not included in this list as they are intended to maintain their original function within the Special Districts.
>
> It would be more appropriate to expand what is permitted rather than risk setting a precedent that allows for OPAs to effectively eliminate the greenspace function in other Special Districts."

1.3. Please see the draft OPA and ZBA details attached for review and comment.

2. Engineering

Comments:

Functional Servicing & Stormwater Management Study, prepared by WSP, May 25, 2023

2.1. *General*

Section 1.3 of the report states “the minutes for the Pre-Application Consultation Meeting for this Zoning By Law Amendment is provided for reference in Appendix A”. Meeting minutes could not be found in appendix A please revise.

2.2. *Storm*

PCSWMM models are under review by City of Ottawa staff, comments will be provided upon receipt.

The underground storm water storage tank (approx. 4100m3) proposed within the great lawn as part of the study requires technical foundation design based off a geotechnical investigation of the subsurface profile. Please coordinate with the geotechnical engineering consultant Parsons to ensure that the geotechnical study considers this aspect of the design and speak to this in the report.

2.3. *Sanitary*

Provide detailed calculations used to determine the existing sanitary flows, and the anticipated sanitary flows.

2.4. *Water*

Table 2-2 Water Demand and Boundary Conditions Existing Conditions does not match the required fire flow or water demand calculations in Appendix A please clarify and revise.

Provide boundary condition email correspondence with the City of Ottawa in the Appendix of the study.

Please modify section 2.3 (Domestic Supply and pressure) to reference technical bulletin ISD-2010-0

Geotechnical Investigation Proposed Lansdowne Rink and Towers, prepared by Paterson Group, June 28, 2023, Report: PG5792-1

2.5. The project consists of significant underground storm water storage tank (approx. 4100m3) proposed within the great lawn as part of the functional servicing and storm water management study prepared by WSP. Please confirm and coordinate with WSP’s consulting team to ensure that the geotechnical study considers this aspect of the design and speaks to this in the report. The geotechnical investigation should speak to the foundation of the storage tank and determine if additional investigation of the subsurface within the great lawn is required for this proposed structure. For more information, please consult the study prepared by WSP.

Roadway Traffic Noise Feasibility Assessment, prepared by Gradient Wind Engineering Inc., June 16, 2023, Report: 23-053-Traffic noise feasibility.

2.6. During 10. Bank street is divided Arterial not undivided in front of the project, so traffic volume count should be 35,000 instead of 30,000, please clarify. In addition, Queen Elizabeth Drive roadway classification is not listed within the city of Ottawa official plan and Transportation master plan please provide source of Queen Elizabeth Drive roadway classification.

2.7. In section 4.2.3 of the assessment, it is unclear if the listed parameters used for the noise prediction calculations were imputed for the STAMSON model, the Predictor-Lima model, or both. Please clarify in the body of the report.

2.8. The noise feasibility assessment is required to be modeled using the City of Ottawa approved STAMSON modeling program. Additionally, the STAMSON results shown in the report have shown consistently higher results therefore it is possible the STAMSON model is more conservative. Please provide significant justification for the use of the Predictor-Lima software over the approved STAMSON software.

2.9. Have noise impacts from the stadium been factored into the assessment for the predicted noise levels of the outdoor living areas?

2.10. Additional information is required for the analysis of the proposed event center. Quantify the predicted noise levels, and to what extent will the proposed 'room within a room' design mitigate the anticipated noise. Similarly, quantifiable information and assessment of the noise generated from pedestrians congregating at the event center is required to be investigated. What are the potential sound levels generated by the congregating pedestrians, will this impact the residential units as well as the outdoor amenity areas of the proposed towers?

2.11. The STAMSON calculations for receptor 3 and receptor 4 use different barrier heights, please clarify.

2.12. The STAMSON calculations for receptor 3 use a receiver source distance of 80m where receptor 4 uses a receiver source distance of 76m. Based on figure-3 it appears that receptor 3 is closer to the noise source please clarify.

2.13. As per the noise feasibility assessment the following construction is proposed for the event center east of the proposed towers "*the floor could be isolated, jack up slab, the interior walls would be built of double row studs with the first row of studs built on top of the isolation slab. The second row of studs would be on the surrounding structure. A suspended ceiling would be hung using isolation hangers*". Please confirm and coordinate with the geotechnical consultant, Parsons Group, that this type of construction is feasible within the geotechnical constraints of the site. Please speak to this within the assessment.

<u>Phase I & Phase II Environmental Site Assessment</u>

2.14. It has been confirmed with City staff that a Phase I & Phase II environmental site assessment is not required for the Zoning By-law Amendment or The Official Plan Amendment. A phase I and phase II environmental site assessment will be required for the subsequent Site Plan Control application.

<u>Pedestrian Level Wind Study, prepared by Gradient Wind Engineering Inc., June 15, 2023</u>

2.15. It has been confirmed with City staff that the pedestrian level wind study is under review by the urban design.

3. Corporate Real Estate Office

Comments:

3.1. A new Phase One Environmental Site Assessment (ESA) will be required at the time of Site Plan. Should the Phase One identify any Areas of Potential Environmental Concern, a Phase Two ESA will also be required.

3.2. A Record of Site Condition (RSC) will have to be filed with the Ministry of Environment, Conservation and Parks in order to permit the more sensitive residential land use in the area currently occupied by the north side stands and arena structure. This can also be addressed with conditions at the time of Site Plan Approval.

4. Transportation

Comments are forthcoming.

5. Urban Design

Comments:

Clarification questions and additional information requested:

5.1. The zoning schedule permits 38m heights and has a notch close to the Aberdeen Pavilion (Please see the Appendix 1, image 1- area circled in red color). The podium of Tower 3 appears to extend the permitted 38m beyond the zoning line. Does the 'tail' of the proposed building fall within the area with a 6m height max (see Appendix 1, image 2– blue line is estimated as the location of the zoning line). Please provide a drawing that overlays the zoning lines with the proposed building footprint to provide clarity.

5.2. During games or festival times, it is essential to have a well-thought-out plan to handle the crowd effectively, including crowd interface with vehicular circulation and parking. Please clarify:

5.2.1. What are the assumptions regarding pedestrian volumes?

5.2.2. What calculations were used to determine volumes for the commercial areas, when there are events and / or multiple events on site, during different seasons etc.?

5.2.3. Were the edges of the public realm determined by pedestrian volumes or by the limits of easements and building footprints?

5.3. Please clarify:

5.3.1. Which vehicles can drive down to the Exhibition Way as far as the Aberdeen Pavilion.

5.3.2. Is there residential drop-off / delivery all the way to Tower 3?

5.3.3. Are there alternate locations for the servicing / loading function?

5.4. What is the current amount of useable park / great lawn space and what is the size of the park in the proposed concept? Additional dimensioned plans and

section drawings of the berm and grade transition from parkland to Event Centre should be provided.

5.5. The Design Brief TOR noted the need to provide both streetscape cross-sections and a conceptual landscape plan. Neither requirement has been met. These drawings are required to evaluate how the public spaces around Aberdeen, Tower 3, and Event Centre, in particular, will work. The drawings should focus on the proposed public realm and indicate, at minimum:

5.5.1. The locations for pedestrian and vehicular movement.

5.5.2. The size and location of pedestrian gathering points and plazas.

5.5.3. The area available for outdoor staging (current versus proposed).

5.5.4. The room available for tree planting.

5.5.5. the space available for street furniture.

5.6. Streetscape cross-sections and a conceptual landscape plan are required with the second UDRP submission.

5.7. Updated wind and shadow studies are required with the second UDRP submission, based on any proposed revisions.

Building Massing and Public Spaces:

5.8. As noted in previous comments and by the UDRP, tower floorplates shall adhere to the City's High-Rise Building Design Guidelines. Therefore, the floorplates, including balconies, cannot exceed 750m2.

5.9. For towers up to 30-storeys, the minimum separation distance between towers is 23m. For towers over 30-storeys, the minimum separation distance is 25m. Greater tower separations should be provided when tower floorplates exceed 750m².

5.10. The wind and shadow studies provided show negative impacts on the public realm. Specifically, the shadow study shows that Exhibition Way and the Aberdeen Pavilion are in shadow for large amounts of the day. The wind study shows that Exhibition Way and the plaza spaces around the Pavilion were comfortable for sitting, but with new development these comfortable areas will be reduced. The approach to massing and tower placement should re-considered to minimize the impacts of shadowing and wind on the public realm.

5.11. Tower 3 takes away from the experience of the Aberdeen Pavilion; it shifts views and emphasis away from the Pavilion and blocks certain views of the Pavilion. Additionally, it creates significant shadow and wind impacts on the public realm. Urban Design's position is that Tower 3, and the associated podium, should be eliminated (Please see attached Appendix 1, image 3,4 and 5) and the redevelopment of this site should, at maximum, include only two towers.

5.12. Urban Design believes that there should be no building where the Tower 3 podium / base is shown. The space should remain open, at grade, public space in order to: (1) enhance the experience of the Aberdeen Pavilion as seen from the south

side stands, (2) allow for enlarged gathering spaces around the Pavilion and entrance to the Event Center (see Public Space comments below) which will be particularly important when there are events / concurrent events, (3) create more opportunities for tree planting and seating areas, and (4) Provide additional public realm on-site.

5.13. The attached Appendix 1, images 3,4 and 5 shows the positive impacts on the open space and Aberdeen Pavilion with the removal of the tower 3 and its podium. The removal of this podium and tower also creates clear sight lines from north to south, creating a stronger visual connection between the Event Centre and the existing Lansdowne commercial/mixed use development and associated public realm. This space should remain free and clear of any buildings, including if a three- tower solution be pursued,

5.14. Should a three-tower scenario be pursued, the towers are to have a maximum 750m2 floor plate (including balconies) with appropriate separations indicated above, and be located above the north side stands. The attached Appendix 2 illustrates a few conceptual three-tower options.

5.15. In a three-tower scenario towers should be of different heights generally. Taller building / higher density should be positioned closest to Bank Street, while the lower can be placed closer to the Aberdeen Pavilion to better integrate with the historical context of the site (see attached Appendix 2).

5.16. In a two-tower scenario, which is preferred, a twin-tower design may be appropriate. Appendix 3 compares the shadow impacts of the 3-tower scenario and a 2 -tower scenario.

5.17. As currently shown, the Event Centre interrupts the open space and the current slope from the lawn to roof appears to be too steep. Event Centre must be sunk further into the landscape and that the roof must be green and accessible, in order to create a continuous lawn as an extension of the public realm.

5.18. It appears as though there will be significant vehicular circulation on the west end of Exhibition Way. There will also be significant pedestrian circulation. The truck entrance to underground parking in front of the Aberdeen Pavilion will also cross a significant pedestrian space. Alternative solutions should be considered to address the potential conflicts where pedestrians and vehicles cross paths.

Key Recommendations:

5.19. The Urban Design recommends a zoning envelope for this site be produced by way of a schedule for the final proposed podium and tower(s). In the absence of a zoning schedule, the RFO / RFP process to follow should include the following requirements for the redevelopment:

5.19.1. A maximum tower floor plate, including balconies, of 750m2.

5.19.2. A minimum separation distance of 23m between towers up to 30-storeys and 25m between towers above 30-storeys.

5.19.3. No building where Podium / Tower 3 is currently proposed.

5.19.4. Towers to be of different heights (unless in Tower 2 scenario the twin-tower may be appropriate)

5.19.5. Direction regarding podium design and height

5.19.6. An Event Center with a publicly accessible, green roof that functions as a useable extension of the public open space.

5.19.7. The maximum footprint of the Event Centre

6. Urban Design Review Panel

Key Recommendations:

6.1. The Panel recommends designing the site both for event days and the everyday experience of locals.

6.2. The Panel recommends the focus of this next phase of development should be to ensure established qualities are not compromised by the new development.

6.2.1. The Panel recommends year-round success of the pedestrian realm must be achieved and enhanced.

6.2.2. The Panel recommends the pedestrian accessibility of the site needs to be maintained for events such as the Farmer's Market and future large gatherings around the proposed event space.

6.3. The Panel supports opening up Exhibition Way to further pedestrian activity.

6.4. The Panel has concerns with the proposed event centre being too high in the landscape.

6.4.1. The Panel strongly recommends lowering the event centre further into the ground and providing pedestrian access to the rooftop greenspace as a continuation of the park lawn.

6.4.1.1. Consider the overall pedestrian accessibility to the event space, and the potential for large gatherings.

6.5. The Panel strongly recommends the towers follow the City's guidelines of a 750-sq.m. floorplate.

6.5.1. The Panel recommends further investigating a single-tower or two-tower concept to allow for the 750-sq.m floorplates to be achieved.

6.5.2. The Panel suggests doing so will improve the porosity of the site and maintain north-south views across Lansdowne Park, while minimizing wind and shadow impacts on the public realm.

6.6. The Panel has concerns with the orientation and location of Tower 'C' and its tight condition with the Aberdeen Pavilion.

6.6.1. Consider forgoing a three-tower approach.

6.7. The Panel recommends that the future design of the podium consider using masonry to best relate to the Bank Street frontage and neighbourhood character.

Site Design & Public Realm:

6.8. The Panel appreciates and understands all the challenges with funding and the complexity of adding users, servicing, access, and new stands, etc.

6.9. The Panel suggests locating the truck entrance in front of the Aberdeen Pavilion is problematic and would create a lot of challenges.

6.9.1. Consider consolidating servicing to avoid conflicts.

6.9.2. Consider locating the servicing between the podium and the bleachers, preferably with access from west side closer to Bank Street to mitigate trucks driving further into the site.

6.10. The Panel appreciates the existing amenities of Lansdowne and how it has maintained amenities that are multi-generational, with a good balance of commercial uses and public spaces/events. Consider reinforcing this aspect of the site.

6.11. The Panel appreciates that the site could support additional density to help animate Lansdowne Park. However, the Panel has concerns with Lansdowne Park's ability to provide space that is pedestrian friendly and pedestrian focused, which are central to Lansdowne Park's success—and transformative for Ottawa.

6.11.1. The Panel recommends that this unique characteristic of Lansdowne as a pedestrian space and as a city outdoor public amenity must be protected and enhanced. Any diminishment of that would be a concern.

6.12. The Panel has concerns with the lack of porosity north-south.

6.12.1. Consider increasing the porosity between the buildings in the north-south direction.

6.13. The Panel has concerns with the relationship between Tower 'C' and Aberdeen Pavilion.

6.13.1. The Panel has concerns with how Tower 'C' seems to significantly obstruct the Aberdeen Pavilion and the event centre.

6.13.2. The Panel suggests that Tower 'C' obstructs the connectivity and accessibility of the site and negatively affects the north-south access in front of Aberdeen Pavilion.

6.14. The Panel has questions and concerns with the location and orientation of Tower 'C'.

6.14.1. Consider re-orientation to align with the street grid.

6.15. The Panel appreciates that the views from the Rideau Canal have been maintained. However, Tower 'C' shifts the views away from the heritage of Aberdeen Pavilion and is much too prominent in the view planes.

6.15.1. The Panel recommends enhancing the entrance to the event centre and protecting the views of Aberdeen Pavilion by removing Tower 'C'.

6.16. The Panel recommends at a minimum to incorporate a 23-meter separation between Tower 'C' and the Aberdeen Pavilion.

6.17. The Panel has concerns with the proposal's large impact on the pedestrian realm, and outdoor eating and patio spaces.

6.17.1. The Panel recommends a single tower and podium approach that minimizes the wind and shadowing effects of the tower on the pedestrian realm.

6.18. The Panel appreciates that there are various elements of the proposal that are being connected through the site by the promenade behind the stands and the ceremonial stairway, however these may not be the priority to preserve in the grand scheme.

6.19. The Panel recommends any redevelopment of Lansdowne ensures that it remains a great destination in the city for Ottawans and visitors.

Sustainability:

6.20. The Panel strongly recommends and emphasizes that it is an important task to adhere to the sustainability standards and urban design guidelines that the City has implemented or is planning on implementing.

Sustainability:

6.21. The Panel strongly recommends and emphasizes that it is an important task to adhere to the sustainability standards and urban design guidelines that the City has implemented or is planning on implementing.

6.22. The Panel appreciates the aspirations and objectives of the project and the rejuvenation of the stands and site.

6.22.1. The Panel understands the economic model of the project and the neutral cost aspect.

6.23. The Panel strongly recommends adhering to the City's high-rise design guidelines for this City-led project.

6.23.1. The Panel strongly recommends that the guideline's 750-sq.m. floorplate should be followed.

6.23.1.1. Views from the entrance off Queen Elizabeth Driveway (11), from the Bank Street bridge (13), and from Sunnyside/Bristol (7) are all significantly improved with a smaller floorplate design.

6.23.2. The Panel strongly recommends the massing be adjusted with slender towers that meet the 750-sq.m. floorplates and separation distances of the guidelines. Doing so would result in much better views of Lansdowne from afar, and reduce the shadow and wind impacts on the pedestrian realm.

6.24. The Panel recommends that more slender towers and protecting important sky views will greatly improve the proposal.

6.25. The Panel recommends staggering the heights of the towers with the goal of making the high-rise portion seem less like a barrier.

6.26. The Panel recommends designing the project with a brick and stone material palette to help create a cohesive sense of a precinct and to strengthen the character of the area.

6.26.1. The Panel recommends the final product pick up on the prominent use of brick as a character element of Bank Street.

6.26.2. The Panel appreciates the articulation of the podium, however, recommends the materiality should be more tactile and more residential in nature rather than having a glazed commercial appearance.

6.26.3. The Panel recommends the final product should be a residential brick and stone palette, especially on the podium, to enhance the character of Bank.

6.27. The Panel has concerns with the event centre in terms of how it blocks and interrupts the pedestrian experience of the site.

6.27.1. The Panel encourages the applicant to consider alternate sectional studies and provide further analysis to better inform the end result.

6.27.2. The Panel strongly recommends lowering the event centre into the ground and seamlessly connecting the park with its roof to create a park space for public enjoyment, despite additional cost.

6.28. The Panel encourages the applicant to consider alternate sectional studies and provide further analysis to better inform the end result.

6.28.1. Consider other amenities instead to highlight the 'highline' effects. Residential units facing the bleachers should not be an option.

6.29. The Panel appreciates the decision to setback the podium and open up space on the south side of Exhibition Way.

6.30. The Panel recommends further developing the ceremonial stairway. Consideration needs to be given to accessibility standards.

6.31. The Panel recommends pursuing a two-tower approach instead of the three-tower proposal.

7. Heritage

Comments:

7.1. Heritage Context and Background

Existing Context

The Lansdowne Park is the site of the former Central Canada Exhibition Association fairground (1888 – 2009). It is bounded by Bank Street to the west, Holmwood Avenue to the north, and the Queen Elizabeth Driveway (QED) and

the Rideau Canal, National Historic Site of Canada, Canadian Heritage River and UNESCO World Heritage Site to the east and south.

The site contains the Aberdeen Pavilion and Horticulture Building, both of which are designated under Part IV of the Ontario Heritage Act. The Aberdeen Pavilion - a structural steel and pressed metal late-Victorian exhibition hall – was designed by architect Moses C. Edey and constructed in 1898. It is designated a National Historic Site and is also designated by the City of Ottawa under Section 29 of the Ontario Heritage Act (Bylaw No. 22-84). The Prairie-style two-storey brick Horticulture Building opened in 1914 and its design is attributed to architects Francis C. Sullivan (1882-1929) and Allan Keefer (1883-1952).

Permissions, Applications and Review

Part of the site, including the Aberdeen Pavilion and Horticulture Building, are subject to a 2012 Heritage Conservation Easement Agreement between the City of Ottawa and the Ontario Heritage Trust, which includes protected view corridors, and delineated framing and setting lands. Permission will be required from the Ontario Heritage Trust for any construction within the Easement.

The Site is subject to the 1993 Parks Canada and City of Ottawa Cost-Share Agreement and accompanying (1990) Aberdeen Pavilion Conservation Report that identifies the importance of maintaining clear vistas at each of the four entries to the Pavilion.

In accordance with Section 33 (1) of the Ontario Heritage Act, a heritage permit is not required as the proposed alterations will not impact the heritage attributes of the Aberdeen Pavilion and Horticulture building as set out in the designating by-law. This document has been prepared by Heritage Planning staff at the City of Ottawa as the formal comments on the Official Plan and Zoning By-law Amendments for Lansdowne Park.

Section 4.5.2.1 of the City's Official Plan states that when reviewing development applications properties on, or adjacent to a designated property, the City will ensure that the proposal is compatible by respecting and conserving the cultural heritage value and attributes of the heritage property as defined by the associated designation bylaw and having regard for the Standards and Guidelines for the Conservation of Historic Places in Canada. This will be accomplished through the adaptation of the mitigative measures in the HIA and through the consideration and implementation of Heritage Staff's comments.

7.2. Heritage Impact Assessment:

Heritage Staff generally concur with the findings, recommendations, and conclusions in the HIA provided by ERA Architects Inc. dated June 29,2023. Some of the key impacts identified include:

- The visibility of the proposed towers beyond the silhouette of the Aberdeen Pavilion from the east having some visual impact
- Impact to the dynamic views of the site from the Rideau Canal and adjacent landscapes

- The shadow impact on existing built heritage resources
- The proposed new event centre and extended berm will encroach into the framing lands and Great Lawn south of the Aberdeen Pavilion.

The report concludes that:

The proposed development generally conserves the cultural heritage value of the Site, while allowing for its revitalization. New construction is sited to the southwest portion of the Site, where high-density contemporary structures are currently located. The existing built heritage resources will be retained and rehabilitated as part of ongoing City-initiated programs. Other existing land uses and the spatial organization of the Site will remain unchanged. The proposed development has been designed and situated to minimize impact on the protected HCEA and Parks Canada Cost-Share Agreement views, the setting and framing lands, the Aberdeen Pavilion, and the Horticulture Building. Though protecting the silhouette of the Aberdeen Pavilion is not an express objective of the HCEA, the proposed towers will be visible beyond the silhouette of the Aberdeen Pavilion, creating some visual impact

Mitigative Measures

The mitigative measures identified in the HIA should be implemented and used as guiding principles through the next stages of planning and design for the project. These measure include;

- Design the new retail podium to enhance views to and experience of the Aberdeen Pavilion;
- Enhance the public realm surrounding the new retail podium along Exhibition Way and design for year-round usability;
- Consider the form, massing and materiality of the high-rise towers to complement the new backdrop setting of the Aberdeen Pavilion;
- Consider the high-rise tower shape, placement and articulation to minimize shadow impact; and
- Design the new event centre and berm to minimize visual impact on the south elevation of the Aberdeen Pavilion, while enhancing the Great Lawn open space.
- The commemoration and interpretation of Frank Clair Stadium and Ottawa Civic Centre

Conservation Design Parameters

Similarly, the HIA has detailed Conservation Design Parameters, which are intended to establish a set of conservation objectives and design guidelines for the following areas: Exhibition Way, Event Centre and Southeastern Edge and Tower Design. The Conservation Design Parameters (CDPs) should be implemented to help guide the overall design and maintain the cultural heritage value of the site.

Heritage staff recommend the implementation of the Conservation Design Parameters be included as part of the framework for the RFP of the air rights.

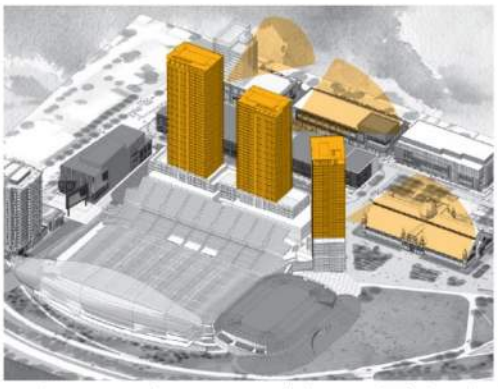
7.3. Additional Heritage Issues /Concerns

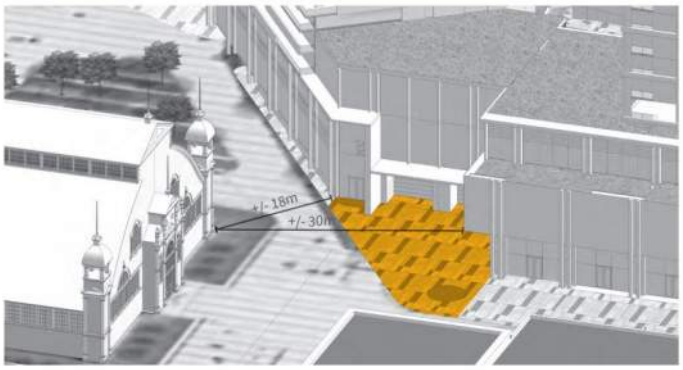
Aberdeen Pavillion and the East Tower

Heritage staff have concerns with the proposed eastern tower on the site and its potential impact on the Aberdeen Pavilion. The revitalization of Lansdowne Park offers an opportunity to further highlight the Aberdeen Pavilion as the heart of Lansdowne, efforts should be made to highlight this landmark building and improve the existing condition between the Aberdeen Pavilion and the new building.

The proposed east tower is adjacent to the Aberdeen Pavilion. The HIA identifies that the proposed development will have an adverse impact on the visual prominence of the Aberdeen Pavilion from certain vantage points within and adjacent to the Site. The 2022 Council-approved (in principle) Lansdowne 2.0 Concept Plan tower heights and massing create a shadow impact on the Aberdeen Pavilion by obscuring heritage features from late morning to early afternoon during the fall and winter months. Character-defining attributes including the central cupola and clerestory windows are cast in new shadow during the September and December test dates. Potential at-grade impacts may include pedestrian and vehicular congestion as well as potential impact during construction. The measures identified in in the HIA will help mitigate these impacts and should be implemented.

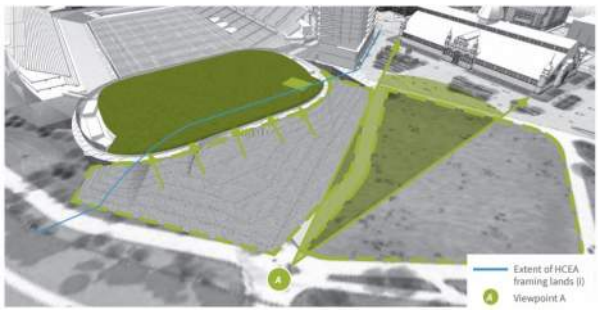
Heritage Staff suggest that alternative option(s) be considered, such as reducing the floor plate and/or height of the eastern tower and/or removing the tower. Further to the appendices provided with comments from the Public Realm and Urban Design Branch, heritage staff encourage the elimination of the third tower or if three towers are to be considered, moving the tower west towards Bank Street so that all three towers are oriented towards Exhibition Way. As shown in these documents, this will mitigate the negative shadow impacts of the current proposal.





Event Centre

The proposed event centre and relocated berm to the east of the TD Place Stadium will encroach in the framing lands as identified within the Ontario Heritage Trust Easement.



Heritage staff support the Conservation Design Parameter in the HIA that states that: The location and design of the event centre should be further refined to minimize visual impact on the south elevation of the Aberdeen Pavilion, while allowing for continued public use of the Great Lawn.

Any alterations to the property within the boundaries of this easement area requires consultation with and approval from the Ontario Heritage Trust.

Public Realm

The open space surrounding the Aberdeen Pavilion contributes to the legibility and prominence of the building. Recommendations to improve the public realm should be explored in coordination with the Council-approved Guiding Principles for the Transformation of Lansdowne and the City of Ottawa's Strategic Investment Plan for the Urban Park and Public Realm.

Heritage Staff encourage the removal of the proposed parking entrance closest to the Aberdeen Pavilion. If required, it should be limited to use as service access.

7.4. Zoning Specific Recommendations– Heritage

Heritage staff recommend that the following be considered through the proposed Zoning By-Law Amendment and Official Plan Amendment.

7.4.1. Reduce potential impacts on the Aberdeen Pavilion

- For the towers, locate the taller height closer to Bank Street and reduce the height and/or building floor plate of the east tower

7.4.2. Protection and enhancement of views of Aberdeen Pavilion

- Establish an increased setback along the southern portion of Exhibition Way to increase the visibility of the Aberdeen pavilion and ensure both spires of the pavilion are visible from Bank Street.

7.4.3. Define and relate the podium height to the Aberdeen Pavilion

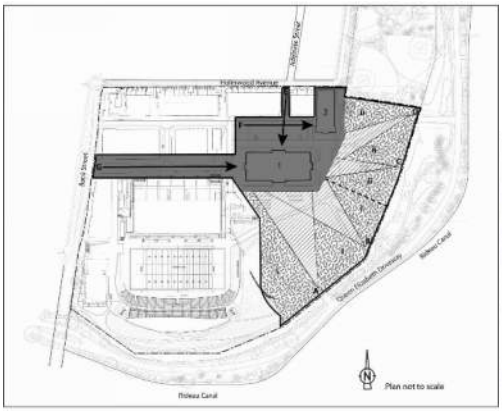
- Limit the height of the podium along Exhibition Way to provide a 3-4 storey streetwall height to ensure compatibility with the Aberdeen Pavilion and the original stadium/grandstand.

7.4.4. Provide a maximum height of the event centre

- Limit the height of the event centre to ensure that the dynamic view of the upper portions of the Aberdeen Pavillion, as defined in the OHT easement, are maintained

7.4.5. Public Realm enhancements to conserve and highlight the Aberdeen Pavilion

- Ensure that the zoning considers the role of open space surrounding the pavilion to maintain its prominence and maintain the established protected views



7.5. Additional Plans and Studies for Site Plan

The following additional plans and studies should be required at site plan:

- HIA Addendum: to look at the more detailed design, including architectural detailing.
- Heritage Interpretation Plan
- Documentation and Salvage Plan for Frank Clair Stadium.
- Heritage Protection Plan for the site which includes:
  - Pre-construction building condition survey and documentation;
  - Vibration and crack monitoring;
  - Implementation of physical protection for the designated buildings;
  - Management of construction dust, debris etc.; and
  - Post-construction building condition survey and documentation.

Heritage Planning Staff can assist in the creation and establishment of the terms of reference for these studies and plans.

8. Ontario Heritage Trust

Comments:

8.1. Building Heights

Towers of the height proposed in the ZBA would impose a negative impact on nearby cultural heritage, by:

- Altering the background of protected views of the Aberdeen Pavilion;
- Placing the Pavilion, Park, and adjacent portions of the Canal in shadow;
- Introducing an abrupt transition of building scale, particularly with respect to proposed Tower 3.

The OHT offers this summary assessment while recognizing that the proposed tower locations are not contained within the boundaries of the provincial easement.

8.2. Event Centre

OHT staff have seen conceptual depictions of the proposed Event Centre pass through several iterations. Previously we have indicated that the heritage impact, though negative, appeared manageable.

The iteration contained in these applications, while understood to be still conceptual, appears to have grown significantly in scale (both the building scale and hardscaping). Its impact would be more considerable than that of previous iterations:

- All iterations of the proposed Event Centre would negatively impact protected views of the Aberdeen Pavilion. The iteration associated with this application appears to have grown in height, and therefore in visual impact;
- All iterations would involve construction within identified zones of archaeological potential;
- This iteration shows hardscape extending further into the Park, and in general, a potentially significant reduction of green space within the easement boundaries;
- The current iteration, unlike previous ones, would appear also to disrupt current community uses of this green space. OHT staff have requested that community uses be integrated.

Recognizing again the conceptual state of progress, the design associated with these applications raises new concerns about impact. The OHT looks forward to continuing discussions with the City.

9. Ottawa Public Health

Comments:

9.1. We note that the provision of 1200 bicycle parking spaces exceeds the current Zoning By-law requirements, however, given that many units will be occupied by more than one person, would recommend increasing this. Unsecure bike parking

would be a significant disincentive to using cycling as a primary mode. This would support OP policies 2.2.4, and 4.1 that seek to incentivize active transportation and make cycling the healthy and easy choice.

9.2. Could there be integration of the High Performance Development Standards (HPDS) in this application, given this is on City lands?

10. Climate Change and Resiliency

Comments:

10.1. While the HPDS has not come into effect, given that this is a City-owned site, it would be appropriate to push this development to apply the HPDS to the fullest extent possible as a showcase example of a City-led project that advances sustainable and resilient design. In my quick review of the Planning Rationale, I see that:

- The project will seek a "high level of sustainable design" as part of the future Site Plan Control application, including:
  - alternative energy and energy-efficient measures, including electric and solar energy sources
  - alternatives to fuel-dependent vehicles
- The proposed concept will aim for LEED Silver certification and will follow the City's Corporate Green Building Policy
- Consideration of a green roof for the event centre.

Here is the link to the Tier 1 and Tier 2 of the HPDS: High Performance Development Standards (HPDS) | City of Ottawa

11. Accessibility Committee

Comments:

11.1. The UDRP package only includes the word accessibility once. Given the scope and application of this work, it should be more explicit in the vision and design objectives.

11.2. Overall, the site should include many accessible rest areas in both active and green spaces.

11.3. Renderings:

11.3.1. Should include people with various disabilities. This shows the disability community that they are considered and included in our work.

11.3.2. Ensure TWSIs are not shown as being obstructed. This is something that should be a strong consideration as the Lansdowne space is reimagined. As constructed, they are not serving their intended purpose.

11.3.3. Ensure a clear pedestrian path of travel (unobstructed by bikes, A-frames, patios, etc.)- the City requires 2 m which won't be demonstrated accurately in a rendering, however, it can demonstrate a clear path

11.3.4. Patios are required to be delineated. This should be shown in renderings.

11.4. How many of the 739 parking spaces will be accessible?

11.5. How many visitor parking spaces will be accessible?

11.6. Are the ceremonial stairs a primary entrance to the buildings or do they serve a strictly decorative purpose?

11.7. Lansdowne has a designated “on-street” accessible parking space above ground - will more of these be included?

12. Rideau Valley Conservation Authority

Comments:

12.1. The RVCA has reviewed the above noted Official Plan and Zoning By-law Amendment application for the Lansdowne 2.0 project to permit building heights up to 40 storeys and facilitate a new stand-alone Event Centre at the east end of TD Place stadium and have no objections.

13. National Capital Commission

Comments are forthcoming.

14. Parks Canada

Comments are forthcoming.

15. Enbridge Gas

Comments:

15.1. Enbridge Gas does not object to the proposed application(s) however, we reserve the right to amend or remove development conditions.

15.2. The applicant will contact Enbridge Gas Customer Service at 1-877-362-7434 prior to any site construction activities to determine if existing piping facilities need to be relocated or abandoned.

16. Telecon

Comments:

16.1. EXTREME CAUTION! TELUS HAS CABLE IN FOREIGN UTILITY'S LEASED DUCTS AND VAULTS, close to the proposed route. Please call for locates.

17. Ottawa Catholic School Board

Comments:

17.1. The Ottawa Catholic School Board has no objection to the proposed zoning amendments and the site plan control proposal for the property located at 945, 1015 Bank Street. However, since new residential developments have an impact on enrolment, transportation routes and attendance boundaries, we would like to

be notified of all decisions pertaining to this application, including notice of public meetings, street name dedications and approval status.

18. Ottawa Catholic School Board

Comments:

18.1. The Planning staff has reviewed the above-noted Official Plan & Zoning By-Law Amendment application. It is understood that the proposed development will have the North stadium stands removed and reconstructed as a standalone structure, which will be the new event centre for Lansdown Park. The proposed development also includes three high-rise residential towers with a maximum height of 40 storeys to be established and will have up to 1,200 residential units.

It is our understanding that the City seeks to amend Area-Specific Policy of the Lansdown Special District designation through an Official Plan Amendment to clarify the City's Official Plan with the following amendments:

- Confirm that the Lansdowne Special District policies supersede the Greenspace and Mainstreet
- Corridor functional designations that are shown on Schedule B2 of the Official Plan.
- Allow for a maximum building height of 40 storeys on the site.
- Allow for a portion of the existing greenspace on the site to be repurposed for a new event centre.

The Zoning By-Law application seeks to rezone a portion of the subject site to permit the new event centre, as well as increase the maximum permitted building height to allow for the proposed 40 storeys and a maximum proposed height of 15.05 meters for the event centre.

Please be advised that our response to your request for comments regarding the proposed development is as follows:

The Ottawa-Carleton District School Board (OCDSB) has no concerns against the proposed Official Plan & Zoning By-Law Amendment. The city is seeking to increase intensification within the urban boundary, and the OCDSB recognizes that new dwellings will generate new students to our local schools.

We would also like to note that the owner be required to inform prospective purchasers that school accommodation pressures exist in the Ottawa-Carleton District School Board schools designated to serve this development which are

19. Councillor and Community issues

Comments:

19.1. Please see summary of community comments (Document 2) attached for review and comment. A public meeting was held on July 13, 2023, with approximately 150 people in attendance.

19.2. At this time, planning staff have not received formal comments from Councillor Menard.

19.3. Staff received approximately 175 public comments during the comment period. Approximately 60 percent of respondent was opposed to the development while 40 percent are either in support or indifferent.

Please review the following comments and provide a response for each theme.

Building height

- Increase of up to 40 storeys from current limit of 20 storeys is selfish and dangerous
- General opposition to Zoning By-law amendment to increase height
- Tall buildings are an eye sore
- The request to increase the maximum height restriction from 38 metres to 127 is excessive and over three times the existing height.
- These heights are out of place for the neighbourhood and the surrounding heritage buildings
- No building should be taller vs. what is there today
- A set of mid-rise residential buildings, with a more fitting aesthetic for the area, would be much more appealing to Glebe residents

Transition to Adjacent Low-rise neighbourhood

- The high-rises are out of place in comparison to the rest of the Glebe
- Completely out of scale with the charm of the surrounding neighbourhood.
- The Glebe has always had an old-world (aka low-rise) feel. This changes the landscape of this beautiful old community,
- This is an iconic Ottawa site, and to propose 40 story towers, which are so shockingly out of proportion with the surrounding cityscape and the site is outrageous.
- The imposing presence of these buildings not only clashes with the surrounding Glebe aesthetic, it also invades the sight lines of Glebe residents, shoppers, and seasonal event goers

Wind impact

- The towers will cause a wind tunnel that will make walking on Marché very unbearable in winter months.
- The wind study as presented, lacks significant information for an assessment to be made as to its validity and appropriateness in the

current context. If anything, it may underestimate the wind climate problems which could occur were this development to be built.

Shadow impact

- The 3 residential towers proposed will be too tall and will provide too much shade on the Aberdeen Pavilion and the existing structures at Lansdowne
- Three high-rise towers will overwhelm the site - especially at 40 stories. They will block the sun and cast long shadows. They will destroy the character of the surrounding area.
- The towers will create large shadows and wind tunnels that will cause the very popular patios on Marché Way to lose most of their sunlight.
- 40 stories will shade so much it will reduce quality of life and enjoyment in the whole area.
- Not only will much of the Lansdowne site be covered by shadow, but also neighboring streets in the Glebe as far as 1st Ave, the canal and streets in Old Ottawa South (across the canal!)
- The angled tower next to the Aberdeen Pavilion is particularly egregious and should be eliminated entirely as it over-shadows the Pavilion
- Eliminating all the sunlight for businesses on exhibition way would be a travesty.

Traffic

- The congestion and confusion in the neighbourhood when events are on now (and even when they aren't) will only be exacerbated by the existence of so many new residential units and the additional events.
- Traffic needs to be addressed to public, and discussions need to be had early on for solving traffic related issues
- Please do whatever is possible to deter more vehicular traffic. It's already a disaster in this regard for anyone living nearby or trying to get to/from that area

Active Transportation (Bicycle and Pedestrian connectivity/safety)

- The active transportation along Bank Street and the Queen Elizabeth Driveway needs to be improved.
- The addition of up to 1200 new units will clog up Bank Street and the nearby neighbourhoods and reduce the ability for pedestrians and cyclists to enjoy the canal and Lansdowne itself.
- Need to widen the Bank Street sidewalks and create properly separated bike lanes

- Increase the transit service to and from the park on Bank Street with a dedicated lane. Get bike lanes on Bank Street and create new and safe bicycling infrastructure to and through the site

Transit

- Insufficient transit options for the site, the busses are insufficient and will only get worse upon development
- How will all of the new residents and visitors get to and from the site.
- Transit for all the events at Lansdowne does not work, building this without implementing better busses or the O-Train will not work

Parking

- 739 parking spaces for 1200 units will be woefully insufficient and 400 cars will try to park in surrounding streets
- unless there is a spot per unit, there will be a spillover to the local neighbourhood
- That a number of dedicated disabled parking spots be implemented in this area would be welcomed.
- Adding 739 vehicles to this space seems designed to create traffic chaos on the site and affected roads.

Density

- Increased density makes sense if there is increased greenspace
- Clearly, the city center is already overcrowded and adding the traffic density expected from thousands of new residents will further degrade the residential environment
- The density of this project will have a negative impact on traffic, transportation, servicing, and greenspace

Loss of Greenspace

- Loss of greenspace will negatively affect the residents on Holmwood Ave
- Replacing the arena and moving it to the green space park is a terrible and costly idea. The lawn is well used and enjoyed by many, and will be needed even more to serve the local population if it increases with the towers
- It is obviously a bad idea to add 1200+ yard-free occupants to the site and eliminate greenspace.
- Lansdowne already has very little green space. None of the green space should be lost, especially to build an arena that is not needed. With this loss of green space, Lansdowne will not have enough green

space to hold music festivals. Also, Lansdowne will be even more of a concrete jungle.

- The plan for 35, 40 and 46 storey towers removes whatever pretext remains for calling Landsdowne a park.
- Make the green roof on the new arena accessible to the public. Doing so would help to offset much of the usable greenspace being lost by relocating the arena.
- The overall design of the project should enhance the site with green space and fit in with some aspect of historical respect for the look of the canal site
- Lansdowne is a park and should be kept as such. Should not be developed on and should be enjoyed by all residents of the city.
- Please save all the green area possible in the inner city lest it become a wasteland.

Housing

- The plan is trying to fit in more residential units than are appropriate for the space
- 40-story condominium buildings at Landsdowne will generate very good property tax revenue for the City but does nothing to address the affordable housing shortage. If you were making affordable or public housing this would be acceptable, but it is not.
- We need more affordable housing, and this project will not be, why aren't we seeing proposals for 5-10 storey buildings lining streets instead?
- If housing is to be added to Lansdowne Park, it should be rent-to-income only. I don't feel like subsidizing rich people's access to pricey condos overlooking the sports fields. I can't afford to buy at Lansdowne. Many people cannot.
- These towers would be better used with 2 and 3 bedroom units - Ottawa already has enough bachelor and one bedroom towers, we need to be thinking of more affordable options for families.

Land Use

- People WANT a park -- not an event space, not an arena, but a PARK. A place for leisure, walking, meeting friends
- The proposed three towers would render this end of the Glebe almost unlivable
- This is not a “partnership” (public, private) but handover of public, precious land to satisfy and expand commercial interests.

- Should not be building 40 storey towers in what is supposed to be a park
- Plant some trees, preserve what little green space is left, build people-friendly sized buildings with affordable housing
- Why aren't we redeveloping the St Laurent shopping centre into high density and putting the stadium there? It's right on the transit way and the freeway

Heritage

- The towers are also in no way in respect to the beauty and heritage of the UNESCO Rideau Canal and the two heritage buildings on site; the Aberdeen Pavillon and the Horticulture Building. Imagine the city of Rome allowing towers such as proposed to be built beside the Colosseum or beside the Pantheon. We need to honor and respect our heritage buildings and not pollute them with 40 story condo buildings.
- This project will fundamentally change the area by overshadowing the historic Aberdeen Pavilion

Sustainability

- There is waste in destroying the recently built podium.
- Force the developers to use only green technologies to lower Lansdowne's carbon footprint. How about increasing rooftop green space use by planting garden beds and vertical gardens?
- Concrete and steel consumption contribute greatly to carbon emissions. It would be irresponsible to dispose of what's already been built, only to replace it with more concrete and steel.
- putting an arena where some of the limited current green space exists seems contrary to all city policies and guidance for greater green space, and inconsistent with fighting climate change.

Noise

- The increased noise, commotion will absolutely kill The Glebe.
- Please revise to lower density and noise

General Inquiries and comments:

- What failed in financial model of 1.0, and how is that being addressed/prevented in 2.0
- The time to complete this large project of this size would be years. Trying to keep the businesses already in place here running during extensive construction will be very difficult

- Saddling the tax payers of Ottawa for years with billions of dollars of debt to finance the proposal and to line the pockets of OSEG members is criminal.
- Where will the kids go to school? Where will they go to the Doctor/Dentist?
- Lack of public consultation

Positive Comments:

- Full support of application in their current state
- This looks great. I was expecting more of the green space to be used so that more people could live in this desirable neighborhood, but there's not much to object with on the modest proposal
- Density and building heights are good, and keeping the arena within Lansdowne is key to the continued success of the area
- I am in full support of densification. This is essential to improving affordability in the city and reducing our environmental impact.
- I think the towers add good density to an attractive site, and bring a critical mass of residents to increase the vibrancy of Lansdowne.
- I LOVE the proposal for Lansdowne 2.0!! We NEED housing. We NEED a football stadium. We NEED a hockey arena for 67s. PLEASE build this as presented. The 3 towers are in the PERFECT PLACE!!! BUILD THIS PLEASE!!! Thank you.
- Review the financials but as for the development as proposed please approve.
- As a homeowner in the Glebe, I'm trilled to hear that the Glebe will be further densified by this development, as it rightly should be. These new towers will provide valuable housing to this supply-constrained market, will provide many people the opportunity to live in one of the best parts of Ottawa, and will bring tons of business to the local businesses.
- I support the project for 945 and 1015 bank St and I think there should be even more apartments.
- I'm a resident of Centretown, frequenting the Glebe/Lansdowne, and I am 100% in favour of this application moving forward. As someone who has lived inner-city in various cities across Canada, I have witnessed first-hand the good that density like this - whether it be market-rate homes for ownership or rental and/or social/affordable homes - does for a community. In my view, intensification makes areas vibrant - it supports businesses, creates walkable areas, helps cut down on our environmental impact, and fosters a sense of community.

- I am in support. This project will make Ottawa a more competitive city for events and will provide more apartments for people to live in.

Should there be any other questions, please do not hesitate to contact me.

Sincerely,

Krishon Walker

cc. Sean Moore, Director, Lansdowne Park Redevelopment Project
Simon Deiaco, Senior Planner
Abdul Mottalib, Infrastructure Project Manager
Mike Giampa, Transportation Project Manager

National Capital Commission Comments

Thank you for circulating the National Capital Commission (NCC) on applications for Official Plan Amendment and Zoning By-law Amendment for 945 and 1015 Bank Street (D01-01-23-0009 / D02-02-23-0047), “Lansdowne 2.0”. The Lansdowne 2.0 initiative presents an opportunity to think boldly about Lansdowne, QED, and broader Capital-building and City-building perspectives. We present the below comments (paired with an attached Appendix in response to the ‘Lessons Learned’ report) in a spirit of openminded discussion and collaboration on this exciting initiative.

Context

- The current process leading to the redevelopment of Lansdowne began in 2007 as the City sought to replace the existing south-side stands and revitalize the site with new development.
- Lansdowne is bounded to the east and south by the NCC-owned Queen Elizabeth Drive (QED) and Capital Urban Greenspace beside the Rideau Canal.
- The Rideau Canal is owned and managed by Parks Canada, and is a UNESCO World Heritage Site.
- The NCC has been a collaborative stakeholder in the redevelopment of Lansdowne, including approving improvements to pedestrian connectivity from the Rideau Canal Capital Pathway, participating in the Lansdowne Transportation Monitoring and Operations Committee (LTMOC), and permitting by agreement the use of QED for park-and-ride shuttles for major events.

Proposed Development

- The proposal comprises:
    - three high-rise residential towers with up to 1,200 new dwelling units and 739 new parking spaces;
    - replacing the current 3,809 square metres of retail space attached to the arena/stadium complex along Exhibition Way with 9,290 square metres of new mixed-use retail space in the podium of the new residential towers;
    - replacing the north-side stadium stands;
    - a new 1,500-person music hall; and
    - a new 5,500 seat multipurpose event centre.

Comments

1. **Queen Elizabeth Drive**

a. The NCC shares the City's goal of re-imagining Queen Elizabeth Driveway to reduce the road's importance as a commuter route in favour of active mobility and the public realm. The QED is a capital parkway designed for its experiential quality, and not intended as a principal commuting transportation route.

b. The NCC's guiding principles for Queen Elizabeth Driveway emphasize sustainable and active modes of mobility over private motor vehicle use of the roadway, consistent with the overall vision for NCC parkways as scenic connections between major national areas of significance while providing opportunities for recreational purposes.

   QED is a federal parkway under the jurisdiction of the NCC. Since 1970 the NCC has hosted bike days, including periodic full closures of Colonel By Drive. Since 2020 the NCC has expanded this program to other parkways so they are periodically reserved for active use and not for use by vehicles and QED is seasonally reserved for active use from May to October on varying days.

   We remain concerned that the TIA analysis does not reflect the reality of regular periods when QED is not available for private vehicle use. We provided feedback on the draft TIA and requested that it evaluate a range of scenarios – different levels of intensity of events at Lansdowne with different formats of QED use. There is a wide range of options and level of impact, wherein QED could be reserved for active use, or opened to shuttles at events of certain sizes. Similarly, the impacts of each option vary by the size of events at Lansdowne: the 1,500-person music venue, the 5,500-seat event venue, events at the Aberdeen Pavilion, and the stadium itself – as each venue is added to a concurrent peak demand, the ways that QED could be used vary.

   The TIA and associated studies did not evaluate these more nuanced options to inform the conversation about QED access, instead relying on "*our assumption is that the QED will, generally, remain as a viable secondary vehicular access point to Lansdowne*". The response provided in the Lessons Learned states that "*If the assumptions are not valid, then the integrity of the Lansdowne 2.0 program (and likely current Lansdowne operations) would be severely compromised from a transportation perspective*." This generalization lacks nuance – there are levels of intensity of activity at Lansdowne wherein QED access is more critical than others.

Lacking a study of those different levels of intensity and QED access as was requested leaves the applications relying on broad assumptions.

Note: The NCC is currently reviewing its Parkway Policy which will provide direction for future use and evolution of QED. We look forward to working with the City to support sustainable mobility while protecting QED's unique capital vocation.

c. The transportation challenges of Lansdowne will not be solved by prioritizing access by personal vehicles. Where access to Lansdowne is needed for major events, Queen Elizabeth Drive has proven successful at efficiently moving large numbers of people through the shuttle program. Improving access to Lansdowne must prioritize increasing capacity and mobility through making transit and other sustainable modes the preferred choice.

These modes will be the preferred choice not only by requiring the attendees of ticketed events to pay for their transit by providing a transit fare with every ticket, but also on a day-to-day basis making access to Lansdowne by transit and other sustainable modes competitively preferable to personal vehicles in cost, time, and convenience. Keeping QED open to personal vehicles at all times undermines this effort.

2. Capital Urban Greenspace

a. The *Strategic Investment Plan for the Urban Park and Public Realm* identifies potential projects on adjacent NCC-owned lands:

   a. Redesigned entrance to Lansdowne at Queen Elizabeth Driveway to better accommodate cyclists and pedestrians with the possibility of a signalized crosswalk.
   b. Forestry and floral plantings along QED
   c. Additional signage of speed limit along QED
   d. A new pedestrian crossing of QED at the site's southeast edge
   e. A two-way accessible link from Colonel By Drive to Bank via Echo Street

Note: We are supportive of improvements to active transportation connectivity and enhancements to animation of the QED corridor, when they are in keeping with its heritage and cultural significance. A Federal

Land Use Design and Transaction Approval (FLUDTA) will be required for any work that is proposed on federal land.

3. Transportation

a. It is essential that the transportation plans associated with Lansdowne 2.0 adequately explore the necessary bold sustainable transportation initiatives, projects and investments and site access improvements to reach the City's and the NCC's objectives. Whether identifying issues through the Transportation Impact Assessment for Lansdowne or proposing new projects for the Transportation Master Plan, these processes must work in tandem to improve mobility and access to this important destination.

b. As noted, the NCC is currently reviewing its Parkway Policy. This initiative, combined with Lansdowne 2.0, presents the opportunity to discuss bold exploratory ideas such as, but not limited to:

   i. Piloting conversion of QED & Colonel By Drive to one-way streets while reducing the number of lanes to provide more space for active use;

   ii. Realigning a portion QED to provide a dedicated access to Lansdowne; and/or

   iii. Exploring limiting access to QED to major event shuttles, emergency vehicles, and active modes on an ongoing basis by design.

c. As discussed in Item 1 above, it needs to be understood how Lansdowne 2.0 and the surrounding transportation network will function under a day-to-day scenario (no medium, major or mega events occurring) with QED closed for active use programming. If it is hypothesized that any long-term, frequent closure of QED will negatively impact the viability of events at Lansdowne, it needs to be understood at what point, in terms of event size programming, does this negative situation occur.

d. To support a viable Lansdowne at all times, TDM activities must strive for a transit mode share that strives beyond the targets set for Lansdowne 1.0; applying the status quo is not a target.

   i. It is important to plan for a transit mode share greater than 10% and an auto mode share lower than 75%, even for events below 10,000 persons in attendance. The smaller events with attendance levels of 5,000 or less occur more frequently at Lansdowne. Of the 161 events

expected in 2024 at Lansdowne, approximately 128 (79%) will be under 5,000.

ii. The Official Plan calls for by 2046, the majority of trips in the city will be made by sustainable transportation. Planning for a 10% transit modal share for 79% of events at Lansdowne will not achieve this objective.

iii. There is inconsistency in the modal share targets. Table 2 indicates a Transit & Shuttle target of 50-55% for Minor Events. Table 4 indicates a target of 10%.

iv. The TIA remains based on forecasted trip generation rates and modal splits. We believe back-casting to identify what actions (built form, TDM, parking supply, transit service, pricing) are needed to reach a desired future scenario is more likely to achieve transportation goals.

v. The growth of automotive mode share should be considered constrained by existing and anticipated conditions on the network including active-use programs on QED.

vi. The TDM report assumes 8,225 person trips as the cap on automotive mode share based on an existing on-street parking supply of 2,175 spaces and on-site of 600 spaces. This appears to presume on-street spaces are available for Lansdowne users despite numerous competing demands for on-street spaces.

vii. Providing capacity to Lansdowne needs to be addressed through high-capacity transportation modes such as shuttles and transit; reliance on the private vehicle will not address the capacity needed.

e. Identifying alternative off-site parking locations is a good approach to intercepting and diverting traffic from Bank. However, consideration should be given to providing shuttle service for locations located further away (i.e. 30-40 minute walk from Lansdowne). For some event goers, the walk may be longer than their drive to the off-site parking location. Park & ride locations that see low usage on evening and weekends present such an opportunity.

f. The inclusion of the concept of a “Fare Free” zone on Bank Street such as is employed in downtown Calgary can support local businesses, including Lansdowne, and reduce the reliance on auto travel while supportive the evolution of Bank Street into a 24/7 transit priority corridor. This is a positive idea that merits serious consideration.

g. To incentivize the use of transit and support a lasting change in commuting behaviour, consideration should be given to providing a preloaded PRESTO card with a 6-month or 1 year transit pass to new residents. A similar type of incentive should be developed for businesses and offered to their employees.

h. In addition to the continuance of bicycle workshops (recommended in the report for the spring), it is recommended that a second workshop be introduced in the fall to provide information on winter cycling. Currently, the multi-use pathways along QED and Colonel By Drive, as well as the cycling facilities on O'Connor St. and Fifth Ave. (QED to O'Connor) are winter maintained routes. Lansdowne 2.0 should take advantage of its proximity to these year-round cycling facilities.

   Although the City is only beginning discussion on a City-wide, City-led bike share program, could a Lansdowne specific bike share program be implemented that would serve the residents of both the new and existing towers? Potentially this program could be managed by the TMA.

i. During the planning process for Lansdowne 1.0, City Staff were directed to retain two qualified transit and transportation planning professionals from outside Ottawa to undertake an independent peer review of the Lansdowne Transportation Impact and Assessment Study and TDM Plan. We suggest a similar peer review be required to provide an independent third-party opinion.

j. The Lansdowne 2.0 proposal includes 739 additional parking spaces for 1,200 new dwelling units, while the zoning by-law requires a minimum rate of 0.5 spaces per dwelling unit. There is no rationale provided for why parking in excess of the minimum is proposed to be provide. Indeed there is no analysis of why a lower rate than the minimum was not considered. Each parking space constructed is a sunk cost into vehicular use that will be paid for by the future residents and users of the site, and by residents surrounding the site through additional traffic generation.

k. The Capital Pathways Strategic Plan is the NCC's principal guiding document for the Capital Pathway network. Based on the thresholds set by the Plan, the Rideau Canal West pathway adjacent to QED exceeds its peak capacity and does not provide the level of high-quality comfortable experience intended for users, nor does the existing pathway width support

ongoing growth of active transportation users. More room for active transportation users is required, especially given ongoing intensification in the inner urban area such as that proposed by Lansdowne 2.0.

4. Civil

a. We understand the existing stormwater management system for Lansdowne includes subsurface storage, surface storage, conveyance sewers, quality control structures and outlet controls. Lansdowne's stormwater management (SWM) discharges to the O'Connor Street combined sewer, and the Rideau Canal sewer functions as a relief sewer, but only once the underground storage system is full and major storm drainage flows enter the Great Lawn (i.e. for events greater than the 5-year event).

SWM runoff to the Rideau Canal is a pressing concern – it not only carries nutrients and sediment that can impact the aquatic ecosystem, but also salt that impacts the ability of the Canal to freeze and be used for skating. Ongoing NCC research in collaboration with Carleton University also identifies warm winter meltwater as exacerbating challenges of establishing and maintaining the Canal's frozen surface for winter skating. It is important that any development brings net improvements to the SWM approach and further avoids directing runoff to the Rideau Canal.

It appears that the proposed Major Event Centre will impact the existing Great Lawn, Berm, and associated SWM storage area. The proposed Major Event Centre is also located on top of the existing Rideau Canal SWM outlet pipe.

We request the City through future detailed design ensure no increase in runoff volume to the Rideau Canal, and evaluate opportunities to reduce or eliminate existing runoff.

Appendix A: Lessons Learned Report Response

In May 2023 the NCC was invited to submit comments on 'Lessons Learned' from experiences of transportation effects of Lansdowne 1.0 (2014-2020). The Lessons Learned document prepared by OSEG (June 2023) contains input from members of the community, the NCC, City Traffic Services, and the Glebe BIA. In preparing the Lessons Learned document, OSEG on behalf of the City, elected to only provide responses to the comments of the NCC. The below comments are further responses.

1. **NCC Comment (May 2023)**: The location of the principal parking garage access at the east end of the site adjacent to the QED forces an unfortunate choice between the impacts to the QED and the vehicular ingress across the quasi- pedestrianized core of Lansdowne.

   OSEG Response: *Based on parking garage data, as well as updated turning movement count data. The QED access functions as an important secondary access point to the site, as intended, and accommodates approximately 35% of vehicular access to Lansdowne. The Bank Street garage ramp functions as the primary access point during regular non-event days. It is noted that the QED access plays a vital role in balancing transportation demands and access arrangements, including during major events when vehicular access from Bank Street is restricted to safely accommodate pedestrian and transit passenger demands from the 450- series shuttle service.*

   NCC Response (July 2023): Vehicular ingress across the quasi-pedestrianized core of Lansdowne is an acknowledged challenge. Despite being designed as a 'shared street', post-development Princess Patricia Way internal to Lansdowne was restricted to pedestrians only, and vehicle traffic was routed through the site via Marché Way. The May 2022 '*Lansdowne Partnership Sustainability Plan and Implementation Report'* contains extensive discussion of the challenges of the design of Aberdeen Square and the internal streets of Lansdowne, and recommends investment to '*improve on-site safety for all users and reduce conflict between transportation modes*.' The location of the parking garage access at the east end of the site adjacent to the QED forces an unfortunate choice between the impacts to the QED and the vehicular ingress across the quasi- pedestrianized core of Lansdowne.

2. **NCC Comment (May 2023)**: Assumptions of unfettered access to the federal parkways from major transportation demand generators, such as was the case for Lansdowne 1.0, led to under-planning for other modes of travel and dissatisfaction when access is not available.

   a) NCC staff flagged this issue in 2011. Quote May 2011 NCC staff comments to the City regarding the then-draft *Transit Service and Shuttle Services and Off-Site Parking Plan Technical Report,* which discussed whether to focus shuttles on QED or Bank, and which heavily favored QED: *"[The report] must be written in neutral language without prejudice, and cannot be seen to be 'prejudging'*

> *outcomes in advance of the findings and conclusions of the pilot project. The outcomes cannot be predicted, and it is unfair to present opinions on one option as the sure success, and the other as a failure. As was mentioned, the City and OSEG have to make the Bank Street shuttle route work, as the QED will not be available for shuttles for all Lansdowne events.* ***So why not make the best effort, devise the best plan, put the best foot forward for the Bank Street option?****" [emphasis added].*

OSEG Response: *One of the key achievements of the TDM program since its implementation in 2014 is the gradual reduction of Park & Shuttle buses operating on QED during major events. As of 2022, the number of Park & Shuttle buses operating on QED has been reduced to an average of 30 - 60 inbound bus trips per major event. This is significantly lower than the original number of bus trips estimated in the 2011 TDM Plan, which is upwards of 100 buses per hour on QED (upwards of +200 bus trips for inbound service). Currently, the majority of Park & Shuttle customers are utilizing the 450-series shuttles with service provided on Bank Street.*

This achievement is consistent with the ideal long-term objective outlined in the ***City of Ottawa – NCC Letter of Intent for Special Event Shuttle Service Pilot Project****, which envisioned a reduction in the number of shuttle buses operating on QED over time.*

It is noted that under a future scenario where no shuttle services are operating on QED, the parkway continues to play a crucial role in supporting a balanced, safe and efficient access program to Lansdowne, particularly during major events.

During major events, vehicular access to Lansdowne is temporarily restricted on Bank Street to safely accommodate the large number of transit passengers, pedestrians and cyclists accessing Lansdowne from Bank Street. During these temporary closures, vehicular access to the underground garage and TNC drop- offs (i.e. Uber and Lyft) is accommodated at the QED access. Under a full QED closure scenario during major events, the expected traffic impacts would be extremely severe and the viability of running events safely with minimal impact to the community would be severely compromised.

NCC Response (July 2023): The reduction in shuttles on QED is an accomplishment in line with the Letter of Intent for the Pilot Project. This does not diminish that the NCC has been consistent in the feedback (as quoted above) that 'the QED will not be available for shuttles for all Lansdowne events' and that development of the site cannot rely on the assumption of unfettered vehicular access.

The NCC provided feedback during the preparation of the TIA, requesting that it model certain scenarios to understand the transportation impacts of different forms of QED access amidst different levels of intensity of Lansdowne programming. No such modeling took place, leaving the analysis of the true impacts of the Lansdowne 2.0 proposal under-informed. The NCC similarly provided detailed comments on the TIA's analysis of MMLOS, transit capacity, and exemptions, among other elements,

but received no response.

The NCC has not determined to close QED during major events but rather has continued to collaborate with the City and OSEG to ensure major events function well. However, we note our 2011 comment that "[The report] must be written in neutral language without prejudice" and that comments such as "the expected traffic impacts would be extremely severe" without the benefit of the requested analysis of such a scenario are premature.

b) **NCC Comment (May 2023):** The NCC reiterated that it ''*will continue (and retains full rights) to close the parkways at its own discretion for its own requirements and third party events''* in a June 2015 letter to OSEG and the City of Ottawa.

OSEG Response: *It is acknowledged that QED is a federal parkway under the jurisdiction of the NCC. It is recognized that the NCC closes QED to vehicular traffic for the staging of Capital events, which historically averages between 15 to 20 days annually. These closures, which occur from time to time as we understand, are successfully coordinated in a collaborative fashion between the NCC, City of Ottawa and OSEG for events such as Winterlude and the Ottawa Race Weekend. OSEG has indicated, for example, that closures that occur in the morning of events, where QED is returned to full operations two hours before events, generally work well.*

NCC Response (July 2023): Major Events (i.e. Ottawa RedBlacks games at the stadium) only constitute 10 to 12 events per year. We continue to coordinate with the City and OSEG to facilitate their successful operation. To suggest that QED should be available to vehicles over the course of the year due to events that occur 10 to 12 times would drastically prioritize vehicular access for a limited number of peak demand events.

c) **NCC Comment (May 2023):** This mirrors our earlier comment that Lansdowne 2.0's studies cannot rely on the assumption that QED will be available upon demand.

OSEG Response: *It is acknowledged that QED is a federal parkway under the jurisdiction of the NCC Irrespective of Lansdowne 2.0, QED is an integral part of the city's transportation network and plays a crucial role in supporting a balanced, safe and efficient access program to Lansdowne, particularly during major events. As previously stated, our assumption is that the QED will, generally, remain as a viable secondary vehicular access point to Lansdowne. If the assumptions is not valid, then the integrity of the Lansdowne 2.0 program (and likely current Lansdowne operations) would be severely compromised from a transportation perspective.*

NCC Response (July 2023): As previously stated, the NCC provided feedback during the preparation of the TIA, requesting that it model certain scenarios to understand the transportation impacts of different forms of QED access amidst different levels of intensity of Lansdowne programming. No such modeling took place. The assumption

of ongoing QED access was refuted by the NCC in 2011 and consistently since then. Such access is not a binary question of no restrictions or complete closures – there are forms of QED access for different modes, and levels of intensity of programming at Lansdowne. To state that 'the integrity of the Lansdowne 2.0 program (and likely current Lansdowne operations) would be severely compromised from a transportation perspective' is over-broad and lacks nuance or qualification.

3. **NCC Comment (May 2023):** Transportation Demand Management has not been consistently supported.

    a) As the Office of the Auditor General: Audit of the Management of the Lansdowne Contract report noted that while OSEG employed a TDM coordinator from 2014 to 2017, despite being required to do so by the site plan agreement "*effective January 1, 2017, OSEG no longer has a dedicated TDM Coordinator, thereby increasing the risk that the effectiveness of the TDM program may be negatively impacted.*"

    b) The 12 November 2020 Lansdowne Annual Report to Finance and Economic Development Committee noted that OSEG did not have a dedicated TDM Coordinator.

    c) The 2021-2022 Lansdowne Annual Report makes no mention of whether this gap has been filled.

    OSEG Response: *Administering the TDM program on-site remains a key component to the success of the TDM program at Lansdowne through the planning and delivery of the various event services and supplementary programming, and support for workplaces and residents at Lansdowne. Currently, the coordination of the TDM program at Lansdowne is administered through a full team that is comprised of individuals within OSEG. This includes the VP, Guest Relations and Operation, and the Director of Safety, Security and Guest Services, who oversee the TDM program and are responsible for the annual TDM reports, in addition to various OSEG staff within Guest Relations and Marketing.*

    NCC Response (July 2023): The 2011 Transportation Demand Management Plan identified the role of a dedicated, on-site TDM Coordinator as key to achieving target modal shares, particularly related to special events. While mode share targets have been met for many events, new TDM initiatives have lagged with the lack of a dedicated TDM coordinator whose responsibilities are not divided with other matters; car sharing is no longer provided, and recommendations related to carpool preferential parking spaces were not implemented. If Lansdowne is to intensify in its residential development and frequency of events, further efforts of TDM will be required.

4. **NCC Comment (May 2023):** In the first months and years following the opening of

Lansdowne's first revitalization, transit was heavily and proactively emphasized as the best way to reach Lansdowne, in marketing material and in direct communications to sports fans. It is our observation that there has been a decline in such promotion in recent years.

OSEG Response: *The inclusion of free transit for all ticketed events at Lansdowne continues to be provided on the TD Place website, as well as through e-mail communications with all event ticketholders. Information is also shared on social media periodically. By example, the inclusion of free transit and enhanced park and shuttle service information is shared on "Know Before You Go" videos that are broadcasted at the start of each season.*

5. **NCC Comment (May 2023):** Lack of clarity on the threshold for enhanced, free, and discounted transit service outside of major event days at the stadium has led to Lansdowne not achieving as high a transit modal share as would be the case if it were commonly known that attending any event at Lansdowne entitled an attendee to ride transit for free.

OSEG Response: *One of the hallmarks of the TDM program for events at Lansdowne is the inclusion of free transit for all ticketed events at Lansdowne with all costs for enhanced public transportation and shuttles paid for by OSEG. This is provided for all events, irrespective of the size of the event. Promotion of free transit service is shared on the TD Place website and shared on social media and promotional materials. The current messaging on the TD Place website for events and concerts states:*

a) The April 2022 "*Lansdowne Partnership Sustainability Plan and Implementation Report***"** dismissed any consideration of free transit to Lansdowne, writing "Before an assessment of free transit can be undertaken, an identified funding mechanism is needed."

b) The report stated that" The concept of free transit, and its implications, was considered by Transportation Committee as a Motion ACS2021-OCC-TRC-0032 on December 1, 2021." The December 2021 response to the motion was regarding free transit being studied through the TMP, not regarding Lansdowne and its redevelopment.

c) The entire premise of Lansdowne 2.0 is funding a major civic project (the replacement of the north stands and the new Event Centre) through the sale of air rights, property tax uplift, and ticket surcharge revenues. The Lansdowne 2.0 analysis should identify the range of costs of providing discount or free transit and the funding mechanisms available to provide this (e.g. further sale of air rights, property tax uplift, and ticket surcharge revenues).

OSEG Response: *As stated earlier, ticketholders to all events at Lansdowne currently have access to free transit and shuttle service for events. The incremental costs of enhancing transit service and providing free transit is paid for by OSEG.*

NCC Response (July 2023): Ticketholders are not provided with free transit, they purchase their transit ride with their ticket cost. The 2012 Site Plan Agreement requires OSEG to include "the cost of enhanced transportation services such as transit, off-site parking and shuttle services and the cost to provide secure temporary on-site bicycle parking corrals **in the ticket price**" [emphasis added].

Despite the continued comment that ticketholders to all events have access to transit, the transit modal share target for Lansdowne 2.0 for minor events (less than 10,000 attendees) is only 10%. This modal share target is low and it appears additional efforts are required to increase transit ridership to minor events and reduce reliance on the private auto (target modal share is 75%).

The analysis of the TIA shows the existing TLOS along Bank at Lansdowne at F. Requiring ticketholders to purchase a transit fare with their ticket may assist with events, but everyday conditions outside of major event days demonstrate the need for improved transit at all times.

6. **NCC Comment (May 2023):** The event size increments for TDM measures is large, which may suggest that implementing more discrete TDM measures commensurate with the size of a wider variety of events should be analyzed

OSEG Response: *The TDM program in place at Lansdowne has been a successful in meetings its goals. Much experience has been gained by City of Ottawa Traffic Services, OC Transpo, and OSEG on a complex program that changes due to factors such as day of the week, time of day, and time of year.*

The management of these factors within the revised attendance levels: less than 5,000, 5,000 to 15,000, 15,000 to 25,000, 25,000 to 40,000, and over 40,000 have proven to be effective. Also, as stated previously, the size of average events at TD Place has proven smaller than initially anticipated. OSEG expects 78% of events held this year to be below 5,000.

NCC Response (July 2023): It is good to see the TDM Report identify updated thresholds of minor and major events, and the growth of public and non-ticketed events that may occur concurrently with other events.

LANSDOWNE PARK REDEVELOPMENT

AREA SUMMARY:

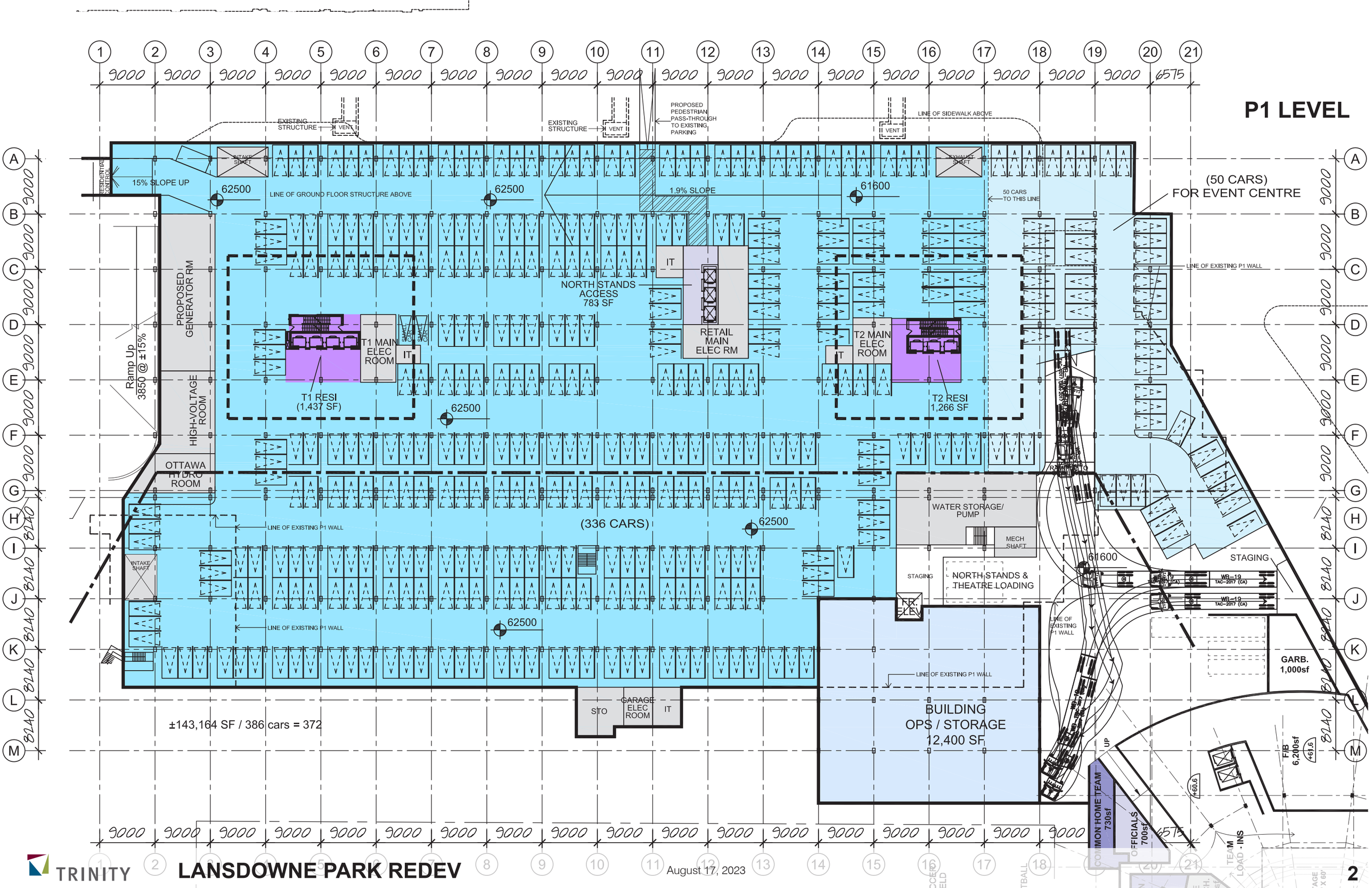
LEVEL	RESI TGFA			SHARED SERVICE & COMMON AREAS	RETAIL GFA	NORTH STANDS ACCESS	NORTH STANDS GFA	OSEG OFFICE
	PODIUM (SF)	TOWER 1 (40 STY) (SF)	TOWER 2 (25 STY) (SF)	(SF)	(SF)	(SF)	(SF)	(SF)
LVL P1		1,437	1,266			783	14,400	
LVL 01		6,011	6,896	3,086	23,979	1,460	48,520	29,086
LVL 02		676	17,378		25,656	1,680	33,253	
LVL 03	34,592						50,000	
LVL 04	34,592						40,423	
LVL 05		8,815	8,613				6,740	
LVL 06		8,815	8,613					
LVL 07-25		167,485	163,647					
LVL 26-40		132,225						
	69,184	325,464	206,413	3,086	49,635	3,923	193,336	29,086
TOTAL TGFA	880,127							

LEVEL	UNIT COUNT PER FLOOR		
	PODIUM	TOWER 1 (40 STY)	TOWER 2 (25 STY)
LVL P1			
LVL 01			
LVL 02			amenity
LVL 03	46		
LVL 04	46		
LVL 05		amenity	12
LVL 06		amenity	12
LVL 07-25		228	228
LVL 26-40		180	
	92	408	252
TOTAL UNITS	752		

TGFA SUMMARY		
A	**PODIUM (P1 L1, L2)**	**72,930**
	A.1) Retail	*49,635*
	A.2) Residential	*16,286*
	A.3) North Stands Access Lobbies	*3,923*
	A.4) Service and Common Areas	*3,086*
B	**TOWER**	**584,775**
	B.1) Tower 1 (L2-L40)	*351,932*
	B.2) Tower 2 (L2-L25)	*232,843*
C	**NORTH STANDS**	**222,422**
	C.1) Stadium	*193,336*
	C.2) OSEG Office	*25,000*
	C.3) Exit Corridor	*4,086*
D	**ARENA**	**160,000**
	TOTAL	**1,040,127**

Notes:
1) Total no. of units is 752
2) Parking total: 386
   - Residential parking ratio at 0.45 (336 cars)
   - 50 parking spaces alloted to Events Centre
3) Driveway/open space area (26,708 sf) at level 1 is not included in total area summary
4) Underground parking area at 143,164 sf, excluding residential and retail vestibules, lobbies, and exit stairs

P1 LEVEL


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
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A B C D E F G H I J K L M
9000 9000 9000 9000 9000 9000 8140 8140 8140 8140 8140 8140 3000
EXISTING STRUCTURE
VENT
EXISTING STRUCTURE
VENT
PROPOSED PEDESTRIAN PASS-THROUGH TO EXISTING PARKING
LINE OF SIDEWALK ABOVE
VENT
INTAKE SHAFT
EXHAUST SHAFT
RESIDENTIAL CONTROL
15% SLOPE UP
62500
LINE OF GROUND FLOOR STRUCTURE ABOVE
62500
1.9% SLOPE
61600
50 CARS TO THIS LINE
(50 CARS) FOR EVENT CENTRE
LINE OF EXISTING P1 WALL
PROPOSED GENERATOR RM
Ramp Up 3850 @ ±15%
HIGH-VOLTAGE ROOM
OTTAWA HYDRO ROOM
IT
NORTH STANDS ACCESS 783 SF
RETAIL MAIN ELEC RM
T1 MAIN ELEC ROOM
IT
T1 RESI (1,437 SF)
62500
IT
T2 MAIN ELEC ROOM
T2 RESI 1,266 SF
LINE OF EXISTING P1 WALL
(336 CARS)
62500
INTAKE SHAFT
LINE OF EXISTING P1 WALL
62500
WATER STORAGE/ PUMP
MECH SHAFT
STAGING
NORTH STANDS & THEATRE LOADING
TRF. ELEC.
61600
STAGING
WB-19 TAC-2017 (CA)
WB-19 TAC-2017 (CA)
LINE OF EXISTING P1 WALL
GARB. 1,000sf
STO
GARAGE ELEC ROOM
IT
±143,164 SF / 386 cars = 372
LINE OF EXISTING P1 WALL
BUILDING OPS / STORAGE 12,400 SF
UP
COMMON HOME TEAM 730sf
OFFICIALS 700sf
F/B 6,200sf
+61.6
+60.6
TEAM LOAD - INS
9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 6575

GROUND FLOOR PLAN

EXHIBITION WAY

LINE OF EXISTING SIDEWALK

LINE OF POTENTIAL PATIO SPACE

ABERDEEN

RETAIL (1,699 SF) | RETAIL (1,699 SF) | RETAIL (1,830 SF) | RETAIL (2,007 SF) | RETAIL (2,007 SF) | RETAIL (2,007 SF) | RETAIL (2,007 SF)

RETAIL (1,833 SF) | RETAIL (2,007 SF) | RETAIL (2,007 SF) | RETAIL (1,881 SF) | RETAIL (1,699 SF)

T1 RESI ±6,896 SF

NORTH STANDS ACCESS 574 SF

SHARED ELEV FOR RETAIL & NORTH STANDS 886 SF

SLOPE UP TO RETAIL PROMENADE

RAMP DN TO EXISTING GARAGE

RAMP DN TO TRUCK PARKING FACILITY

15% SLOPE

1.3% SLOPE PEDESTRIAN RAMP

T1 RES LOBBY

T2 RES LOBBY

T1 RESI ±6,011 SF

SERVICE CORRIDOR

STO

±3,086 SF

MOVE IN

SERVICES/ RETAIL WASTE 610 SF

WASTE STO

BIKE PARKING

±26,708 SF

STAGING

WASTE STO.

OPEN TO ABOVE

OSEG OFFICE 25,000 SF

MECH SHAFT

INTAKE GRATE

EXHAUST GRATE

ELEV

STAIRS

RAMP TO PUBLIC PROMENADE

CORRIDOR ±4,086 SF

F&B 1,430sf

PANTRY 1,000sf

BUILDING OPS / STOR / MISC. 12,113sf

MAIN ELECT. 1,670sf

TEAM SPACES 6,100sf

LOWER CONCOURSE 5,250sf - 1,310 CAP

W/R 1090sf (22 FIXT.)

L0GES (32)

10 SUITES (160)

SUITES SEATING ABOVE

SUITES VIEWING PATIO

FIELD LEVEL

EXISTING LED BOARD

MEP

NORTH-SOUTH SECTION

MAIN ENTRANCE

FREIGHT ELEVATORS

67.3

66.6

65.5

67580

66790

65450

65100

LEVEL 2

GOODLIFE
(25,656 sq.ft)

(676 SF)

RESIDENTIAL AMENITY
(16,753 sq.ft)

(625 SF)

SHARED ELEV
FOR RETAIL
AND OFFICE

OUTDOOR AMENITY

NORTH STANDS ACCESS
423 SF

NORTH STANDS ACCESS
1,236 SF

OPEN TO BELOW

OPEN TO BELOW

ENTRY

PUBLIC PROMENADE

73.4

ENTRY

RETAIL
500sf

F&B
3,430sf

F&B
3,000sf

MAIN
CONCOURSE
23,357 - 5,847 CAP

73.4

FIRST AID

MEP

WRs
2,300sf (44 FIXT.)

ELEV

STAIRS

ELEV

200sf

STAIRS

FR. ELEV

WRs
2,770sf (53 FIXT.)

STAIRS

MECH SHAFT

MEP

PANTRY
1,000sf

RAMP DN

GARBAGE

AODA GUARDRAIL AT EDGE OF MAIN CONCOURSE

AODA GUARDRAIL AT EDGE OF MAIN CONCOURSE

GUARDRAIL AT EDGE OF NORTH STANDS

SPORTS BAR
(95 CAP)

74.5

MEP

RAMP DN TO TRUCK PARKING FACILITY

15% SLOPE

RAMP DN TO EXISTING GARAGE

SLOPE UP TO RETAIL COMENADE

EL 67.65

PEDESTRIAN RAMP

NORTH-SOUTH SECTION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

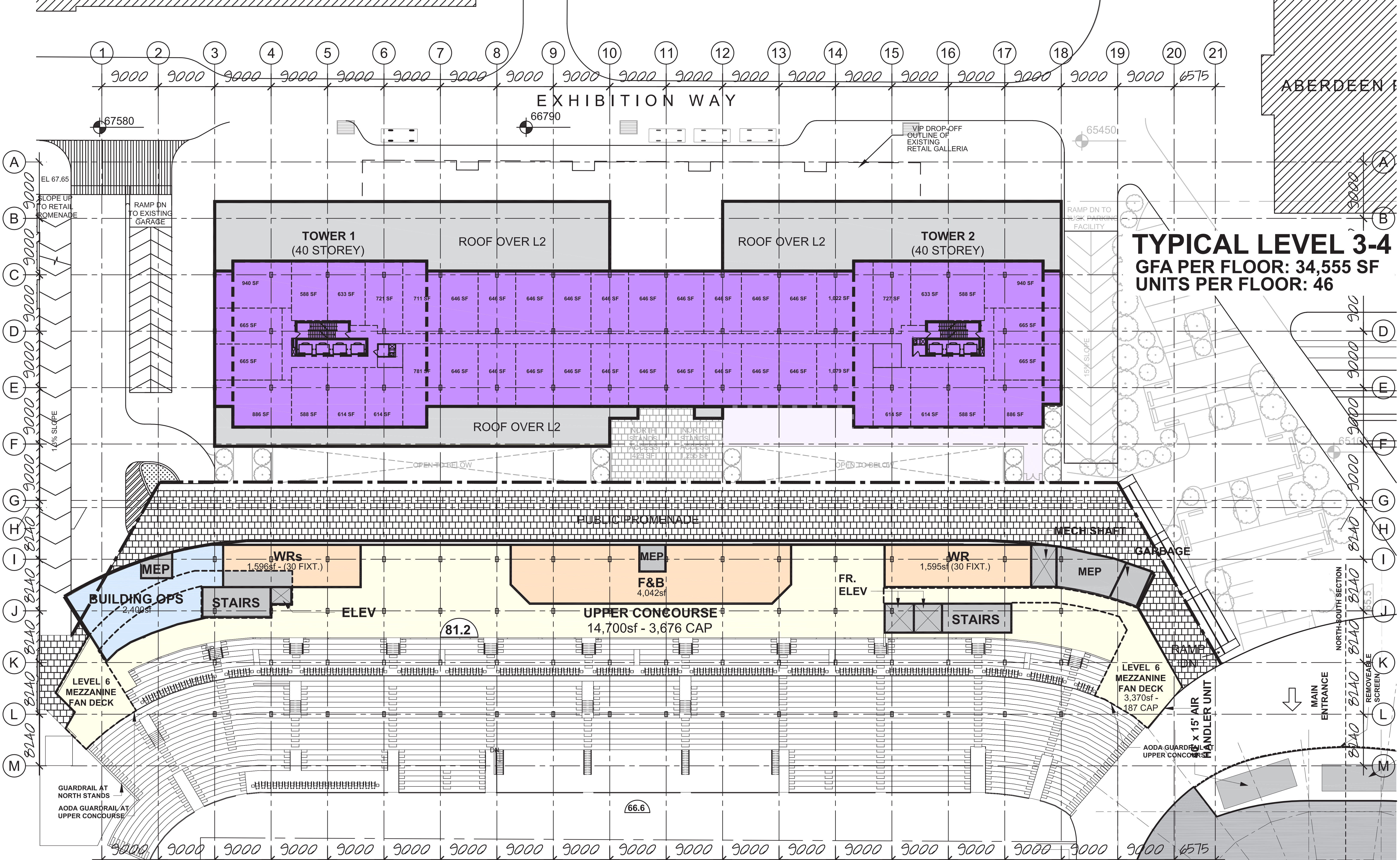
9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 9000 6575

A B C D E F G H I J K L M

8240

67580

65450



TYPICAL LEVEL 3-4
GFA PER FLOOR: 34,555 SF
UNITS PER FLOOR: 46
EXHIBITION WAY
ABERDEEN
TOWER 1
(40 STOREY)
TOWER 2
(40 STOREY)
ROOF OVER L2
ROOF OVER L2
ROOF OVER L2
VIP DROP-OFF
OUTLINE OF EXISTING RETAIL GALLERIA
SLOPE UP TO RETAIL PROMENADE
RAMP DN TO EXISTING GARAGE
EL 67.65
67580
66790
65450
PUBLIC PROMENADE
MECH SHAFT
GARBAGE
MEP
WRs
1,596sf - (30 FIXT.)
MEP
F&B
4,042sf
WR
1,595sf (30 FIXT.)
MEP
BUILDING OPS
2,400sf
STAIRS
ELEV
FR. ELEV
STAIRS
UPPER CONCOURSE
14,700sf - 3,676 CAP
81.2
66.6
LEVEL 6 MEZZANINE FAN DECK
LEVEL 6 MEZZANINE FAN DECK
3,370sf - 187 CAP
RAMP DN
MAIN ENTRANCE
GUARDRAIL AT NORTH STANDS
AODA GUARDRAIL AT UPPER CONCOURSE
AODA GUARDRAIL AT UPPER CONCOURSE
OPEN TO BELOW
OPEN TO BELOW
NORTH-SOUTH SECTION
REMOVEABLE SCREEN

TYPICAL TOWER PLAN

EXHIBITION WAY

TOWER 1
(40 STOREY)

TOWER 2
(24 STOREY)

ROOF OVER L2

ROOF OVER L4

(INDOOR AMENITY AT L5)

OUTDOOR AMENITY AT L5
13,941 SF

755 SF | 588 SF | 615 SF | 888 SF
486 SF | 483 SF
486 SF | 420 SF
788 SF | 588 SF | 588 SF | 860 SF

807 SF | 614 SF | 588 SF | 755 SF
486 SF | 486 SF
486 SF | 486 SF
788 SF | 588 SF | 588 SF | 788 SF

T1 TYP TOWER GFA: 8,815 SF
(12 UNITS)

T2 TYP TOWER GFA: 8,613 SF
(12 UNITS)

VIP DROP-OFF
OUTLINE OF EXISTING RETAIL GALLERIA

RAMP DN TO EXISTING GARAGE

SLOPE UP TO RETAIL PROMENADE

EL 67.65

1.3% SLOPE

15% SLOPE

RAMP DN TO BUCK PARKING FACILITY

ABERDEEN

PUBLIC PROMENADE BELOW

GLAZING

GUARDRAIL AT T/O NORTH STANDS

OPEN TO BELOW

FAN DECK BELOW

AODA GUARDRAIL AT UPPER CONCOURSE

RAMP DN

40' 15' AIR HANDLER UNIT

MAIN ENTRANCE

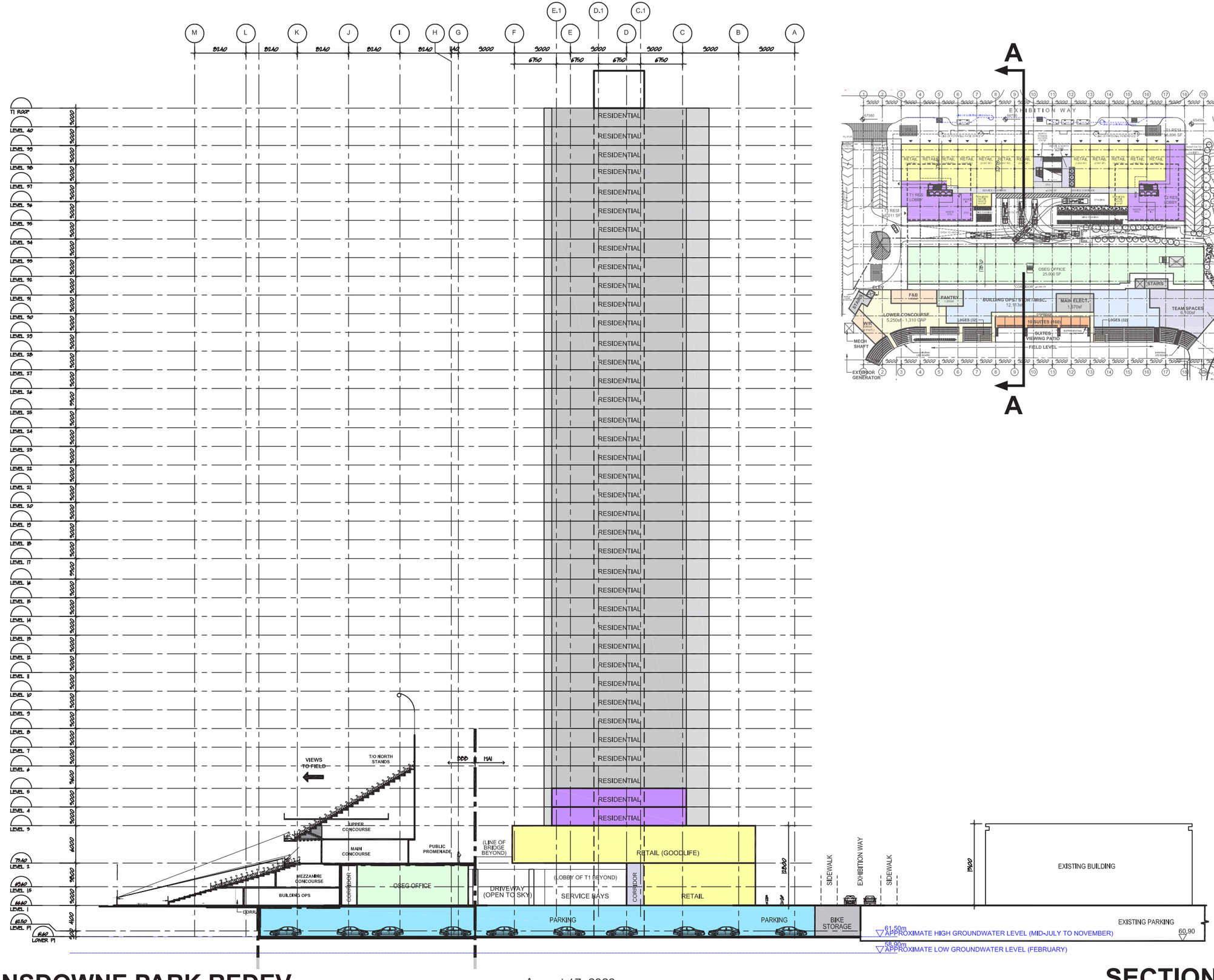
REMOVEABLE SCREEN

NORTH-SOUTH SECTION

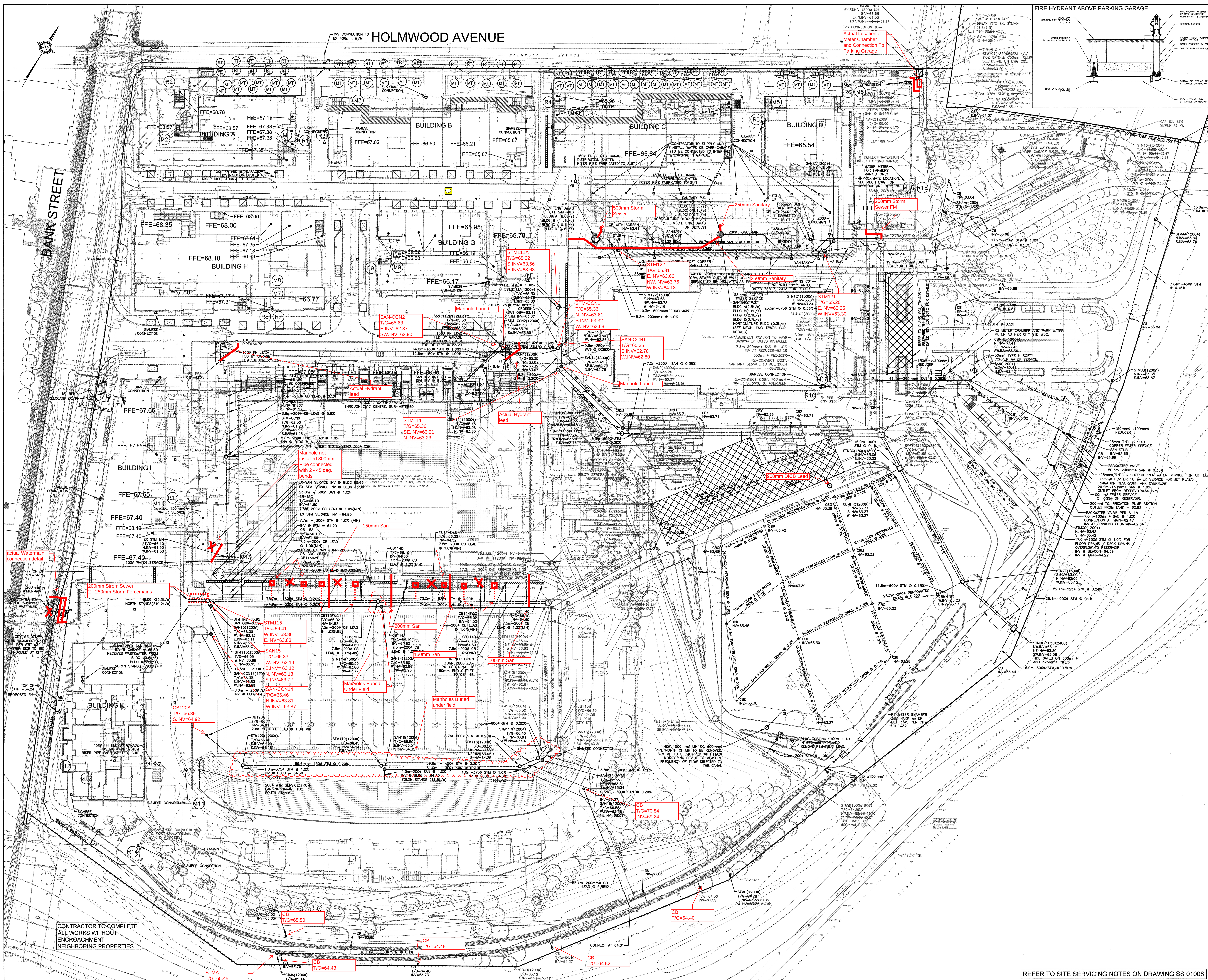
66.6

67580 | 66790 | 65450 | 65160

9000 | 8240 | 6575


M
L
K
J
I
H
G
F
E
D
C
B
A
E.1
D.1
C.1
T1 ROOF
LEVEL 40
LEVEL 39
LEVEL 38
LEVEL 37
LEVEL 36
LEVEL 35
LEVEL 34
LEVEL 33
LEVEL 32
LEVEL 31
LEVEL 30
LEVEL 29
LEVEL 28
LEVEL 27
LEVEL 26
LEVEL 25
LEVEL 24
LEVEL 23
LEVEL 22
LEVEL 21
LEVEL 20
LEVEL 19
LEVEL 18
LEVEL 17
LEVEL 16
LEVEL 15
LEVEL 14
LEVEL 13
LEVEL 12
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
LEVEL 1
LEVEL P1
LOWER P1
RESIDENTIAL
VIEWS TO FIELD
T/O NORTH STANDS
UPPER CONCOURSE
MAIN CONCOURSE
PUBLIC PROMENADE
(LINE OF BRIDGE BEYOND)
MEZZANINE CONCOURSE
BUILDING OPS
CORRIDOR
OSEG OFFICE
DRIVEWAY (OPEN TO SKY)
(LOBBY OF T1 BEYOND)
SERVICE BAYS
RETAIL (GOODLIFE)
RETAIL
PARKING
BIKE STORAGE
SIDEWALK
EXHIBITION WAY
EXISTING BUILDING
EXISTING PARKING
61.50m
APPROXIMATE HIGH GROUNDWATER LEVEL (MID-JULY TO NOVEMBER)
60.90
58.90m
APPROXIMATE LOW GROUNDWATER LEVEL (FEBRUARY)

A
A
EXHIBITION WAY
ABERDEEN
RETAIL
T1 RESI LOBBY
T2 RESI LOBBY
OSEG OFFICE 25,000 SF
STAIRS
F&B
PANTRY
BUILDING OPS/STORAGE/MISC. 12,193sf
MAIN ELECT. 1,570sf
TEAM SPACES 6,100sf
LOWER CONCOURSE 5,250sf - 1,310 CAP
LOGES (32)
10 SUITES (160)
SUITES VIEWING PATIO
FIELD LEVEL
MECH SHAFT
EXTERIOR GENERATOR



REDEVELOPMENT OF LANSDOWNE PARK

Lansdowne — THE TRANSFORMATION OF LANSDOWNE PARK / LA TRANSFORMATION DU PARC LANSDOWNE

Ottawa

OSEG — Ottawa Sports and Entertainment Group

1015 Bank Street
Ottawa, Ontario
K1S 3W7

DSEL — david schaeffer engineering ltd

Stantec

A. D. FOBERT 100090626 2015-02-10 PROVINCE OF ONTARIO

J. W. VAN GAAL PROVINCE OF ONTARIO

GENERAL NOTES

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. 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. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM 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 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 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 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 SITE PLAN.
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 & WOODLEAND LTD.
PROJ. NO. P19500
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

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, CCN-SS-10, CD-SS-3, CD-SS-4	Nov 26/13

SUBJECT PROPERTY

LANSDOWNE PARK

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

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

APPENDIX

B

- FIRE FLOW CALCULATION FOR BUILDINGS
- WATER DEMAND CALCULATION
- FIRE HYDRANT TEST RESULTS
- FIGURE 1 – CONCEPT WATER SERVICES

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

Proposed Tower 1 & 2 with Podium
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 = 5532.1 m^2
C = 0.8
F = 13090.6 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 -15% x 13,000 = 11,050 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 11,050 = -5,525 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	32	0%	north side	
Side 2	33	0%	east side	
Side 3	10	0%	south side	(fire resistive wall with North Stands)
Side 4	28	10%	west side	
		10%		(Total shall not exceed 75%)

Increase due to separation 10% x 11,050 = 1,105 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 7,000 L/min (Rounded to nearest 1000 L/min)
or **117 L/sec**
or 1,849 gpm (us)
or 1,540 gpm (uk)

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

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

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

Proposed Event Centre
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 = 7926.3 m^2
C = 0.6
F = 11751.9 L/min

rounded off to 12,000 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 12,000 = 9,000 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 9,000 = -4,500 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	85	0%	north side	
Side 2	100	0%	east side	
Side 3	100	0%	south side	
Side 4	16	0%	west side	(fire resistive wall seperation with North Stands)
		0%		(Total shall not exceed 75%)

Increase due to separation 0% x 9,000 = 0 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 5,000 L/min (Rounded to nearest 1000 L/min)
or **83 L/sec**
or 1,321 gpm (us)
or 1,100 gpm (uk)

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

Water Demand Calculation Sheet

Project:	**Lansdowne Park Redevelopment Elementary school**	**Date:**	**2023-09-22**
Location:	**1015 Bank St, Ottawa ON K1S 3W7**	**Design:**	**N.N.**
WSP Project No.	**CA0000286.1662**	**Checked:**	**D.B.Y**
		Page:	**1 of 1**

Proposed Buildings	Residential				Non-Residential			Average Daily			Maximum Daily			Maximum Hourly			Fire
	Units			Beds	Industrial	Institutional	Commercial	Demand (l/s)			Demand (l/s)			Demand (l/s)			Demand
	SF	APT	ST		(ha)	(ha)	(ha)	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	(l/min)
Proposed Podium, Towers 1 and 2		252		1			0.46	1.14	0.15		2.86	0.22		6.29	0.40		10,000
		250		2				1.70		5.51	4.25		13.61	9.36		29.86	
		250		3				2.51			6.28			13.81			

Population Densities

Single Family	3.4 person/unit
Semi-Detached	2.7 person/unit
Duplex	2.3 person/unit
Townhome (Row)	2.7 person/unit
Bachelor Apartment	1.4 person/unit
1 Bedroom Apartment	1.4 person/unit
2 Bedroom Apartment	2.1 person/unit
3 Bedroom Apartment	3.1 person/unit
4 Bedroom Apartment	4.1 person/unit
Avg. Apartment	1.8 person/unit

Average Daily Demand

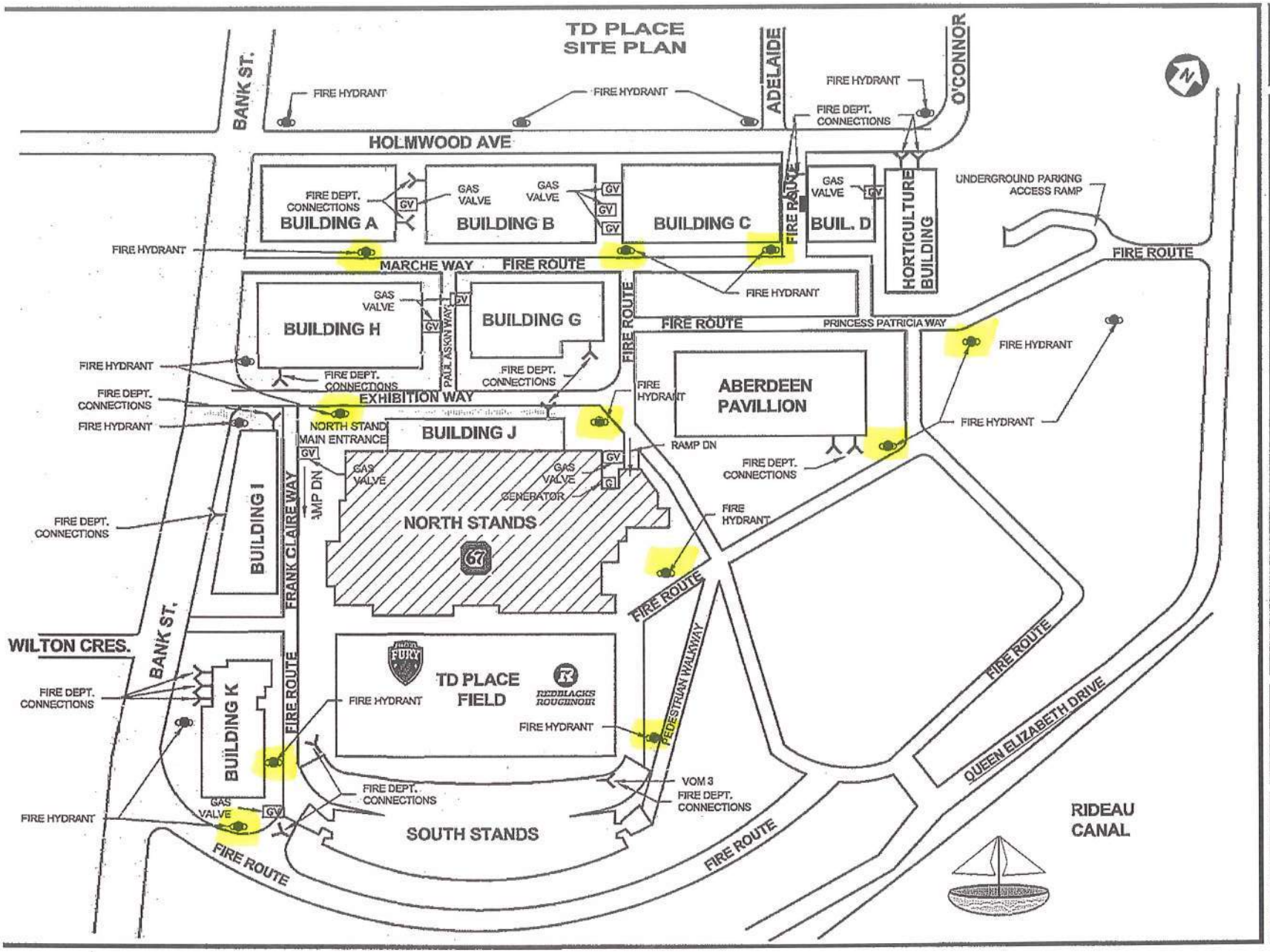
Residential	280 l/cap/day
Industrial	35000 l/ha/day
Institutional	28000 l/ha/day
Commercial	28000 l/ha/day

Maximum Daily Demand

Residential	2.5 x avg. day
Industrial	1.5 x avg. day
Institutional	1.5 x avg. day
Commercial	1.5 x avg. day

Maximum Hourly Demand

Residential	2.2 x max. day
Industrial	1.8 x max. day
Institutional	1.8 x max. day
Commercial	1.8 x max. day



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
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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.
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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.

Hydrants-R-Us Inc.
53 Forest Creek Drive
K2S 1M1
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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
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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.

Hydrants-R-Us Inc.
53 Forest Creek Drive
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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

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: **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

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: **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

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: **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.

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: **Sporting Life** **Hydrant Type: DARLING**

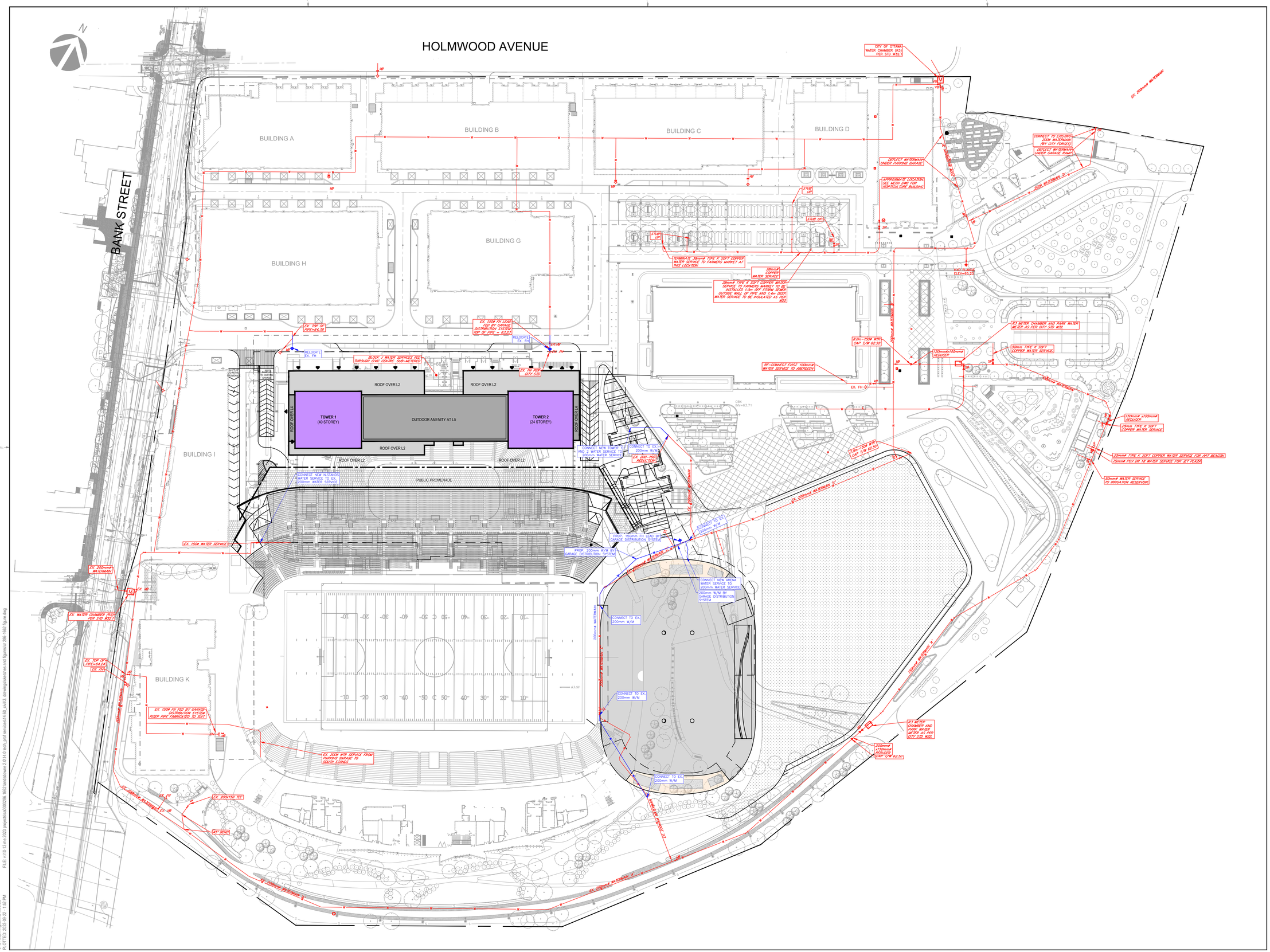
Paint: **OK**
Stem: **OK**
O-Rings: **OK**
Top Nut: **OK**
Valve Seat: **OK**
Condition of Water: **Normal**
Isolation Valve: **Partially Paved Over**
Flow test: **Complete**
Caps:**OK**

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



CLIENT:

Ottawa

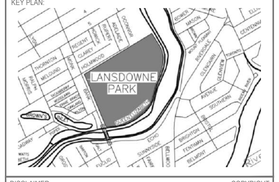
CLIENT REF. #:

WSP CANADA INC.
2611 QUEENSVIEW DR #300,
OTTAWA, ONTARIO
CANADA K2B 8K2
PHONE: 613-829-2800
WWW.WSP.COM

PROJECT NUMBER: CA0000286.1662

CONSULTANT TEAM:

KEY PLAN:



REVISION:

REV	DATE	DESCRIPTION	BY
2	2023-09-22	ISSUED FOR CITY REIVEW	DY
1	2023-05-25	ISSUED FOR CITY REIVEW	DY

ORIGINAL SCALE: 1:750
DRAWN BY: JT
CHECKED BY: DY
APPROVED BY: DY
DATE: 2023-09-22
CA0000286.1662
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

DISCIPLINE: CIVIL

TITLE:

CONCEPTUAL WATER SERVICING

PROJECT:

LANDSDOWN PARK
REDEVELOPMENT
EXHIBITION WAY
OTTAWA, ONTARIO

DRAWING NUMBER: F1
REV.: 0A

CTB: wsp_kingston_24x36.ctb
PLOTTED: 2023-09-22 - 1:52 PM
FILE: v:\10-13 mw 2023 projects\ca0000286. 1662 landsdowne 2.0\14.0 tech_prof services\14.60_civil\3. drawings\dwg\sheets and figures\sr 286-1662 figure.dwg

APPENDIX

C

- SANITARY SEWER DESIGN SHEET
- FIGURE 2 - CONCEPT SANITARY SERVICES
- EXISTING SANITARY DESIGN SHEET BY DSEL

SANITARY SEWER DESIGN SHEET
Lansdowne Redevelopment 2.0
Ottawa, ON
Project: CA0000286.1662
Date: September 2023

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 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:	
1 of 2	

NO.	REVISION	DATE
1.	City Submission No.1	2023-05-25
2.	City Submission No.2	2023-09-22

FILE & DWG. REFERENCE:
F2

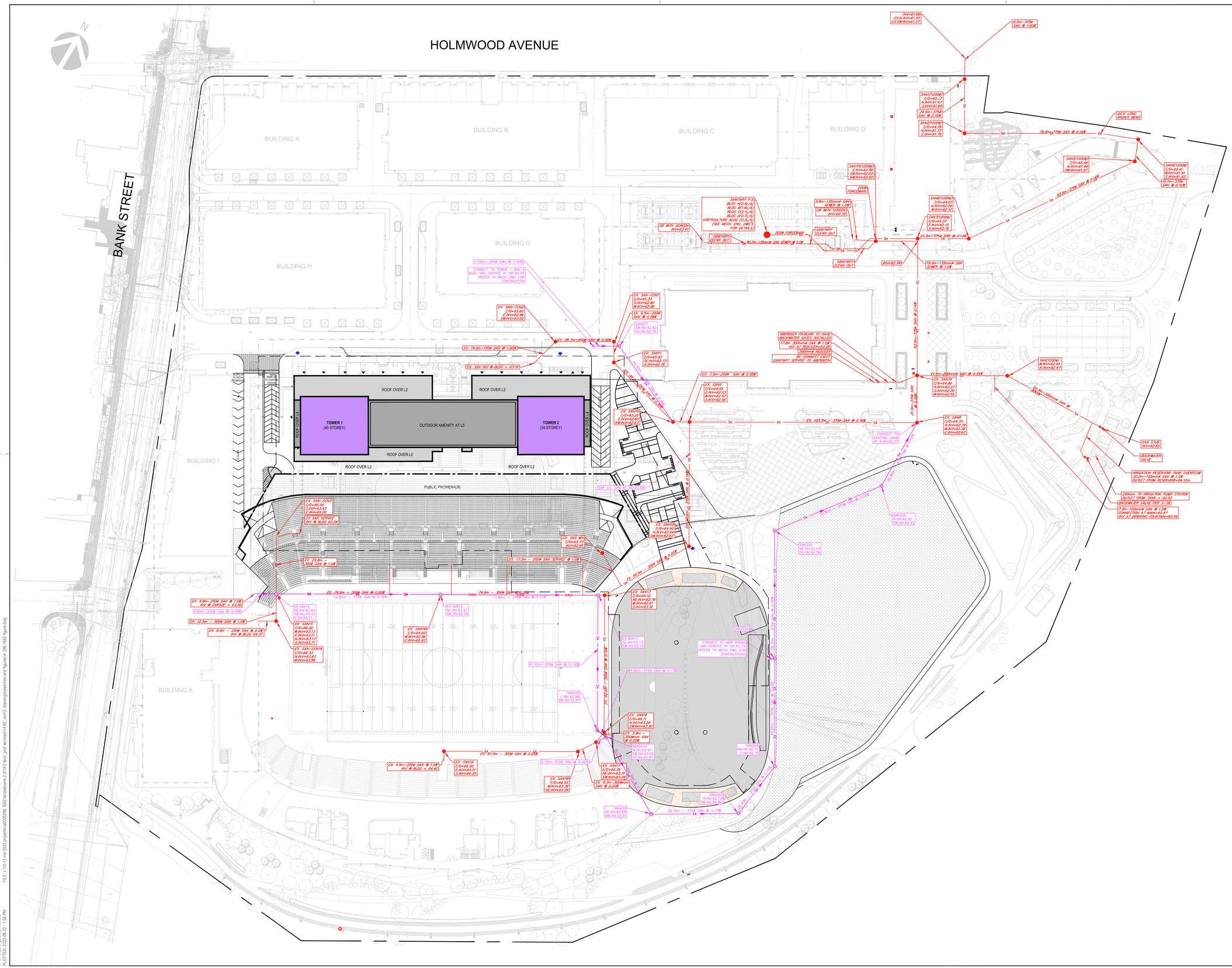
SANITARY SEWER DESIGN SHEET
Lansdowne Redevelopment 2.0
Ottawa, ON
Project: CA0000286.1662
Date: September 2023

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	BLDG	*Ex.15*							190			342	342	3.44	3.82			11.60	11.60	0.25	0.25	0.84	0.84	11.95	0.000	0.00	0.00	**15.77**	9.85	250	0.78	52.52	1.07	**69.98%**
	Ex.15	*Ex.14*										0	342	3.44	3.82				11.60		0.25		0.84	11.95	0.000	0.00	0.00	**15.77**	74.85	375	0.15	67.91	0.61	**76.78%**
	Ex.14	*Ex.13*										0	342	3.44	3.82				11.60		0.25		0.84	11.95	0.000	0.00	0.00	**15.77**	71.85	375	0.15	67.91	0.61	**76.78%**
	Ex.13	SAMH 201										0	342	3.44	3.82				11.60		0.25		0.84	11.95	0.000	0.00	0.00	**15.77**	61.65	375	0.15	67.91	0.61	**76.78%**
	SAMH 201	SAMH 201A										0	342	3.44	3.82				11.60		0.25		0.84	11.95	0.000	0.00	0.00	**15.77**	4.95	375	0.15	67.91	0.61	**76.78%**
South Stands	*Ex.17*	SAMH 201A										0	0	3.80	0.00			7.60	7.60		0.00		0.00	7.60	0.000	0.00	0.00	**7.60**	5.50	300	0.20	43.25	0.61	**82.43%**
	SAMH 201A	SAMH 202										0	342	3.44	3.82				19.20		0.25		0.84	19.55	0.000	0.00	0.00	**23.37**	40.70	375	0.15	67.91	0.61	**65.59%**
	SAMH 202	SAMH 203										0	342	3.44	3.82				19.20		0.25		0.84	19.55	0.000	0.00	0.00	**23.37**	39.75	375	0.15	67.91	0.61	**65.59%**
	SAMH 203	SAMH 204										0	342	3.44	3.82				19.20		0.25		0.84	19.55	0.000	0.00	0.00	**23.37**	27.10	375	0.15	67.91	0.61	**65.59%**
New Civic Arena	BLDG	SAMH205A										0	0	3.80	0.00			5.20	5.20		0.00		0.00	5.20	0.000	0.00	0.00	**5.20**	1.85	200	1.00	32.80	1.04	**84.15%**
	SAMH 204	SAMH 205A										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	49.05	375	0.15	67.91	0.61	**57.93%**
	SAMH 205A	SAMH 205										0	0	3.80	0.00				0.00		0.00		0.00	0.00	0.000	0.00	0.00	**0.00**	58.35	375	0.15	67.91	0.61	**100.00%**
	SAMH 205	SAMH 206										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	52.80	375	0.15	67.91	0.61	**57.93%**
	SAMH 206	*Ex.8*										0	342	3.44	3.82				24.40		0.25		0.84	24.75	0.000	0.00	0.00	**28.57**	32.95	375	0.15	67.91	0.61	**57.93%**
Tower 1 & 2, BLDG G1, G2, H, J	BLDG	SAMH 207							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**	11.95	250	1.00	59.47	1.21	**69.03%**
	SAMH 207	*Ex. 10*										0	1754	3.10	17.64				0.00		2.33		0.08	0.78	0.000	0.00	0.00	**18.42**	42.40	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**	*7.50*	*250*	*0.38*	36.66	0.75	**49.76%**
	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**	*103.70*	*375*	*0.16*	70.13	0.63	**73.74%**
	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 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			
PROJECT:			
Lansdowne Redevelopment 2.0			
LOCATION:			
Ottawa, Ontario			
PAGE NO:	**FILE & DWG. REFERENCE:**		
2 of 2	F2		



CTB: wsp, kingston, 24x36.ctb
PLOTTED: 2023-09-22 - 1:58 PM

FILE: v:\r10-13 mw 2023 projects\ca0000286.1662 landsdowne 2.0\14.0 tech_prof services\14.60_civil\3. drawings\sketches and figures\wr 286-1662 figure.dwg

CLIENT:

Ottawa

CLIENT REF. #:

WSP CANADA INC.
2611 QUEENSVIEW DR #300,
OTTAWA, ONTARIO
CANADA K2B 8K2
PHONE: 613-829-2800
WWW.WSP.COM

PROJECT NUMBER: CA0000286.1662

CONSULTANT TEAM:

KEY PLAN:

REVISION:

REV	DATE	DESCRIPTION	BY
2	2023-09-22	ISSUED FOR CITY REIVEW	DY
1	2023-05-25	ISSUED FOR CITY REIVEW	DY

ORIGINAL SCALE: 1:750
DRAWN BY: JT
CHECKED BY: DY
APPROVED BY: DY
DATE: 2023-09-22
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
CA0000286.1662

DISCIPLINE: CIVIL

TITLE:

CONCEPTUAL SANITARY SERVICING

PROJECT:

LANDSDOWN PARK
REDEVELOPMENT
EXHIBITION WAY
OTTAWA, ONTARIO

DRAWING NUMBER: F2
REV.: 0A

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

APPENDIX

D

- STORM SEWER DESIGN SHEET
- FIGURE 3 – CONCEPT STORM SERVICES
- EXISTING STORM SEWER DESIGN SHEET BY STANTEC
- STORMWATER MANAGEMENT OUTPUT

STORM SEWER DESIGN SHEET
LANSDOWNE 2.0
REDEVELOPMENT
CITY OF OTTAWA
Project: CA0000286.1662
Date: September, 2023

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.25	C= 0.35	C= 0.75	C= 0.80	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																															
	S.STANDS		*Ex. STM 117*					0.840		2.102	2.102	20.00	22.77	52.03	70.25	119.95		109.35				109.35		PVC DR-35	*450.0*	*0.20*	*133.40*	127.63	0.80	2.77	18.28	14.32%
		Ex. STM 117	STMH 201							0.000	2.102	22.77	22.85	47.96	64.70	110.39		100.79				100.79		PVC DR-35	600.0	0.20	4.50	274.87	0.97	0.08	174.08	63.33%
	A3, A4, A5, BLDG I, K, N STANDS		*Ex. STM 113*				2.133	1.921		9.550	9.550	20.00	22.89	52.03	70.25	119.95		496.91				496.91		PVC DR-35	*825.0*	*0.20*	*208.00*	642.59	1.20	2.89	145.69	22.67%
		Ex. STM 113	STMH 201							0.000	11.652	22.89	24.00	47.81	64.49	110.03		557.04				557.04		PVC DR-35	1050.0	0.10	66.75	864.40	1.00	1.12	307.36	35.56%
		STMH 201	STMH 202							0.000	13.753	24.00	24.32	46.37	62.54	106.67		637.77				637.77		PVC DR-35	1050.0	0.10	19.00	864.40	1.00	0.32	226.63	26.22%
		STMH 202	STMH 203							0.000	13.753	24.32	24.80	45.98	62.00	105.75		632.39				632.39		PVC DR-35	1050.0	0.10	28.50	864.40	1.00	0.48	232.01	26.84%
		Ex. D	STMH 204		1.820					1.771	1.771	15.00	17.74	61.77	83.56	142.89		109.38				109.38		PVC DR-35	600.0	0.14	133.40	229.97	0.81	2.74	120.59	52.44%
		STMH 203	STMH 204							0.000	13.753	24.80	25.58	45.41	61.22	104.41		624.51				624.51		PVC DR-35	1050.0	0.10	47.00	864.40	1.00	0.79	239.89	27.75%
		STMH 204	STMH 205							0.000	15.524	25.58	26.33	44.50	59.98	102.28		690.78				690.78		PVC DR-35	1050.0	0.10	45.00	864.40	1.00	0.75	173.63	20.09%
	EVENT CENTRE	BLDG	STMH 205					0.730		1.826	1.826	10.00	10.03	76.81	104.19	178.56		140.28				140.28		PVC DR-35	375.0	1.00	3.00	175.51	1.59	0.03	35.23	20.07%
		STMH 205	STMH 206							0.000	17.351	26.33	26.67	43.66	58.85	100.32		757.56				757.56		PVC DR-35	1050.0	0.10	20.00	864.40	1.00	0.33	106.85	12.36%
		STMH 206	UNDERGROUND CHAMBER							0.000	17.351	26.67	26.72	43.30	58.36	99.48		751.31				751.31		PVC DR-35	1050.0	0.10	3.00	864.40	1.00	0.05	113.09	13.08%
		GREAT LAWN	UNDERGROUND CHAMBER		1.570					1.528	1.528	15.00	15.00	61.77	83.56	142.89		94.36				94.36		CB LEADS								
		UNDERGROUND CHAMBER	STMH 207							0.000	18.878	26.72	26.77	43.25	58.28	99.36		816.45				816.45		PVC DR-35	1050.0	0.10	3.00	864.40	1.00	0.05	47.95	5.55%
		STMH 207	*EX. CHAMBER*							0.000	18.878	26.77	26.92	43.19	58.21	99.23		815.44				815.44		PVC DR-35	1050.0	0.10	9.00	864.40	1.00	0.15	48.96	5.66%
	A1, H, G1,G2, TOWER 1 AND 2	BLDG	STMH 209			1.181		0.720		4.264	4.264	20.00	20.08	52.03	70.25	119.95		221.85				221.85		PVC DR-35	450.0	1.00	8.10	285.39	1.79	0.08	63.54	22.26%
		STMH 209	STMH 208							0.000	4.264	20.08	20.13	51.91	70.09	119.67		221.34				221.34		PVC DR-35	600.0	0.20	3.35	274.87	0.97	0.06	53.53	19.48%
		STMH 208	*Ex. STM 110*							0.000	4.264	20.13	20.86	51.82	69.96	119.45		220.95				220.95		PVC DR-35	600.0	0.20	42.40	274.87	0.97	0.73	53.93	19.62%
		Ex. STM 110	*Ex. STM 109*							0.000	4.264	20.86	21.01	50.69	68.42	116.79		216.12				216.12		PVC DR-35	*600.0*	*0.20*	*8.50*	274.87	0.97	0.15	58.75	21.37%
		CAP	*Ex. STM 109*							0.000	0.000	10.00	10.22	76.81	104.19	178.56		0.00				0.00		PVC DR-35	*1200.0*	*0.12*	*16.00*	1351.92	1.19	0.22	1351.92	100.00%
		Ex. STM 109	*EX. CHAMBER*							0.000	4.264	21.01	21.55	50.47	68.12	116.27		215.18				215.18		PVC DR-35	*1350.0*	*0.13*	*43.75*	1926.37	1.34	0.54	1711.19	88.83%
		EX. CHAMBER	*Ex. STM 108*							0.000	23.142	26.92	27.65	43.04	58.00	98.86		995.94				995.94		PVC DR-35	*1350.0*	*0.13*	*59.00*	1926.37	1.34	0.73	930.43	48.30%

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

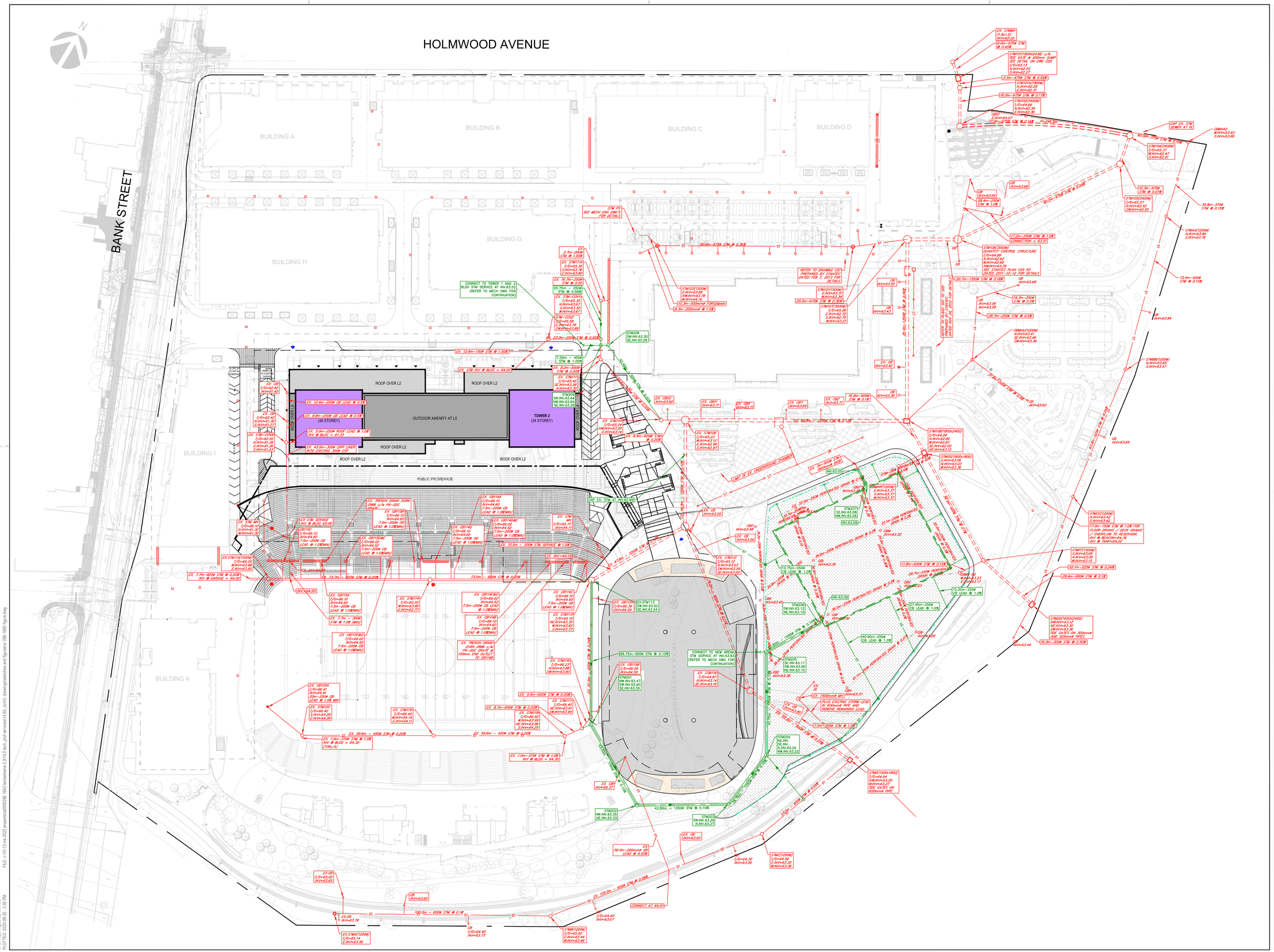
Time-of-Concentration in the Swale
FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^.33]
Where: Longest Watercourse Length, L (m). S (%)
Runoff Coef.C = Impervious

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

Designed: D.B.Y.
Checked: D.B.Y.
Dwg. Reference: F2

No.	Revision	Date
1.	City Submission No. 1	2023-05-25
2.	City Submission No. 2	2023-09-22

File Reference: CA0002045.0622
Date: 2023-09-22
Sheet No: 1 of 1



CLIENT:

Ottawa

CLIENT REF. #:

WSP CANADA INC.
2611 QUEENSVIEW DR #300,
OTTAWA, ONTARIO
CANADA K2B 8K2
PHONE: 613-829-2800
WWW.WSP.COM

PROJECT NUMBER: CA0000286.1662

CONSULTANT TEAM:

KEY PLAN:

REVISION:

REV	DATE	DESCRIPTION	BY
2	2023-09-22	ISSUED FOR CITY REIVEW	DY
1	2023-05-25	ISSUED FOR CITY REIVEW	DY

ORIGINAL SCALE: 1:750
DRAWN BY: JT
CHECKED BY: DY
APPROVED BY: DY
DATE: 2023-09-22
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
CA0000286.1662

DISCIPLINE: CIVIL

TITLE:

CONCEPTUAL STORM SERVICING

PROJECT:

LANDSDOWN PARK
REDEVELOPMENT
EXHIBITION WAY
OTTAWA, ONTARIO

DRAWING NUMBER: F3
REV.: 0A

														Sewer Data								
Up	Down	BLDG ID	Q_{BLDG}	$Q_{BLDG\ TOT}$	AREA ID	Area	C	Indiv AxC	Acc AxC	T_C	I	Q	Q_{TOT}	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Qcap	Time Flow	Q / Q full
			(L/s)	(L/s)		(ha)	(-)			(min)	(mm/hr)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(min)	(-)
120	119	S. Stands	106.0	106.0				0.00	0.00	***20.0***	70.3	0.0	106.0	450	0.20	59.6	0.159	0.113	0.80	127.5	1.2	0.83
119	118			106.0				0.00	0.00	21.2	67.6	0.0	106.0	450	0.20	59.6	0.159	0.113	0.80	127.5	1.2	0.83
118	117	S. Stands	106.0	212.0				0.00	0.00	22.5	65.2	0.0	212.0	600	0.20	8.7	0.283	0.150	0.97	274.6	0.1	0.77
117	116			212.0				0.00	0.00	22.6	65.0	0.0	212.0	600	0.20	3.8	0.283	0.150	0.97	274.6	0.1	0.77
116	113			212.0				0.00	0.00	22.7	64.8	0.0	212.0	600	0.20	62.4	0.283	0.150	0.97	274.6	1.1	0.77
										23.8												
115	114	I, K, N.STANDS	232.6	232.6	A3, A4, A5	2.133	0.80	1.71	1.71	***20.0***	70.3	333.0	565.6	825	0.20	73.7	0.535	0.206	1.20	641.9	1.0	0.88
114	113			232.6				0.00	1.71	21.0	68.1	322.7	555.4	825	0.20	73.0	0.535	0.206	1.20	641.9	1.0	0.87
										22.0												
113	112			444.6				0.00	1.71	23.8	62.9	298.4	743.0	1050	0.10	47.8	0.866	0.263	1.00	863.5	0.8	0.86
										24.6												
A	B			0.0		0.870	0.35	0.30	0.30	***15.0***	83.6	70.7	70.7	600	0.10	100.0	0.283	0.150	0.69	194.2	2.4	0.36
B	C			0.0		0.430	0.35	0.15	0.46	17.4	76.5	96.6	96.6	600	0.10	100.0	0.283	0.150	0.69	194.2	2.4	0.50
C	D			0.0				0.00	0.46	19.9	70.6	89.2	89.2	600	0.10	57.0	0.283	0.150	0.69	194.2	1.4	0.46
D	D1			0.0		0.520	0.35	0.18	0.64	21.2	67.6	119.7	119.7	900	0.10	55.8	0.636	0.225	0.90	572.5	1.0	0.21
D1	112			0.0		0.340	0.35	0.12	0.76	22.3	65.6	137.8	137.8	900	0.10	85.0	0.636	0.225	0.90	572.5	1.6	0.24
										23.8												
112	109			444.6				0.00	2.46	24.6	61.6	421.4	866.0	1200	0.10	46.8	1.131	0.300	1.09	1232.9	0.7	0.70
										25.3												
111	110	H, G1, G2, J	23.1	23.1	A1	1.181	0.75	0.89	0.89	***20.0***	70.3	172.8	196.0	600	0.20	39.6	0.283	0.150	0.97	274.6	0.7	0.71
110	109			23.1				0.00	0.89	20.7	68.8	169.3	192.4	600	0.20	8.5	0.283	0.150	0.97	274.6	0.1	0.70
										20.8												
109	108			467.8				0.00	3.35	25.3	60.5	562.3	1030.0	1350	0.10	99.8	1.431	0.338	1.18	1687.8	1.4	0.61
										26.7												
CB1A	AA			0.0		0.430	0.60	0.26	0.26	***15.0***	83.6	59.9	59.9	375	0.15	114.0	0.110	0.094	0.61	67.9	3.1	0.88
AA	BB			0.0		0.360	0.35	0.13	0.38	18.1	74.7	79.7	79.7	450	0.12	35.0	0.159	0.113	0.62	98.8	0.9	0.81
BB	CC			0.0		0.870	0.35	0.30	0.69	19.0	72.5	138.6	138.6	525	0.24	120.0	0.216	0.131	0.97	210.7	2.1	0.66
CC	DD			0.0				0.00	0.69	21.1	68.0	130.0	130.0	525	0.24	38.0	0.216	0.131	0.97	210.7	0.7	0.62
										21.7												
EE	DD			0.0		0.320	0.35	0.11	0.11	***15.0***	83.6	26.0	26.0	300	0.40	59.0	0.071	0.075	0.87	61.2	1.1	0.43
										16.1												
DD	FF			0.0				0.00	0.80	***21.7***	66.7	148.2	148.2	900	0.10	31.0	0.636	0.225	0.90	572.5	0.6	0.26
										22.3												
H	G			0.0		0.270	0.35	0.09	0.09	***15.0***	83.6	21.9	21.9	300	0.20	66.0	0.071	0.075	0.61	43.2	1.8	0.51
G	J			0.0		0.310	0.35	0.11	0.20	16.8	78.2	44.1	44.1	375	0.15	30.0	0.110	0.094	0.61	67.9	0.8	0.65
J	FF			0.0		0.100	0.35	0.04	0.24	17.6	76.0	50.2	50.2	600	0.15	12.0	0.283	0.150	0.84	237.8	0.2	0.21
										17.8												
FF	GG			0.0				0.00	1.04	***22.3***	65.6	189.1	189.1	900	0.10	57.0	0.636	0.225	0.90	572.5	1.1	0.33
										23.4												
K	M			0.0		0.270	0.35	0.09	0.09	***15.0***	83.6	21.9	21.9	300	0.20	65.0	0.071	0.075	0.61	43.2	1.8	0.51
M	R			0.0		0.070	0.35	0.02	0.12	16.8	78.2	25.9	25.9	300	0.20	47.0	0.071	0.075	0.61	43.2	1.3	0.60
										18.1												

														Sewer Data								
Up	Down	BLDG ID	Q_{BLDG}	$Q_{BLDG\ TOT}$	AREA ID	Area	C	Indiv AxC	Acc AxC	T_C	I	Q	Q_{TOT}	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Qcap	Time Flow	Q / Q full
			(L/s)	(L/s)		(ha)	(-)			(min)	(mm/hr)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(min)	(-)
O	P			0.0		0.280	0.60	0.17	0.17	***15.0***	83.6	39.0	39.0	375	0.12	21.0	0.110	0.094	0.55	60.7	0.6	0.64
P	Q			0.0		0.180	0.60	0.11	0.28	15.6	81.6	62.5	62.5	375	0.10	34.0	0.110	0.094	0.50	55.4	1.1	1.13
Q	R			0.0		0.300	0.60	0.18	0.46	16.8	78.3	99.1	99.1	375	0.12	18.0	0.110	0.094	0.55	60.7	0.5	1.63
R	GG			0.0				0.00	0.58	17.3	76.8	122.6	122.6	600	0.10	13.0	0.283	0.150	0.69	194.2	0.3	0.63
										17.6												
S	U			0.0		0.130	0.60	0.08	0.08	***15.0***	83.6	18.1	18.1	450	0.20	30.0	0.159	0.113	0.80	127.5	0.6	0.14
U	GG			0.0		0.140	0.60	0.08	0.16	15.6	81.6	36.7	36.7	525	0.10	17.0	0.216	0.131	0.63	136.0	0.5	0.27
										16.1												
GG	108			0.0				0.00	1.78	***17.6***	75.9	374.5	374.5	900	0.10	22.0	0.636	0.225	0.90	572.5	0.4	0.65
										18.0												
108	107			0.0		0.340	0.60	0.20	5.33	***26.7***	58.3	863.2	863.2	1350	0.10	81.4	1.431	0.338	1.18	1687.8	1.2	0.51
107	106	A, B, C, D	34.4	502.2	A2	1.555	0.75	1.17	6.49	27.8	56.7	1023.0	1525.1	1350	0.10	20.7	1.431	0.338	1.18	1687.8	0.3	0.90
										28.1												
CONTROLLED FLOW																						
106	105		616.0	616.0				0.00	0.00	27.8	56.7	0.0	616.0	975	0.10	80.2	0.747	0.244	0.95	708.7	1.4	0.87
105	104			616.0				0.00	0.00	29.2	54.9	0.0	616.0	975	0.10	12.1	0.747	0.244	0.95	708.7	0.2	0.87
104	103			616.0				0.00	0.00	29.5	54.6	0.0	616.0	975	0.10	19.2	0.747	0.244	0.95	708.7	0.3	0.87
103	102			616.0				0.00	0.00	29.8	54.2	0.0	616.0	975	0.10	54.2	0.747	0.244	0.95	708.7	1.0	0.87
102	101			616.0				0.00	0.00	30.7	53.0	0.0	616.0	975	0.10	24.2	0.747	0.244	0.95	708.7	0.4	0.87
101	EX			616.0				0.00	0.00	31.2	52.5	0.0	616.0	975	0.10	5.8	0.747	0.244	0.95	708.7	0.1	0.87
										31.3												

PCSWMM Catchment Parameters - Proposed Conditions

Name	Area (ha)	Flow Length (m)	Slope (%)	Imperv. (%)	COEFF_R
102	0.444	100	0.5	64	0.64
107AA	0.270	15	0.5	86	0.80
108	0.344	21	0.5	69	0.67
109	0.288	32	0.5	87	0.81
A	0.733	193	0.5	43	0.48
A1	1.023	44	0.5	99	0.89
A2	1.578	44	0.5	98	0.89
A3	0.768	35	0.5	100	0.90
A4	0.623	37	2	100	0.90
A5	0.246	80	0.5	100	0.90
AA	0.370	51	0.5	54	0.56
BB	0.891	176	0.5	41	0.47
BLDG-A	0.254	10	0.5	100	0.90
BLDG-B	0.363	10	0.5	100	0.90
BLDG-C	0.299	10	0.5	100	0.90
BLDG-D	0.138	10	0.5	100	0.90
BLDGG	0.243	10	0.5	100	0.90
BLDGH	0.371	10	0.5	100	0.90
BLDG-I	0.226	10	0.5	100	0.90
BLDG-J	0.604	10	0.5	100	0.90
BLDG-J1	0.104	10	0.5	100	0.90
BLDG-J2	0.089	10	0.5	100	0.90
BLDG-K	0.247	10	0.5	100	0.90
BLDG-L	0.121	10	0.5	100	0.90
BLDG-L1	0.075	10	0.5	100	0.90
D	0.400	103	0.5	36	0.43
D1	0.479	18	0.5	32	0.40
EE	0.347	90	0.5	15	0.28
Great-Lawn	0.833	62	0.5	23	0.34
NEC	1.115	45	10	86	0.80
NSTANDS	0.483	78	2	100	0.90
OPGG	0.724	55	0.5	62	0.62
SSTANDS	0.786	48	10	100	0.90
T	0.131	17	0.5	28	0.37
V	0.158	9	0.5	97	0.88
TOTAL	16.167				0.74

PCSWMM Catchment Parameters - Existing Conditions

Name	Area (ha)	Flow Length (m)	Slope (%)	Imperv. (%)	COEFF_R
102	0.444	100	0.5	64	0.64
107AA	0.270	15	0.5	86	0.80
108	0.344	21	0.5	69	0.67
109	0.288	32	0.5	87	0.81
109C	0.254	49	0.5	67	0.65
116	0.212	32	10	14	0.27
A	0.733	193	0.5	43	0.47
A1	1.028	44	0.5	99	0.89
A2	1.578	44	0.5	98	0.89
A3	0.931	35	0.5	90	0.83
A4	0.832	37	2	85	0.79
A5	0.246	80	0.5	100	0.90
AA	0.370	51	0.5	54	0.56
BB	0.891	176	0.5	41	0.47
BLDG-A	0.254	10	0.5	100	0.90
BLDG-B	0.363	10	0.5	100	0.90
BLDG-C	0.299	10	0.5	100	0.90
BLDG-D	0.138	10	0.5	100	0.90
BLDGG	0.243	10	0.5	100	0.90
BLDGH	0.371	10	0.5	100	0.90
BLDG-I	0.226	10	0.5	100	0.90
BLDGJ_1	0.137	10	0.5	100	0.90
BLDGJ_2	0.389	10	0.5	100	0.90
BLDG-K	0.247	10	0.5	100	0.90
D	0.584	103	0.5	30	0.38
D1	0.479	18	0.5	32	0.40
EE	0.347	90	0.5	15	0.28
Great-Lawn	1.013	62	0.5	27	0.36
NSTANDS	0.756	78	2	100	0.90
OPGG	0.813	55	0.5	60	0.60
SSTANDS	0.799	48	10	100	0.90
T	0.131	17	0.5	28	0.37
V	0.158	9	0.5	97	0.88
TOTAL	16.167				0.71

N

Catchment ID

Area (ha) | % Imperv

N

Catchment ID

Area (ha) | % Imperv

Existing Conditions PCSWMM Output

5-Year 3-hour Chicago Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
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*************
Element Count
*************
Number of rain gages ...... 18
Number of subcatchments ... 33
Number of nodes ........... 89
Number of links ........... 132
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                 Data       Recording
Name                 Data Source                 Type       Interval
----------------------------------------------------------------------
100yr_3hr_Chicago    100yr_3hr_Chicago           INTENSITY   10 min.
100yr_3hr_Chicago_Climate_Change 100yr_3hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr_6hr_Chicago    100yr_6hr_Chicago           INTENSITY   10 min.
100yr_6hr_Chicago_Climate_Change 100yr_6hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr-SCS_12hr_Type_II 100yr-SCS_12hr_Type_II      INTENSITY    6 min.
100yr-SCS_24hr_Type_II 100yr-SCS_24hr_Type_II      INTENSITY   15 min.
10yr_3hr_Chicago     10yr_3hr_Chicago            INTENSITY   10 min.
10yr_6hr_Chicago     10yr_6hr_Chicago            INTENSITY   10 min.
25mm_3hr_Chicago     25mm_3hr_Chicago            INTENSITY   10 min.
25mm_4hr_Chicago     25mm_4hr_Chicago            INTENSITY   10 min.
25yr_3hr_Chicago     25yr_3hr_Chicago            INTENSITY   10 min.
25yr_6hr_Chicago     25yr_6hr_Chicago            INTENSITY   10 min.
2yr_3hr_Chicago      2yr_3hr_Chicago             INTENSITY   10 min.
2yr_6hr_Chicago      2yr_6hr_Chicago             INTENSITY   10 min.
50yr_3hr_Chicago     50yr_3hr_Chicago            INTENSITY   10 min.
50yr_6hr_Chicago     50yr_6hr_Chicago            INTENSITY   10 min.
5yr_3hr_Chicago      5yr_3hr_Chicago             INTENSITY   10 min.
5yr_6hr_Chicago      5yr_6hr_Chicago             INTENSITY   10 min.


*********************
Subcatchment Summary
*********************
Name                        Area     Width   %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
102                         0.44     44.37     64.22    0.5000 5yr_3hr_Chicago      J43
107AA                       0.27    176.73     86.34    0.5000 5yr_3hr_Chicago      J23
108                         0.34    162.73     68.53    0.5000 5yr_3hr_Chicago      BASIN1
109                         0.29     88.92     87.48    0.5000 5yr_3hr_Chicago      J9
109C                        0.25     52.31     66.54    0.5000 5yr_3hr_Chicago      J8
116                         0.21     66.78     13.91   10.0000 5yr_3hr_Chicago      J30
A                           0.73     37.91     43.28    0.5000 5yr_3hr_Chicago      J38
A1                          1.03    236.01     98.55    0.5000 5yr_3hr_Chicago      J17
A2                          1.58    358.18     97.91    0.5000 5yr_3hr_Chicago      J22
A3                          0.93    263.12     90.26    0.5000 5yr_3hr_Chicago      J13
A4                          0.83    227.29     84.59    2.0000 5yr_3hr_Chicago      J3
A5                          0.25     30.92     99.94    0.5000 5yr_3hr_Chicago      J14
AA                          0.37     72.80     54.39    0.5000 5yr_3hr_Chicago      J37
BB                          0.89     50.53     41.05    0.5000 5yr_3hr_Chicago      J46
BLDG-A                      0.25    254.20    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-A
BLDG-B                      0.36    362.60    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-B
BLDG-C                      0.30    299.30    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-C
BLDG-D                      0.14    138.00    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-D
BLDGG                       0.24    242.90    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-G
BLDGH                       0.37    370.90    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-H
BLDG-I                      0.23    225.60    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-I
BLDGJ                       0.14    137.10    100.00    0.5000 5yr_3hr_Chicago      S-BLDG-J
BLDGJ2                      0.39    388.50    100.00    0.5000 5yr_3hr_Chicago      J35
BLDG-K                      0.25    247.30     99.99    0.5000 5yr_3hr_Chicago      S-BLDG-K
D                           0.58     56.48     30.02    0.5000 5yr_3hr_Chicago      J48
D1                          0.48    271.32     32.46    0.5000 5yr_3hr_Chicago      J34
EE                          0.35     38.57     15.30    0.5000 5yr_3hr_Chicago      J47
Great-Lawn                  1.01    164.38     26.54    0.5000 5yr_3hr_Chicago      J12
NSTANDS                     0.76     97.25    100.00    2.0000 5yr_3hr_Chicago      J7
OPGG                        0.81    147.51     59.59    0.5000 5yr_3hr_Chicago      J16
SSTANDS                     0.80    165.31     99.95   10.0000 5yr_3hr_Chicago      J3
T                           0.13     75.86     27.76    0.5000 5yr_3hr_Chicago      J16
V                           0.16    167.82     96.59    0.5000 5yr_3hr_Chicago      J12


************
Node Summary
************
                                  Invert      Max.    Ponded    External
Name                 Type          Elev.     Depth      Area    Inflow
-------------------------------------------------------------------------
J1                   JUNCTION      63.56      2.79       0.0
J10                  JUNCTION      63.14      3.10       0.0
J11                  JUNCTION      62.00      3.95       0.0
J12                  JUNCTION      63.09      2.82       0.0
J13                  JUNCTION      63.77      2.28       0.0
J14                  JUNCTION      63.95      3.10       0.0
J15                  JUNCTION      63.28      3.17       0.0
J16                  JUNCTION      63.03      2.85       0.0
J17                  JUNCTION      63.32      3.03       0.0
J18                  JUNCTION      63.36      2.64       0.0
J19                  JUNCTION      63.62      1.08     720.0
J2                   JUNCTION      64.26      3.14       0.0
J20                  JUNCTION      62.72      3.53       0.0
J21                  JUNCTION      63.31      2.94       0.0
J22                  JUNCTION      63.68      2.63       0.0
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J23	JUNCTION	62.64	3.29	1000.0
J24	JUNCTION	62.53	4.36	0.0
J25	JUNCTION	62.35	3.65	0.0
J26	JUNCTION	62.29	2.84	0.0
J27	JUNCTION	62.25	2.88	0.0
J29	JUNCTION	62.49	2.88	0.0
J3	JUNCTION	64.11	3.34	0.0
J30	JUNCTION	63.10	2.77	0.0
J31	JUNCTION	63.18	2.72	0.0
J32	JUNCTION	62.76	3.44	0.0
J33	JUNCTION	63.09	3.00	0.0
J34	JUNCTION	63.35	2.21	0.0
J35	JUNCTION	63.79	2.79	0.0
J36	JUNCTION	63.76	2.54	0.0
J37	JUNCTION	63.68	1.42	466.0
J38	JUNCTION	63.56	2.58	0.0
J39	JUNCTION	63.44	2.58	0.0
J4	JUNCTION	63.96	3.54	0.0
J40	JUNCTION	62.91	2.21	0.0
J41	JUNCTION	62.64	3.29	1000.0
J42	JUNCTION	64.07	1.93	0.0
J43	JUNCTION	63.89	2.31	0.0
J44	JUNCTION	63.76	2.64	0.0
J45	JUNCTION	63.57	2.83	0.0
J46	JUNCTION	63.42	2.78	0.0
J47	JUNCTION	63.12	2.93	0.0
J48	JUNCTION	64.69	3.00	0.0
J49	JUNCTION	64.40	3.00	0.0
J5	JUNCTION	63.91	3.49	0.0
J50	JUNCTION	65.08	3.00	0.0
J51	JUNCTION	65.35	3.00	0.0
J52	JUNCTION	65.31	3.00	0.0
J53	JUNCTION	65.25	3.00	0.0
J54	JUNCTION	65.25	3.00	0.0
J55	JUNCTION	65.20	3.00	0.0
J56	JUNCTION	64.95	3.00	0.0
J57	JUNCTION	65.30	3.00	0.0
J58	JUNCTION	65.35	3.00	0.0
J59	JUNCTION	65.58	3.00	0.0
J6	JUNCTION	63.87	3.63	0.0
J60	JUNCTION	64.65	3.00	0.0
J61	JUNCTION	64.30	3.00	0.0
J62	JUNCTION	64.70	3.00	0.0
J63	JUNCTION	64.50	3.00	0.0
J64	JUNCTION	64.65	3.00	0.0
J65	JUNCTION	65.10	3.00	0.0
J66	JUNCTION	64.50	3.00	0.0
J67	JUNCTION	65.17	3.00	0.0
J68	JUNCTION	65.00	3.00	0.0
J69	JUNCTION	65.43	3.00	0.0
J7	JUNCTION	63.59	2.81	0.0
J70	JUNCTION	65.20	3.00	0.0
J71	JUNCTION	65.70	3.00	0.0
J72	JUNCTION	65.30	3.00	0.0
J73	JUNCTION	64.93	3.00	0.0
J74	JUNCTION	65.01	3.00	0.0
J75	JUNCTION	65.89	3.00	0.0
J76	JUNCTION	62.95	2.45	0.0
J8	JUNCTION	62.99	3.13	0.0
J9	JUNCTION	62.91	3.32	0.0
Canal_Outlet	OUTFALL	62.58	1.02	0.0
J28	OUTFALL	62.22	0.97	0.0
BASIN1	STORAGE	62.81	2.23	0.0
BASIN2	STORAGE	62.95	2.19	0.0
Great-Lawn-Storage	STORAGE	64.40	0.50	0.0
S-BLDG-A	STORAGE	100.00	0.15	0.0
S-BLDG-B	STORAGE	100.00	0.15	0.0
S-BLDG-C	STORAGE	100.00	0.15	0.0
S-BLDG-D	STORAGE	100.00	0.15	0.0
S-BLDG-G	STORAGE	100.00	0.15	0.0
S-BLDG-H	STORAGE	100.00	0.15	0.0
S-BLDG-I	STORAGE	100.00	0.15	0.0
S-BLDG-J	STORAGE	100.00	0.15	0.0
S-BLDG-K	STORAGE	100.00	0.15	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J14	J13	CONDUIT	75.0	0.2001	0.0130
C10	J34	J31	CONDUIT	53.4	0.0937	0.0130
C11	J31	J30	CONDUIT	56.4	0.1063	0.0130
C12	J30	J8	CONDUIT	81.9	0.1099	0.0130
C13	J35	J17	CONDUIT	24.3	0.4946	0.0130
C14	J36	J17	CONDUIT	17.9	0.5037	0.0130
C15	J17	J15	CONDUIT	9.4	0.2126	0.0130
C16	J15	J10	CONDUIT	39.5	0.2785	0.0130
C17	J10	J9	CONDUIT	11.3	0.1770	0.0130
C18	J47	J12	CONDUIT	30.2	0.0992	0.0130
C18_1	J9	J40	CONDUIT	43.3	0.1271	0.0130
C18_2	J40	J11	CONDUIT	59.3	0.1265	0.0130
C19	J12	J16	CONDUIT	57.0	0.0526	0.0130
C2	J2	J3	CONDUIT	60.8	0.1975	0.0130
C20	J16	J11	CONDUIT	16.7	6.1921	0.0130
C21	J46	J47	CONDUIT	53.4	0.2247	0.0130
C21_1	J11	J32	CONDUIT	70.1	0.0599	0.0130
C21_2	J32	J20	CONDUIT	14.2	0.0565	0.0130
C22	J19	J18	CONDUIT	31.8	0.5029	0.0130
C23	J18	J11	CONDUIT	41.5	0.5054	0.0130
C24	J22	J21	CONDUIT	90.6	0.3752	0.0130
C25	J21	J20	CONDUIT	25.4	0.3937	0.0130
C26	J20	J23	CONDUIT	23.5	0.1703	0.0130
C27	J45	J46	CONDUIT	63.9	0.2347	0.0130

C27_2	J41	J24	CONDUIT	82.3	0.1093	0.0130
C28	J24	J29	CONDUIT	14.1	0.0711	0.0130
C29	J29	J25	CONDUIT	78.9	0.1394	0.0130
C3	J3	J4	CONDUIT	60.7	0.1976	0.0130
C30	J25	J26	CONDUIT	17.8	0.1125	0.0130
C31	J26	J27	CONDUIT	4.6	0.4383	0.0130
C32	J27	J28	CONDUIT	8.1	0.3695	0.0130
C33	J37	J1	CONDUIT	20.0	0.4509	0.0130
C34	J1	J18	CONDUIT	29.0	0.5178	0.0130
C35	J38	J39	CONDUIT	100.1	0.0999	0.0130
C36	J39	J34	CONDUIT	105.1	0.0761	0.0130
C37	J33	Canal_Outlet	CONDUIT	10.7	0.8418	0.0130
C38	J44	J45	CONDUIT	73.4	0.1498	0.0130
C39	J43	J44	CONDUIT	35.7	0.1400	0.0130
C4	J4	J5	CONDUIT	8.8	0.2278	0.0130
C40	J42	J43	CONDUIT	92.3	0.1517	0.0130
C41	J48	J49	CONDUIT	88.2	0.3287	0.0350
C42	J49	J31	CONDUIT	39.4	1.7782	0.0130
C43	J50	J51	CONDUIT	105.0	-0.2570	0.0350
C44	J51	J48	CONDUIT	21.6	3.0571	0.0240
C45	J52	J53	CONDUIT	90.8	0.0661	0.0130
C46	J53	J54	CONDUIT	22.0	0.0014	0.0130
C47	J54	J55	CONDUIT	7.7	0.6525	0.0130
C48	J55	J56	CONDUIT	65.7	0.3804	0.0130
C49	J59	J58	CONDUIT	18.0	1.2770	0.0130
C5	J5	J6	CONDUIT	6.7	0.1504	0.0130
C50	J58	J57	CONDUIT	14.2	0.3521	0.0130
C51	J57	J52	CONDUIT	47.6	-0.0210	0.0130
C52	J60	J61	CONDUIT	70.3	0.4980	0.0350
C53	J62	J63	CONDUIT	26.8	0.7450	0.0350
C54	J64	J63	CONDUIT	37.1	0.4039	0.0350
C55	J65	J66	CONDUIT	51.5	1.1643	0.0350
C56	J67	J68	CONDUIT	10.1	1.6809	0.0350
C57	J69	J68	CONDUIT	52.1	0.8247	0.0350
C58	J69	J70	CONDUIT	39.7	0.5794	0.0350
C59	J71	J72	CONDUIT	27.8	1.4378	0.0130
C6	J6	J7	CONDUIT	63.3	0.2053	0.0130
C60	J72	J73	CONDUIT	34.0	1.0892	0.0130
C61	J74	J73	CONDUIT	9.6	0.8371	0.0130
C62	J54	J74	CONDUIT	17.9	1.3420	0.0130
C63	J75	J71	CONDUIT	22.1	0.8607	0.0130
C64	BASIN2	J76	CONDUIT	3.0	0.0102	0.0130
C7	J13	J7	CONDUIT	74.9	0.2004	0.0130
C8	J7	J8	CONDUIT	50.1	0.0999	0.0130
C9	J8	J9	CONDUIT	49.2	0.1015	0.0130
C27_1	J23	J41	ORIFICE			
OR1	BASIN2	J40	ORIFICE			
OR2	BASIN1	J32	ORIFICE			
OL16	J25	J68	WEIR			
W10	J39	J48	WEIR			
W11	J34	J49	WEIR			
W12	J38	J50	WEIR			
W13	J15	Great-Lawn-Storage	WEIR			
W14	J31	J60	WEIR			
W15	J47	Great-Lawn-Storage	WEIR			
W16	J22	J52	WEIR			
W17	J21	J53	WEIR			
W18	J20	J54	WEIR			
W19	J32	J55	WEIR			
W2	J40	BASIN2	WEIR			
W20	J11	J56	WEIR			
W21	J35	J59	WEIR			
W22	J17	J58	WEIR			
W23	J36	J57	WEIR			
W24	J14	J13	WEIR			
W25	J13	J7	WEIR			
W26	J7	J8	WEIR			
W27	J2	J3	WEIR			
W28	J3	J4	WEIR			
W29	J4	J5	WEIR			
W3	J32	BASIN1	WEIR			
W30	J5	J6	WEIR			
W31	J6	J7	WEIR			
W32	J10	Great-Lawn-Storage	WEIR			
W33	J44	J65	WEIR			
W34	J45	J64	WEIR			
W35	J46	J62	WEIR			
W36	J1	J55	WEIR			
W37	J18	J56	WEIR			
W38	J42	J68	WEIR			
W39	J43	J70	WEIR			
W40	J9	Great-Lawn-Storage	WEIR			
W41	J23	J73	WEIR			
W42	J24	J75	WEIR			
W43	J41	J73	WEIR			
W44	J76	Great-Lawn-Storage	WEIR			
W5	J30	Great-Lawn-Storage	WEIR			
W6	J12	Great-Lawn-Storage	WEIR			
W7	J16	Great-Lawn-Storage	WEIR			
W8	J11	Great-Lawn-Storage	WEIR			
W9	J8	Great-Lawn-Storage	WEIR			
OL1	J61	J34	OUTLET			
OL10	S-BLDG-H	J17	OUTLET			
OL11	S-BLDG-G	J17	OUTLET			
OL12	S-BLDG-I	J14	OUTLET			
OL13	S-BLDG-K	J14	OUTLET			
OL14	Great-Lawn-Storage	J16	OUTLET			
OL15	Great-Lawn-Storage	J12	OUTLET			
OL17	S-BLDG-J	J35	OUTLET			
OL2	J63	J46	OUTLET			
OL3	J66	J45	OUTLET			
OL4	J68	J42	OUTLET			
OL5	J70	J43	OUTLET			
OL6	S-BLDG-A	J22	OUTLET			
OL7	S-BLDG-B	J22	OUTLET			

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OL8              S-BLDG-C         J22              OUTLET
OL9              S-BLDG-D         J22              OUTLET
W1               Great-Lawn-Storage J33              OUTLET


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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C10	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C11	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C12	CIRCULAR	0.90	0.64	0.23	0.90	1	0.60
C13	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C14	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C15	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C16	CIRCULAR	0.60	0.28	0.15	0.60	1	0.32
C17	CIRCULAR	0.60	0.28	0.15	0.60	1	0.26
C18	CIRCULAR	0.90	0.64	0.23	0.90	1	0.57
C18_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.90
C18_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.90
C19	CIRCULAR	0.90	0.64	0.23	0.90	1	0.42
C2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C20	CIRCULAR	0.90	0.64	0.23	0.90	1	4.51
C21	CIRCULAR	0.53	0.22	0.13	0.53	1	0.20
C21_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.31
C21_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.27
C22	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C23	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C24	CIRCULAR	0.68	0.36	0.17	0.68	1	0.51
C25	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C26	CIRCULAR	1.35	1.43	0.34	1.35	1	2.20
C27	CIRCULAR	0.53	0.22	0.13	0.53	1	0.21
C27_2	CIRCULAR	0.97	0.75	0.24	0.97	1	0.74
C28	CIRCULAR	0.97	0.75	0.24	0.97	1	0.60
C29	CIRCULAR	0.97	0.75	0.24	0.97	1	0.84
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C30	CIRCULAR	0.97	0.75	0.24	0.97	1	0.75
C31	CIRCULAR	0.97	0.75	0.24	0.97	1	1.48
C32	CIRCULAR	0.97	0.75	0.24	0.97	1	1.36
C33	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C34	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C35	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C36	CIRCULAR	0.60	0.28	0.15	0.60	1	0.17
C37	CIRCULAR	0.60	0.28	0.15	0.60	1	0.56
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.11
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.29
C40	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C41	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.38
C42	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C43	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.87
C44	CIRCULAR	0.25	0.05	0.06	0.25	1	0.06
C45	RECT_OPEN	1.00	8.00	0.80	8.00	1	13.63
C46	RECT_OPEN	1.00	8.00	0.80	8.00	1	1.98
C47	RECT_OPEN	1.00	8.00	0.80	8.00	1	42.85
C48	RECT_OPEN	1.00	8.00	0.80	8.00	1	32.71
C49	RECT_OPEN	1.00	8.00	0.80	8.00	1	59.94
C5	CIRCULAR	0.60	0.28	0.15	0.60	1	0.24
C50	RECT_OPEN	1.00	8.00	0.80	8.00	1	31.48
C51	RECT_OPEN	1.00	8.00	0.80	8.00	1	7.69
C52	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	5.39
C53	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.59
C54	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.85
C55	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	8.24
C56	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	6.76
C57	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	4.74
C58	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	3.97
C59	RECT_OPEN	1.00	8.00	0.80	8.00	1	63.60
C6	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C60	RECT_OPEN	1.00	8.00	0.80	8.00	1	55.36
C61	RECT_OPEN	1.00	8.00	0.80	8.00	1	48.53
C62	RECT_OPEN	1.00	8.00	0.80	8.00	1	61.44
C63	RECT_OPEN	1.00	8.00	0.80	8.00	1	49.21
C64	CIRCULAR	0.90	0.64	0.23	0.90	1	0.18
C7	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C8	CIRCULAR	1.05	0.87	0.26	1.05	1	0.86
C9	CIRCULAR	1.20	1.13	0.30	1.20	1	1.24

```
*****************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*****************************************************

***************
Analysis Options
***************
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 07/23/2009 00:01:00
```

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Ending Date ..... 07/24/2009 00:01:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:05:00
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 1.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 20
Number of Threads ..... 2
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.687	42.514
Evaporation Loss	0.000	0.000
Infiltration Loss	0.193	11.967
Surface Runoff	0.479	29.659
Final Storage	0.019	1.165
Continuity Error (%)	-0.651	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.479	4.795
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.287	2.874
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.001	0.008
Final Stored Volume	0.141	1.407
Continuity Error (%)	10.864	

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************************
Highest Continuity Errors
************************
Node J33 (30.22%)
Node J40 (12.69%)
Node BASIN2 (-7.40%)
Node J30 (2.35%)
Node BASIN1 (-1.84%)


**************************
Time-Step Critical Elements
**************************
None


********************************
Highest Flow Instability Indexes
********************************
Link C27_1 (79)
Link OR1 (38)
Link OR2 (32)
Link C33 (32)
Link C31 (31)


************************
Routing Time Step Summary
************************
Minimum Time Step           :     0.50 sec
Average Time Step           :     1.00 sec
Maximum Time Step           :     1.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     5.05
Percent Not Converging      :    10.64
Time Step Frequencies       :
    1.000 -  0.871 sec      :    99.53 %
    0.871 -  0.758 sec      :     0.08 %
    0.758 -  0.660 sec      :     0.10 %
    0.660 -  0.574 sec      :     0.08 %
    0.574 -  0.500 sec      :     0.20 %


**************************
Subcatchment Runoff Summary
**************************
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Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
102	42.51	0.00	0.00	18.15	26.53	10.41	23.68	0.11	0.05	0.557
107AA	42.51	0.00	0.00	4.97	35.58	0.92	36.50	0.10	0.07	0.858
108	42.51	0.00	0.00	11.76	28.25	1.70	29.95	0.10	0.08	0.704
109	42.51	0.00	0.00	4.61	36.14	0.76	36.90	0.11	0.08	0.868
109C	42.51	0.00	0.00	16.45	27.49	13.09	25.46	0.06	0.04	0.599
116	42.51	0.00	0.00	33.97	5.72	8.69	8.69	0.02	0.02	0.204
A	42.51	0.00	0.00	31.60	17.87	10.43	10.43	0.08	0.02	0.245
A1	42.51	0.00	0.00	0.52	40.72	0.10	40.83	0.42	0.29	0.960
A2	42.51	0.00	0.00	0.75	40.46	0.15	40.61	0.64	0.45	0.955
A3	42.51	0.00	0.00	3.58	37.29	0.61	37.90	0.35	0.25	0.891
A4	42.51	0.00	0.00	5.63	34.88	0.99	35.87	0.30	0.22	0.844
A5	42.51	0.00	0.00	0.02	41.27	0.01	41.28	0.10	0.07	0.971
AA	42.51	0.00	0.00	21.24	22.47	9.50	20.73	0.08	0.04	0.488

BB	42.51	0.00	0.00	32.15	16.96	9.91	9.91	0.09	0.02	0.233
BLDG-A	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
BLDG-B	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.15	0.10	0.968
BLDG-C	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.12	0.09	0.968
BLDG-D	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.06	0.04	0.968
BLDGG	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
BLDGH	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.15	0.11	0.968
BLDG-I	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.09	0.07	0.968
BLDGJ	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.06	0.04	0.968
BLDGJ2	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.16	0.11	0.968
BLDG-K	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
D	42.51	0.00	0.00	34.41	12.40	7.79	7.79	0.05	0.01	0.183
D1	42.51	0.00	0.00	27.96	13.34	7.60	14.28	0.07	0.05	0.336
EE	42.51	0.00	0.00	38.27	6.30	4.08	4.08	0.01	0.01	0.096
Great-Lawn	42.51	0.00	0.00	34.09	10.95	8.16	8.16	0.08	0.03	0.192
NSTANDS	42.51	0.00	0.00	0.00	41.32	0.00	41.32	0.31	0.22	0.972
OPGG	42.51	0.00	0.00	15.79	24.62	1.42	26.05	0.21	0.15	0.613
SSTANDS	42.51	0.00	0.00	0.02	41.15	0.01	41.16	0.33	0.23	0.968
T	42.51	0.00	0.00	27.60	11.41	3.23	14.64	0.02	0.01	0.344
V	42.51	0.00	0.00	1.22	39.75	0.25	40.00	0.06	0.05	0.941

****
Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.23	0.92	64.48	0 02:49	0.91
J10	JUNCTION	0.52	1.34	64.48	0 02:53	1.33
J11	JUNCTION	1.64	2.47	64.47	0 02:53	2.47
J12	JUNCTION	0.57	1.38	64.47	0 02:52	1.38
J13	JUNCTION	0.17	0.71	64.48	0 02:49	0.71
J14	JUNCTION	0.11	0.53	64.48	0 02:50	0.53
J15	JUNCTION	0.39	1.20	64.48	0 02:53	1.19
J16	JUNCTION	0.63	1.44	64.47	0 02:53	1.44
J17	JUNCTION	0.35	1.16	64.48	0 02:53	1.15
J18	JUNCTION	0.31	1.11	64.47	0 02:52	1.11
J19	JUNCTION	0.21	0.88	64.50	0 02:47	0.86
J2	JUNCTION	0.05	1.75	66.01	0 01:10	1.72
J20	JUNCTION	0.93	1.75	64.47	0 02:53	1.75
J21	JUNCTION	0.36	1.16	64.47	0 02:53	1.16
J22	JUNCTION	0.19	0.80	64.48	0 02:54	0.79
J23	JUNCTION	1.00	1.83	64.47	0 02:54	1.83
J24	JUNCTION	1.09	1.94	64.47	0 02:53	1.94
J25	JUNCTION	1.26	2.12	64.47	0 02:54	2.12
J26	JUNCTION	1.32	2.21	64.50	0 02:56	2.18
J27	JUNCTION	1.36	2.24	64.49	0 02:55	2.23
J29	JUNCTION	1.13	2.01	64.50	0 02:55	1.98
J3	JUNCTION	0.09	1.88	65.99	0 01:10	1.87
J30	JUNCTION	0.56	1.38	64.48	0 02:54	1.37
J31	JUNCTION	0.48	1.30	64.48	0 02:53	1.29
J32	JUNCTION	0.89	1.72	64.48	0 02:53	1.72
J33	JUNCTION	0.99	0.99	64.08	0 07:39	0.99
J34	JUNCTION	0.32	1.13	64.48	0 02:47	1.12
J35	JUNCTION	0.17	1.44	65.23	0 01:10	1.44
J36	JUNCTION	0.16	0.72	64.48	0 02:54	0.71
J37	JUNCTION	0.19	0.82	64.50	0 02:49	0.80
J38	JUNCTION	0.22	0.92	64.48	0 02:46	0.91
J39	JUNCTION	0.26	1.04	64.48	0 02:48	1.03
J4	JUNCTION	0.12	0.63	64.59	0 01:10	0.63
J40	JUNCTION	0.75	1.58	64.49	0 02:52	1.56
J41	JUNCTION	0.98	1.83	64.47	0 02:54	1.83
J42	JUNCTION	0.08	0.41	64.48	0 02:51	0.40
J43	JUNCTION	0.13	0.59	64.48	0 02:51	0.58
J44	JUNCTION	0.16	0.72	64.48	0 02:51	0.71
J45	JUNCTION	0.22	0.91	64.48	0 02:52	0.90
J46	JUNCTION	0.27	1.06	64.48	0 02:52	1.05
J47	JUNCTION	0.54	1.35	64.47	0 02:52	1.35
J48	JUNCTION	0.00	0.06	64.75	0 01:17	0.06
J49	JUNCTION	0.01	0.08	64.48	0 02:49	0.08
J5	JUNCTION	0.13	0.64	64.55	0 01:10	0.63
J50	JUNCTION	0.00	0.00	65.08	0 00:00	0.00
J51	JUNCTION	0.00	0.00	65.35	0 00:00	0.00
J52	JUNCTION	0.00	0.00	65.31	0 00:00	0.00
J53	JUNCTION	0.00	0.00	65.25	0 00:00	0.00
J54	JUNCTION	0.00	0.00	65.25	0 00:00	0.00
J55	JUNCTION	0.00	0.00	65.20	0 00:00	0.00
J56	JUNCTION	0.00	0.00	64.95	0 00:00	0.00
J57	JUNCTION	0.00	0.00	65.30	0 00:00	0.00
J58	JUNCTION	0.00	0.00	65.35	0 00:00	0.00
J59	JUNCTION	0.00	0.00	65.58	0 00:00	0.00
J6	JUNCTION	0.14	0.65	64.52	0 01:10	0.64
J60	JUNCTION	0.00	0.00	64.65	0 00:00	0.00
J61	JUNCTION	0.02	0.18	64.48	0 02:47	0.17
J62	JUNCTION	0.00	0.00	64.70	0 00:00	0.00
J63	JUNCTION	0.00	0.00	64.50	0 00:00	0.00
J64	JUNCTION	0.00	0.00	64.65	0 00:00	0.00
J65	JUNCTION	0.00	0.00	65.10	0 00:00	0.00
J66	JUNCTION	0.00	0.00	64.50	0 00:00	0.00
J67	JUNCTION	0.00	0.00	65.17	0 00:00	0.00
J68	JUNCTION	0.00	0.00	65.00	0 00:00	0.00
J69	JUNCTION	0.00	0.00	65.43	0 00:00	0.00
J7	JUNCTION	0.22	0.89	64.48	0 02:49	0.88
J70	JUNCTION	0.00	0.00	65.20	0 00:00	0.00
J71	JUNCTION	0.00	0.00	65.70	0 00:00	0.00
J72	JUNCTION	0.00	0.00	65.30	0 00:00	0.00
J73	JUNCTION	0.00	0.00	64.93	0 00:00	0.00
J74	JUNCTION	0.00	0.00	65.01	0 00:00	0.00
J75	JUNCTION	0.00	0.00	65.89	0 00:00	0.00
J76	JUNCTION	0.69	1.53	64.48	0 02:52	1.52
J8	JUNCTION	0.67	1.48	64.47	0 02:54	1.48

J9	JUNCTION	0.75	1.56	64.47	0	02:53	1.56
Canal_Outlet	OUTFALL	1.50	1.50	64.08	0	00:00	1.50
J28	OUTFALL	1.60	2.98	65.20	0	03:00	2.98
BASIN1	STORAGE	0.83	1.67	64.48	0	02:53	1.66
BASIN2	STORAGE	0.69	1.54	64.49	0	02:52	1.52
Great-Lawn-Storage	STORAGE	0.01	0.03	64.43	0	03:49	0.03
S-BLDG-A	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-B	STORAGE	0.01	0.06	100.06	0	01:35	0.06
S-BLDG-C	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-D	STORAGE	0.01	0.05	100.05	0	01:34	0.05
S-BLDG-G	STORAGE	0.01	0.07	100.07	0	01:44	0.07
S-BLDG-H	STORAGE	0.01	0.06	100.06	0	01:34	0.06
S-BLDG-I	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-J	STORAGE	0.01	0.06	100.06	0	01:34	0.06
S-BLDG-K	STORAGE	0.01	0.07	100.07	0	01:51	0.07

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.000	0.042	0	01:10	0	0.0788	-0.012	
J10	JUNCTION	0.000	0.421	0	01:10	0	0.894	-0.012	
J11	JUNCTION	0.000	0.850	0	01:11	0	4.05	1.046	
J12	JUNCTION	0.067	0.232	0	01:05	0.146	0.599	1.468	
J13	JUNCTION	0.251	0.326	0	01:10	0.353	0.666	-0.027	
J14	JUNCTION	0.067	0.079	0	01:10	0.102	0.3	-0.073	
J15	JUNCTION	0.000	0.422	0	01:10	0	0.892	0.219	
J16	JUNCTION	0.162	0.292	0	01:10	0.231	0.922	0.828	
J17	JUNCTION	0.292	0.424	0	01:10	0.42	0.898	-0.016	
J18	JUNCTION	0.000	0.040	0	01:10	0	0.0832	-0.024	
J19	JUNCTION	0.000	0.007	0	01:04	0	0.000638	-2.181	
J2	JUNCTION	0.000	0.037	0	01:05	0	0.0209	0.249	
J20	JUNCTION	0.000	0.546	0	01:10	0	3.98	0.285	
J21	JUNCTION	0.000	0.475	0	01:10	0	1.07	-0.553	
J22	JUNCTION	0.446	0.478	0	01:10	0.641	1.08	0.792	
J23	JUNCTION	0.073	0.507	0	08:01	0.0986	3.13	1.254	
J24	JUNCTION	0.000	0.516	0	08:00	0	3.01	0.994	
J25	JUNCTION	0.000	0.529	0	08:00	0	2.93	1.238	
J26	JUNCTION	0.000	0.533	0	08:00	0	2.89	0.289	
J27	JUNCTION	0.000	0.534	0	08:00	0	2.88	0.185	
J29	JUNCTION	0.000	0.524	0	08:00	0	2.97	1.135	
J3	JUNCTION	0.450	0.450	0	01:10	0.627	0.656	0.481	
J30	JUNCTION	0.020	0.417	0	01:06	0.0184	0.503	2.407	
J31	JUNCTION	0.000	0.322	0	01:06	0	0.411	0.959	
J32	JUNCTION	0.000	1.356	0	01:10	0	5.74	1.257	
J33	JUNCTION	0.000	0.000	0	01:00	0	0.000202	43.315	
J34	JUNCTION	0.047	0.261	0	01:06	0.0684	0.363	0.168	
J35	JUNCTION	0.112	0.117	0	01:10	0.16	0.218	0.672	
J36	JUNCTION	0.000	0.011	0	01:04	0	0.00693	0.019	
J37	JUNCTION	0.042	0.042	0	01:10	0.0767	0.0769	0.322	
J38	JUNCTION	0.019	0.153	0	01:09	0.0764	0.0981	0.349	
J39	JUNCTION	0.000	0.245	0	01:07	0	0.164	-0.290	
J4	JUNCTION	0.000	0.432	0	01:10	0	0.641	-0.102	
J40	JUNCTION	0.000	1.553	0	01:12	0	5.66	14.536	
J41	JUNCTION	0.000	0.509	0	08:00	0	3.04	0.437	
J42	JUNCTION	0.000	0.011	0	02:28	0	0.0103	0.901	
J43	JUNCTION	0.050	0.050	0	01:10	0.105	0.124	0.630	
J44	JUNCTION	0.000	0.048	0	01:10	0	0.124	0.621	
J45	JUNCTION	0.000	0.111	0	01:06	0	0.139	-0.923	
J46	JUNCTION	0.023	0.104	0	01:05	0.0882	0.247	0.138	
J47	JUNCTION	0.005	0.154	0	01:05	0.0141	0.292	1.039	
J48	JUNCTION	0.015	0.015	0	01:20	0.0455	0.0455	-0.405	
J49	JUNCTION	0.000	0.017	0	01:20	0	0.0523	0.418	
J5	JUNCTION	0.000	0.431	0	01:10	0	0.643	-0.003	
J50	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J51	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J52	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J53	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J54	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J55	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J56	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J57	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J58	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J59	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J6	JUNCTION	0.000	0.431	0	01:10	0	0.646	0.666	
J60	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J61	JUNCTION	0.000	0.140	0	02:47	0	0.0635	0.630	
J62	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J63	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J64	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J65	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J66	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J67	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J68	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J69	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J7	JUNCTION	0.216	0.959	0	01:10	0.312	1.63	0.544	
J70	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J71	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J72	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J73	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J74	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J75	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J76	JUNCTION	0.000	0.092	0	02:52	0	0.32	-0.345	
J8	JUNCTION	0.036	1.121	0	01:11	0.0647	2.09	0.357	
J9	JUNCTION	0.076	1.543	0	01:12	0.106	2.92	0.555	
Canal_Outlet	OUTFALL	0.000	0.000	0	00:00	0	0.000343	0.000	
J28	OUTFALL	0.000	0.534	0	08:00	0	2.87	0.000	
BASIN1	STORAGE	0.076	1.423	0	01:10	0.103	2.21	-1.803	

BASIN2	STORAGE	0.000	1.300	0	01:16	0	2.55	-6.893
Great-Lawn-Storage	STORAGE	0.000	0.154	0	02:52	0	0.318	-0.021
S-BLDG-A	STORAGE	0.074	0.074	0	01:10	0.105	0.105	0.004
S-BLDG-B	STORAGE	0.105	0.105	0	01:10	0.149	0.149	0.004
S-BLDG-C	STORAGE	0.087	0.087	0	01:10	0.123	0.123	0.004
S-BLDG-D	STORAGE	0.040	0.040	0	01:10	0.0568	0.0568	0.004
S-BLDG-G	STORAGE	0.070	0.070	0	01:10	0.1	0.1	0.004
S-BLDG-H	STORAGE	0.107	0.107	0	01:10	0.153	0.153	0.004
S-BLDG-I	STORAGE	0.065	0.065	0	01:10	0.0929	0.0929	0.004
S-BLDG-J	STORAGE	0.040	0.040	0	01:10	0.0564	0.0564	0.004
S-BLDG-K	STORAGE	0.072	0.072	0	01:10	0.102	0.102	0.004

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J19	JUNCTION	7.09	0.678	0.202
J26	JUNCTION	22.99	1.197	0.628
J27	JUNCTION	23.00	1.248	0.637
J29	JUNCTION	6.91	1.009	0.866
J33	JUNCTION	24.00	0.390	2.010
J37	JUNCTION	6.89	0.570	0.600
J40	JUNCTION	4.72	0.140	0.622

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
BASIN1	0.368	58	0	0	0.630	99	0 02:53	0.467
BASIN2	1.154	51	0	0	2.237	100	0 02:52	0.578
Great-Lawn-Storage	0.059	1	0	0	0.264	6	0 03:49	0.023
S-BLDG-A	0.006	1	0	0	0.062	12	0 01:33	0.009
S-BLDG-B	0.010	1	0	0	0.091	14	0 01:35	0.011
S-BLDG-C	0.007	1	0	0	0.073	12	0 01:33	0.011
S-BLDG-D	0.003	1	0	0	0.034	13	0 01:34	0.005
S-BLDG-G	0.008	2	0	0	0.065	20	0 01:44	0.006
S-BLDG-H	0.009	1	0	0	0.092	14	0 01:34	0.012
S-BLDG-I	0.005	1	0	0	0.055	12	0 01:33	0.008
S-BLDG-J	0.003	1	0	0	0.034	14	0 01:34	0.004
S-BLDG-K	0.009	3	0	0	0.067	22	0 01:51	0.005

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Canal_Outlet	4.95	0.000	0.000	0.000
J28	69.57	0.048	0.534	2.874
System	37.26	0.048	0.534	2.875

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.084	0 01:11	0.43	0.13	0.73
C10	CONDUIT	0.230	0 01:06	0.82	1.22	1.00
C11	CONDUIT	0.322	0 01:06	0.57	0.54	1.00
C12	CONDUIT	0.413	0 01:06	0.67	0.69	1.00
C13	CONDUIT	0.116	0 01:09	2.36	2.77	1.00
C14	CONDUIT	0.011	0 01:04	0.26	0.26	1.00
C15	CONDUIT	0.422	0 01:10	1.49	1.49	1.00
C16	CONDUIT	0.421	0 01:10	1.49	1.30	1.00
C17	CONDUIT	0.420	0 01:10	1.48	1.62	1.00
C18	CONDUIT	0.154	0 01:05	0.30	0.27	1.00
C18_1	CONDUIT	1.553	0 01:12	1.25	0.82	1.00
C18_2	CONDUIT	0.739	0 01:17	0.67	0.39	1.00
C19	CONDUIT	0.185	0 01:05	0.35	0.45	1.00
C2	CONDUIT	0.037	0 01:14	0.26	0.29	1.00
C20	CONDUIT	0.295	0 01:10	0.46	0.07	1.00
C21	CONDUIT	0.102	0 01:05	0.53	0.50	1.00
C21_1	CONDUIT	0.834	0 01:11	0.62	0.64	1.00
C21_2	CONDUIT	0.543	0 01:10	0.59	0.43	1.00
C22	CONDUIT	0.007	0 01:04	0.33	0.32	1.00

C23	CONDUIT	0.039	0	01:11	0.80	0.93	1.00
C24	CONDUIT	0.475	0	01:10	1.54	0.92	1.00
C25	CONDUIT	0.472	0	01:10	1.39	0.89	1.00
C26	CONDUIT	0.507	0	08:01	0.70	0.23	1.00
C27	CONDUIT	0.082	0	01:06	0.48	0.40	1.00
C27_2	CONDUIT	0.516	0	08:00	0.86	0.70	1.00
C28	CONDUIT	0.524	0	08:00	0.88	0.88	1.00
C29	CONDUIT	0.529	0	08:00	0.71	0.63	1.00
C3	CONDUIT	0.432	0	01:10	2.72	3.41	1.00
C30	CONDUIT	0.533	0	08:00	0.71	0.71	1.00
C31	CONDUIT	0.534	0	08:00	0.71	0.36	1.00
C32	CONDUIT	0.534	0	08:00	0.72	0.39	1.00
C33	CONDUIT	0.042	0	01:10	0.92	1.04	1.00
C34	CONDUIT	0.040	0	01:10	0.82	0.93	1.00
C35	CONDUIT	0.147	0	01:09	0.71	0.76	1.00
C36	CONDUIT	0.245	0	01:07	1.04	1.44	1.00
C37	CONDUIT	0.000	0	00:00	0.00	0.00	1.00
C38	CONDUIT	0.053	0	01:10	0.63	0.48	1.00
C39	CONDUIT	0.048	0	01:10	0.82	0.73	1.00
C4	CONDUIT	0.431	0	01:10	1.52	1.47	1.00
C40	CONDUIT	0.011	0	02:28	0.17	0.16	1.00
C41	CONDUIT	0.017	0	01:20	0.23	0.00	0.06
C42	CONDUIT	0.015	0	01:26	0.37	0.11	0.63
C43	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.13
C45	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C46	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C47	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C48	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C49	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C5	CONDUIT	0.431	0	01:10	1.52	1.81	1.00
C50	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C51	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C52	CONDUIT	0.000	0	00:00	0.00	0.00	0.09
C53	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C54	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C55	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C56	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C57	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C58	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C59	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C6	CONDUIT	0.432	0	01:10	1.60	1.55	1.00
C60	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C61	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C62	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C63	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C64	CONDUIT	0.092	0	02:52	0.25	0.51	1.00
C7	CONDUIT	0.321	0	01:10	0.82	0.50	0.93
C8	CONDUIT	0.957	0	01:10	1.88	1.11	0.87
C9	CONDUIT	1.158	0	01:12	1.07	0.93	1.00
C27_1	ORIFICE	0.509	0	08:00			1.00
OR1	ORIFICE	0.161	0	08:40			1.00
OR2	ORIFICE	0.061	0	08:31			1.00
OL16	WEIR	0.000	0	00:00			0.00
W10	WEIR	0.000	0	00:00			0.00
W11	WEIR	0.000	0	00:00			0.00
W12	WEIR	0.000	0	00:00			0.00
W13	WEIR	0.000	0	00:00			0.00
W14	WEIR	0.000	0	00:00			0.00
W15	WEIR	0.000	0	00:00			0.00
W16	WEIR	0.000	0	00:00			0.00
W17	WEIR	0.000	0	00:00			0.00
W18	WEIR	0.000	0	00:00			0.00
W19	WEIR	0.000	0	00:00			0.00
W2	WEIR	1.300	0	01:16			1.00
W20	WEIR	0.000	0	00:00			0.00
W21	WEIR	0.000	0	00:00			0.00
W22	WEIR	0.000	0	00:00			0.00
W23	WEIR	0.000	0	00:00			0.00
W24	WEIR	0.000	0	00:00			0.00
W25	WEIR	0.000	0	00:00			0.00
W26	WEIR	0.000	0	00:00			0.00
W27	WEIR	0.000	0	00:00			0.00
W28	WEIR	0.000	0	00:00			0.00
W29	WEIR	0.000	0	00:00			0.00
W3	WEIR	1.356	0	01:10			1.00
W30	WEIR	0.000	0	00:00			0.00
W31	WEIR	0.000	0	00:00			0.00
W32	WEIR	0.000	0	00:00			0.00
W33	WEIR	0.000	0	00:00			0.00
W34	WEIR	0.000	0	00:00			0.00
W35	WEIR	0.000	0	00:00			0.00
W36	WEIR	0.000	0	00:00			0.00
W37	WEIR	0.000	0	00:00			0.00
W38	WEIR	0.000	0	00:00			0.00
W39	WEIR	0.000	0	00:00			0.00
W40	WEIR	0.000	0	00:00			0.00
W41	WEIR	0.000	0	00:00			0.00
W42	WEIR	0.000	0	00:00			0.00
W43	WEIR	0.000	0	00:00			0.00
W44	WEIR	0.091	0	02:52			0.08
W5	WEIR	0.000	0	00:00			0.00
W6	WEIR	0.000	0	00:00			0.00
W7	WEIR	0.000	0	00:00			0.00
W8	WEIR	0.000	0	00:00			0.00
W9	WEIR	0.000	0	00:00			0.00
OL1	DUMMY	0.140	0	02:47			
OL10	DUMMY	0.012	0	01:12			
OL11	DUMMY	0.006	0	01:08			
OL12	DUMMY	0.008	0	01:20			
OL13	DUMMY	0.005	0	01:08			
OL14	DUMMY	0.033	0	02:53			
OL15	DUMMY	0.032	0	02:52			
OL17	DUMMY	0.004	0	01:13			
OL2	DUMMY	0.000	0	00:00			

OL3	DUMMY	0.000	0	00:00
OL4	DUMMY	0.000	0	00:00
OL5	DUMMY	0.000	0	00:00
OL6	DUMMY	0.009	0	01:16
OL7	DUMMY	0.011	0	01:12
OL8	DUMMY	0.011	0	01:16
OL9	DUMMY	0.005	0	01:14
W1	DUMMY	0.000	0	00:00

****
Flow Classification Summary
****

	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.02	0.00	0.00	0.32	0.00	0.00	0.66	0.05	0.00
C10	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C11	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C12	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C13	1.00	0.02	0.00	0.00	0.31	0.00	0.00	0.67	0.01	0.00
C14	1.00	0.04	0.00	0.00	0.31	0.00	0.00	0.65	0.01	0.00
C15	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C16	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C17	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C18	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C18_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C18_2	1.00	0.00	0.00	0.00	0.97	0.00	0.00	0.03	0.00	0.00
C19	1.00	0.00	0.00	0.00	0.96	0.00	0.00	0.04	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.29	0.00	0.00	0.68	0.04	0.00
C20	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.02	0.00
C21	1.00	0.03	0.00	0.00	0.96	0.00	0.00	0.02	0.61	0.00
C21_1	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C21_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C22	1.00	0.04	0.00	0.00	0.34	0.00	0.00	0.62	0.65	0.00
C23	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C24	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.65	0.00
C25	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C26	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C27	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.30	0.00
C27_2	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C28	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C29	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C3	1.00	0.02	0.00	0.00	0.25	0.00	0.00	0.73	0.02	0.00
C30	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C31	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C33	1.00	0.02	0.00	0.00	0.31	0.00	0.00	0.66	0.01	0.00
C34	1.00	0.02	0.00	0.00	0.36	0.00	0.00	0.62	0.04	0.00
C35	1.00	0.04	0.00	0.00	0.34	0.00	0.00	0.62	0.03	0.00
C36	1.00	0.02	0.46	0.00	0.51	0.00	0.00	0.00	0.62	0.00
C37	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.02	0.00	0.00	0.31	0.00	0.00	0.67	0.01	0.00
C39	1.00	0.02	0.00	0.00	0.29	0.00	0.00	0.69	0.01	0.00
C4	1.00	0.02	0.00	0.00	0.27	0.00	0.00	0.71	0.00	0.00
C40	1.00	0.03	0.02	0.00	0.29	0.00	0.00	0.67	0.04	0.00
C41	1.00	0.04	0.40	0.00	0.56	0.00	0.00	0.00	0.94	0.00
C42	1.00	0.05	0.00	0.00	0.30	0.00	0.00	0.65	0.15	0.00
C43	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C44	1.00	0.44	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C46	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C47	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C48	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C49	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5	1.00	0.02	0.00	0.00	0.30	0.00	0.00	0.68	0.00	0.00
C50	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C51	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C52	1.00	0.79	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C53	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C54	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C55	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C56	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C57	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C58	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C59	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	0.02	0.00	0.00	0.30	0.00	0.00	0.67	0.02	0.00
C60	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C61	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C62	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C63	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C64	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.02	0.00	0.00	0.33	0.00	0.00	0.65	0.02	0.00
C8	1.00	0.02	0.00	0.00	0.31	0.00	0.00	0.66	0.01	0.00
C9	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C10	6.76	6.76	6.94	0.04	0.02
C11	5.79	5.79	6.21	0.01	0.01
C12	6.40	6.40	6.93	0.01	0.01
C13	6.30	6.36	6.93	0.23	0.17
C14	6.39	6.39	6.93	0.01	0.01
C15	6.93	6.93	6.97	0.16	0.13

C16	7.00	7.00	7.19	0.12	0.12
C17	7.24	7.24	7.27	0.16	0.14
C18	6.17	6.17	6.40	0.01	0.01
C18_1	4.81	4.81	4.92	0.01	0.01
C18_2	4.92	4.92	5.17	0.01	0.01
C19	6.40	6.40	6.64	0.01	0.01
C2	0.20	0.20	0.22	0.01	0.01
C20	6.87	6.87	23.27	0.01	0.01
C21	6.85	6.85	7.08	0.01	0.01
C21_1	5.33	5.33	5.56	0.01	0.01
C21_2	5.56	5.56	5.61	0.01	0.01
C22	7.09	7.09	7.38	0.01	0.01
C23	7.47	7.47	8.84	0.01	0.01
C24	4.72	4.72	6.28	0.01	0.01
C25	6.46	6.46	6.94	0.01	0.01
C26	5.80	5.80	6.10	0.01	0.01
C27	5.65	5.65	6.85	0.01	0.01
C27_2	6.83	6.83	6.89	0.01	0.01
C28	6.91	6.91	6.91	0.01	0.81
C29	6.94	6.94	22.98	0.01	0.01
C3	0.13	0.23	0.95	0.35	0.13
C30	22.99	22.99	22.99	0.01	0.25
C31	23.00	23.00	23.00	0.01	0.85
C32	23.01	23.01	24.00	0.01	0.01
C33	6.89	6.89	7.05	0.02	0.02
C34	7.11	7.11	7.38	0.01	0.01
C35	5.35	5.35	5.92	0.01	0.01
C36	6.05	6.05	6.65	0.03	0.01
C37	24.00	24.00	24.00	0.01	0.01
C38	5.00	5.00	5.61	0.01	0.01
C39	4.89	4.89	4.99	0.01	0.01
C4	0.02	0.04	0.02	0.16	0.02
C40	0.73	0.73	4.82	0.01	0.01
C42	0.01	0.01	6.41	0.01	0.01
C5	0.03	0.06	0.03	0.19	0.03
C6	0.08	0.14	4.75	0.17	0.01
C64	6.59	6.59	6.59	0.01	1.55
C7	0.01	0.01	0.71	0.01	0.01
C8	0.01	0.01	0.01	0.09	0.01
C9	5.10	5.10	5.38	0.01	0.01

Analysis begun on: Thu May 11 15:38:13 2023
Analysis ended on: Thu May 11 15:38:22 2023
Total elapsed time: 00:00:09

100-Year 3-hour Chicago Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
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*************
Element Count
*************
Number of rain gages ...... 18
Number of subcatchments ... 33
Number of nodes ........... 89
Number of links ........... 132
Number of pollutants ...... 0
Number of land uses ....... 0


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Raingage Summary
****************
                                                 Data       Recording
Name                 Data Source                 Type       Interval
----------------------------------------------------------------------
100yr_3hr_Chicago    100yr_3hr_Chicago           INTENSITY   10 min.
100yr_3hr_Chicago_Climate_Change 100yr_3hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr_6hr_Chicago    100yr_6hr_Chicago           INTENSITY   10 min.
100yr_6hr_Chicago_Climate_Change 100yr_6hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr-SCS_12hr_Type_II 100yr-SCS_12hr_Type_II      INTENSITY    6 min.
100yr-SCS_24hr_Type_II 100yr-SCS_24hr_Type_II      INTENSITY   15 min.
10yr_3hr_Chicago     10yr_3hr_Chicago            INTENSITY   10 min.
10yr_6hr_Chicago     10yr_6hr_Chicago            INTENSITY   10 min.
25mm_3hr_Chicago     25mm_3hr_Chicago            INTENSITY   10 min.
25mm_4hr_Chicago     25mm_4hr_Chicago            INTENSITY   10 min.
25yr_3hr_Chicago     25yr_3hr_Chicago            INTENSITY   10 min.
25yr_6hr_Chicago     25yr_6hr_Chicago            INTENSITY   10 min.
2yr_3hr_Chicago      2yr_3hr_Chicago             INTENSITY   10 min.
2yr_6hr_Chicago      2yr_6hr_Chicago             INTENSITY   10 min.
50yr_3hr_Chicago     50yr_3hr_Chicago            INTENSITY   10 min.
50yr_6hr_Chicago     50yr_6hr_Chicago            INTENSITY   10 min.
5yr_3hr_Chicago      5yr_3hr_Chicago             INTENSITY   10 min.
5yr_6hr_Chicago      5yr_6hr_Chicago             INTENSITY   10 min.


*********************
Subcatchment Summary
*********************
Name                        Area     Width   %Imperv    %Slope Rain Gage            Outlet
-------------------------------------------------------------------------------------------------
102                         0.44     44.37     64.22    0.5000 100yr_3hr_Chicago    J43
107AA                       0.27    176.73     86.34    0.5000 100yr_3hr_Chicago    J23
108                         0.34    162.73     68.53    0.5000 100yr_3hr_Chicago    BASIN1
109                         0.29     88.92     87.48    0.5000 100yr_3hr_Chicago    J9
109C                        0.25     52.31     66.54    0.5000 100yr_3hr_Chicago    J8
116                         0.21     66.78     13.91   10.0000 100yr_3hr_Chicago    J30
A                           0.73     37.91     43.28    0.5000 100yr_3hr_Chicago    J38
A1                          1.03    236.01     98.55    0.5000 100yr_3hr_Chicago    J17
A2                          1.58    358.18     97.91    0.5000 100yr_3hr_Chicago    J22
A3                          0.93    263.12     90.26    0.5000 100yr_3hr_Chicago    J13
A4                          0.83    227.29     84.59    2.0000 100yr_3hr_Chicago    J3
A5                          0.25     30.92     99.94    0.5000 100yr_3hr_Chicago    J14
AA                          0.37     72.80     54.39    0.5000 100yr_3hr_Chicago    J37
BB                          0.89     50.53     41.05    0.5000 100yr_3hr_Chicago    J46
BLDG-A                      0.25    254.20    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-A
BLDG-B                      0.36    362.60    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-B
BLDG-C                      0.30    299.30    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-C
BLDG-D                      0.14    138.00    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-D
BLDGG                       0.24    242.90    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-G
BLDGH                       0.37    370.90    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-H
BLDG-I                      0.23    225.60    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-I
BLDGJ                       0.14    137.10    100.00    0.5000 100yr_3hr_Chicago    S-BLDG-J
BLDGJ2                      0.39    388.50    100.00    0.5000 100yr_3hr_Chicago    J35
BLDG-K                      0.25    247.30     99.99    0.5000 100yr_3hr_Chicago    S-BLDG-K
D                           0.58     56.48     30.02    0.5000 100yr_3hr_Chicago    J48
D1                          0.48    271.32     32.46    0.5000 100yr_3hr_Chicago    J34
EE                          0.35     38.57     15.30    0.5000 100yr_3hr_Chicago    J47
Great-Lawn                  1.01    164.38     26.54    0.5000 100yr_3hr_Chicago    J12
NSTANDS                     0.76     97.25    100.00    2.0000 100yr_3hr_Chicago    J7
OPGG                        0.81    147.51     59.59    0.5000 100yr_3hr_Chicago    J16
SSTANDS                     0.80    165.31     99.95   10.0000 100yr_3hr_Chicago    J3
T                           0.13     75.86     27.76    0.5000 100yr_3hr_Chicago    J16
V                           0.16    167.82     96.59    0.5000 100yr_3hr_Chicago    J12


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Node Summary
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                                  Invert      Max.    Ponded    External
Name                 Type          Elev.     Depth      Area    Inflow
-----------------------------------------------------------------------
J1                   JUNCTION      63.56      2.79       0.0
J10                  JUNCTION      63.14      3.10       0.0
J11                  JUNCTION      62.00      3.95       0.0
J12                  JUNCTION      63.09      2.82       0.0
J13                  JUNCTION      63.77      2.28       0.0
J14                  JUNCTION      63.95      3.10       0.0
J15                  JUNCTION      63.28      3.17       0.0
J16                  JUNCTION      63.03      2.85       0.0
J17                  JUNCTION      63.32      3.03       0.0
J18                  JUNCTION      63.36      2.64       0.0
J19                  JUNCTION      63.62      1.08     720.0
J2                   JUNCTION      64.26      3.14       0.0
J20                  JUNCTION      62.72      3.53       0.0
J21                  JUNCTION      63.31      2.94       0.0
J22                  JUNCTION      63.68      2.63       0.0
J23                  JUNCTION      62.64      3.29    1000.0
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J24	JUNCTION	62.53	4.36	0.0
J25	JUNCTION	62.35	3.65	0.0
J26	JUNCTION	62.29	2.84	0.0
J27	JUNCTION	62.25	2.88	0.0
J29	JUNCTION	62.49	2.88	0.0
J3	JUNCTION	64.11	3.34	0.0
J30	JUNCTION	63.10	2.77	0.0
J31	JUNCTION	63.18	2.72	0.0
J32	JUNCTION	62.76	3.44	0.0
J33	JUNCTION	63.09	3.00	0.0
J34	JUNCTION	63.35	2.21	0.0
J35	JUNCTION	63.79	2.79	0.0
J36	JUNCTION	63.76	2.54	0.0
J37	JUNCTION	63.68	1.42	466.0
J38	JUNCTION	63.56	2.58	0.0
J39	JUNCTION	63.44	2.58	0.0
J4	JUNCTION	63.96	3.54	0.0
J40	JUNCTION	62.91	2.21	0.0
J41	JUNCTION	62.64	3.29	1000.0
J42	JUNCTION	64.07	1.93	0.0
J43	JUNCTION	63.89	2.31	0.0
J44	JUNCTION	63.76	2.64	0.0
J45	JUNCTION	63.57	2.83	0.0
J46	JUNCTION	63.42	2.78	0.0
J47	JUNCTION	63.12	2.93	0.0
J48	JUNCTION	64.69	3.00	0.0
J49	JUNCTION	64.40	3.00	0.0
J5	JUNCTION	63.91	3.49	0.0
J50	JUNCTION	65.08	3.00	0.0
J51	JUNCTION	65.35	3.00	0.0
J52	JUNCTION	65.31	3.00	0.0
J53	JUNCTION	65.25	3.00	0.0
J54	JUNCTION	65.25	3.00	0.0
J55	JUNCTION	65.20	3.00	0.0
J56	JUNCTION	64.95	3.00	0.0
J57	JUNCTION	65.30	3.00	0.0
J58	JUNCTION	65.35	3.00	0.0
J59	JUNCTION	65.58	3.00	0.0
J6	JUNCTION	63.87	3.63	0.0
J60	JUNCTION	64.65	3.00	0.0
J61	JUNCTION	64.30	3.00	0.0
J62	JUNCTION	64.70	3.00	0.0
J63	JUNCTION	64.50	3.00	0.0
J64	JUNCTION	64.65	3.00	0.0
J65	JUNCTION	65.10	3.00	0.0
J66	JUNCTION	64.50	3.00	0.0
J67	JUNCTION	65.17	3.00	0.0
J68	JUNCTION	65.00	3.00	0.0
J69	JUNCTION	65.43	3.00	0.0
J7	JUNCTION	63.59	2.81	0.0
J70	JUNCTION	65.20	3.00	0.0
J71	JUNCTION	65.70	3.00	0.0
J72	JUNCTION	65.30	3.00	0.0
J73	JUNCTION	64.93	3.00	0.0
J74	JUNCTION	65.01	3.00	0.0
J75	JUNCTION	65.89	3.00	0.0
J76	JUNCTION	62.95	2.45	0.0
J8	JUNCTION	62.99	3.13	0.0
J9	JUNCTION	62.91	3.32	0.0
Canal_Outlet	OUTFALL	62.58	1.02	0.0
J28	OUTFALL	62.22	0.97	0.0
BASIN1	STORAGE	62.81	2.23	0.0
BASIN2	STORAGE	62.95	2.19	0.0
Great-Lawn-Storage	STORAGE	64.40	0.50	0.0
S-BLDG-A	STORAGE	100.00	0.15	0.0
S-BLDG-B	STORAGE	100.00	0.15	0.0
S-BLDG-C	STORAGE	100.00	0.15	0.0
S-BLDG-D	STORAGE	100.00	0.15	0.0
S-BLDG-G	STORAGE	100.00	0.15	0.0
S-BLDG-H	STORAGE	100.00	0.15	0.0
S-BLDG-I	STORAGE	100.00	0.15	0.0
S-BLDG-J	STORAGE	100.00	0.15	0.0
S-BLDG-K	STORAGE	100.00	0.15	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J14	J13	CONDUIT	75.0	0.2001	0.0130
C10	J34	J31	CONDUIT	53.4	0.0937	0.0130
C11	J31	J30	CONDUIT	56.4	0.1063	0.0130
C12	J30	J8	CONDUIT	81.9	0.1099	0.0130
C13	J35	J17	CONDUIT	24.3	0.4946	0.0130
C14	J36	J17	CONDUIT	17.9	0.5037	0.0130
C15	J17	J15	CONDUIT	9.4	0.2126	0.0130
C16	J15	J10	CONDUIT	39.5	0.2785	0.0130
C17	J10	J9	CONDUIT	11.3	0.1770	0.0130
C18	J47	J12	CONDUIT	30.2	0.0992	0.0130
C18_1	J9	J40	CONDUIT	43.3	0.1271	0.0130
C18_2	J40	J11	CONDUIT	59.3	0.1265	0.0130
C19	J12	J16	CONDUIT	57.0	0.0526	0.0130
C2	J2	J3	CONDUIT	60.8	0.1975	0.0130
C20	J16	J11	CONDUIT	16.7	6.1921	0.0130
C21	J46	J47	CONDUIT	53.4	0.2247	0.0130
C21_1	J11	J32	CONDUIT	70.1	0.0599	0.0130
C21_2	J32	J20	CONDUIT	14.2	0.0565	0.0130
C22	J19	J18	CONDUIT	31.8	0.5029	0.0130
C23	J18	J11	CONDUIT	41.5	0.5054	0.0130
C24	J22	J21	CONDUIT	90.6	0.3752	0.0130
C25	J21	J20	CONDUIT	25.4	0.3937	0.0130
C26	J20	J23	CONDUIT	23.5	0.1703	0.0130
C27	J45	J46	CONDUIT	63.9	0.2347	0.0130
C27_2	J41	J24	CONDUIT	82.3	0.1093	0.0130

C28	J24	J29	CONDUIT	14.1	0.0711	0.0130
C29	J29	J25	CONDUIT	78.9	0.1394	0.0130
C3	J3	J4	CONDUIT	60.7	0.1976	0.0130
C30	J25	J26	CONDUIT	17.8	0.1125	0.0130
C31	J26	J27	CONDUIT	4.6	0.4383	0.0130
C32	J27	J28	CONDUIT	8.1	0.3695	0.0130
C33	J37	J1	CONDUIT	20.0	0.4509	0.0130
C34	J1	J18	CONDUIT	29.0	0.5178	0.0130
C35	J38	J39	CONDUIT	100.1	0.0999	0.0130
C36	J39	J34	CONDUIT	105.1	0.0761	0.0130
C37	J33	Canal_Outlet	CONDUIT	10.7	0.8418	0.0130
C38	J44	J45	CONDUIT	73.4	0.1498	0.0130
C39	J43	J44	CONDUIT	35.7	0.1400	0.0130
C4	J4	J5	CONDUIT	8.8	0.2278	0.0130
C40	J42	J43	CONDUIT	92.3	0.1517	0.0130
C41	J48	J49	CONDUIT	88.2	0.3287	0.0350
C42	J49	J31	CONDUIT	39.4	1.7782	0.0130
C43	J50	J51	CONDUIT	105.0	-0.2570	0.0350
C44	J51	J48	CONDUIT	21.6	3.0571	0.0240
C45	J52	J53	CONDUIT	90.8	0.0661	0.0130
C46	J53	J54	CONDUIT	22.0	0.0014	0.0130
C47	J54	J55	CONDUIT	7.7	0.6525	0.0130
C48	J55	J56	CONDUIT	65.7	0.3804	0.0130
C49	J59	J58	CONDUIT	18.0	1.2770	0.0130
C5	J5	J6	CONDUIT	6.7	0.1504	0.0130
C50	J58	J57	CONDUIT	14.2	0.3521	0.0130
C51	J57	J52	CONDUIT	47.6	-0.0210	0.0130
C52	J60	J61	CONDUIT	70.3	0.4980	0.0350
C53	J62	J63	CONDUIT	26.8	0.7450	0.0350
C54	J64	J63	CONDUIT	37.1	0.4039	0.0350
C55	J65	J66	CONDUIT	51.5	1.1643	0.0350
C56	J67	J68	CONDUIT	10.1	1.6809	0.0350
C57	J69	J68	CONDUIT	52.1	0.8247	0.0350
C58	J69	J70	CONDUIT	39.7	0.5794	0.0350
C59	J71	J72	CONDUIT	27.8	1.4378	0.0130
C6	J6	J7	CONDUIT	63.3	0.2053	0.0130
C60	J72	J73	CONDUIT	34.0	1.0892	0.0130
C61	J74	J73	CONDUIT	9.6	0.8371	0.0130
C62	J54	J74	CONDUIT	17.9	1.3420	0.0130
C63	J75	J71	CONDUIT	22.1	0.8607	0.0130
C64	BASIN2	J76	CONDUIT	3.0	0.0102	0.0130
C7	J13	J7	CONDUIT	74.9	0.2004	0.0130
C8	J7	J8	CONDUIT	50.1	0.0999	0.0130
C9	J8	J9	CONDUIT	49.2	0.1015	0.0130
C27_1	J23	J41	ORIFICE			
OR1	BASIN2	J40	ORIFICE			
OR2	BASIN1	J32	ORIFICE			
OL16	J25	J68	WEIR			
W10	J39	J48	WEIR			
W11	J34	J49	WEIR			
W12	J38	J50	WEIR			
W13	J15	Great-Lawn-Storage	WEIR			
W14	J31	J60	WEIR			
W15	J47	Great-Lawn-Storage	WEIR			
W16	J22	J52	WEIR			
W17	J21	J53	WEIR			
W18	J20	J54	WEIR			
W19	J32	J55	WEIR			
W2	J40	BASIN2	WEIR			
W20	J11	J56	WEIR			
W21	J35	J59	WEIR			
W22	J17	J58	WEIR			
W23	J36	J57	WEIR			
W24	J14	J13	WEIR			
W25	J13	J7	WEIR			
W26	J7	J8	WEIR			
W27	J2	J3	WEIR			
W28	J3	J4	WEIR			
W29	J4	J5	WEIR			
W3	J32	BASIN1	WEIR			
W30	J5	J6	WEIR			
W31	J6	J7	WEIR			
W32	J10	Great-Lawn-Storage	WEIR			
W33	J44	J65	WEIR			
W34	J45	J64	WEIR			
W35	J46	J62	WEIR			
W36	J1	J55	WEIR			
W37	J18	J56	WEIR			
W38	J42	J68	WEIR			
W39	J43	J70	WEIR			
W40	J9	Great-Lawn-Storage	WEIR			
W41	J23	J73	WEIR			
W42	J24	J75	WEIR			
W43	J41	J73	WEIR			
W44	J76	Great-Lawn-Storage	WEIR			
W5	J30	Great-Lawn-Storage	WEIR			
W6	J12	Great-Lawn-Storage	WEIR			
W7	J16	Great-Lawn-Storage	WEIR			
W8	J11	Great-Lawn-Storage	WEIR			
W9	J8	Great-Lawn-Storage	WEIR			
OL1	J61	J34	OUTLET			
OL10	S-BLDG-H	J17	OUTLET			
OL11	S-BLDG-G	J17	OUTLET			
OL12	S-BLDG-I	J14	OUTLET			
OL13	S-BLDG-K	J14	OUTLET			
OL14	Great-Lawn-Storage	J16	OUTLET			
OL15	Great-Lawn-Storage	J12	OUTLET			
OL17	S-BLDG-J	J35	OUTLET			
OL2	J63	J46	OUTLET			
OL3	J66	J45	OUTLET			
OL4	J68	J42	OUTLET			
OL5	J70	J43	OUTLET			
OL6	S-BLDG-A	J22	OUTLET			
OL7	S-BLDG-B	J22	OUTLET			
OL8	S-BLDG-C	J22	OUTLET			

OL9 S-BLDG-D J22 OUTLET
W1 Great-Lawn-Storage J33 OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C10	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C11	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C12	CIRCULAR	0.90	0.64	0.23	0.90	1	0.60
C13	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C14	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C15	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C16	CIRCULAR	0.60	0.28	0.15	0.60	1	0.32
C17	CIRCULAR	0.60	0.28	0.15	0.60	1	0.26
C18	CIRCULAR	0.90	0.64	0.23	0.90	1	0.57
C18_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.90
C18_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.90
C19	CIRCULAR	0.90	0.64	0.23	0.90	1	0.42
C2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C20	CIRCULAR	0.90	0.64	0.23	0.90	1	4.51
C21	CIRCULAR	0.53	0.22	0.13	0.53	1	0.20
C21_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.31
C21_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.27
C22	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C23	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C24	CIRCULAR	0.68	0.36	0.17	0.68	1	0.51
C25	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C26	CIRCULAR	1.35	1.43	0.34	1.35	1	2.20
C27	CIRCULAR	0.53	0.22	0.13	0.53	1	0.21
C27_2	CIRCULAR	0.97	0.75	0.24	0.97	1	0.74
C28	CIRCULAR	0.97	0.75	0.24	0.97	1	0.60
C29	CIRCULAR	0.97	0.75	0.24	0.97	1	0.84
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C30	CIRCULAR	0.97	0.75	0.24	0.97	1	0.75
C31	CIRCULAR	0.97	0.75	0.24	0.97	1	1.48
C32	CIRCULAR	0.97	0.75	0.24	0.97	1	1.36
C33	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C34	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C35	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C36	CIRCULAR	0.60	0.28	0.15	0.60	1	0.17
C37	CIRCULAR	0.60	0.28	0.15	0.60	1	0.56
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.11
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.29
C40	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C41	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.38
C42	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C43	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.87
C44	CIRCULAR	0.25	0.05	0.06	0.25	1	0.06
C45	RECT_OPEN	1.00	8.00	0.80	8.00	1	13.63
C46	RECT_OPEN	1.00	8.00	0.80	8.00	1	1.98
C47	RECT_OPEN	1.00	8.00	0.80	8.00	1	42.85
C48	RECT_OPEN	1.00	8.00	0.80	8.00	1	32.71
C49	RECT_OPEN	1.00	8.00	0.80	8.00	1	59.94
C5	CIRCULAR	0.60	0.28	0.15	0.60	1	0.24
C50	RECT_OPEN	1.00	8.00	0.80	8.00	1	31.48
C51	RECT_OPEN	1.00	8.00	0.80	8.00	1	7.69
C52	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	5.39
C53	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.59
C54	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.85
C55	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	8.24
C56	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	6.76
C57	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	4.74
C58	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	3.97
C59	RECT_OPEN	1.00	8.00	0.80	8.00	1	63.60
C6	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C60	RECT_OPEN	1.00	8.00	0.80	8.00	1	55.36
C61	RECT_OPEN	1.00	8.00	0.80	8.00	1	48.53
C62	RECT_OPEN	1.00	8.00	0.80	8.00	1	61.44
C63	RECT_OPEN	1.00	8.00	0.80	8.00	1	49.21
C64	CIRCULAR	0.90	0.64	0.23	0.90	1	0.18
C7	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C8	CIRCULAR	1.05	0.87	0.26	1.05	1	0.86
C9	CIRCULAR	1.20	1.13	0.30	1.20	1	1.24

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NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
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Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 07/23/2009 00:01:00
Ending Date 07/24/2009 00:01:00

Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 1.00 sec
Variable Time Step ..... YES
Maximum Trials 20
Number of Threads 2
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.159	71.677
Evaporation Loss	0.000	0.000
Infiltration Loss	0.225	13.897
Surface Runoff	0.923	57.120
Final Storage	0.019	1.165
Continuity Error (%)	-0.705	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.923	9.235
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.719	7.185
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.001	0.008
Final Stored Volume	0.141	1.409
Continuity Error (%)	7.011	

****
Highest Continuity Errors
****
Node J40 (6.55%)
Node J63 (3.90%)
Node BASIN2 (3.04%)
Node J60 (2.74%)
Node J64 (1.50%)

****
Time-Step Critical Elements
****
Link C64 (6.49%)

****
Highest Flow Instability Indexes
****
Link C27_1 (61)
Link OR1 (55)
Link C28 (35)
Link C33 (35)
Link C31 (35)

****
Routing Time Step Summary
****

Minimum Time Step	:	0.16 sec
Average Time Step	:	0.98 sec
Maximum Time Step	:	1.00 sec
Percent in Steady State	:	-0.00
Average Iterations per Step	:	6.19
Percent Not Converging	:	18.94
Time Step Frequencies	:	
1.000 - 0.871 sec	:	95.00 %
0.871 - 0.758 sec	:	1.57 %
0.758 - 0.660 sec	:	1.38 %
0.660 - 0.574 sec	:	0.95 %
0.574 - 0.500 sec	:	1.10 %

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Subcatchment Runoff Summary
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Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
102	71.68	0.00	0.00	20.12	45.43	28.48	51.20	0.23	0.11	0.714
107AA	71.68	0.00	0.00	5.97	60.78	4.19	64.97	0.18	0.13	0.906
108	71.68	0.00	0.00	14.03	48.26	8.93	57.20	0.20	0.15	0.798
109	71.68	0.00	0.00	5.52	61.79	3.68	65.47	0.19	0.14	0.913
109C	71.68	0.00	0.00	18.19	47.02	32.06	53.22	0.14	0.09	0.743
116	71.68	0.00	0.00	39.92	9.77	32.87	32.87	0.07	0.07	0.459
A	71.68	0.00	0.00	36.15	30.61	35.26	35.26	0.26	0.07	0.492
A1	71.68	0.00	0.00	0.63	69.69	0.47	70.17	0.72	0.51	0.979
A2	71.68	0.00	0.00	0.91	69.24	0.67	69.91	1.10	0.78	0.975
A3	71.68	0.00	0.00	4.28	63.78	2.89	66.67	0.62	0.45	0.930
A4	71.68	0.00	0.00	6.76	59.59	4.64	64.23	0.53	0.40	0.896
A5	71.68	0.00	0.00	0.03	70.69	0.02	70.71	0.17	0.12	0.987
AA	71.68	0.00	0.00	23.96	38.42	28.30	47.51	0.18	0.10	0.663
BB	71.68	0.00	0.00	36.89	29.04	34.55	34.55	0.31	0.08	0.482

BLDG-A	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.18	0.13	0.981
BLDG-B	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.25	0.18	0.981
BLDG-C	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.21	0.15	0.981
BLDG-D	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.10	0.07	0.981
BLDGG	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.17	0.12	0.981
BLDGH	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.26	0.18	0.981
BLDG-I	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.16	0.11	0.981
BLDGJ	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.10	0.07	0.981
BLDGJ2	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.27	0.19	0.981
BLDG-K	71.68	0.00	0.00	0.00	70.31	0.00	70.32	0.17	0.12	0.981
D	71.68	0.00	0.00	39.90	21.21	31.67	31.67	0.18	0.06	0.442
D1	71.68	0.00	0.00	32.49	22.80	28.00	39.40	0.19	0.14	0.550
EE	71.68	0.00	0.00	46.41	10.77	25.25	25.25	0.09	0.03	0.352
Great-Lawn	71.68	0.00	0.00	39.27	18.70	32.37	32.37	0.33	0.13	0.452
NSTANDS	71.68	0.00	0.00	0.00	70.70	0.00	70.70	0.53	0.37	0.986
OPGG	71.68	0.00	0.00	18.99	42.11	10.17	52.28	0.43	0.29	0.729
SSTANDS	71.68	0.00	0.00	0.02	70.30	0.02	70.32	0.56	0.40	0.981
T	71.68	0.00	0.00	32.90	19.50	19.45	38.95	0.05	0.04	0.543
V	71.68	0.00	0.00	1.48	67.90	1.13	69.03	0.11	0.08	0.963

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.32	1.44	65.00	0 01:23	1.44
J10	JUNCTION	0.61	1.64	64.78	0 01:18	1.55
J11	JUNCTION	1.73	2.69	64.69	0 01:22	2.67
J12	JUNCTION	0.66	1.60	64.69	0 01:23	1.59
J13	JUNCTION	0.25	1.15	64.92	0 01:10	1.08
J14	JUNCTION	0.19	1.00	64.95	0 01:10	0.90
J15	JUNCTION	0.48	1.78	65.06	0 01:10	1.78
J16	JUNCTION	0.72	1.66	64.69	0 01:22	1.64
J17	JUNCTION	0.45	1.85	65.17	0 01:10	1.84
J18	JUNCTION	0.41	1.44	64.80	0 01:27	1.44
J19	JUNCTION	0.29	1.11	64.73	0 01:44	1.11
J2	JUNCTION	0.12	2.58	66.84	0 01:10	2.58
J20	JUNCTION	1.02	1.97	64.69	0 01:23	1.95
J21	JUNCTION	0.45	1.59	64.90	0 01:08	1.39
J22	JUNCTION	0.28	1.79	65.47	0 01:09	1.71
J23	JUNCTION	1.10	2.10	64.74	0 01:08	2.03
J24	JUNCTION	1.15	2.13	64.66	0 03:10	2.13
J25	JUNCTION	1.32	2.31	64.66	0 03:09	2.31
J26	JUNCTION	1.38	2.40	64.69	0 03:10	2.36
J27	JUNCTION	1.42	2.43	64.68	0 03:11	2.43
J29	JUNCTION	1.19	2.20	64.69	0 03:10	2.18
J3	JUNCTION	0.17	2.73	66.84	0 01:10	2.73
J30	JUNCTION	0.65	1.67	64.77	0 01:21	1.61
J31	JUNCTION	0.57	1.59	64.77	0 01:23	1.55
J32	JUNCTION	0.98	1.93	64.69	0 01:22	1.91
J33	JUNCTION	0.99	1.00	64.09	0 03:12	1.00
J34	JUNCTION	0.41	1.42	64.77	0 01:25	1.42
J35	JUNCTION	0.25	1.94	65.73	0 01:10	1.94
J36	JUNCTION	0.25	1.44	65.20	0 01:10	1.43
J37	JUNCTION	0.28	1.47	65.15	0 01:23	1.46
J38	JUNCTION	0.31	1.25	64.81	0 01:26	1.22
J39	JUNCTION	0.35	1.35	64.79	0 01:26	1.33
J4	JUNCTION	0.19	2.03	65.99	0 01:10	2.00
J40	JUNCTION	0.84	1.92	64.82	0 01:18	1.77
J41	JUNCTION	1.05	2.02	64.66	0 03:10	2.02
J42	JUNCTION	0.15	0.84	64.91	0 01:11	0.76
J43	JUNCTION	0.21	0.96	64.85	0 01:12	0.93
J44	JUNCTION	0.24	1.03	64.79	0 01:24	1.02
J45	JUNCTION	0.30	1.18	64.75	0 01:25	1.18
J46	JUNCTION	0.36	1.32	64.74	0 01:27	1.32
J47	JUNCTION	0.63	1.57	64.69	0 01:23	1.56
J48	JUNCTION	0.01	0.12	64.81	0 01:21	0.12
J49	JUNCTION	0.06	0.37	64.77	0 01:25	0.37
J5	JUNCTION	0.21	1.95	65.86	0 01:10	1.91
J50	JUNCTION	0.00	0.00	65.08	0 00:00	0.00
J51	JUNCTION	0.00	0.00	65.35	0 00:00	0.00
J52	JUNCTION	0.00	0.03	65.34	0 01:13	0.03
J53	JUNCTION	0.00	0.02	65.27	0 01:19	0.02
J54	JUNCTION	0.00	0.00	65.25	0 01:20	0.00
J55	JUNCTION	0.00	0.00	65.20	0 01:25	0.00
J56	JUNCTION	0.00	0.01	64.96	0 01:40	0.01
J57	JUNCTION	0.00	0.06	65.36	0 01:10	0.05
J58	JUNCTION	0.00	0.03	65.38	0 01:10	0.03
J59	JUNCTION	0.00	0.02	65.60	0 01:10	0.02
J6	JUNCTION	0.22	1.89	65.76	0 01:10	1.84
J60	JUNCTION	0.00	0.13	64.78	0 01:24	0.13
J61	JUNCTION	0.08	0.47	64.77	0 01:25	0.47
J62	JUNCTION	0.00	0.04	64.74	0 01:25	0.03
J63	JUNCTION	0.03	0.24	64.74	0 01:25	0.24
J64	JUNCTION	0.00	0.09	64.74	0 01:24	0.09
J65	JUNCTION	0.00	0.00	65.10	0 00:00	0.00
J66	JUNCTION	0.03	0.25	64.75	0 01:25	0.25
J67	JUNCTION	0.00	0.00	65.17	0 00:00	0.00
J68	JUNCTION	0.00	0.00	65.00	0 00:00	0.00
J69	JUNCTION	0.00	0.00	65.43	0 00:00	0.00
J7	JUNCTION	0.31	1.19	64.78	0 01:10	1.16
J70	JUNCTION	0.00	0.00	65.20	0 00:00	0.00
J71	JUNCTION	0.00	0.00	65.70	0 00:00	0.00
J72	JUNCTION	0.00	0.00	65.30	0 00:00	0.00
J73	JUNCTION	0.00	0.01	64.94	0 01:27	0.01
J74	JUNCTION	0.00	0.00	65.01	0 01:20	0.00
J75	JUNCTION	0.00	0.00	65.89	0 00:00	0.00
J76	JUNCTION	0.79	1.82	64.77	0 01:18	1.72
J8	JUNCTION	0.76	1.76	64.75	0 01:21	1.70
J9	JUNCTION	0.84	1.82	64.73	0 01:21	1.77

Canal_Outlet	OUTFALL	1.50	1.50	64.08	0	00:00	1.50
J28	OUTFALL	1.60	2.98	65.20	0	03:00	2.98
BASIN1	STORAGE	0.92	1.89	64.70	0	01:23	1.87
BASIN2	STORAGE	0.79	1.86	64.81	0	01:18	1.72
Great-Lawn-Storage	STORAGE	0.06	0.26	64.66	0	03:12	0.26
S-BLDG-A	STORAGE	0.01	0.07	100.07	0	01:52	0.07
S-BLDG-B	STORAGE	0.02	0.08	100.08	0	01:54	0.08
S-BLDG-C	STORAGE	0.01	0.07	100.07	0	01:52	0.07
S-BLDG-D	STORAGE	0.01	0.08	100.08	0	01:53	0.08
S-BLDG-G	STORAGE	0.02	0.09	100.09	0	02:11	0.09
S-BLDG-H	STORAGE	0.02	0.08	100.08	0	01:54	0.08
S-BLDG-I	STORAGE	0.01	0.07	100.07	0	01:50	0.07
S-BLDG-J	STORAGE	0.02	0.08	100.08	0	01:54	0.08
S-BLDG-K	STORAGE	0.03	0.10	100.10	0	02:20	0.10

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.000	0.073	0	01:06	0	0.178	0.011	
J10	JUNCTION	0.000	0.646	0	01:10	0	1.51	0.059	
J11	JUNCTION	0.000	1.412	0	01:09	0	7.09	0.610	
J12	JUNCTION	0.185	0.398	0	01:14	0.437	2.29	0.382	
J13	JUNCTION	0.451	0.566	0	01:08	0.621	1.14	0.019	
J14	JUNCTION	0.119	0.265	0	01:19	0.174	0.514	-0.184	
J15	JUNCTION	0.000	0.645	0	01:10	0	1.51	0.141	
J16	JUNCTION	0.328	0.605	0	01:12	0.476	3.54	0.219	
J17	JUNCTION	0.506	0.647	0	01:08	0.722	1.51	-0.003	
J18	JUNCTION	0.000	0.066	0	01:06	0	0.204	0.023	
J19	JUNCTION	0.000	0.018	0	01:23	0	0.0245	-0.254	
J2	JUNCTION	0.000	0.095	0	01:04	0	0.03	-0.008	
J20	JUNCTION	0.000	0.948	0	01:08	0	6.65	0.177	
J21	JUNCTION	0.000	0.789	0	01:10	0	1.85	-0.245	
J22	JUNCTION	0.776	0.812	0	01:10	1.1	1.85	0.293	
J23	JUNCTION	0.131	0.790	0	01:08	0.175	5.64	0.656	
J24	JUNCTION	0.000	0.589	0	08:00	0	5.54	0.534	
J25	JUNCTION	0.000	0.602	0	08:00	0	5.47	0.658	
J26	JUNCTION	0.000	0.665	0	01:09	0	5.44	0.161	
J27	JUNCTION	0.000	0.665	0	01:09	0	5.43	0.105	
J29	JUNCTION	0.000	0.597	0	08:00	0	5.51	0.607	
J3	JUNCTION	0.796	0.862	0	01:06	1.1	1.13	0.865	
J30	JUNCTION	0.072	0.429	0	01:15	0.0695	0.994	1.224	
J31	JUNCTION	0.000	0.371	0	01:15	0	0.863	0.472	
J32	JUNCTION	0.000	1.897	0	01:06	0	8.13	0.357	
J33	JUNCTION	0.000	0.143	0	03:12	0	1.77	0.000	
J34	JUNCTION	0.143	0.397	0	01:15	0.189	0.82	0.013	
J35	JUNCTION	0.193	0.197	0	01:10	0.273	0.37	0.180	
J36	JUNCTION	0.000	0.040	0	01:18	0	0.0265	0.002	
J37	JUNCTION	0.102	0.102	0	01:10	0.176	0.176	0.058	
J38	JUNCTION	0.066	0.100	0	01:04	0.258	0.276	0.101	
J39	JUNCTION	0.000	0.182	0	01:04	0	0.34	-0.077	
J4	JUNCTION	0.000	0.794	0	01:10	0	1.09	-0.379	
J40	JUNCTION	0.000	3.724	0	01:09	0	8.13	7.013	
J41	JUNCTION	0.000	0.583	0	08:00	0	5.57	0.285	
J42	JUNCTION	0.000	0.045	0	01:10	0	0.0131	0.430	
J43	JUNCTION	0.113	0.123	0	01:11	0.227	0.242	0.432	
J44	JUNCTION	0.000	0.115	0	01:12	0	0.231	-0.097	
J45	JUNCTION	0.000	0.157	0	01:13	0	0.312	-0.622	
J46	JUNCTION	0.082	0.263	0	01:37	0.308	0.636	-0.398	
J47	JUNCTION	0.027	0.236	0	01:15	0.0875	0.683	0.431	
J48	JUNCTION	0.059	0.059	0	01:20	0.185	0.185	-0.923	
J49	JUNCTION	0.000	0.166	0	01:22	0	0.21	0.811	
J5	JUNCTION	0.000	0.780	0	01:08	0	1.09	-0.043	
J50	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J51	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J52	JUNCTION	0.000	0.162	0	01:09	0	0.0255	0.028	
J53	JUNCTION	0.000	0.028	0	01:14	0	0.0184	0.058	
J54	JUNCTION	0.000	0.010	0	01:19	0	0.0102	-0.085	
J55	JUNCTION	0.000	0.004	0	01:22	0	0.00394	-0.063	
J56	JUNCTION	0.000	0.003	0	01:27	0	0.0034	0.000	
J57	JUNCTION	0.000	0.094	0	01:10	0	0.0386	0.004	
J58	JUNCTION	0.000	0.105	0	01:10	0	0.0406	0.008	
J59	JUNCTION	0.000	0.106	0	01:10	0	0.0406	-0.061	
J6	JUNCTION	0.000	0.778	0	01:08	0	1.1	0.430	
J60	JUNCTION	0.000	0.077	0	01:23	0	0.0111	2.822	
J61	JUNCTION	0.000	0.201	0	01:21	0	0.158	0.557	
J62	JUNCTION	0.000	0.013	0	01:23	0	0.000981	1.124	
J63	JUNCTION	0.000	0.169	0	01:23	0	0.0741	4.057	
J64	JUNCTION	0.000	0.020	0	01:23	0	0.00294	1.527	
J65	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J66	JUNCTION	0.000	0.152	0	01:21	0	0.0704	1.522	
J67	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J68	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J69	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J7	JUNCTION	0.374	1.684	0	01:08	0.535	2.76	0.381	
J70	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J71	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J72	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J73	JUNCTION	0.000	0.006	0	01:20	0	0.00588	0.000	
J74	JUNCTION	0.000	0.006	0	01:20	0	0.00588	-0.141	
J75	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J76	JUNCTION	0.000	0.850	0	01:18	0	2	0.337	
J8	JUNCTION	0.086	1.848	0	01:08	0.135	3.73	0.139	
J9	JUNCTION	0.138	2.566	0	01:08	0.189	5.25	0.352	
Canal_Outlet	OUTFALL	0.000	0.143	0	03:12	0	1.77	0.000	
J28	OUTFALL	0.000	0.666	0	01:09	0	5.42	0.000	
BASIN1	STORAGE	0.151	2.008	0	01:06	0.197	2.56	-0.028	
BASIN2	STORAGE	0.000	3.724	0	01:09	0	4.05	3.136	

Great-Lawn-Storage	STORAGE	0.000	0.904	0	01:26	0	3.75	-0.315
S-BLDG-A	STORAGE	0.126	0.126	0	01:10	0.179	0.179	0.016
S-BLDG-B	STORAGE	0.180	0.180	0	01:10	0.255	0.255	0.015
S-BLDG-C	STORAGE	0.148	0.148	0	01:10	0.21	0.21	0.016
S-BLDG-D	STORAGE	0.068	0.068	0	01:10	0.097	0.097	0.016
S-BLDG-G	STORAGE	0.120	0.120	0	01:10	0.171	0.171	0.015
S-BLDG-H	STORAGE	0.184	0.184	0	01:10	0.261	0.261	0.015
S-BLDG-I	STORAGE	0.112	0.112	0	01:10	0.159	0.159	0.016
S-BLDG-J	STORAGE	0.068	0.068	0	01:10	0.0964	0.0964	0.015
S-BLDG-K	STORAGE	0.123	0.123	0	01:10	0.174	0.174	0.015

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J19	JUNCTION	7.53	0.912	0.000
J26	JUNCTION	23.12	1.385	0.440
J27	JUNCTION	23.14	1.435	0.450
J29	JUNCTION	7.04	1.193	0.682
J33	JUNCTION	24.00	0.396	2.004
J37	JUNCTION	7.30	1.215	0.000
J40	JUNCTION	6.42	0.474	0.288

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
J19	1.11	0.018	0 01:23	0.024	0.032
J37	0.62	0.049	0 01:10	0.021	0.045

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
BASIN1	0.380	60	0	0	0.632	99	0 01:23	0.498
BASIN2	1.214	54	0	0	2.240	100	0 01:18	0.850
Great-Lawn-Storage	0.500	12	0	0	2.089	51	0 03:12	0.449
S-BLDG-A	0.017	4	0	0	0.121	24	0 01:52	0.009
S-BLDG-B	0.028	4	0	0	0.176	27	0 01:54	0.011
S-BLDG-C	0.021	3	0	0	0.142	24	0 01:52	0.011
S-BLDG-D	0.010	4	0	0	0.066	25	0 01:53	0.005
S-BLDG-G	0.024	7	0	0	0.125	38	0 02:11	0.006
S-BLDG-H	0.027	4	0	0	0.179	27	0 01:54	0.012
S-BLDG-I	0.015	3	0	0	0.106	23	0 01:50	0.008
S-BLDG-J	0.010	4	0	0	0.066	26	0 01:54	0.004
S-BLDG-K	0.028	9	0	0	0.130	42	0 02:20	0.005

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Canal_Outlet	26.09	0.077	0.143	1.767
J28	75.13	0.090	0.666	5.418
System	50.61	0.167	0.666	7.185

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.209	0 01:19	0.41	0.33	1.00
C10	CONDUIT	0.303	0 01:15	1.07	1.61	1.00
C11	CONDUIT	0.387	0 01:15	0.61	0.66	1.00
C12	CONDUIT	0.448	0 01:15	0.70	0.75	1.00
C13	CONDUIT	0.135	0 01:03	2.74	3.22	1.00
C14	CONDUIT	0.039	0 01:19	0.79	0.92	1.00
C15	CONDUIT	0.645	0 01:10	2.28	2.28	1.00
C16	CONDUIT	0.646	0 01:10	2.28	1.99	1.00
C17	CONDUIT	0.654	0 01:10	2.31	2.53	1.00
C18	CONDUIT	0.241	0 01:15	0.38	0.42	1.00
C18_1	CONDUIT	2.540	0 01:08	1.80	1.33	1.00
C18_2	CONDUIT	1.411	0 01:09	0.99	0.74	1.00

C19	CONDUIT	0.407	0	01:14	0.64	0.98	1.00
C2	CONDUIT	0.073	0	01:04	0.46	0.57	1.00
C20	CONDUIT	0.616	0	01:12	0.97	0.14	1.00
C21	CONDUIT	0.210	0	01:15	0.97	1.03	1.00
C21_1	CONDUIT	1.091	0	01:07	0.77	0.83	1.00
C21_2	CONDUIT	0.835	0	01:06	0.61	0.66	1.00
C22	CONDUIT	0.018	0	01:23	0.56	0.76	1.00
C23	CONDUIT	0.059	0	01:16	1.20	1.39	1.00
C24	CONDUIT	0.789	0	01:10	2.20	1.53	1.00
C25	CONDUIT	0.825	0	01:09	2.30	1.56	1.00
C26	CONDUIT	0.662	0	01:08	0.72	0.30	1.00
C27	CONDUIT	0.128	0	01:14	0.59	0.61	1.00
C27_2	CONDUIT	0.589	0	08:00	0.89	0.79	1.00
C28	CONDUIT	0.597	0	08:00	0.90	1.00	1.00
C29	CONDUIT	0.602	0	08:00	0.81	0.72	1.00
C3	CONDUIT	0.494	0	01:04	3.11	3.90	1.00
C30	CONDUIT	0.665	0	01:09	0.89	0.88	1.00
C31	CONDUIT	0.665	0	01:09	0.89	0.45	1.00
C32	CONDUIT	0.666	0	01:09	0.89	0.49	1.00
C33	CONDUIT	0.073	0	01:06	1.49	1.84	1.00
C34	CONDUIT	0.066	0	01:06	1.34	1.54	1.00
C35	CONDUIT	0.094	0	01:04	0.51	0.48	1.00
C36	CONDUIT	0.182	0	01:04	0.66	1.08	1.00
C37	CONDUIT	0.143	0	03:12	0.50	0.25	1.00
C38	CONDUIT	0.113	0	01:12	0.71	1.03	1.00
C39	CONDUIT	0.115	0	01:12	1.04	1.75	1.00
C4	CONDUIT	0.780	0	01:08	2.76	2.66	1.00
C40	CONDUIT	0.045	0	01:10	0.41	0.67	1.00
C41	CONDUIT	0.058	0	01:21	0.31	0.01	0.25
C42	CONDUIT	0.068	0	01:16	1.06	0.53	1.00
C43	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.25
C45	CONDUIT	0.028	0	01:14	0.17	0.00	0.02
C46	CONDUIT	0.010	0	01:19	0.11	0.00	0.01
C47	CONDUIT	0.004	0	01:22	0.15	0.00	0.00
C48	CONDUIT	0.003	0	01:27	0.11	0.00	0.00
C49	CONDUIT	0.105	0	01:10	0.55	0.00	0.02
C5	CONDUIT	0.778	0	01:08	2.75	3.27	1.00
C50	CONDUIT	0.094	0	01:10	0.47	0.00	0.04
C51	CONDUIT	0.061	0	01:11	0.18	0.01	0.04
C52	CONDUIT	0.077	0	01:23	0.18	0.01	0.30
C53	CONDUIT	0.013	0	01:23	0.08	0.00	0.14
C54	CONDUIT	0.020	0	01:23	0.11	0.00	0.16
C55	CONDUIT	0.000	0	00:00	0.00	0.00	0.13
C56	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C57	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C58	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C59	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C6	CONDUIT	0.769	0	01:08	2.72	2.76	1.00
C60	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C61	CONDUIT	0.006	0	01:20	0.19	0.00	0.01
C62	CONDUIT	0.006	0	01:20	0.19	0.00	0.00
C63	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C64	CONDUIT	0.850	0	01:18	1.34	4.66	1.00
C7	CONDUIT	0.587	0	01:11	1.10	0.91	1.00
C8	CONDUIT	1.695	0	01:11	2.13	1.96	1.00
C9	CONDUIT	1.802	0	01:08	1.59	1.45	1.00
C27_1	ORIFICE	0.583	0	08:00			1.00
OR1	ORIFICE	0.164	0	09:05			1.00
OR2	ORIFICE	0.056	0	08:55			1.00
OL16	WEIR	0.000	0	00:00			0.00
W10	WEIR	0.000	0	00:00			0.00
W11	WEIR	0.072	0	01:22			0.21
W12	WEIR	0.000	0	00:00			0.00
W13	WEIR	0.000	0	00:00			0.00
W14	WEIR	0.000	0	00:00			0.00
W15	WEIR	0.000	0	00:00			0.00
W16	WEIR	0.121	0	01:09			0.16
W17	WEIR	0.005	0	01:19			0.02
W18	WEIR	0.000	0	01:20			0.00
W19	WEIR	0.000	0	01:25			0.00
W2	WEIR	3.724	0	01:09			1.00
W20	WEIR	0.001	0	01:40			0.01
W21	WEIR	0.106	0	01:10			0.15
W22	WEIR	0.009	0	01:10			0.03
W23	WEIR	0.025	0	01:10			0.06
W24	WEIR	0.000	0	00:00			0.00
W25	WEIR	0.000	0	00:00			0.00
W26	WEIR	0.000	0	00:00			0.00
W27	WEIR	0.083	0	01:06			0.44
W28	WEIR	0.448	0	01:10			0.39
W29	WEIR	0.000	0	00:00			0.00
W3	WEIR	1.871	0	01:06			1.00
W30	WEIR	0.000	0	00:00			0.00
W31	WEIR	0.000	0	00:00			0.00
W32	WEIR	0.000	0	00:00			0.00
W33	WEIR	0.000	0	00:00			0.00
W34	WEIR	0.000	0	00:00			0.00
W35	WEIR	0.000	0	00:00			0.00
W36	WEIR	0.000	0	00:00			0.00
W37	WEIR	0.000	0	00:00			0.00
W38	WEIR	0.000	0	00:00			0.00
W39	WEIR	0.000	0	00:00			0.00
W40	WEIR	0.000	0	00:00			0.00
W41	WEIR	0.002	0	01:27			0.01
W42	WEIR	0.000	0	00:00			0.00
W43	WEIR	0.002	0	01:27			0.01
W44	WEIR	0.846	0	01:18			0.37
W5	WEIR	0.000	0	00:00			0.00
W6	WEIR	0.000	0	00:00			0.00
W7	WEIR	0.000	0	00:00			0.00
W8	WEIR	0.000	0	00:00			0.00
W9	WEIR	0.000	0	00:00			0.00
OL1	DUMMY	0.200	0	01:11			
OL10	DUMMY	0.012	0	01:06			

OL11	DUMMY	0.006	0	01:04
OL12	DUMMY	0.008	0	01:07
OL13	DUMMY	0.005	0	01:03
OL14	DUMMY	0.195	0	01:22
OL15	DUMMY	0.196	0	01:23
OL17	DUMMY	0.004	0	01:06
OL2	DUMMY	0.169	0	01:23
OL3	DUMMY	0.152	0	01:21
OL4	DUMMY	0.000	0	00:00
OL5	DUMMY	0.000	0	00:00
OL6	DUMMY	0.009	0	01:07
OL7	DUMMY	0.011	0	01:06
OL8	DUMMY	0.011	0	01:07
OL9	DUMMY	0.005	0	01:06
W1	DUMMY	0.143	0	03:12

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.33	0.00	0.00	0.65	0.03	0.00
C10	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00
C12	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C13	1.00	0.01	0.00	0.00	0.33	0.00	0.00	0.66	0.01	0.00
C14	1.00	0.04	0.00	0.00	0.33	0.00	0.00	0.63	0.01	0.00
C15	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C16	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C17	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.02	0.00	0.00
C18	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C18_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C18_2	1.00	0.00	0.00	0.00	0.98	0.00	0.00	0.02	0.00	0.00
C19	1.00	0.00	0.00	0.00	0.97	0.00	0.00	0.03	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.30	0.00	0.00	0.67	0.01	0.00
C20	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
C21	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.59	0.00
C21_1	1.00	0.02	0.01	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C21_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C22	1.00	0.04	0.00	0.00	0.37	0.00	0.00	0.59	0.63	0.00
C23	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.02	0.00	0.00
C24	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.64	0.00
C25	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C26	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00
C27	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.29	0.00
C27_2	1.00	0.01	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C29	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C3	1.00	0.01	0.00	0.00	0.29	0.00	0.00	0.69	0.01	0.00
C30	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C31	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C33	1.00	0.01	0.00	0.00	0.34	0.00	0.00	0.64	0.01	0.00
C34	1.00	0.02	0.00	0.00	0.40	0.00	0.00	0.58	0.07	0.00
C35	1.00	0.04	0.00	0.00	0.38	0.00	0.00	0.58	0.03	0.00
C36	1.00	0.02	0.44	0.00	0.55	0.00	0.00	0.00	0.60	0.00
C37	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.02	0.00	0.00	0.33	0.00	0.00	0.65	0.01	0.00
C39	1.00	0.01	0.00	0.00	0.31	0.00	0.00	0.68	0.01	0.00
C4	1.00	0.01	0.00	0.00	0.30	0.00	0.00	0.68	0.00	0.00
C40	1.00	0.02	0.02	0.00	0.30	0.00	0.00	0.66	0.01	0.00
C41	1.00	0.04	0.34	0.00	0.62	0.00	0.00	0.00	0.95	0.00
C42	1.00	0.04	0.00	0.00	0.32	0.00	0.00	0.63	0.06	0.00
C43	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C44	1.00	0.38	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.08	0.62	0.00	0.30	0.00	0.00	0.00	0.95	0.00
C46	1.00	0.08	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00
C47	1.00	0.68	0.11	0.00	0.21	0.00	0.00	0.00	0.21	0.00
C48	1.00	0.20	0.50	0.00	0.31	0.00	0.00	0.00	0.80	0.00
C49	1.00	0.94	0.03	0.00	0.02	0.01	0.00	0.00	0.95	0.00
C5	1.00	0.02	0.00	0.00	0.31	0.00	0.00	0.67	0.00	0.00
C50	1.00	0.41	0.54	0.00	0.06	0.00	0.00	0.00	0.95	0.00
C51	1.00	0.41	0.29	0.00	0.30	0.00	0.00	0.00	0.94	0.00
C52	1.00	0.47	0.00	0.00	0.53	0.00	0.00	0.00	0.25	0.00
C53	1.00	0.73	0.15	0.00	0.12	0.00	0.00	0.00	0.93	0.00
C54	1.00	0.71	0.01	0.00	0.28	0.00	0.00	0.00	0.23	0.00
C55	1.00	0.73	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C56	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C57	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C58	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C59	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	0.02	0.00	0.00	0.32	0.00	0.00	0.66	0.01	0.00
C60	1.00	0.30	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C61	1.00	0.30	0.31	0.00	0.38	0.00	0.00	0.00	0.68	0.00
C62	1.00	0.60	0.19	0.00	0.20	0.01	0.00	0.00	0.21	0.00
C63	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C64	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	0.01	0.00	0.00	0.37	0.00	0.00	0.62	0.03	0.00
C8	1.00	0.01	0.00	0.00	0.34	0.00	0.00	0.64	0.00	0.00
C9	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited

C1	0.06	0.06	2.81	0.01	0.01
C10	7.24	7.24	7.35	0.10	0.14
C11	6.97	6.97	7.10	0.01	0.01
C12	7.14	7.14	7.33	0.01	0.01
C13	7.10	7.11	7.34	0.48	0.37
C14	7.15	7.15	7.34	0.01	0.01
C15	7.34	7.34	7.38	0.24	0.25
C16	7.42	7.42	7.65	0.22	0.23
C17	7.71	7.71	7.75	0.30	0.31
C18	7.07	7.07	7.14	0.01	0.01
C18_1	6.56	6.56	6.60	0.15	0.10
C18_2	6.60	6.60	6.70	0.01	0.01
C19	7.14	7.14	7.20	0.01	0.06
C2	0.56	0.56	5.54	0.01	0.01
C20	7.27	7.27	23.41	0.01	0.01
C21	7.24	7.24	7.51	0.03	0.04
C21_1	6.76	6.76	6.85	0.01	0.02
C21_2	6.85	6.85	6.87	0.01	0.01
C22	7.53	7.53	7.87	0.01	0.01
C23	8.00	8.00	9.64	0.23	0.23
C24	6.60	6.60	7.09	0.17	0.17
C25	7.15	7.15	7.36	0.16	0.17
C26	6.92	6.92	7.02	0.01	0.01
C27	6.91	6.91	7.24	0.01	0.01
C27_2	6.96	6.96	7.02	0.01	0.01
C28	7.04	7.04	7.04	0.01	1.31
C29	7.08	7.08	23.11	0.01	0.01
C3	6.19	6.23	6.52	0.52	0.38
C30	23.12	23.12	23.12	0.01	0.51
C31	23.14	23.14	23.14	0.01	1.16
C32	23.15	23.15	24.00	0.01	0.01
C33	7.30	7.30	7.49	0.68	0.68
C34	7.56	7.56	7.87	0.66	0.66
C35	6.81	6.81	7.00	0.01	0.01
C36	7.03	7.03	7.21	0.02	0.01
C37	24.00	24.00	24.00	0.01	0.01
C38	6.66	6.66	6.90	0.01	0.02
C39	6.61	6.61	6.65	0.15	0.15
C4	6.14	6.14	6.27	0.25	0.22
C40	6.40	6.40	6.57	0.01	0.01
C42	0.22	0.22	7.14	0.01	0.01
C5	6.37	6.38	6.39	0.29	0.24
C6	6.44	6.46	6.59	0.26	0.22
C64	7.31	7.31	7.31	0.48	3.09
C7	4.90	4.90	6.40	0.01	0.01
C8	1.81	1.86	5.20	0.19	0.02
C9	6.71	6.72	6.82	0.18	0.18

Analysis begun on: Thu May 11 15:40:23 2023
Analysis ended on: Thu May 11 15:40:34 2023
Total elapsed time: 00:00:11

Proposed Conditions PCSWMM Output

5-year 3-hour Chicago

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
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*************
Element Count
*************
Number of rain gages ...... 18
Number of subcatchments ... 35
Number of nodes ........... 89
Number of links ........... 124
Number of pollutants ...... 0
Number of land uses ....... 0


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Raingage Summary
****************
                                                 Data       Recording
Name                 Data Source                 Type       Interval
----------------------------------------------------------------------
100yr_3hr_Chicago    100yr_3hr_Chicago           INTENSITY   10 min.
100yr_3hr_Chicago_Climate_Change 100yr_3hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr_6hr_Chicago    100yr_6hr_Chicago           INTENSITY   10 min.
100yr_6hr_Chicago_Climate_Change 100yr_6hr_Chicago_Increase_20percent INTENSITY   10 min.
100yr-SCS_12hr_Type_II 100yr-SCS_12hr_Type_II      INTENSITY    6 min.
100yr-SCS_24hr_Type_II 100yr-SCS_24hr_Type_II      INTENSITY   15 min.
10yr_3hr_Chicago     10yr_3hr_Chicago            INTENSITY   10 min.
10yr_6hr_Chicago     10yr_6hr_Chicago            INTENSITY   10 min.
25mm_3hr_Chicago     25mm_3hr_Chicago            INTENSITY   10 min.
25mm_4hr_Chicago     25mm_4hr_Chicago            INTENSITY   10 min.
25yr_3hr_Chicago     25yr_3hr_Chicago            INTENSITY   10 min.
25yr_6hr_Chicago     25yr_6hr_Chicago            INTENSITY   10 min.
2yr_3hr_Chicago      2yr_3hr_Chicago             INTENSITY   10 min.
2yr_6hr_Chicago      2yr_6hr_Chicago             INTENSITY   10 min.
50yr_3hr_Chicago     50yr_3hr_Chicago            INTENSITY   10 min.
50yr_6hr_Chicago     50yr_6hr_Chicago            INTENSITY   10 min.
5yr_3hr_Chicago      5yr_3hr_Chicago             INTENSITY   10 min.
5yr_6hr_Chicago      5yr_6hr_Chicago             INTENSITY   10 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-------------------------------------------------------------------------------------------------
102                          0.44     44.37      64.22    0.5000 5yr_3hr_Chicago      J42
107AA                        0.27    176.73      86.34    0.5000 5yr_3hr_Chicago      J23
108                          0.34    162.73      68.53    0.5000 5yr_3hr_Chicago      BASIN1
109                          0.29     88.92      87.49    0.5000 5yr_3hr_Chicago      J9
A                            0.73     37.91      43.28    0.5000 5yr_3hr_Chicago      J38
A1                           1.02    234.86      98.54    0.5000 5yr_3hr_Chicago      J17
A2                           1.58    358.18      97.91    0.5000 5yr_3hr_Chicago      J22
A3                           0.77    217.10     100.00    0.5000 5yr_3hr_Chicago      J13
A4                           0.62    170.22     100.00    2.0000 5yr_3hr_Chicago      J3
A5                           0.25     30.92      99.94    0.5000 5yr_3hr_Chicago      J14
AA                           0.37     72.80      54.39    0.5000 5yr_3hr_Chicago      J37
BB                           0.89     50.53      41.05    0.5000 5yr_3hr_Chicago      J46
BLDG-A                       0.25    254.20     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-A
BLDG-B                       0.36    362.60     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-B
BLDG-C                       0.30    299.30     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-C
BLDG-D                       0.14    138.00     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-D
BLDGG                        0.24    242.90     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-G
BLDGH                        0.37    370.90     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-H
BLDG-I                       0.23    225.60     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-I
BLDG-J                       0.60    604.40     100.00    0.5000 5yr_3hr_Chicago      J17
BLDG-J1                      0.10    103.90     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-J1
BLDG-J2                      0.09     89.20     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-J2
BLDG-K                       0.25    247.30      99.99    0.5000 5yr_3hr_Chicago      S-BLDG-K
BLDG-L                       0.12    120.70      99.98    0.5000 5yr_3hr_Chicago      J10
BLDG-L1                      0.07     74.90     100.00    0.5000 5yr_3hr_Chicago      S-BLDG-L
D                            0.40     38.69      36.04    0.5000 5yr_3hr_Chicago      J48
D1                           0.48    271.32      32.46    0.5000 5yr_3hr_Chicago      J34
EE                           0.35     38.57      15.30    0.5000 5yr_3hr_Chicago      J47
Great-Lawn                   0.83    135.11      23.48    0.5000 5yr_3hr_Chicago      BASIN3
NEC                          1.11    247.73      85.95   10.0000 5yr_3hr_Chicago      J75
NSTANDS                      0.48     62.16      99.98    2.0000 5yr_3hr_Chicago      J7
OPGG                         0.72    131.24      62.40    0.5000 5yr_3hr_Chicago      J11
SSTANDS                      0.79    162.57      99.99   10.0000 5yr_3hr_Chicago      J3
T                            0.13     75.86      27.76    0.5000 5yr_3hr_Chicago      J16
V                            0.16    167.82      96.59    0.5000 5yr_3hr_Chicago      J12


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Node Summary
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                                    Invert      Max.    Ponded    External
Name                 Type            Elev.     Depth      Area    Inflow
-------------------------------------------------------------------------
J1                   JUNCTION        63.56      2.79       0.0
J10                  JUNCTION        63.14      3.10       0.0
J11                  JUNCTION        62.00      3.95       0.0
J12                  JUNCTION        63.09      2.82       0.0
J13                  JUNCTION        63.77      2.28       0.0
J14                  JUNCTION        63.95      3.10       0.0
J15                  JUNCTION        63.28      3.17       0.0
J16                  JUNCTION        63.03      2.85       0.0
J17                  JUNCTION        63.32      3.03       0.0
J18                  JUNCTION        63.36      2.64       0.0
J19                  JUNCTION        63.62      1.08     720.0
J2                   JUNCTION        64.26      3.14       0.0
J20                  JUNCTION        62.72      3.53       0.0
J21                  JUNCTION        63.31      2.94       0.0
J22                  JUNCTION        63.68      2.63       0.0
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J23	JUNCTION	62.59	2.30	1000.0
J24	JUNCTION	62.53	3.04	0.0
J25	JUNCTION	62.35	2.65	0.0
J26	JUNCTION	62.29	2.84	0.0
J27	JUNCTION	62.25	2.88	0.0
J29	JUNCTION	62.49	2.88	0.0
J3	JUNCTION	64.11	3.34	0.0
J30	JUNCTION	63.12	1.78	0.0
J31	JUNCTION	64.13	0.75	0.0
J32	JUNCTION	62.76	3.44	0.0
J34	JUNCTION	63.35	2.21	0.0
J35	JUNCTION	63.79	2.79	0.0
J36	JUNCTION	63.76	2.54	0.0
J37	JUNCTION	63.68	1.42	466.0
J38	JUNCTION	63.56	2.58	0.0
J39	JUNCTION	63.44	2.58	0.0
J4	JUNCTION	63.96	3.54	0.0
J40	JUNCTION	62.85	2.26	0.0
J41	JUNCTION	62.59	2.30	1000.0
J42	JUNCTION	64.07	1.93	0.0
J43	JUNCTION	63.89	2.31	0.0
J44	JUNCTION	63.76	2.64	0.0
J45	JUNCTION	63.57	2.83	0.0
J46	JUNCTION	63.42	2.78	0.0
J47	JUNCTION	63.12	2.93	0.0
J48	JUNCTION	64.69	3.00	0.0
J49	JUNCTION	63.82	3.58	0.0
J5	JUNCTION	63.91	3.49	0.0
J50	JUNCTION	65.08	3.00	0.0
J51	JUNCTION	64.88	3.47	0.0
J52	JUNCTION	65.31	3.00	0.0
J53	JUNCTION	65.25	3.00	0.0
J54	JUNCTION	65.25	3.00	0.0
J55	JUNCTION	65.20	3.00	0.0
J56	JUNCTION	64.95	3.00	0.0
J57	JUNCTION	65.30	3.00	0.0
J58	JUNCTION	65.35	3.00	0.0
J59	JUNCTION	65.58	3.00	0.0
J6	JUNCTION	63.42	4.08	0.0
J60	JUNCTION	64.65	3.00	0.0
J61	JUNCTION	64.30	3.00	0.0
J62	JUNCTION	64.70	3.00	0.0
J63	JUNCTION	64.50	3.00	0.0
J64	JUNCTION	64.65	3.00	0.0
J65	JUNCTION	65.10	3.00	0.0
J66	JUNCTION	64.50	3.00	0.0
J67	JUNCTION	65.17	3.00	0.0
J68	JUNCTION	65.00	3.00	0.0
J69	JUNCTION	65.43	3.00	0.0
J7	JUNCTION	63.56	1.84	0.0
J70	JUNCTION	65.20	3.00	0.0
J71	JUNCTION	63.38	3.12	0.0
J73	JUNCTION	63.27	3.23	0.0
J74	JUNCTION	63.22	3.28	0.0
J75	JUNCTION	63.12	3.38	0.0
J8	JUNCTION	63.30	2.60	0.0
J9	JUNCTION	62.91	3.32	0.0
ST202	JUNCTION	63.33	3.17	0.0
J28	OUTFALL	62.22	0.97	0.0
J72	OUTFALL	62.58	0.60	0.0
BASIN1	STORAGE	62.81	2.39	0.0
BASIN2	STORAGE	62.95	2.19	0.0
BASIN3	STORAGE	63.09	1.81	0.0
S-BLDG-A	STORAGE	100.00	0.15	0.0
S-BLDG-B	STORAGE	100.00	0.15	0.0
S-BLDG-C	STORAGE	100.00	0.15	0.0
S-BLDG-D	STORAGE	100.00	0.15	0.0
S-BLDG-G	STORAGE	100.00	0.15	0.0
S-BLDG-H	STORAGE	100.00	0.15	0.0
S-BLDG-I	STORAGE	100.00	0.15	0.0
S-BLDG-J1	STORAGE	100.00	0.15	0.0
S-BLDG-J2	STORAGE	100.00	0.15	0.0
S-BLDG-K	STORAGE	100.00	0.15	0.0
S-BLDG-L	STORAGE	100.00	0.15	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J14	J13	CONDUIT	75.0	0.2001	0.0130
C10_1	J34	J8	CONDUIT	25.1	0.0954	0.0130
C11	J8	J74	CONDUIT	26.1	0.2298	0.0130
C12_2	J31	J72	CONDUIT	24.9	6.5133	0.0130
C13	J35	J17	CONDUIT	24.3	0.4946	0.0130
C14	J36	J17	CONDUIT	17.9	0.5037	0.0130
C15	J17	J15	CONDUIT	9.4	0.2126	0.0130
C16	J15	J10	CONDUIT	39.5	0.2785	0.0130
C17	J10	J9	CONDUIT	11.3	0.1770	0.0130
C18	J47	J12	CONDUIT	30.2	0.0992	0.0130
C18_1	J9	J40	CONDUIT	43.3	0.2542	0.0130
C18_2	J40	J11	CONDUIT	59.3	0.0337	0.0130
C19	J12	J16	CONDUIT	57.0	0.0526	0.0130
C2	J2	J3	CONDUIT	60.8	0.1975	0.0130
C20	J16	J11	CONDUIT	16.7	6.1921	0.0130
C21	J46	J47	CONDUIT	53.4	0.2247	0.0130
C21_1	J11	J32	CONDUIT	70.1	0.0599	0.0130
C21_2	J32	J20	CONDUIT	14.2	0.0565	0.0130
C22	J19	J18	CONDUIT	31.8	0.5029	0.0130
C23	J18	J11	CONDUIT	41.5	0.5054	0.0130
C24	J22	J21	CONDUIT	90.6	0.3752	0.0130
C25	J21	J20	CONDUIT	25.4	0.3937	0.0130
C26	J20	J23	CONDUIT	23.5	0.1703	0.0130
C27	J45	J46	CONDUIT	63.9	0.2347	0.0130

C27_2	J41	J24	CONDUIT	82.3	0.0850	0.0130
C28	J24	J29	CONDUIT	14.1	0.0711	0.0130
C29	J29	J25	CONDUIT	78.9	0.1394	0.0130
C3	J3	J4	CONDUIT	60.7	0.1976	0.0130
C30	J25	J26	CONDUIT	17.8	0.1125	0.0130
C31	J26	J27	CONDUIT	4.6	0.4383	0.0130
C32	J27	J28	CONDUIT	8.1	0.3695	0.0130
C33	J37	J1	CONDUIT	20.0	0.4509	0.0130
C34	J1	J18	CONDUIT	29.0	0.5178	0.0130
C35	J38	J39	CONDUIT	100.1	0.0999	0.0130
C36	J39	J34	CONDUIT	105.1	0.0761	0.0130
C38	J44	J45	CONDUIT	73.4	0.1498	0.0130
C39	J43	J44	CONDUIT	35.7	0.1400	0.0130
C4	J4	J5	CONDUIT	8.8	0.2278	0.0130
C40	J42	J43	CONDUIT	92.3	0.1517	0.0130
C41	J48	J49	CONDUIT	88.2	0.3287	0.0350
C43	J50	J51	CONDUIT	105.0	0.1904	0.0350
C44	J51	J48	CONDUIT	21.6	0.8797	0.0240
C45	J52	J53	CONDUIT	90.8	0.0661	0.0130
C46	J53	J54	CONDUIT	22.0	0.0014	0.0130
C47	J54	J55	CONDUIT	7.7	0.6525	0.0130
C48	J55	J56	CONDUIT	65.7	0.3804	0.0130
C49	J59	J58	CONDUIT	18.0	1.2770	0.0130
C5	J5	J6	CONDUIT	6.7	0.1504	0.0130
C50	J58	J57	CONDUIT	14.2	0.3521	0.0130
C51	J57	J52	CONDUIT	47.6	-0.0210	0.0130
C52	J60	J61	CONDUIT	70.3	0.4980	0.0350
C53	J62	J63	CONDUIT	26.8	0.7450	0.0350
C54	J64	J63	CONDUIT	37.1	0.4039	0.0350
C55	J65	J66	CONDUIT	51.5	1.1643	0.0350
C56	J67	J68	CONDUIT	10.1	1.6809	0.0350
C57	J69	J68	CONDUIT	52.1	0.8247	0.0350
C58	J69	J70	CONDUIT	39.7	0.5794	0.0350
C59	J71	ST202	CONDUIT	32.1	0.0934	0.0130
C6	J7	J6	CONDUIT	63.3	0.0947	0.0130
C60	ST202	J73	CONDUIT	42.4	0.0943	0.0130
C61	J73	J74	CONDUIT	28.8	0.1043	0.0130
C62	J74	J75	CONDUIT	48.2	0.1037	0.0130
C63	J75	BASIN3	CONDUIT	31.2	0.0961	0.0130
C7	J13	J7	CONDUIT	74.9	0.2004	0.0130
C8	J6	J71	CONDUIT	18.6	0.1073	0.0130
C9	J30	BASIN3	CONDUIT	44.8	0.0670	0.0130
W4	BASIN2	BASIN3	CONDUIT	9.3	-0.4287	0.0130
C12_1	J30	J31	ORIFICE			
C27_1	J23	J41	ORIFICE			
OR1	BASIN2	J40	ORIFICE			
OR2	BASIN1	J32	ORIFICE			
W1	BASIN1	J32	WEIR			
W10	J39	J48	WEIR			
W11	J34	J49	WEIR			
W12	J38	J50	WEIR			
W13	J15	BASIN3	WEIR			
W14	J8	J60	WEIR			
W15	J47	BASIN3	WEIR			
W16	J22	J52	WEIR			
W17	J21	J53	WEIR			
W18	J20	J54	WEIR			
W19	J32	J55	WEIR			
W2	J40	BASIN2	WEIR			
W20	J11	J56	WEIR			
W21	J35	J59	WEIR			
W22	J17	J58	WEIR			
W23	J36	J57	WEIR			
W24	J14	J13	WEIR			
W25	J13	J7	WEIR			
W27	J2	J3	WEIR			
W28	J3	J4	WEIR			
W29	J4	J5	WEIR			
W3	J32	BASIN1	WEIR			
W30	J5	J6	WEIR			
W31	J6	J7	WEIR			
W32	J10	BASIN3	WEIR			
W33	J44	J65	WEIR			
W34	J45	J64	WEIR			
W35	J46	J62	WEIR			
W36	J1	J55	WEIR			
W37	J18	J56	WEIR			
W38	J42	J68	WEIR			
W39	J43	J70	WEIR			
W40	J9	BASIN3	WEIR			
W6	J12	BASIN3	WEIR			
W7	J16	BASIN3	WEIR			
W8	J11	BASIN3	WEIR			
C42	J49	J8	OUTLET			
OL1	J61	J34	OUTLET			
OL10	S-BLDG-H	J17	OUTLET			
OL11	S-BLDG-G	J17	OUTLET			
OL12	S-BLDG-I	J14	OUTLET			
OL13	S-BLDG-K	J14	OUTLET			
OL14	S-BLDG-J1	J35	OUTLET			
OL15	S-BLDG-J2	J35	OUTLET			
OL16	S-BLDG-L	J10	OUTLET			
OL2	J63	J46	OUTLET			
OL3	J66	J45	OUTLET			
OL4	J68	J42	OUTLET			
OL5	J70	J43	OUTLET			
OL6	S-BLDG-A	J22	OUTLET			
OL7	S-BLDG-B	J22	OUTLET			
OL8	S-BLDG-C	J22	OUTLET			
OL9	S-BLDG-D	J22	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C10_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C11	CIRCULAR	0.90	0.64	0.23	0.90	1	0.87
C12_2	CIRCULAR	0.60	0.28	0.15	0.60	1	1.57
C13	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C14	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C15	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C16	CIRCULAR	0.60	0.28	0.15	0.60	1	0.32
C17	CIRCULAR	0.60	0.28	0.15	0.60	1	0.26
C18	CIRCULAR	0.90	0.64	0.23	0.90	1	0.57
C18_1	CIRCULAR	1.35	1.43	0.34	1.35	1	2.69
C18_2	CIRCULAR	1.35	1.43	0.34	1.35	1	0.98
C19	CIRCULAR	0.90	0.64	0.23	0.90	1	0.42
C2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C20	CIRCULAR	0.90	0.64	0.23	0.90	1	4.51
C21	CIRCULAR	0.53	0.22	0.13	0.53	1	0.20
C21_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.31
C21_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.27
C22	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C23	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C24	CIRCULAR	0.68	0.36	0.17	0.68	1	0.51
C25	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C26	CIRCULAR	1.35	1.43	0.34	1.35	1	2.20
C27	CIRCULAR	0.53	0.22	0.13	0.53	1	0.21
C27_2	CIRCULAR	0.97	0.75	0.24	0.97	1	0.65
C28	CIRCULAR	0.97	0.75	0.24	0.97	1	0.60
C29	CIRCULAR	0.97	0.75	0.24	0.97	1	0.84
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C30	CIRCULAR	0.97	0.75	0.24	0.97	1	0.75
C31	CIRCULAR	0.97	0.75	0.24	0.97	1	1.48
C32	CIRCULAR	0.97	0.75	0.24	0.97	1	1.36
C33	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C34	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C35	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C36	CIRCULAR	0.60	0.28	0.15	0.60	1	0.17
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.11
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.29
C40	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C41	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.38
C43	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.33
C44	CIRCULAR	0.25	0.05	0.06	0.25	1	0.03
C45	RECT_OPEN	1.00	8.00	0.80	8.00	1	13.63
C46	RECT_OPEN	1.00	8.00	0.80	8.00	1	1.98
C47	RECT_OPEN	1.00	8.00	0.80	8.00	1	42.85
C48	RECT_OPEN	1.00	8.00	0.80	8.00	1	32.71
C49	RECT_OPEN	1.00	8.00	0.80	8.00	1	59.94
C5	CIRCULAR	0.60	0.28	0.15	0.60	1	0.24
C50	RECT_OPEN	1.00	8.00	0.80	8.00	1	31.48
C51	RECT_OPEN	1.00	8.00	0.80	8.00	1	7.69
C52	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	5.39
C53	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.59
C54	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.85
C55	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	8.24
C56	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	6.76
C57	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	4.74
C58	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	3.97
C59	CIRCULAR	1.05	0.87	0.26	1.05	1	0.83
C6	CIRCULAR	1.05	0.87	0.26	1.05	1	0.84
C60	CIRCULAR	1.05	0.87	0.26	1.05	1	0.84
C61	CIRCULAR	1.05	0.87	0.26	1.05	1	0.88
C62	CIRCULAR	1.05	0.87	0.26	1.05	1	0.88
C63	CIRCULAR	1.05	0.87	0.26	1.05	1	0.85
C7	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C8	CIRCULAR	1.05	0.87	0.26	1.05	1	0.89
C9	CIRCULAR	0.60	0.28	0.15	0.60	1	0.16
W4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.40

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Shape Summary
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Shape 0.510_1
Area:

0.0040	0.0122	0.0237	0.0378	0.0541
0.0723	0.0915	0.1116	0.1323	0.1535
0.1753	0.1974	0.2200	0.2429	0.2660
0.2892	0.3125	0.3357	0.3589	0.3821
0.4053	0.4285	0.4517	0.4749	0.4981
0.5213	0.5445	0.5677	0.5910	0.6142
0.6374	0.6606	0.6838	0.7070	0.7302
0.7534	0.7766	0.7998	0.8230	0.8462
0.8695	0.8927	0.9159	0.9381	0.9570
0.9725	0.9845	0.9931	0.9983	1.0000

Hrad:

0.0326	0.0620	0.0927	0.1255	0.1571
0.1941	0.2345	0.2757	0.3174	0.3595
0.4018	0.4435	0.4860	0.5280	0.5727
0.6191	0.6650	0.7103	0.7551	0.7994
0.8433	0.8866	0.9295	0.9719	1.0138
1.0552	1.0963	1.1369	1.1770	1.2167
1.2560	1.2949	1.3334	1.3715	1.4092
1.4465	1.4834	1.5199	1.5561	1.5919
1.6273	1.6624	1.6971	1.5863	1.4511
1.3366	1.2373	1.1497	1.0712	1.0000

Width:

0.2699	0.4300	0.5564	0.6554	0.7492
0.8096	0.8484	0.8791	0.9048	0.9265
0.9452	0.9640	0.9791	0.9940	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000

1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 0.8889 0.7407
0.5926 0.4444 0.2963 0.1481 0.0000

Shape 0.510_2
Area:
0.0007 0.0029 0.0063 0.0108 0.0164
0.0230 0.0306 0.0392 0.0487 0.0591
0.0705 0.0827 0.0958 0.1097 0.1244
0.1399 0.1562 0.1733 0.1911 0.2096
0.2288 0.2488 0.2694 0.2908 0.3128
0.3355 0.3589 0.3829 0.4075 0.4329
0.4589 0.4855 0.5128 0.5408 0.5694
0.5987 0.6287 0.6593 0.6906 0.7225
0.7551 0.7884 0.8223 0.8570 0.8923
0.9284 0.9598 0.9822 0.9956 1.0000
Hrad:
0.0372 0.0761 0.1167 0.1577 0.1971
0.2365 0.2767 0.3160 0.3545 0.3926
0.4324 0.4727 0.5123 0.5513 0.5899
0.6298 0.6707 0.7109 0.7506 0.7899
0.8288 0.8684 0.9079 0.9473 0.9872
1.0266 1.0657 1.1045 1.1430 1.1812
1.2191 1.2568 1.2943 1.3316 1.3687
1.4056 1.4423 1.4789 1.5153 1.5517
1.5879 1.6237 1.6580 1.6923 1.7266
1.7432 1.4768 1.2801 1.1258 1.0000
Width:
0.0402 0.0771 0.1097 0.1387 0.1678
0.1958 0.2219 0.2480 0.2741 0.3002
0.3244 0.3474 0.3704 0.3935 0.4165
0.4380 0.4582 0.4785 0.4987 0.5189
0.5392 0.5585 0.5776 0.5964 0.6146
0.6327 0.6509 0.6691 0.6872 0.7054
0.7235 0.7417 0.7599 0.7780 0.7962
0.8143 0.8325 0.8506 0.8688 0.8870
0.9051 0.9235 0.9428 0.9622 0.9816
0.9876 0.7397 0.4917 0.2445 0.0000

Shape 0.510_3
Area:
0.0005 0.0019 0.0043 0.0076 0.0119
0.0170 0.0230 0.0299 0.0377 0.0464
0.0559 0.0663 0.0776 0.0897 0.1027
0.1165 0.1312 0.1467 0.1631 0.1804
0.1985 0.2175 0.2373 0.2580 0.2795
0.3018 0.3250 0.3489 0.3736 0.3991
0.4254 0.4525 0.4804 0.5091 0.5386
0.5689 0.6000 0.6319 0.6645 0.6980
0.7323 0.7673 0.8031 0.8396 0.8769
0.9149 0.9516 0.9785 0.9946 1.0000
Hrad:
0.0376 0.0752 0.1127 0.1518 0.1901
0.2280 0.2657 0.3033 0.3414 0.3798
0.4180 0.4559 0.4937 0.5313 0.5689
0.6063 0.6437 0.6811 0.7183 0.7556
0.7928 0.8300 0.8671 0.9042 0.9429
0.9819 1.0207 1.0593 1.0978 1.1362
1.1744 1.2125 1.2505 1.2884 1.3262
1.3639 1.4016 1.4392 1.4767 1.5142
1.5516 1.5904 1.6294 1.6682 1.7069
1.7455 1.5679 1.3259 1.1446 1.0000
Width:
0.0248 0.0496 0.0744 0.0976 0.1208
0.1440 0.1672 0.1904 0.2131 0.2352
0.2574 0.2796 0.3018 0.3240 0.3462
0.3684 0.3905 0.4127 0.4349 0.4571
0.4793 0.5015 0.5236 0.5458 0.5668
0.5874 0.6079 0.6285 0.6490 0.6696
0.6902 0.7107 0.7313 0.7519 0.7724
0.7930 0.8135 0.8341 0.8547 0.8752
0.8958 0.9153 0.9345 0.9538 0.9730
0.9923 0.8333 0.5556 0.2778 0.0000

Shape 1.030_1
Area:
0.0011 0.0036 0.0070 0.0115 0.0170
0.0237 0.0348 0.0512 0.0715 0.0924
0.1137 0.1363 0.1590 0.1817 0.2045
0.2272 0.2499 0.2727 0.2954 0.3181
0.3409 0.3636 0.3863 0.4090 0.4318
0.4545 0.4772 0.5000 0.5227 0.5454
0.5681 0.5909 0.6136 0.6363 0.6591
0.6818 0.7045 0.7272 0.7500 0.7727
0.7954 0.8182 0.8409 0.8636 0.8864
0.9091 0.9318 0.9545 0.9773 1.0000
Hrad:
0.0314 0.0635 0.0926 0.1201 0.1455
0.1620 0.1324 0.1419 0.1823 0.2297
0.2745 0.3125 0.3616 0.4100 0.4577
0.5046 0.5507 0.5962 0.6410 0.6850
0.7284 0.7712 0.8133 0.8548 0.8957
0.9360 0.9758 1.0149 1.0535 1.0916
1.1291 1.1661 1.2026 1.2386 1.2741
1.3091 1.3436 1.3777 1.4113 1.4445
1.4773 1.5096 1.5415 1.5730 1.6041
1.6348 1.6651 1.6950 1.7246 1.0000
Width:
0.0832 0.1290 0.1738 0.2192 0.2684
0.3361 0.6079 0.8354 0.9071 0.9283
0.9547 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000

1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000

Shape 1.030_2
Area:
0.0006 0.0025 0.0059 0.0111 0.0174
0.0246 0.0324 0.0407 0.0495 0.0589
0.0687 0.0791 0.0900 0.1014 0.1133
0.1257 0.1388 0.1524 0.1667 0.1815
0.1973 0.2142 0.2318 0.2503 0.2694
0.2893 0.3100 0.3313 0.3532 0.3758
0.3991 0.4229 0.4473 0.4723 0.4978
0.5241 0.5510 0.5787 0.6077 0.6381
0.6695 0.7019 0.7354 0.7699 0.8055
0.8421 0.8797 0.9185 0.9586 1.0000
Hrad:
0.0439 0.0784 0.1169 0.1600 0.2149
0.2771 0.3374 0.3949 0.4523 0.5075
0.5611 0.6132 0.6640 0.7137 0.7620
0.8054 0.8484 0.8912 0.9337 0.9723
0.9801 1.0115 1.0497 1.0882 1.1268
1.1656 1.2075 1.2511 1.2946 1.3380
1.3842 1.4302 1.4758 1.5212 1.5663
1.6056 1.6451 1.6692 1.6678 1.6891
1.7156 1.7430 1.7713 1.8004 1.8302
1.8607 1.8918 1.9130 1.9355 1.0000
Width:
0.0272 0.0632 0.1025 0.1394 0.1631
0.1778 0.1913 0.2046 0.2167 0.2288
0.2408 0.2529 0.2650 0.2771 0.2894
0.3036 0.3178 0.3320 0.3462 0.3619
0.3912 0.4118 0.4296 0.4473 0.4651
0.4829 0.4993 0.5148 0.5304 0.5458
0.5598 0.5739 0.5879 0.6020 0.6160
0.6325 0.6491 0.6724 0.7082 0.7349
0.7597 0.7846 0.8094 0.8343 0.8591
0.8840 0.9088 0.9392 0.9696 1.0000

Shape 1.030_3
Area:
0.0028 0.0081 0.0149 0.0226 0.0310
0.0401 0.0498 0.0600 0.0709 0.0824
0.0943 0.1068 0.1199 0.1335 0.1476
0.1624 0.1777 0.1937 0.2102 0.2274
0.2451 0.2634 0.2823 0.3018 0.3219
0.3425 0.3637 0.3855 0.4079 0.4308
0.4543 0.4784 0.5030 0.5282 0.5540
0.5804 0.6073 0.6348 0.6628 0.6913
0.7203 0.7496 0.7794 0.8096 0.8402
0.8711 0.9025 0.9343 0.9668 1.0000
Hrad:
0.0451 0.0901 0.1398 0.1923 0.2412
0.2899 0.3377 0.3838 0.4285 0.4737
0.5176 0.5606 0.6026 0.6435 0.6817
0.7195 0.7569 0.7939 0.8306 0.8670
0.9031 0.9390 0.9747 1.0109 1.0473
1.0834 1.1193 1.1550 1.1906 1.2260
1.2612 1.2964 1.3313 1.3662 1.4010
1.4356 1.4702 1.5050 1.5431 1.5809
1.6213 1.6633 1.7049 1.7462 1.7871
1.8279 1.8683 1.8978 1.9230 1.0000
Width:
0.1283 0.1844 0.2182 0.2395 0.2610
0.2801 0.2978 0.3155 0.3330 0.3490
0.3651 0.3811 0.3971 0.4134 0.4311
0.4488 0.4666 0.4843 0.5020 0.5197
0.5374 0.5552 0.5729 0.5901 0.6071
0.6242 0.6412 0.6582 0.6752 0.6922
0.7092 0.7262 0.7432 0.7603 0.7773
0.7943 0.8113 0.8281 0.8427 0.8574
0.8703 0.8821 0.8939 0.9057 0.9174
0.9292 0.9410 0.9589 0.9794 1.0000

Shape 1170_1
Area:
0.0018 0.0072 0.0137 0.0215 0.0304
0.0401 0.0506 0.0624 0.0759 0.0914
0.1075 0.1242 0.1414 0.1591 0.1773
0.1960 0.2153 0.2350 0.2553 0.2761
0.2975 0.3193 0.3417 0.3646 0.3881
0.4121 0.4366 0.4616 0.4882 0.5202
0.5669 0.6113 0.6533 0.6929 0.7301
0.7649 0.7973 0.8273 0.8548 0.8800
0.9028 0.9232 0.9412 0.9568 0.9700
0.9808 0.9892 0.9952 0.9988 1.0000
Hrad:
0.0375 0.1240 0.1851 0.2523 0.3182
0.3831 0.4393 0.4740 0.4912 0.5519
0.6223 0.6900 0.7553 0.8185 0.8798
0.9393 0.9973 1.0539 1.1093 1.1635
1.2166 1.2688 1.3201 1.3700 1.4193
1.4680 1.5160 1.5558 1.5322 0.9940
1.0362 1.0707 1.0984 1.1200 1.1364
1.1479 1.1552 1.1587 1.1586 1.1554
1.1494 1.1407 1.1297 1.1165 1.1013
1.0842 1.0654 1.0450 1.0232 1.0000
Width:
0.1024 0.1194 0.1520 0.1734 0.1922
0.2082 0.2276 0.2610 0.3080 0.3282
0.3390 0.3498 0.3606 0.3713 0.3821
0.3929 0.4037 0.4144 0.4252 0.4360
0.4468 0.4575 0.4684 0.4795 0.4906

0.5017 0.5128 0.5273 0.5728 0.9926
0.9429 0.8933 0.8437 0.7940 0.7444
0.6948 0.6452 0.5955 0.5459 0.4963
0.4467 0.3970 0.3474 0.2978 0.2481
0.1985 0.1489 0.0993 0.0496 0.0000

Shape 1170_2
Area:
0.0005 0.0018 0.0041 0.0074 0.0117
0.0169 0.0230 0.0298 0.0374 0.0459
0.0551 0.0652 0.0762 0.0879 0.1005
0.1144 0.1311 0.1544 0.1817 0.2092
0.2367 0.2642 0.2917 0.3192 0.3467
0.3742 0.4017 0.4292 0.4567 0.4842
0.5117 0.5393 0.5668 0.5943 0.6218
0.6493 0.6768 0.7043 0.7318 0.7593
0.7868 0.8143 0.8418 0.8693 0.8968
0.9244 0.9519 0.9780 0.9945 1.0000
Hrad:
0.0316 0.0626 0.0953 0.1241 0.1548
0.1901 0.2251 0.2588 0.2916 0.3223
0.3530 0.3837 0.4152 0.4465 0.4776
0.4832 0.4225 0.4104 0.4516 0.5088
0.5636 0.6161 0.6665 0.7149 0.7614
0.8061 0.8492 0.8907 0.9307 0.9692
1.0065 1.0424 1.0772 1.1108 1.1433
1.1747 1.2052 1.2347 1.2633 1.2911
1.3180 1.3441 1.3695 1.3942 1.4182
1.4415 1.4642 1.3515 1.1540 1.0000
Width:
0.0333 0.0679 0.0983 0.1370 0.1758
0.2064 0.2344 0.2623 0.2904 0.3214
0.3523 0.3833 0.4129 0.4424 0.4718
0.5431 0.7533 0.9431 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 0.8000 0.4000 0.0000

Shape 2961
Area:
0.0057 0.0121 0.0191 0.0264 0.0341
0.0422 0.0506 0.0593 0.0684 0.0778
0.0876 0.0978 0.1082 0.1257 0.1448
0.1647 0.1849 0.2052 0.2257 0.2463
0.2672 0.2881 0.3093 0.3306 0.3521
0.3741 0.4001 0.4262 0.4523 0.4784
0.5045 0.5305 0.5566 0.5827 0.6088
0.6349 0.6609 0.6870 0.7131 0.7392
0.7653 0.7914 0.8174 0.8435 0.8696
0.8957 0.9218 0.9478 0.9739 1.0000
Hrad:
0.0599 0.1132 0.1636 0.2129 0.2593
0.3031 0.3448 0.3846 0.4229 0.4598
0.4956 0.5303 0.5641 0.4010 0.4344
0.4810 0.5308 0.5795 0.6270 0.6734
0.7189 0.7633 0.8069 0.8496 0.8908
0.8013 0.8477 0.8930 0.9374 0.9808
1.0233 1.0649 1.1057 1.1456 1.1847
1.2230 1.2605 1.2973 1.3334 1.3688
1.4035 1.4375 1.4709 1.5037 1.5359
1.5674 1.5984 1.6289 1.6588 1.0000
Width:
0.2320 0.2558 0.2754 0.2887 0.3020
0.3153 0.3286 0.3419 0.3552 0.3685
0.3818 0.3951 0.4084 0.7054 0.7522
0.7696 0.7759 0.7822 0.7886 0.7949
0.8012 0.8075 0.8138 0.8201 0.8274
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000

Shape 3235
Area:
0.0097 0.0196 0.0299 0.0405 0.0513
0.0625 0.0740 0.0857 0.0978 0.1101
0.1228 0.1357 0.1490 0.1625 0.1764
0.1905 0.2141 0.2379 0.2617 0.2855
0.3094 0.3332 0.3570 0.3808 0.4046
0.4284 0.4523 0.4761 0.4999 0.5237
0.5475 0.5713 0.5951 0.6190 0.6428
0.6666 0.6904 0.7142 0.7380 0.7618
0.7857 0.8095 0.8333 0.8571 0.8809
0.9047 0.9286 0.9524 0.9762 1.0000
Hrad:
0.0581 0.1132 0.1656 0.2157 0.2636
0.3097 0.3541 0.3970 0.4385 0.4788
0.5179 0.5560 0.5931 0.6294 0.6648
0.6995 0.4904 0.5388 0.5861 0.6324
0.6776 0.7219 0.7652 0.8076 0.8492
0.8898 0.9296 0.9687 1.0069 1.0444
1.0811 1.1171 1.1525 1.1871 1.2211
1.2545 1.2872 1.3193 1.3509 1.3819
1.4123 1.4422 1.4715 1.5003 1.5287
1.5565 1.5839 1.6108 1.6373 1.0000
Width:
0.4124 0.4250 0.4375 0.4500 0.4625
0.4750 0.4875 0.5000 0.5125 0.5250
0.5375 0.5500 0.5625 0.5750 0.5876
0.6001 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000

1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 07/23/2009 00:01:00
Ending Date 07/24/2009 00:01:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 1.00 sec
Variable Time Step ..... YES
Maximum Trials 20
Number of Threads 2
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------
Total Precipitation	0.687	42.514
Evaporation Loss	0.000	0.000
Infiltration Loss	0.165	10.205
Surface Runoff	0.507	31.351
Final Storage	0.020	1.228
Continuity Error (%)	-0.634	

**********	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
**********	---------	---------
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.507	5.068
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.283	2.828
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.001	0.007
Final Stored Volume	0.224	2.235
Continuity Error (%)	0.232	

****
Highest Continuity Errors
****
Node J12 (2.51%)
Node J16 (1.90%)
Node BASIN1 (-1.84%)
Node J49 (1.42%)
Node J44 (1.28%)

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
Link C27_1 (106)
Link OR2 (39)
Link W1 (34)
Link W3 (33)
Link C28 (20)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 1.00 sec
Maximum Time Step : 1.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.09
Percent Not Converging : 0.06

Time Step Frequencies :

1.000 - 0.871 sec	:	99.16 %
0.871 - 0.758 sec	:	0.17 %
0.758 - 0.660 sec	:	0.14 %
0.660 - 0.574 sec	:	0.14 %
0.574 - 0.500 sec	:	0.39 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
102	42.51	0.00	0.00	18.15	26.53	10.41	23.68	0.11	0.05	0.557
107AA	42.51	0.00	0.00	4.97	35.58	0.92	36.50	0.10	0.07	0.858
108	42.51	0.00	0.00	11.76	28.25	1.70	29.95	0.10	0.08	0.705
109	42.51	0.00	0.00	4.61	36.14	0.76	36.90	0.11	0.08	0.868
A	42.51	0.00	0.00	31.60	17.87	10.43	10.43	0.08	0.02	0.245
A1	42.51	0.00	0.00	0.52	40.72	0.11	40.83	0.42	0.29	0.960
A2	42.51	0.00	0.00	0.75	40.46	0.15	40.61	0.64	0.45	0.955
A3	42.51	0.00	0.00	0.00	41.32	0.00	41.32	0.32	0.22	0.972
A4	42.51	0.00	0.00	0.00	41.26	0.00	41.26	0.26	0.18	0.970
A5	42.51	0.00	0.00	0.02	41.27	0.01	41.28	0.10	0.07	0.971
AA	42.51	0.00	0.00	21.24	22.47	9.50	20.73	0.08	0.04	0.488
BB	42.51	0.00	0.00	32.15	16.96	9.91	9.91	0.09	0.02	0.233
BLDG-A	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
BLDG-B	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.15	0.10	0.968
BLDG-C	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.12	0.09	0.968
BLDG-D	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.06	0.04	0.968
BLDGG	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
BLDGH	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.15	0.11	0.968
BLDG-I	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.09	0.07	0.968
BLDG-J	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.25	0.17	0.968
BLDG-J1	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.04	0.03	0.968
BLDG-J2	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.04	0.03	0.968
BLDG-K	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.10	0.07	0.968
BLDG-L	42.51	0.00	0.00	0.01	41.15	0.00	41.16	0.05	0.03	0.968
BLDG-L1	42.51	0.00	0.00	0.00	41.16	0.00	41.16	0.03	0.02	0.968
D	42.51	0.00	0.00	32.25	14.89	9.90	9.90	0.04	0.01	0.233
D1	42.51	0.00	0.00	27.96	13.34	7.60	14.28	0.07	0.05	0.336
EE	42.51	0.00	0.00	38.27	6.31	4.08	4.08	0.01	0.01	0.096
Great-Lawn	42.51	0.00	0.00	35.08	9.68	7.21	7.21	0.06	0.02	0.169
NEC	42.51	0.00	0.00	5.08	35.36	0.98	36.35	0.41	0.30	0.855
NSTANDS	42.51	0.00	0.00	0.01	41.32	0.00	41.32	0.20	0.14	0.972
OPGG	42.51	0.00	0.00	14.65	25.78	1.37	27.15	0.20	0.14	0.639
SSTANDS	42.51	0.00	0.00	0.00	41.17	0.00	41.17	0.32	0.23	0.968
T	42.51	0.00	0.00	27.60	11.41	3.23	14.64	0.02	0.01	0.344
V	42.51	0.00	0.00	1.22	39.75	0.25	40.00	0.06	0.05	0.941

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days	hr:min	Reported Max Depth Meters
J1	JUNCTION	0.09	0.67	64.23	0	01:10	0.65
J10	JUNCTION	0.39	0.87	64.01	0	01:10	0.87
J11	JUNCTION	1.49	1.93	63.93	0	01:22	1.92
J12	JUNCTION	0.43	0.86	63.95	0	01:09	0.84
J13	JUNCTION	0.03	0.44	64.21	0	01:10	0.44
J14	JUNCTION	0.02	0.28	64.23	0	01:10	0.27
J15	JUNCTION	0.25	0.98	64.26	0	01:10	0.97
J16	JUNCTION	0.49	0.90	63.93	0	01:09	0.90
J17	JUNCTION	0.22	0.99	64.31	0	01:10	0.99
J18	JUNCTION	0.17	0.74	64.10	0	01:11	0.72
J19	JUNCTION	0.07	1.08	64.70	0	01:06	0.46
J2	JUNCTION	0.01	1.29	65.55	0	01:10	1.28
J20	JUNCTION	0.79	1.21	63.93	0	01:22	1.21
J21	JUNCTION	0.22	0.69	64.00	0	01:10	0.68
J22	JUNCTION	0.06	0.56	64.24	0	01:10	0.56
J23	JUNCTION	0.91	1.35	63.94	0	01:21	1.33
J24	JUNCTION	0.96	1.54	64.07	0	01:04	1.39
J25	JUNCTION	1.13	1.58	63.93	0	01:21	1.58
J26	JUNCTION	1.19	1.64	63.93	0	01:21	1.64
J27	JUNCTION	1.22	1.69	63.94	0	01:04	1.68
J29	JUNCTION	0.99	1.55	64.04	0	01:04	1.43
J3	JUNCTION	0.03	1.44	65.55	0	01:10	1.43
J30	JUNCTION	0.40	0.74	63.86	0	07:36	0.74
J31	JUNCTION	0.00	0.00	64.13	0	00:00	0.00
J32	JUNCTION	0.75	1.17	63.93	0	01:21	1.17
J34	JUNCTION	0.19	0.57	63.92	0	01:12	0.53
J35	JUNCTION	0.02	0.53	64.32	0	01:10	0.52
J36	JUNCTION	0.03	0.56	64.32	0	01:10	0.55
J37	JUNCTION	0.05	0.64	64.32	0	01:10	0.63
J38	JUNCTION	0.08	0.40	63.96	0	01:12	0.35
J39	JUNCTION	0.13	0.51	63.95	0	01:11	0.44
J4	JUNCTION	0.02	0.44	64.40	0	01:10	0.44
J40	JUNCTION	0.66	1.08	63.93	0	01:22	1.07
J41	JUNCTION	0.90	1.35	63.94	0	01:22	1.34
J42	JUNCTION	0.01	0.24	64.31	0	01:10	0.23
J43	JUNCTION	0.01	0.23	64.12	0	01:10	0.23
J44	JUNCTION	0.03	0.31	64.07	0	01:09	0.29
J45	JUNCTION	0.08	0.46	64.03	0	01:08	0.40
J46	JUNCTION	0.13	0.56	63.98	0	01:08	0.54
J47	JUNCTION	0.40	0.85	63.97	0	01:09	0.81
J48	JUNCTION	0.00	0.07	64.76	0	01:33	0.07
J49	JUNCTION	0.46	0.53	64.35	0	01:33	0.53

J5	JUNCTION	0.02	0.44	64.35	0	01:10	0.44
J50	JUNCTION	0.00	0.00	65.08	0	00:00	0.00
J51	JUNCTION	0.00	0.00	64.88	0	00:00	0.00
J52	JUNCTION	0.00	0.00	65.31	0	00:00	0.00
J53	JUNCTION	0.00	0.00	65.25	0	00:00	0.00
J54	JUNCTION	0.00	0.00	65.25	0	00:00	0.00
J55	JUNCTION	0.00	0.00	65.20	0	00:00	0.00
J56	JUNCTION	0.00	0.00	64.95	0	00:00	0.00
J57	JUNCTION	0.00	0.00	65.30	0	00:00	0.00
J58	JUNCTION	0.00	0.00	65.35	0	00:00	0.00
J59	JUNCTION	0.00	0.00	65.58	0	00:00	0.00
J6	JUNCTION	0.14	0.67	64.09	0	01:11	0.66
J60	JUNCTION	0.00	0.00	64.65	0	00:00	0.00
J61	JUNCTION	0.00	0.00	64.30	0	00:00	0.00
J62	JUNCTION	0.00	0.00	64.70	0	00:00	0.00
J63	JUNCTION	0.00	0.00	64.50	0	00:00	0.00
J64	JUNCTION	0.00	0.00	64.65	0	00:00	0.00
J65	JUNCTION	0.00	0.00	65.10	0	00:00	0.00
J66	JUNCTION	0.00	0.00	64.50	0	00:00	0.00
J67	JUNCTION	0.00	0.00	65.17	0	00:00	0.00
J68	JUNCTION	0.00	0.00	65.00	0	00:00	0.00
J69	JUNCTION	0.00	0.00	65.43	0	00:00	0.00
J7	JUNCTION	0.09	0.57	64.13	0	01:10	0.57
J70	JUNCTION	0.00	0.00	65.20	0	00:00	0.00
J71	JUNCTION	0.16	0.68	64.06	0	01:11	0.67
J73	JUNCTION	0.26	0.67	63.94	0	01:12	0.65
J74	JUNCTION	0.31	0.68	63.90	0	01:12	0.65
J75	JUNCTION	0.41	0.74	63.86	0	07:37	0.74
J8	JUNCTION	0.23	0.61	63.91	0	01:12	0.57
J9	JUNCTION	0.61	1.02	63.93	0	01:10	1.02
ST202	JUNCTION	0.21	0.68	64.01	0	01:11	0.66
J28	OUTFALL	1.60	2.98	65.20	0	03:00	2.98
J72	OUTFALL	1.50	1.50	64.08	0	00:00	1.50
BASIN1	STORAGE	0.69	1.12	63.93	0	01:22	1.12
BASIN2	STORAGE	0.55	0.91	63.86	0	07:33	0.91
BASIN3	STORAGE	0.42	0.77	63.86	0	07:35	0.77
S-BLDG-A	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-B	STORAGE	0.01	0.06	100.06	0	01:35	0.06
S-BLDG-C	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-D	STORAGE	0.01	0.05	100.05	0	01:34	0.05
S-BLDG-G	STORAGE	0.01	0.07	100.07	0	01:44	0.07
S-BLDG-H	STORAGE	0.01	0.06	100.06	0	01:34	0.06
S-BLDG-I	STORAGE	0.01	0.05	100.05	0	01:33	0.05
S-BLDG-J1	STORAGE	0.01	0.08	100.08	0	01:23	0.08
S-BLDG-J2	STORAGE	0.01	0.08	100.08	0	01:24	0.08
S-BLDG-K	STORAGE	0.01	0.07	100.07	0	01:51	0.07
S-BLDG-L	STORAGE	0.01	0.08	100.08	0	01:23	0.08

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.000	0.042	0	01:10	0	0.0769	0.064	
J10	JUNCTION	0.035	0.525	0	01:09	0.0497	1.08	0.048	
J11	JUNCTION	0.137	0.547	0	01:05	0.197	4.01	1.046	
J12	JUNCTION	0.045	0.278	0	01:06	0.0631	0.352	2.572	
J13	JUNCTION	0.220	0.295	0	01:10	0.317	0.614	0.160	
J14	JUNCTION	0.067	0.079	0	01:10	0.102	0.296	-0.066	
J15	JUNCTION	0.000	0.488	0	01:09	0	1	0.257	
J16	JUNCTION	0.014	0.291	0	01:06	0.0191	0.391	1.937	
J17	JUNCTION	0.465	0.491	0	01:10	0.667	1	0.053	
J18	JUNCTION	0.000	0.040	0	01:10	0	0.0786	-0.059	
J19	JUNCTION	0.000	0.012	0	01:06	0	0.000588	-1.129	
J2	JUNCTION	0.000	0.028	0	01:02	0	0.00944	0.024	
J20	JUNCTION	0.000	0.548	0	01:10	0	4.08	0.287	
J21	JUNCTION	0.000	0.470	0	01:09	0	1.07	-0.583	
J22	JUNCTION	0.446	0.478	0	01:10	0.641	1.08	0.946	
J23	JUNCTION	0.073	0.399	0	08:00	0.0986	3.13	0.528	
J24	JUNCTION	0.000	0.409	0	08:00	0	2.97	0.986	
J25	JUNCTION	0.000	0.423	0	08:00	0	2.91	1.208	
J26	JUNCTION	0.000	0.424	0	08:00	0	2.86	0.273	
J27	JUNCTION	0.000	0.424	0	08:00	0	2.84	0.149	
J29	JUNCTION	0.000	0.417	0	08:00	0	2.94	1.142	
J3	JUNCTION	0.408	0.408	0	01:10	0.58	0.59	0.055	
J30	JUNCTION	0.000	0.004	0	01:11	0	0.00743	61.647	
J31	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J32	JUNCTION	0.000	0.962	0	01:10	0	4.75	1.044	
J34	JUNCTION	0.047	0.119	0	01:07	0.0684	0.225	0.108	
J35	JUNCTION	0.000	0.011	0	01:24	0	0.0797	0.095	
J36	JUNCTION	0.000	0.007	0	01:06	0	0.00122	0.139	
J37	JUNCTION	0.042	0.042	0	01:10	0.0767	0.0769	0.370	
J38	JUNCTION	0.019	0.059	0	01:08	0.0764	0.0868	0.325	
J39	JUNCTION	0.000	0.100	0	01:07	0	0.127	-0.114	
J4	JUNCTION	0.000	0.398	0	01:10	0	0.58	-0.000	
J40	JUNCTION	0.000	0.611	0	01:10	0	4.63	0.853	
J41	JUNCTION	0.000	0.402	0	08:00	0	3	1.199	
J42	JUNCTION	0.050	0.050	0	01:10	0.105	0.105	0.725	
J43	JUNCTION	0.000	0.049	0	01:10	0	0.104	-0.564	
J44	JUNCTION	0.000	0.054	0	01:10	0	0.106	1.294	
J45	JUNCTION	0.000	0.138	0	01:07	0	0.113	-1.118	
J46	JUNCTION	0.023	0.144	0	01:06	0.0882	0.222	0.154	
J47	JUNCTION	0.005	0.197	0	01:06	0.0141	0.264	1.180	
J48	JUNCTION	0.013	0.013	0	01:20	0.0396	0.0396	-0.012	
J49	JUNCTION	0.000	0.011	0	01:33	0	0.0396	1.437	
J5	JUNCTION	0.000	0.398	0	01:10	0	0.58	-0.000	
J50	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J51	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J52	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr

J53	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J54	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J55	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J56	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J57	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J58	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J59	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J6	JUNCTION	0.000	0.813	0	01:10	0	1.39	-0.084	
J60	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J62	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J63	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J64	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J65	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J66	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J67	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J68	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J69	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J7	JUNCTION	0.138	0.423	0	01:10	0.2	0.813	0.068	
J70	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J71	JUNCTION	0.000	0.808	0	01:10	0	1.39	0.048	
J73	JUNCTION	0.000	0.805	0	01:11	0	1.39	0.224	
J74	JUNCTION	0.000	0.861	0	01:12	0	1.62	0.199	
J75	JUNCTION	0.302	1.066	0	01:12	0.405	1.98	0.360	
J8	JUNCTION	0.000	0.139	0	01:16	0	0.271	0.224	
J9	JUNCTION	0.076	0.598	0	01:09	0.106	1.19	0.674	
ST202	JUNCTION	0.000	0.806	0	01:10	0	1.39	0.122	
J28	OUTFALL	0.000	0.425	0	08:00	0	2.83	0.000	
J72	OUTFALL	0.000	0.000	0	00:00	0	0	0.000	ltr
BASIN1	STORAGE	0.076	1.031	0	01:10	0.103	1.16	-1.803	
BASIN2	STORAGE	0.000	0.788	0	01:23	0	3.74	-0.272	
BASIN3	STORAGE	0.025	1.086	0	01:12	0.06	2.64	0.136	
S-BLDG-A	STORAGE	0.074	0.074	0	01:10	0.105	0.105	0.005	
S-BLDG-B	STORAGE	0.105	0.105	0	01:10	0.149	0.149	0.005	
S-BLDG-C	STORAGE	0.087	0.087	0	01:10	0.123	0.123	0.005	
S-BLDG-D	STORAGE	0.040	0.040	0	01:10	0.0568	0.0568	0.005	
S-BLDG-G	STORAGE	0.070	0.070	0	01:10	0.1	0.1	0.006	
S-BLDG-H	STORAGE	0.107	0.107	0	01:10	0.153	0.153	0.005	
S-BLDG-I	STORAGE	0.065	0.065	0	01:10	0.0929	0.0929	0.005	
S-BLDG-J1	STORAGE	0.030	0.030	0	01:10	0.0428	0.0428	0.005	
S-BLDG-J2	STORAGE	0.026	0.026	0	01:10	0.0367	0.0367	0.005	
S-BLDG-K	STORAGE	0.072	0.072	0	01:10	0.102	0.102	0.006	
S-BLDG-L	STORAGE	0.022	0.022	0	01:10	0.0308	0.0308	0.004	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J19	JUNCTION	5.41	0.880	0.000
J24	JUNCTION	6.84	0.550	1.495
J25	JUNCTION	22.94	0.580	1.065
J26	JUNCTION	22.95	0.629	1.196
J27	JUNCTION	22.96	0.693	1.192
J29	JUNCTION	6.87	0.544	1.331
J37	JUNCTION	0.47	0.387	0.783
J41	JUNCTION	6.79	0.344	0.954

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
BASIN1	0.332	52	0	0	0.539	85	0 01:22	0.135
BASIN2	0.987	44	0	0	1.617	72	0 07:33	0.235
BASIN3	1.210	23	0	0	2.191	42	0 07:35	0.265
S-BLDG-A	0.006	1	0	0	0.062	12	0 01:33	0.009
S-BLDG-B	0.010	1	0	0	0.091	14	0 01:35	0.011
S-BLDG-C	0.007	1	0	0	0.073	12	0 01:33	0.011
S-BLDG-D	0.003	1	0	0	0.034	13	0 01:34	0.005
S-BLDG-G	0.008	3	0	0	0.065	20	0 01:44	0.006
S-BLDG-H	0.009	1	0	0	0.092	14	0 01:34	0.012
S-BLDG-I	0.005	1	0	0	0.055	12	0 01:33	0.008
S-BLDG-J1	0.001	2	0	0	0.021	28	0 01:23	0.006
S-BLDG-J2	0.001	2	0	0	0.019	28	0 01:24	0.005
S-BLDG-K	0.009	3	0	0	0.067	22	0 01:51	0.005
S-BLDG-L	0.001	1	0	0	0.015	26	0 01:23	0.005

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr

J28	21.80	0.151	0.425	2.828
J72	0.00	0.000	0.000	0.000
System	10.90	0.151	0.425	2.828

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.080	0	01:11	0.54	0.12	0.41
C10_1	CONDUIT	0.136	0	01:16	0.61	0.71	0.96
C11	CONDUIT	0.153	0	01:16	0.41	0.18	0.71
C12_2	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C13	CONDUIT	0.013	0	01:13	0.60	0.32	1.00
C14	CONDUIT	0.007	0	01:06	0.18	0.16	1.00
C15	CONDUIT	0.488	0	01:09	1.73	1.72	1.00
C16	CONDUIT	0.486	0	01:09	1.72	1.50	1.00
C17	CONDUIT	0.523	0	01:09	1.85	2.02	1.00
C18	CONDUIT	0.196	0	01:06	0.37	0.34	0.95
C18_1	CONDUIT	0.611	0	01:10	0.68	0.23	0.76
C18_2	CONDUIT	0.367	0	01:23	0.51	0.37	0.81
C19	CONDUIT	0.234	0	01:06	0.44	0.56	0.96
C2	CONDUIT	0.028	0	01:02	0.25	0.22	1.00
C20	CONDUIT	0.279	0	01:06	0.45	0.06	1.00
C21	CONDUIT	0.140	0	01:06	0.71	0.69	1.00
C21_1	CONDUIT	0.440	0	01:09	0.53	0.34	0.85
C21_2	CONDUIT	0.555	0	01:10	0.56	0.44	0.87
C22	CONDUIT	0.012	0	01:06	0.45	0.50	1.00
C23	CONDUIT	0.040	0	01:11	0.82	0.95	1.00
C24	CONDUIT	0.470	0	01:09	1.63	0.91	0.91
C25	CONDUIT	0.476	0	01:10	1.64	0.90	1.00
C26	CONDUIT	0.399	0	08:00	0.81	0.18	0.91
C27	CONDUIT	0.111	0	01:07	0.62	0.53	0.93
C27_2	CONDUIT	0.409	0	08:00	0.79	0.63	1.00
C28	CONDUIT	0.417	0	08:00	0.85	0.70	1.00
C29	CONDUIT	0.423	0	08:00	0.61	0.51	1.00
C3	CONDUIT	0.398	0	01:10	2.53	3.14	0.96
C30	CONDUIT	0.424	0	08:00	0.57	0.56	1.00
C31	CONDUIT	0.424	0	08:00	0.57	0.29	1.00
C32	CONDUIT	0.425	0	08:00	0.57	0.31	1.00
C33	CONDUIT	0.042	0	01:10	0.97	1.04	1.00
C34	CONDUIT	0.040	0	01:10	0.92	0.94	1.00
C35	CONDUIT	0.053	0	01:08	0.43	0.27	0.74
C36	CONDUIT	0.100	0	01:07	0.53	0.59	0.89
C38	CONDUIT	0.062	0	01:10	0.62	0.56	0.70
C39	CONDUIT	0.054	0	01:10	0.91	0.82	0.58
C4	CONDUIT	0.398	0	01:10	1.85	1.36	0.71
C40	CONDUIT	0.049	0	01:10	0.79	0.71	0.57
C41	CONDUIT	0.011	0	01:33	0.21	0.00	0.05
C43	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.14
C45	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C46	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C47	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C48	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C49	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C5	CONDUIT	0.398	0	01:10	1.85	1.67	0.71
C50	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C51	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C52	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C53	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C54	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C55	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C56	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C57	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C58	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C59	CONDUIT	0.806	0	01:10	1.39	0.97	0.64
C6	CONDUIT	0.415	0	01:10	0.85	0.49	0.55
C60	CONDUIT	0.805	0	01:11	1.41	0.96	0.63
C61	CONDUIT	0.800	0	01:11	1.42	0.91	0.64
C62	CONDUIT	0.869	0	01:12	1.55	0.99	0.63
C63	CONDUIT	1.067	0	01:12	2.01	1.26	0.69
C7	CONDUIT	0.288	0	01:10	0.91	0.45	0.57
C8	CONDUIT	0.808	0	01:10	1.41	0.90	0.63
C9	CONDUIT	0.004	0	01:11	0.12	0.03	1.00
W4	CONDUIT	0.265	0	01:28	1.62	0.66	1.00
C12_1	ORIFICE	0.000	0	00:00			0.00
C27_1	ORIFICE	0.402	0	08:00			1.00
OR1	ORIFICE	0.205	0	08:33			1.00
OR2	ORIFICE	0.058	0	08:12			1.00
W1	WEIR	0.122	0	01:25			0.50
W10	WEIR	0.000	0	00:00			0.00
W11	WEIR	0.000	0	00:00			0.00
W12	WEIR	0.000	0	00:00			0.00
W13	WEIR	0.000	0	00:00			0.00
W14	WEIR	0.000	0	00:00			0.00
W15	WEIR	0.000	0	00:00			0.00
W16	WEIR	0.000	0	00:00			0.00
W17	WEIR	0.000	0	00:00			0.00
W18	WEIR	0.000	0	00:00			0.00
W19	WEIR	0.000	0	00:00			0.00
W2	WEIR	0.543	0	01:22			0.29
W20	WEIR	0.000	0	00:00			0.00
W21	WEIR	0.000	0	00:00			0.00
W22	WEIR	0.000	0	00:00			0.00
W23	WEIR	0.000	0	00:00			0.00
W24	WEIR	0.000	0	00:00			0.00
W25	WEIR	0.000	0	00:00			0.00

W27	WEIR	0.000	0	00:00	0.00
W28	WEIR	0.000	0	00:00	0.00
W29	WEIR	0.000	0	00:00	0.00
W3	WEIR	0.958	0	01:10	0.51
W30	WEIR	0.000	0	00:00	0.00
W31	WEIR	0.000	0	00:00	0.00
W32	WEIR	0.000	0	00:00	0.00
W33	WEIR	0.000	0	00:00	0.00
W34	WEIR	0.000	0	00:00	0.00
W35	WEIR	0.000	0	00:00	0.00
W36	WEIR	0.000	0	00:00	0.00
W37	WEIR	0.000	0	00:00	0.00
W38	WEIR	0.000	0	00:00	0.00
W39	WEIR	0.000	0	00:00	0.00
W40	WEIR	0.000	0	00:00	0.00
W6	WEIR	0.000	0	00:00	0.00
W7	WEIR	0.000	0	00:00	0.00
W8	WEIR	0.000	0	00:00	0.00
C42	DUMMY	0.011	0	01:33	
OL1	DUMMY	0.000	0	00:00	
OL10	DUMMY	0.012	0	01:12	
OL11	DUMMY	0.006	0	01:08	
OL12	DUMMY	0.008	0	01:20	
OL13	DUMMY	0.005	0	01:08	
OL14	DUMMY	0.006	0	01:23	
OL15	DUMMY	0.005	0	01:24	
OL16	DUMMY	0.005	0	01:23	
OL2	DUMMY	0.000	0	00:00	
OL3	DUMMY	0.000	0	00:00	
OL4	DUMMY	0.000	0	00:00	
OL5	DUMMY	0.000	0	00:00	
OL6	DUMMY	0.009	0	01:16	
OL7	DUMMY	0.011	0	01:12	
OL8	DUMMY	0.011	0	01:16	
OL9	DUMMY	0.005	0	01:14	

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Flow Classification Summary
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	Adjusted	---------- Fraction of Time in Flow Class ----------								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.02	0.00	0.00	0.25	0.00	0.00	0.73	0.17	0.00
C10_1	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C11	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C12_2	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C13	1.00	0.02	0.00	0.00	0.29	0.00	0.00	0.68	0.09	0.00
C14	1.00	0.04	0.00	0.00	0.29	0.00	0.00	0.66	0.01	0.00
C15	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C16	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C17	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C18	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C18_1	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.01	0.00
C18_2	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C19	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.12	0.00	0.00	0.85	0.93	0.00
C20	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.02	0.00
C21	1.00	0.03	0.00	0.00	0.96	0.00	0.00	0.01	0.57	0.00
C21_1	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C21_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C22	1.00	0.04	0.00	0.00	0.35	0.00	0.00	0.60	0.66	0.00
C23	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C24	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.67	0.00
C25	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C26	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C27	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.33	0.00
C27_2	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C28	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C29	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C3	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C30	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C31	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C33	1.00	0.02	0.00	0.00	0.30	0.00	0.00	0.68	0.01	0.00
C34	1.00	0.02	0.00	0.00	0.42	0.00	0.00	0.56	0.15	0.00
C35	1.00	0.04	0.00	0.00	0.42	0.00	0.00	0.54	0.08	0.00
C36	1.00	0.02	0.38	0.00	0.59	0.00	0.00	0.00	0.54	0.00
C38	1.00	0.02	0.00	0.00	0.29	0.00	0.00	0.68	0.01	0.00
C39	1.00	0.02	0.00	0.00	0.13	0.00	0.00	0.85	0.11	0.00
C4	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C40	1.00	0.02	0.00	0.00	0.02	0.00	0.00	0.96	0.00	0.00
C41	1.00	0.13	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00
C43	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C44	1.00	0.13	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C46	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C47	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C48	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C49	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C50	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C51	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C52	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C53	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C54	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C55	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C56	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C57	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C58	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C59	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C6	1.00	0.02	0.00	0.00	0.41	0.00	0.00	0.57	0.03	0.00

C60	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C61	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C62	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C63	1.00	0.02	0.00	0.00	0.94	0.00	0.00	0.04	0.00	0.00
C7	1.00	0.02	0.00	0.00	0.33	0.00	0.00	0.65	0.13	0.00
C8	1.00	0.02	0.00	0.00	0.48	0.00	0.00	0.50	0.02	0.00
C9	1.00	0.02	0.02	0.00	0.96	0.00	0.00	0.00	0.00	0.00
W4	1.00	0.02	0.00	0.00	0.94	0.00	0.00	0.04	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C13	0.12	0.12	0.37	0.01	0.01
C14	0.13	0.13	0.37	0.01	0.01
C15	0.37	0.37	0.45	0.19	0.13
C16	0.56	0.57	6.83	0.16	0.12
C17	6.88	6.89	6.92	0.21	0.14
C2	0.19	0.19	0.21	0.01	0.01
C20	0.03	0.03	23.27	0.01	0.01
C21	0.06	0.06	5.03	0.01	0.01
C22	5.41	5.41	7.02	0.01	0.01
C23	7.13	7.13	10.54	0.01	0.01
C25	0.02	0.02	0.38	0.01	0.01
C27	0.01	0.01	0.06	0.01	0.01
C27_2	6.79	6.79	6.84	0.01	0.01
C28	6.86	6.86	6.87	0.01	0.01
C29	6.90	6.90	22.94	0.01	0.01
C3	0.01	0.22	0.01	0.32	0.01
C30	22.95	22.95	22.95	0.01	0.01
C31	22.96	22.96	22.96	0.01	0.01
C32	22.97	22.97	24.00	0.01	0.01
C33	0.47	0.47	4.02	0.02	0.02
C34	6.55	6.55	7.02	0.01	0.01
C4	0.01	0.01	0.01	0.15	0.01
C5	0.01	0.01	0.01	0.18	0.01
C63	0.01	0.01	0.01	0.14	0.01
C9	5.98	5.98	6.39	0.01	0.01
W4	6.39	6.39	6.89	0.01	0.01

Analysis begun on: Thu May 11 15:41:47 2023
Analysis ended on: Thu May 11 15:41:54 2023
Total elapsed time: 00:00:07

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

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Element Count
****
Number of rain gages 18
Number of subcatchments ... 35
Number of nodes 89
Number of links 124
Number of pollutants 0
Number of land uses 0

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Raingage Summary
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Name	Data Source	Data Type	Recording Interval
100yr_3hr_Chicago	100yr_3hr_Chicago	INTENSITY	10 min.
100yr_3hr_Chicago_Climate_Change	100yr_3hr_Chicago_Increase_20percent	INTENSITY	10 min.
100yr_6hr_Chicago	100yr_6hr_Chicago	INTENSITY	10 min.
100yr_6hr_Chicago_Climate_Change	100yr_6hr_Chicago_Increase_20percent	INTENSITY	10 min.
100yr-SCS_12hr_Type_II	100yr-SCS_12hr_Type_II	INTENSITY	6 min.
100yr-SCS_24hr_Type_II	100yr-SCS_24hr_Type_II	INTENSITY	15 min.
10yr_3hr_Chicago	10yr_3hr_Chicago	INTENSITY	10 min.
10yr_6hr_Chicago	10yr_6hr_Chicago	INTENSITY	10 min.
25mm_3hr_Chicago	25mm_3hr_Chicago	INTENSITY	10 min.
25mm_4hr_Chicago	25mm_4hr_Chicago	INTENSITY	10 min.
25yr_3hr_Chicago	25yr_3hr_Chicago	INTENSITY	10 min.
25yr_6hr_Chicago	25yr_6hr_Chicago	INTENSITY	10 min.
2yr_3hr_Chicago	2yr_3hr_Chicago	INTENSITY	10 min.
2yr_6hr_Chicago	2yr_6hr_Chicago	INTENSITY	10 min.
50yr_3hr_Chicago	50yr_3hr_Chicago	INTENSITY	10 min.
50yr_6hr_Chicago	50yr_6hr_Chicago	INTENSITY	10 min.
5yr_3hr_Chicago	5yr_3hr_Chicago	INTENSITY	10 min.
5yr_6hr_Chicago	5yr_6hr_Chicago	INTENSITY	10 min.

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Subcatchment Summary
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Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
102	0.44	44.37	64.22	0.5000	100yr_3hr_Chicago	J42
107AA	0.27	176.73	86.34	0.5000	100yr_3hr_Chicago	J23
108	0.34	162.73	68.53	0.5000	100yr_3hr_Chicago	BASIN1
109	0.29	88.92	87.49	0.5000	100yr_3hr_Chicago	J9
A	0.73	37.91	43.28	0.5000	100yr_3hr_Chicago	J38
A1	1.02	234.86	98.54	0.5000	100yr_3hr_Chicago	J17
A2	1.58	358.18	97.91	0.5000	100yr_3hr_Chicago	J22
A3	0.77	217.10	100.00	0.5000	100yr_3hr_Chicago	J13
A4	0.62	170.22	100.00	2.0000	100yr_3hr_Chicago	J3
A5	0.25	30.92	99.94	0.5000	100yr_3hr_Chicago	J14
AA	0.37	72.80	54.39	0.5000	100yr_3hr_Chicago	J37
BB	0.89	50.53	41.05	0.5000	100yr_3hr_Chicago	J46
BLDG-A	0.25	254.20	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-A
BLDG-B	0.36	362.60	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-B
BLDG-C	0.30	299.30	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-C
BLDG-D	0.14	138.00	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-D
BLDGG	0.24	242.90	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-G
BLDGH	0.37	370.90	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-H
BLDG-I	0.23	225.60	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-I
BLDG-J	0.60	604.40	100.00	0.5000	100yr_3hr_Chicago	J17
BLDG-J1	0.10	103.90	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-J1
BLDG-J2	0.09	89.20	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-J2
BLDG-K	0.25	247.30	99.99	0.5000	100yr_3hr_Chicago	S-BLDG-K
BLDG-L	0.12	120.70	99.98	0.5000	100yr_3hr_Chicago	J10
BLDG-L1	0.07	74.90	100.00	0.5000	100yr_3hr_Chicago	S-BLDG-L
D	0.40	38.69	36.04	0.5000	100yr_3hr_Chicago	J48
D1	0.48	271.32	32.46	0.5000	100yr_3hr_Chicago	J34
EE	0.35	38.57	15.30	0.5000	100yr_3hr_Chicago	J47
Great-Lawn	0.83	135.11	23.48	0.5000	100yr_3hr_Chicago	BASIN3
NEC	1.11	247.73	85.95	10.0000	100yr_3hr_Chicago	J75
NSTANDS	0.48	62.16	99.98	2.0000	100yr_3hr_Chicago	J7
OPGG	0.72	131.24	62.40	0.5000	100yr_3hr_Chicago	J11
SSTANDS	0.79	162.57	99.99	10.0000	100yr_3hr_Chicago	J3
T	0.13	75.86	27.76	0.5000	100yr_3hr_Chicago	J16
V	0.16	167.82	96.59	0.5000	100yr_3hr_Chicago	J12

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	63.56	2.79	0.0	
J10	JUNCTION	63.14	3.10	0.0	
J11	JUNCTION	62.00	3.95	0.0	
J12	JUNCTION	63.09	2.82	0.0	
J13	JUNCTION	63.77	2.28	0.0	
J14	JUNCTION	63.95	3.10	0.0	
J15	JUNCTION	63.28	3.17	0.0	
J16	JUNCTION	63.03	2.85	0.0	
J17	JUNCTION	63.32	3.03	0.0	
J18	JUNCTION	63.36	2.64	0.0	
J19	JUNCTION	63.62	1.08	720.0	
J2	JUNCTION	64.26	3.14	0.0	
J20	JUNCTION	62.72	3.53	0.0	
J21	JUNCTION	63.31	2.94	0.0	
J22	JUNCTION	63.68	2.63	0.0	
J23	JUNCTION	62.59	2.30	1000.0	
J24	JUNCTION	62.53	3.04	0.0	
J25	JUNCTION	62.35	2.65	0.0	
J26	JUNCTION	62.29	2.84	0.0	
J27	JUNCTION	62.25	2.88	0.0	
J29	JUNCTION	62.49	2.88	0.0	
J3	JUNCTION	64.11	3.34	0.0	
J30	JUNCTION	63.12	1.78	0.0	
J31	JUNCTION	64.13	0.75	0.0	
J32	JUNCTION	62.76	3.44	0.0	
J34	JUNCTION	63.35	2.21	0.0	
J35	JUNCTION	63.79	2.79	0.0	
J36	JUNCTION	63.76	2.54	0.0	
J37	JUNCTION	63.68	1.42	466.0	
J38	JUNCTION	63.56	2.58	0.0	
J39	JUNCTION	63.44	2.58	0.0	
J4	JUNCTION	63.96	3.54	0.0	
J40	JUNCTION	62.85	2.26	0.0	
J41	JUNCTION	62.59	2.30	1000.0	
J42	JUNCTION	64.07	1.93	0.0	
J43	JUNCTION	63.89	2.31	0.0	
J44	JUNCTION	63.76	2.64	0.0	
J45	JUNCTION	63.57	2.83	0.0	
J46	JUNCTION	63.42	2.78	0.0	
J47	JUNCTION	63.12	2.93	0.0	
J48	JUNCTION	64.69	3.00	0.0	
J49	JUNCTION	63.82	3.58	0.0	
J5	JUNCTION	63.91	3.49	0.0	
J50	JUNCTION	65.08	3.00	0.0	
J51	JUNCTION	64.88	3.47	0.0	
J52	JUNCTION	65.31	3.00	0.0	
J53	JUNCTION	65.25	3.00	0.0	
J54	JUNCTION	65.25	3.00	0.0	
J55	JUNCTION	65.20	3.00	0.0	
J56	JUNCTION	64.95	3.00	0.0	
J57	JUNCTION	65.30	3.00	0.0	
J58	JUNCTION	65.35	3.00	0.0	
J59	JUNCTION	65.58	3.00	0.0	
J6	JUNCTION	63.42	4.08	0.0	
J60	JUNCTION	64.65	3.00	0.0	
J61	JUNCTION	64.30	3.00	0.0	
J62	JUNCTION	64.70	3.00	0.0	
J63	JUNCTION	64.50	3.00	0.0	
J64	JUNCTION	64.65	3.00	0.0	
J65	JUNCTION	65.10	3.00	0.0	
J66	JUNCTION	64.50	3.00	0.0	
J67	JUNCTION	65.17	3.00	0.0	
J68	JUNCTION	65.00	3.00	0.0	
J69	JUNCTION	65.43	3.00	0.0	
J7	JUNCTION	63.56	1.84	0.0	
J70	JUNCTION	65.20	3.00	0.0	
J71	JUNCTION	63.38	3.12	0.0	
J73	JUNCTION	63.27	3.23	0.0	
J74	JUNCTION	63.22	3.28	0.0	
J75	JUNCTION	63.12	3.38	0.0	
J8	JUNCTION	63.30	2.60	0.0	
J9	JUNCTION	62.91	3.32	0.0	
ST202	JUNCTION	63.33	3.17	0.0	
J28	OUTFALL	62.22	0.97	0.0	
J72	OUTFALL	62.58	0.60	0.0	
BASIN1	STORAGE	62.81	2.39	0.0	
BASIN2	STORAGE	62.95	2.19	0.0	
BASIN3	STORAGE	63.09	1.81	0.0	
S-BLDG-A	STORAGE	100.00	0.15	0.0	
S-BLDG-B	STORAGE	100.00	0.15	0.0	
S-BLDG-C	STORAGE	100.00	0.15	0.0	
S-BLDG-D	STORAGE	100.00	0.15	0.0	
S-BLDG-G	STORAGE	100.00	0.15	0.0	
S-BLDG-H	STORAGE	100.00	0.15	0.0	
S-BLDG-I	STORAGE	100.00	0.15	0.0	

S-BLDG-J1	STORAGE	100.00	0.15	0.0
S-BLDG-J2	STORAGE	100.00	0.15	0.0
S-BLDG-K	STORAGE	100.00	0.15	0.0
S-BLDG-L	STORAGE	100.00	0.15	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J14	J13	CONDUIT	75.0	0.2001	0.0130
C10_1	J34	J8	CONDUIT	25.1	0.0954	0.0130
C11	J8	J74	CONDUIT	26.1	0.2298	0.0130
C12_2	J31	J72	CONDUIT	24.9	6.5133	0.0130
C13	J35	J17	CONDUIT	24.3	0.4946	0.0130
C14	J36	J17	CONDUIT	17.9	0.5037	0.0130
C15	J17	J15	CONDUIT	9.4	0.2126	0.0130
C16	J15	J10	CONDUIT	39.5	0.2785	0.0130
C17	J10	J9	CONDUIT	11.3	0.1770	0.0130
C18	J47	J12	CONDUIT	30.2	0.0992	0.0130
C18_1	J9	J40	CONDUIT	43.3	0.2542	0.0130
C18_2	J40	J11	CONDUIT	59.3	0.0337	0.0130
C19	J12	J16	CONDUIT	57.0	0.0526	0.0130
C2	J2	J3	CONDUIT	60.8	0.1975	0.0130
C20	J16	J11	CONDUIT	16.7	6.1921	0.0130
C21	J46	J47	CONDUIT	53.4	0.2247	0.0130
C21_1	J11	J32	CONDUIT	70.1	0.0599	0.0130
C21_2	J32	J20	CONDUIT	14.2	0.0565	0.0130
C22	J19	J18	CONDUIT	31.8	0.5029	0.0130
C23	J18	J11	CONDUIT	41.5	0.5054	0.0130
C24	J22	J21	CONDUIT	90.6	0.3752	0.0130
C25	J21	J20	CONDUIT	25.4	0.3937	0.0130
C26	J20	J23	CONDUIT	23.5	0.1703	0.0130
C27	J45	J46	CONDUIT	63.9	0.2347	0.0130
C27_2	J41	J24	CONDUIT	82.3	0.0850	0.0130
C28	J24	J29	CONDUIT	14.1	0.0711	0.0130
C29	J29	J25	CONDUIT	78.9	0.1394	0.0130
C3	J3	J4	CONDUIT	60.7	0.1976	0.0130
C30	J25	J26	CONDUIT	17.8	0.1125	0.0130
C31	J26	J27	CONDUIT	4.6	0.4383	0.0130
C32	J27	J28	CONDUIT	8.1	0.3695	0.0130
C33	J37	J1	CONDUIT	20.0	0.4509	0.0130
C34	J1	J18	CONDUIT	29.0	0.5178	0.0130
C35	J38	J39	CONDUIT	100.1	0.0999	0.0130
C36	J39	J34	CONDUIT	105.1	0.0761	0.0130
C38	J44	J45	CONDUIT	73.4	0.1498	0.0130
C39	J43	J44	CONDUIT	35.7	0.1400	0.0130
C4	J4	J5	CONDUIT	8.8	0.2278	0.0130
C40	J42	J43	CONDUIT	92.3	0.1517	0.0130
C41	J48	J49	CONDUIT	88.2	0.3287	0.0350
C43	J50	J51	CONDUIT	105.0	0.1904	0.0350
C44	J51	J48	CONDUIT	21.6	0.8797	0.0240
C45	J52	J53	CONDUIT	90.8	0.0661	0.0130
C46	J53	J54	CONDUIT	22.0	0.0014	0.0130
C47	J54	J55	CONDUIT	7.7	0.6525	0.0130
C48	J55	J56	CONDUIT	65.7	0.3804	0.0130
C49	J59	J58	CONDUIT	18.0	1.2770	0.0130
C5	J5	J6	CONDUIT	6.7	0.1504	0.0130
C50	J58	J57	CONDUIT	14.2	0.3521	0.0130
C51	J57	J52	CONDUIT	47.6	-0.0210	0.0130
C52	J60	J61	CONDUIT	70.3	0.4980	0.0350
C53	J62	J63	CONDUIT	26.8	0.7450	0.0350
C54	J64	J63	CONDUIT	37.1	0.4039	0.0350
C55	J65	J66	CONDUIT	51.5	1.1643	0.0350
C56	J67	J68	CONDUIT	10.1	1.6809	0.0350
C57	J69	J68	CONDUIT	52.1	0.8247	0.0350
C58	J69	J70	CONDUIT	39.7	0.5794	0.0350
C59	J71	ST202	CONDUIT	32.1	0.0934	0.0130
C6	J7	J6	CONDUIT	63.3	0.0947	0.0130
C60	ST202	J73	CONDUIT	42.4	0.0943	0.0130
C61	J73	J74	CONDUIT	28.8	0.1043	0.0130
C62	J74	J75	CONDUIT	48.2	0.1037	0.0130
C63	J75	BASIN3	CONDUIT	31.2	0.0961	0.0130
C7	J13	J7	CONDUIT	74.9	0.2004	0.0130
C8	J6	J71	CONDUIT	18.6	0.1073	0.0130
C9	J30	BASIN3	CONDUIT	44.8	0.0670	0.0130
W4	BASIN2	BASIN3	CONDUIT	9.3	-0.4287	0.0130
C12_1	J30	J31	ORIFICE			
C27_1	J23	J41	ORIFICE			
OR1	BASIN2	J40	ORIFICE			
OR2	BASIN1	J32	ORIFICE			
W1	BASIN1	J32	WEIR			
W10	J39	J48	WEIR			
W11	J34	J49	WEIR			
W12	J38	J50	WEIR			
W13	J15	BASIN3	WEIR			
W14	J8	J60	WEIR			

W15	J47	BASIN3	WEIR
W16	J22	J52	WEIR
W17	J21	J53	WEIR
W18	J20	J54	WEIR
W19	J32	J55	WEIR
W2	J40	BASIN2	WEIR
W20	J11	J56	WEIR
W21	J35	J59	WEIR
W22	J17	J58	WEIR
W23	J36	J57	WEIR
W24	J14	J13	WEIR
W25	J13	J7	WEIR
W27	J2	J3	WEIR
W28	J3	J4	WEIR
W29	J4	J5	WEIR
W3	J32	BASIN1	WEIR
W30	J5	J6	WEIR
W31	J6	J7	WEIR
W32	J10	BASIN3	WEIR
W33	J44	J65	WEIR
W34	J45	J64	WEIR
W35	J46	J62	WEIR
W36	J1	J55	WEIR
W37	J18	J56	WEIR
W38	J42	J68	WEIR
W39	J43	J70	WEIR
W40	J9	BASIN3	WEIR
W6	J12	BASIN3	WEIR
W7	J16	BASIN3	WEIR
W8	J11	BASIN3	WEIR
C42	J49	J8	OUTLET
OL1	J61	J34	OUTLET
OL10	S-BLDG-H	J17	OUTLET
OL11	S-BLDG-G	J17	OUTLET
OL12	S-BLDG-I	J14	OUTLET
OL13	S-BLDG-K	J14	OUTLET
OL14	S-BLDG-J1	J35	OUTLET
OL15	S-BLDG-J2	J35	OUTLET
OL16	S-BLDG-L	J10	OUTLET
OL2	J63	J46	OUTLET
OL3	J66	J45	OUTLET
OL4	J68	J42	OUTLET
OL5	J70	J43	OUTLET
OL6	S-BLDG-A	J22	OUTLET
OL7	S-BLDG-B	J22	OUTLET
OL8	S-BLDG-C	J22	OUTLET
OL9	S-BLDG-D	J22	OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C10_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C11	CIRCULAR	0.90	0.64	0.23	0.90	1	0.87
C12_2	CIRCULAR	0.60	0.28	0.15	0.60	1	1.57
C13	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C14	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C15	CIRCULAR	0.60	0.28	0.15	0.60	1	0.28
C16	CIRCULAR	0.60	0.28	0.15	0.60	1	0.32
C17	CIRCULAR	0.60	0.28	0.15	0.60	1	0.26
C18	CIRCULAR	0.90	0.64	0.23	0.90	1	0.57
C18_1	CIRCULAR	1.35	1.43	0.34	1.35	1	2.69
C18_2	CIRCULAR	1.35	1.43	0.34	1.35	1	0.98
C19	CIRCULAR	0.90	0.64	0.23	0.90	1	0.42
C2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C20	CIRCULAR	0.90	0.64	0.23	0.90	1	4.51
C21	CIRCULAR	0.53	0.22	0.13	0.53	1	0.20
C21_1	CIRCULAR	1.35	1.43	0.34	1.35	1	1.31
C21_2	CIRCULAR	1.35	1.43	0.34	1.35	1	1.27
C22	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C23	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C24	CIRCULAR	0.68	0.36	0.17	0.68	1	0.51
C25	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C26	CIRCULAR	1.35	1.43	0.34	1.35	1	2.20
C27	CIRCULAR	0.53	0.22	0.13	0.53	1	0.21
C27_2	CIRCULAR	0.97	0.75	0.24	0.97	1	0.65
C28	CIRCULAR	0.97	0.75	0.24	0.97	1	0.60
C29	CIRCULAR	0.97	0.75	0.24	0.97	1	0.84
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	0.13
C30	CIRCULAR	0.97	0.75	0.24	0.97	1	0.75
C31	CIRCULAR	0.97	0.75	0.24	0.97	1	1.48
C32	CIRCULAR	0.97	0.75	0.24	0.97	1	1.36
C33	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C34	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04

C35	CIRCULAR	0.60	0.28	0.15	0.60	1	0.19
C36	CIRCULAR	0.60	0.28	0.15	0.60	1	0.17
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.11
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.29
C40	CIRCULAR	0.38	0.11	0.09	0.38	1	0.07
C41	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.38
C43	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.33
C44	CIRCULAR	0.25	0.05	0.06	0.25	1	0.03
C45	RECT_OPEN	1.00	8.00	0.80	8.00	1	13.63
C46	RECT_OPEN	1.00	8.00	0.80	8.00	1	1.98
C47	RECT_OPEN	1.00	8.00	0.80	8.00	1	42.85
C48	RECT_OPEN	1.00	8.00	0.80	8.00	1	32.71
C49	RECT_OPEN	1.00	8.00	0.80	8.00	1	59.94
C5	CIRCULAR	0.60	0.28	0.15	0.60	1	0.24
C50	RECT_OPEN	1.00	8.00	0.80	8.00	1	31.48
C51	RECT_OPEN	1.00	8.00	0.80	8.00	1	7.69
C52	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	5.39
C53	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.59
C54	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	4.85
C55	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	8.24
C56	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	6.76
C57	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	4.74
C58	TRAPEZOIDAL	1.00	3.00	0.47	6.00	1	3.97
C59	CIRCULAR	1.05	0.87	0.26	1.05	1	0.83
C6	CIRCULAR	1.05	0.87	0.26	1.05	1	0.84
C60	CIRCULAR	1.05	0.87	0.26	1.05	1	0.84
C61	CIRCULAR	1.05	0.87	0.26	1.05	1	0.88
C62	CIRCULAR	1.05	0.87	0.26	1.05	1	0.88
C63	CIRCULAR	1.05	0.87	0.26	1.05	1	0.85
C7	CIRCULAR	0.82	0.53	0.21	0.82	1	0.64
C8	CIRCULAR	1.05	0.87	0.26	1.05	1	0.89
C9	CIRCULAR	0.60	0.28	0.15	0.60	1	0.16
W4	CIRCULAR	0.60	0.28	0.15	0.60	1	0.40

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
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****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 07/23/2009 00:01:00
Ending Date 07/24/2009 00:01:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 1.00 sec
Variable Time Step ..... YES
Maximum Trials 20
Number of Threads 2
Head Tolerance ..... 0.001500 m

********** Runoff Quantity Continuity **********	Volume hectare-m	Depth mm
Total Precipitation	1.159	71.677
Evaporation Loss	0.000	0.000
Infiltration Loss	0.192	11.853
Surface Runoff	0.955	59.069
Final Storage	0.020	1.228
Continuity Error (%)	-0.661	

********** Flow Routing Continuity **********	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.955	9.549
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000

External Inflow	0.000	0.000
External Outflow	0.696	6.963
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.001	0.007
Final Stored Volume	0.224	2.235
Continuity Error (%)	3.743	

****
Highest Continuity Errors
****
Node BASIN1 (7.39%)
Node J40 (4.41%)
Node J48 (2.03%)
Node J61 (-1.73%)
Node J49 (-1.35%)

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
Link C27_1 (88)
Link C33 (33)
Link C26 (29)
Link C31 (27)
Link C27_2 (26)

****
Routing Time Step Summary
****

Minimum Time Step	:	0.04 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
Percent in Steady State	:	-0.00
Average Iterations per Step	:	5.16
Percent Not Converging	:	9.45
Time Step Frequencies	:	
1.000 - 0.871 sec	:	98.97 %
0.871 - 0.758 sec	:	0.29 %
0.758 - 0.660 sec	:	0.20 %
0.660 - 0.574 sec	:	0.13 %
0.574 - 0.500 sec	:	0.41 %

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Subcatchment Runoff Summary
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Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
102	71.68	0.00	0.00	20.12	45.43	28.48	51.20	0.23	0.11	0.714
107AA	71.68	0.00	0.00	5.97	60.78	4.19	64.97	0.18	0.13	0.906
108	71.68	0.00	0.00	14.03	48.26	8.93	57.20	0.20	0.15	0.798
109	71.68	0.00	0.00	5.52	61.79	3.68	65.47	0.19	0.14	0.913
A	71.68	0.00	0.00	36.15	30.61	35.26	35.26	0.26	0.07	0.492
A1	71.68	0.00	0.00	0.63	69.69	0.48	70.16	0.72	0.50	0.979
A2	71.68	0.00	0.00	0.91	69.24	0.67	69.91	1.10	0.78	0.975
A3	71.68	0.00	0.00	0.00	70.68	0.00	70.68	0.54	0.38	0.986
A4	71.68	0.00	0.00	0.00	70.50	0.00	70.50	0.44	0.31	0.984
A5	71.68	0.00	0.00	0.03	70.69	0.02	70.71	0.17	0.12	0.987
AA	71.68	0.00	0.00	23.96	38.42	28.30	47.51	0.18	0.10	0.663
BB	71.68	0.00	0.00	36.89	29.04	34.55	34.55	0.31	0.08	0.482
BLDG-A	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.18	0.13	0.981
BLDG-B	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.25	0.18	0.981
BLDG-C	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.21	0.15	0.981
BLDG-D	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.10	0.07	0.981
BLDGG	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.17	0.12	0.981
BLDGH	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.26	0.18	0.981
BLDG-I	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.16	0.11	0.981
BLDG-J	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.43	0.30	0.981
BLDG-J1	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.07	0.05	0.981
BLDG-J2	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.06	0.04	0.981
BLDG-K	71.68	0.00	0.00	0.00	70.31	0.00	70.32	0.17	0.12	0.981
BLDG-L	71.68	0.00	0.00	0.01	70.30	0.01	70.31	0.08	0.06	0.981
BLDG-L1	71.68	0.00	0.00	0.00	70.32	0.00	70.32	0.05	0.04	0.981
D	71.68	0.00	0.00	36.75	25.48	34.80	34.80	0.14	0.05	0.485

D1	71.68	0.00	0.00	32.49	22.80	28.00	39.40	0.19	0.14	0.550
EE	71.68	0.00	0.00	46.41	10.77	25.25	25.25	0.09	0.03	0.352
Great-Lawn	71.68	0.00	0.00	40.73	16.53	30.94	30.94	0.26	0.10	0.432
NEC	71.68	0.00	0.00	6.13	60.41	4.42	64.83	0.72	0.54	0.904
NSTANDS	71.68	0.00	0.00	0.01	70.69	0.01	70.70	0.34	0.24	0.986
OPGG	71.68	0.00	0.00	17.59	44.10	9.55	53.66	0.39	0.27	0.749
SSTANDS	71.68	0.00	0.00	0.00	70.33	0.00	70.33	0.55	0.39	0.981
T	71.68	0.00	0.00	32.90	19.50	19.45	38.95	0.05	0.04	0.543
V	71.68	0.00	0.00	1.48	67.90	1.13	69.03	0.11	0.08	0.963

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.27	1.36	64.92	0 01:11	1.35
J10	JUNCTION	0.56	1.40	64.54	0 03:16	1.39
J11	JUNCTION	1.67	2.53	64.53	0 03:13	2.53
J12	JUNCTION	0.60	1.44	64.53	0 03:14	1.43
J13	JUNCTION	0.19	0.88	64.65	0 01:10	0.85
J14	JUNCTION	0.13	0.73	64.68	0 01:10	0.66
J15	JUNCTION	0.43	1.76	65.04	0 01:10	1.75
J16	JUNCTION	0.66	1.50	64.53	0 03:16	1.50
J17	JUNCTION	0.40	1.88	65.20	0 01:10	1.88
J18	JUNCTION	0.35	1.28	64.64	0 01:11	1.22
J19	JUNCTION	0.24	1.08	64.70	0 01:02	0.96
J2	JUNCTION	0.06	2.41	66.67	0 01:09	2.41
J20	JUNCTION	0.96	1.81	64.53	0 03:13	1.81
J21	JUNCTION	0.39	1.33	64.64	0 01:10	1.22
J22	JUNCTION	0.22	1.59	65.27	0 01:10	1.48
J23	JUNCTION	1.09	2.21	64.80	0 03:20	1.98
J24	JUNCTION	1.10	2.05	64.58	0 03:16	2.02
J25	JUNCTION	1.27	2.22	64.57	0 03:11	2.20
J26	JUNCTION	1.33	2.29	64.58	0 03:11	2.26
J27	JUNCTION	1.37	2.32	64.57	0 03:09	2.30
J29	JUNCTION	1.14	2.07	64.56	0 03:00	2.06
J3	JUNCTION	0.11	2.56	66.67	0 01:10	2.56
J30	JUNCTION	0.58	1.38	64.50	0 03:14	1.38
J31	JUNCTION	0.09	0.19	64.32	0 03:14	0.19
J32	JUNCTION	0.92	1.77	64.53	0 03:13	1.77
J34	JUNCTION	0.37	1.18	64.53	0 03:13	1.17
J35	JUNCTION	0.18	1.43	65.22	0 01:10	1.42
J36	JUNCTION	0.19	1.45	65.21	0 01:10	1.44
J37	JUNCTION	0.23	1.45	65.13	0 01:19	1.45
J38	JUNCTION	0.26	0.96	64.52	0 03:18	0.96
J39	JUNCTION	0.31	1.08	64.52	0 03:19	1.08
J4	JUNCTION	0.13	0.75	64.71	0 01:10	0.75
J40	JUNCTION	0.84	1.70	64.55	0 03:21	1.69
J41	JUNCTION	1.05	2.30	64.89	0 03:23	2.02
J42	JUNCTION	0.10	0.81	64.88	0 01:13	0.71
J43	JUNCTION	0.14	0.73	64.62	0 01:12	0.64
J44	JUNCTION	0.18	0.77	64.53	0 01:12	0.77
J45	JUNCTION	0.25	0.96	64.53	0 03:11	0.96
J46	JUNCTION	0.30	1.11	64.53	0 03:14	1.11
J47	JUNCTION	0.57	1.41	64.53	0 03:14	1.41
J48	JUNCTION	0.01	0.14	64.83	0 01:24	0.14
J49	JUNCTION	0.49	0.71	64.53	0 03:18	0.70
J5	JUNCTION	0.14	0.69	64.60	0 01:10	0.69
J50	JUNCTION	0.00	0.00	65.08	0 00:00	0.00
J51	JUNCTION	0.00	0.00	64.88	0 00:00	0.00
J52	JUNCTION	0.00	0.00	65.31	0 00:00	0.00
J53	JUNCTION	0.00	0.00	65.25	0 00:00	0.00
J54	JUNCTION	0.00	0.00	65.25	0 00:00	0.00
J55	JUNCTION	0.00	0.00	65.20	0 00:00	0.00
J56	JUNCTION	0.00	0.00	64.95	0 00:00	0.00
J57	JUNCTION	0.00	0.00	65.30	0 00:00	0.00
J58	JUNCTION	0.00	0.00	65.35	0 00:00	0.00
J59	JUNCTION	0.00	0.00	65.58	0 00:00	0.00
J6	JUNCTION	0.33	1.11	64.53	0 01:10	1.10
J60	JUNCTION	0.00	0.00	64.65	0 00:00	0.00
J61	JUNCTION	0.03	0.22	64.52	0 03:18	0.22
J62	JUNCTION	0.00	0.00	64.70	0 00:00	0.00
J63	JUNCTION	0.00	0.03	64.53	0 03:14	0.03
J64	JUNCTION	0.00	0.00	64.65	0 00:00	0.00
J65	JUNCTION	0.00	0.00	65.10	0 00:00	0.00
J66	JUNCTION	0.00	0.03	64.53	0 03:12	0.03
J67	JUNCTION	0.00	0.00	65.17	0 00:00	0.00
J68	JUNCTION	0.00	0.00	65.00	0 00:00	0.00
J69	JUNCTION	0.00	0.00	65.43	0 00:00	0.00
J7	JUNCTION	0.26	1.01	64.57	0 01:10	0.99
J70	JUNCTION	0.00	0.00	65.20	0 00:00	0.00
J71	JUNCTION	0.35	1.17	64.55	0 03:23	1.15
J73	JUNCTION	0.45	1.28	64.55	0 03:13	1.26

J74	JUNCTION	0.50	1.33	64.55	0	03:13	1.30	
J75	JUNCTION	0.60	1.43	64.55	0	03:21	1.40	
J8	JUNCTION	0.42	1.23	64.53	0	03:18	1.23	
J9	JUNCTION	0.78	1.63	64.54	0	03:15	1.62	
ST202	JUNCTION	0.40	1.22	64.55	0	03:17	1.19	
J28	OUTFALL	1.60	2.98	65.20	0	03:00	2.98	
J72	OUTFALL	1.50	1.50	64.08	0	00:00	1.50	
BASIN1	STORAGE	0.86	1.72	64.53	0	03:14	1.72	
BASIN2	STORAGE	0.74	1.59	64.54	0	03:15	1.58	
BASIN3	STORAGE	0.61	1.43	64.52	0	03:14	1.43	
S-BLDG-A	STORAGE	0.01	0.07	100.07	0	01:52	0.07	
S-BLDG-B	STORAGE	0.02	0.08	100.08	0	01:54	0.08	
S-BLDG-C	STORAGE	0.01	0.07	100.07	0	01:52	0.07	
S-BLDG-D	STORAGE	0.01	0.08	100.08	0	01:53	0.08	
S-BLDG-G	STORAGE	0.02	0.09	100.09	0	02:11	0.09	
S-BLDG-H	STORAGE	0.02	0.08	100.08	0	01:54	0.08	
S-BLDG-I	STORAGE	0.01	0.07	100.07	0	01:50	0.07	
S-BLDG-J1	STORAGE	0.01	0.11	100.11	0	01:30	0.11	
S-BLDG-J2	STORAGE	0.01	0.11	100.11	0	01:31	0.11	
S-BLDG-K	STORAGE	0.03	0.10	100.10	0	02:20	0.10	
S-BLDG-L	STORAGE	0.01	0.11	100.11	0	01:24	0.11	

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.000	0.075	0	01:06	0	0.183	-0.032	
J10	JUNCTION	0.060	0.888	0	01:10	0.0849	1.85	0.052	
J11	JUNCTION	0.266	1.428	0	01:11	0.388	7.85	0.543	
J12	JUNCTION	0.078	0.270	0	01:13	0.109	0.853	1.034	
J13	JUNCTION	0.380	0.498	0	01:08	0.543	1.05	0.124	
J14	JUNCTION	0.119	0.132	0	01:10	0.174	0.506	-0.095	
J15	JUNCTION	0.000	0.828	0	01:10	0	1.71	0.126	
J16	JUNCTION	0.039	0.322	0	01:13	0.0509	0.943	0.801	
J17	JUNCTION	0.804	0.833	0	01:10	1.14	1.73	0.027	
J18	JUNCTION	0.000	0.068	0	01:07	0	0.191	0.046	
J19	JUNCTION	0.000	0.007	0	01:02	0	0.000653	-2.128	
J2	JUNCTION	0.000	0.080	0	01:05	0	0.0278	0.722	
J20	JUNCTION	0.000	0.908	0	01:08	0	7.39	0.147	
J21	JUNCTION	0.000	0.792	0	01:10	0	1.84	-0.257	
J22	JUNCTION	0.776	0.812	0	01:10	1.1	1.84	0.325	
J23	JUNCTION	0.131	0.578	0	08:00	0.175	5.83	0.739	
J24	JUNCTION	0.000	0.582	0	08:00	0	5.64	0.538	
J25	JUNCTION	0.000	0.593	0	08:00	0	5.57	0.628	
J26	JUNCTION	0.000	0.593	0	08:00	0	5.54	0.152	
J27	JUNCTION	0.000	0.593	0	08:00	0	5.53	0.093	
J29	JUNCTION	0.000	0.588	0	08:00	0	5.61	0.609	
J3	JUNCTION	0.699	0.751	0	01:07	0.992	1.02	0.243	
J30	JUNCTION	0.000	0.131	0	03:14	0	1.46	0.193	
J31	JUNCTION	0.000	0.131	0	03:14	0	1.45	0.010	
J32	JUNCTION	0.000	1.461	0	01:07	0	8.12	-1.059	
J34	JUNCTION	0.143	0.218	0	01:06	0.189	0.599	0.329	
J35	JUNCTION	0.000	0.020	0	01:01	0	0.144	0.063	
J36	JUNCTION	0.000	0.016	0	01:01	0	0.0141	-0.011	
J37	JUNCTION	0.102	0.102	0	01:10	0.176	0.176	0.103	
J38	JUNCTION	0.066	0.096	0	01:06	0.258	0.274	0.000	
J39	JUNCTION	0.000	0.171	0	01:07	0	0.323	-0.086	
J4	JUNCTION	0.000	0.698	0	01:08	0	0.995	-0.124	
J40	JUNCTION	0.000	2.348	0	01:11	0	9.32	4.616	
J41	JUNCTION	0.000	0.578	0	08:00	0	5.68	0.625	
J42	JUNCTION	0.113	0.113	0	01:10	0.227	0.241	1.336	
J43	JUNCTION	0.000	0.103	0	01:10	0	0.254	0.004	
J44	JUNCTION	0.000	0.109	0	01:13	0	0.257	-0.017	
J45	JUNCTION	0.000	0.115	0	01:12	0	0.266	-0.396	
J46	JUNCTION	0.082	0.192	0	01:15	0.308	0.589	0.056	
J47	JUNCTION	0.027	0.226	0	01:15	0.0875	0.705	0.428	
J48	JUNCTION	0.047	0.047	0	01:20	0.139	0.139	2.067	
J49	JUNCTION	0.000	0.118	0	02:39	0	0.149	-1.334	
J5	JUNCTION	0.000	0.697	0	01:08	0	1	0.009	
J50	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J51	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J52	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J53	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J54	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J55	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J56	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J57	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J58	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J59	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J6	JUNCTION	0.000	1.359	0	01:08	0	2.39	-0.193	
J60	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr

J61	JUNCTION	0.000	0.170	0	03:18	0	0.0639	-1.698	
J62	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J63	JUNCTION	0.000	0.006	0	03:14	0	0.0013	-0.107	
J64	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J65	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J66	JUNCTION	0.000	0.006	0	03:11	0	0.000972	-0.195	
J67	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J68	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J69	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J7	JUNCTION	0.239	0.702	0	01:08	0.342	1.39	-0.081	
J70	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J71	JUNCTION	0.000	1.350	0	01:11	0	2.39	-0.026	
J73	JUNCTION	0.000	1.358	0	01:11	0	2.39	-0.063	
J74	JUNCTION	0.000	1.557	0	01:10	0	3.02	0.028	
J75	JUNCTION	0.541	2.063	0	01:10	0.723	3.7	0.161	
J8	JUNCTION	0.000	0.262	0	01:15	0	0.682	0.184	
J9	JUNCTION	0.138	1.020	0	01:10	0.189	2.05	0.390	
ST202	JUNCTION	0.000	1.351	0	01:11	0	2.39	-0.044	
J28	OUTFALL	0.000	0.594	0	08:00	0	5.51	0.000	
J72	OUTFALL	0.000	0.131	0	03:14	0	1.45	0.000	
BASIN1	STORAGE	0.151	1.596	0	01:07	0.197	1.54	7.982	
BASIN2	STORAGE	0.000	2.617	0	01:11	0	7.31	-0.616	
BASIN3	STORAGE	0.100	2.146	0	01:10	0.258	5.69	-0.014	
S-BLDG-A	STORAGE	0.126	0.126	0	01:10	0.179	0.179	0.014	
S-BLDG-B	STORAGE	0.180	0.180	0	01:10	0.255	0.255	0.014	
S-BLDG-C	STORAGE	0.148	0.148	0	01:10	0.21	0.21	0.014	
S-BLDG-D	STORAGE	0.068	0.068	0	01:10	0.097	0.097	0.014	
S-BLDG-G	STORAGE	0.120	0.120	0	01:10	0.171	0.171	0.013	
S-BLDG-H	STORAGE	0.184	0.184	0	01:10	0.261	0.261	0.014	
S-BLDG-I	STORAGE	0.112	0.112	0	01:10	0.159	0.159	0.014	
S-BLDG-J1	STORAGE	0.052	0.052	0	01:10	0.0731	0.0731	0.015	
S-BLDG-J2	STORAGE	0.044	0.044	0	01:10	0.0627	0.0627	0.015	
S-BLDG-K	STORAGE	0.123	0.123	0	01:10	0.174	0.174	0.013	
S-BLDG-L	STORAGE	0.037	0.037	0	01:10	0.0527	0.0527	0.015	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J19	JUNCTION	7.72	0.880	0.000
J23	JUNCTION	6.78	0.775	0.085
J24	JUNCTION	6.98	1.059	0.986
J25	JUNCTION	23.06	1.218	0.427
J26	JUNCTION	23.07	1.271	0.554
J27	JUNCTION	23.08	1.326	0.559
J29	JUNCTION	7.00	1.069	0.806
J37	JUNCTION	7.40	1.201	0.000
J40	JUNCTION	4.85	0.202	0.560
J41	JUNCTION	6.94	1.295	0.003
J71	JUNCTION	1.65	0.096	1.954
J73	JUNCTION	4.95	0.213	1.947
J74	JUNCTION	5.27	0.259	1.951
J75	JUNCTION	5.61	0.327	1.953
ST202	JUNCTION	2.87	0.145	1.955

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
J37	0.42	0.038	0 01:10	0.014	0.031

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
BASIN1	0.382	60	0	0	0.631	99	0 03:14	0.519
BASIN2	1.237	55	0	0	2.237	100	0 03:15	0.752

BASIN3	1.742	34	0	0	4.084	79	0	03:14	0.429
S-BLDG-A	0.018	4	0	0	0.121	24	0	01:52	0.009
S-BLDG-B	0.028	4	0	0	0.176	27	0	01:54	0.011
S-BLDG-C	0.021	4	0	0	0.142	24	0	01:52	0.011
S-BLDG-D	0.010	4	0	0	0.066	25	0	01:53	0.005
S-BLDG-G	0.025	8	0	0	0.125	38	0	02:11	0.006
S-BLDG-H	0.028	4	0	0	0.179	27	0	01:54	0.012
S-BLDG-I	0.015	3	0	0	0.106	23	0	01:50	0.008
S-BLDG-J1	0.003	4	0	0	0.040	52	0	01:30	0.008
S-BLDG-J2	0.003	4	0	0	0.036	53	0	01:31	0.006
S-BLDG-K	0.028	9	0	0	0.130	42	0	02:20	0.005
S-BLDG-L	0.002	4	0	0	0.028	50	0	01:24	0.006

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
J28	28.63	0.225	0.594	5.510
J72	23.69	0.071	0.131	1.453
System	26.16	0.296	0.594	6.963

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.160	0	01:12	0.49	0.25	0.94
C10_1	CONDUIT	0.234	0	01:15	0.83	1.23	1.00
C11	CONDUIT	0.282	0	01:15	0.52	0.32	1.00
C12_2	CONDUIT	0.131	0	03:14	0.75	0.08	0.60
C13	CONDUIT	0.020	0	01:11	0.63	0.48	1.00
C14	CONDUIT	0.016	0	01:01	0.39	0.38	1.00
C15	CONDUIT	0.828	0	01:10	2.93	2.93	1.00
C16	CONDUIT	0.822	0	01:10	2.91	2.54	1.00
C17	CONDUIT	0.882	0	01:09	3.12	3.41	1.00
C18	CONDUIT	0.238	0	01:14	0.37	0.42	1.00
C18_1	CONDUIT	1.009	0	01:08	0.80	0.38	1.00
C18_2	CONDUIT	1.450	0	01:10	1.01	1.48	1.00
C19	CONDUIT	0.294	0	01:13	0.46	0.71	1.00
C2	CONDUIT	0.070	0	01:04	0.44	0.55	1.00
C20	CONDUIT	0.328	0	01:13	0.52	0.07	1.00
C21	CONDUIT	0.200	0	01:15	0.93	0.98	1.00
C21_1	CONDUIT	0.945	0	01:11	0.66	0.72	1.00
C21_2	CONDUIT	0.896	0	01:08	0.65	0.71	1.00
C22	CONDUIT	0.007	0	01:02	0.25	0.32	1.00
C23	CONDUIT	0.066	0	01:25	1.34	1.56	1.00
C24	CONDUIT	0.792	0	01:10	2.21	1.54	1.00
C25	CONDUIT	0.836	0	01:10	2.33	1.58	1.00
C26	CONDUIT	0.578	0	08:00	0.83	0.26	1.00
C27	CONDUIT	0.123	0	01:12	0.57	0.59	1.00
C27_2	CONDUIT	0.582	0	08:00	0.81	0.89	1.00
C28	CONDUIT	0.588	0	08:00	0.87	0.98	1.00
C29	CONDUIT	0.593	0	08:00	0.79	0.71	1.00
C3	CONDUIT	0.523	0	01:08	3.29	4.12	1.00
C30	CONDUIT	0.593	0	08:00	0.79	0.79	1.00
C31	CONDUIT	0.593	0	08:00	0.79	0.40	1.00
C32	CONDUIT	0.594	0	08:00	0.79	0.44	1.00
C33	CONDUIT	0.075	0	01:06	1.53	1.88	1.00
C34	CONDUIT	0.068	0	01:07	1.39	1.60	1.00
C35	CONDUIT	0.085	0	01:16	0.38	0.44	1.00
C36	CONDUIT	0.171	0	01:07	0.62	1.01	1.00
C38	CONDUIT	0.115	0	01:12	0.72	1.04	1.00
C39	CONDUIT	0.109	0	01:13	0.99	1.66	1.00
C4	CONDUIT	0.697	0	01:08	2.48	2.38	1.00
C40	CONDUIT	0.103	0	01:10	0.93	1.51	1.00
C41	CONDUIT	0.043	0	01:25	0.34	0.01	0.10
C43	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.28
C45	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C46	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C47	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C48	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C49	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C5	CONDUIT	0.697	0	01:08	2.52	2.93	1.00
C50	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C51	CONDUIT	0.000	0	00:00	0.00	0.00	0.00

C52	CONDUIT	0.000	0	00:00	0.00	0.00	0.11
C53	CONDUIT	0.000	0	00:00	0.00	0.00	0.01
C54	CONDUIT	0.000	0	00:00	0.00	0.00	0.01
C55	CONDUIT	0.000	0	00:00	0.00	0.00	0.01
C56	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C57	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C58	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C59	CONDUIT	1.351	0	01:11	1.59	1.62	1.00
C6	CONDUIT	0.735	0	01:11	0.92	0.87	0.97
C60	CONDUIT	1.358	0	01:11	1.60	1.62	1.00
C61	CONDUIT	1.362	0	01:11	1.62	1.54	1.00
C62	CONDUIT	1.564	0	01:11	1.91	1.78	1.00
C63	CONDUIT	2.063	0	01:10	2.65	2.44	1.00
C7	CONDUIT	0.500	0	01:11	0.96	0.78	1.00
C8	CONDUIT	1.350	0	01:11	1.60	1.51	1.00
C9	CONDUIT	0.131	0	03:14	0.47	0.83	1.00
W4	CONDUIT	0.423	0	01:13	1.92	1.05	1.00
C12_1	ORIFICE	0.131	0	03:14			0.55
C27_1	ORIFICE	0.578	0	08:00			1.00
OR1	ORIFICE	0.206	0	09:37			1.00
OR2	ORIFICE	0.070	0	01:10			1.00
W1	WEIR	0.486	0	01:13			1.00
W10	WEIR	0.000	0	00:00			0.00
W11	WEIR	0.000	0	00:00			0.00
W12	WEIR	0.000	0	00:00			0.00
W13	WEIR	0.000	0	00:00			0.00
W14	WEIR	0.000	0	00:00			0.00
W15	WEIR	0.000	0	00:00			0.00
W16	WEIR	0.000	0	00:00			0.00
W17	WEIR	0.000	0	00:00			0.00
W18	WEIR	0.000	0	00:00			0.00
W19	WEIR	0.000	0	00:00			0.00
W2	WEIR	2.343	0	01:11			1.00
W20	WEIR	0.000	0	00:00			0.00
W21	WEIR	0.000	0	00:00			0.00
W22	WEIR	0.000	0	00:00			0.00
W23	WEIR	0.000	0	00:00			0.00
W24	WEIR	0.000	0	00:00			0.00
W25	WEIR	0.000	0	00:00			0.00
W27	WEIR	0.054	0	01:07			0.27
W28	WEIR	0.185	0	01:10			0.22
W29	WEIR	0.000	0	00:00			0.00
W3	WEIR	1.457	0	01:07			1.00
W30	WEIR	0.000	0	00:00			0.00
W31	WEIR	0.000	0	00:00			0.00
W32	WEIR	0.000	0	00:00			0.00
W33	WEIR	0.000	0	00:00			0.00
W34	WEIR	0.000	0	00:00			0.00
W35	WEIR	0.000	0	00:00			0.00
W36	WEIR	0.000	0	00:00			0.00
W37	WEIR	0.000	0	00:00			0.00
W38	WEIR	0.000	0	00:00			0.00
W39	WEIR	0.000	0	00:00			0.00
W40	WEIR	0.000	0	00:00			0.00
W6	WEIR	0.000	0	00:00			0.00
W7	WEIR	0.000	0	00:00			0.00
W8	WEIR	0.000	0	00:00			0.00
C42	DUMMY	0.117	0	02:39			
OL1	DUMMY	0.170	0	03:18			
OL10	DUMMY	0.012	0	01:06			
OL11	DUMMY	0.006	0	01:04			
OL12	DUMMY	0.008	0	01:07			
OL13	DUMMY	0.005	0	01:03			
OL14	DUMMY	0.008	0	01:13			
OL15	DUMMY	0.006	0	01:12			
OL16	DUMMY	0.006	0	01:13			
OL2	DUMMY	0.006	0	03:14			
OL3	DUMMY	0.006	0	03:11			
OL4	DUMMY	0.000	0	00:00			
OL5	DUMMY	0.000	0	00:00			
OL6	DUMMY	0.009	0	01:07			
OL7	DUMMY	0.011	0	01:06			
OL8	DUMMY	0.011	0	01:07			
OL9	DUMMY	0.005	0	01:06			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.36	0.00	0.00	0.63	0.05	0.00
C10_1	1.00	0.01	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00

C12_2	1.00	0.00	0.76	0.00	0.24	0.00	0.00	0.00	0.91	0.00
C13	1.00	0.01	0.00	0.00	0.34	0.00	0.00	0.65	0.01	0.00
C14	1.00	0.04	0.00	0.00	0.34	0.00	0.00	0.62	0.01	0.00
C15	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C16	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C17	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.03	0.00	0.00
C18	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C18_1	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C18_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00
C19	1.00	0.01	0.00	0.00	0.97	0.00	0.00	0.02	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.31	0.00	0.00	0.67	0.02	0.00
C20	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.02	0.00
C21	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.01	0.52	0.00
C21_1	1.00	0.02	0.01	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C21_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C22	1.00	0.04	0.00	0.00	0.40	0.00	0.00	0.56	0.62	0.00
C23	1.00	0.02	0.00	0.00	0.96	0.00	0.00	0.02	0.00	0.00
C24	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.03	0.62	0.00
C25	1.00	0.01	0.00	0.00	0.96	0.00	0.00	0.03	0.00	0.00
C26	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C27	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.29	0.00
C27_2	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C28	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C29	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C3	1.00	0.01	0.00	0.00	0.28	0.00	0.00	0.70	0.02	0.00
C30	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.01	0.00	0.00
C31	1.00	0.02	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C33	1.00	0.01	0.00	0.00	0.35	0.00	0.00	0.64	0.01	0.00
C34	1.00	0.02	0.00	0.00	0.47	0.00	0.00	0.52	0.16	0.00
C35	1.00	0.04	0.01	0.00	0.46	0.00	0.00	0.50	0.05	0.00
C36	1.00	0.02	0.34	0.00	0.65	0.00	0.00	0.00	0.50	0.00
C38	1.00	0.02	0.00	0.00	0.34	0.00	0.00	0.64	0.01	0.00
C39	1.00	0.02	0.00	0.00	0.32	0.00	0.00	0.66	0.01	0.00
C4	1.00	0.01	0.00	0.00	0.29	0.00	0.00	0.69	0.00	0.00
C40	1.00	0.01	0.00	0.00	0.31	0.00	0.00	0.68	0.03	0.00
C41	1.00	0.43	0.00	0.00	0.12	0.00	0.00	0.45	0.12	0.00
C43	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C44	1.00	0.43	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C46	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C47	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C48	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C49	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5	1.00	0.02	0.00	0.00	0.30	0.00	0.00	0.69	0.00	0.00
C50	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C51	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C52	1.00	0.77	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C53	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C54	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C55	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C56	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C57	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C58	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C59	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00
C6	1.00	0.01	0.00	0.00	0.46	0.00	0.00	0.53	0.03	0.00
C60	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.01	0.00	0.00
C61	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C62	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C63	1.00	0.02	0.00	0.00	0.94	0.00	0.00	0.04	0.00	0.00
C7	1.00	0.01	0.00	0.00	0.40	0.00	0.00	0.58	0.05	0.00
C8	1.00	0.01	0.00	0.00	0.53	0.00	0.00	0.45	0.02	0.00
C9	1.00	0.02	0.02	0.00	0.97	0.00	0.00	0.00	0.00	0.00
W4	1.00	0.02	0.00	0.00	0.95	0.00	0.00	0.03	0.00	0.00

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Conduit Surcharge Summary
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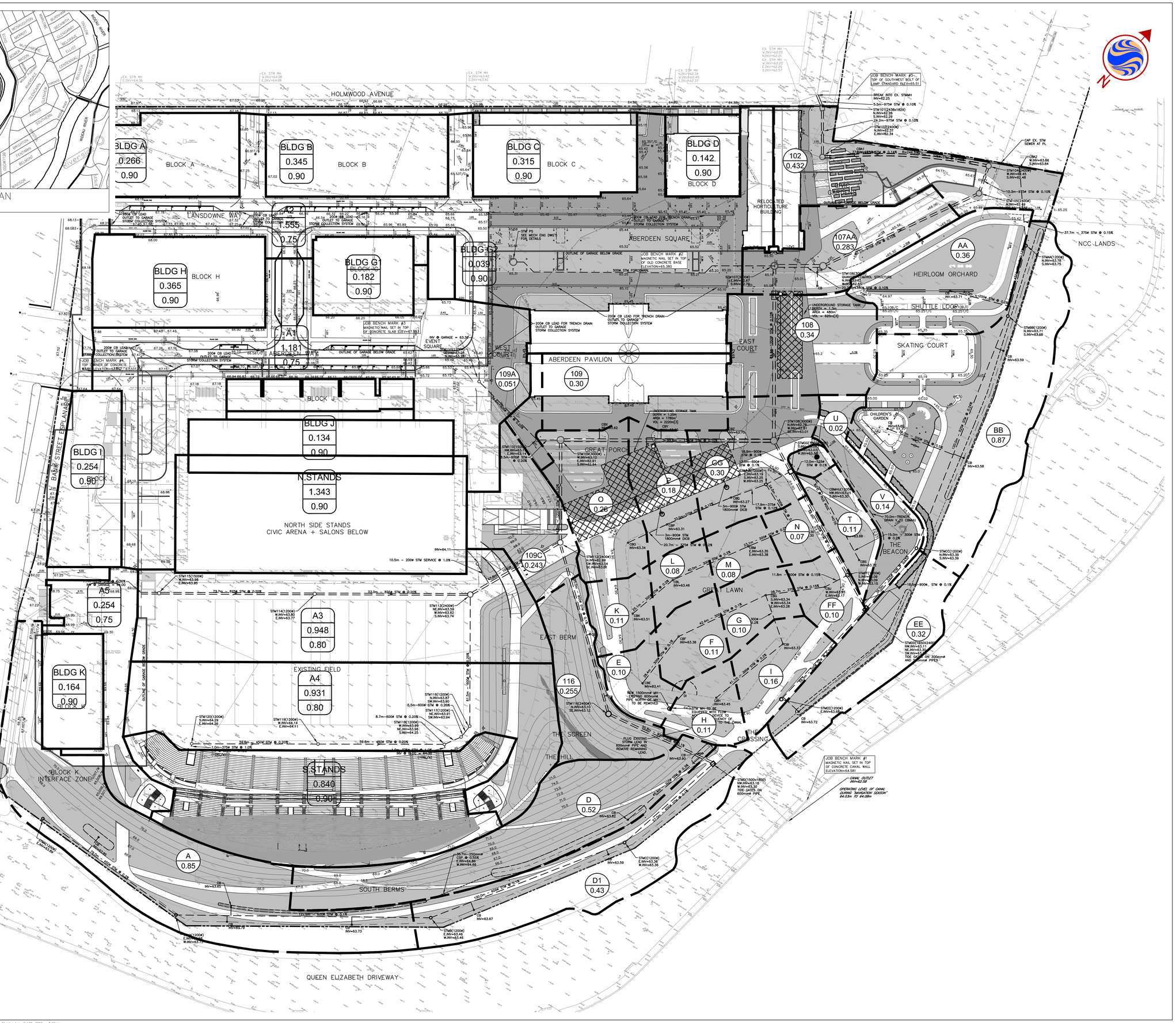
Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	0.01	0.01	0.02	0.01	0.01
C10_1	7.22	7.22	7.33	0.13	0.11
C11	5.79	5.79	6.16	0.01	0.01
C12_2	0.01	0.01	21.94	0.01	0.01
C13	7.10	7.10	7.46	0.01	0.01
C14	7.19	7.19	7.46	0.01	0.01
C15	7.46	7.46	7.52	0.32	0.30
C16	7.58	7.58	7.88	0.23	0.23
C17	7.96	7.96	8.00	0.35	0.41
C18	7.04	7.04	7.18	0.01	0.01
C18_1	5.14	5.14	5.66	0.01	0.01
C18_2	5.66	5.66	5.81	0.09	0.13
C19	7.18	7.18	7.27	0.01	0.02

C2	0.28	0.28	0.35	0.01	0.01
C20	7.37	7.37	23.41	0.01	0.01
C21	7.33	7.33	7.71	0.01	0.02
C21_1	5.99	5.99	6.23	0.01	0.01
C21_2	6.23	6.23	6.28	0.01	0.42
C22	7.72	7.72	8.14	0.01	0.01
C23	8.27	8.27	11.75	0.49	0.49
C24	4.74	4.74	7.11	0.17	0.16
C25	7.20	7.20	7.50	0.16	0.16
C26	6.48	6.48	6.78	0.01	0.55
C27	6.61	6.61	7.33	0.01	0.01
C27_2	6.94	6.94	6.98	0.01	0.26
C28	7.00	7.00	7.00	0.01	1.18
C29	7.04	7.04	23.06	0.01	0.01
C3	0.15	0.36	2.00	0.52	0.15
C30	23.06	23.06	23.07	0.01	0.27
C31	23.08	23.08	23.08	0.01	0.51
C32	23.09	23.09	24.00	0.01	0.01
C33	7.40	7.40	7.67	0.49	0.49
C34	7.75	7.75	8.14	0.48	0.48
C35	6.10	6.10	6.66	0.01	0.01
C36	6.76	6.76	7.17	0.01	0.01
C38	5.80	5.80	6.57	0.02	0.03
C39	5.59	5.61	5.77	0.30	0.19
C4	0.04	0.11	0.04	0.23	0.04
C40	2.02	2.07	5.37	0.30	0.19
C5	0.52	0.59	0.73	0.27	0.02
C59	2.06	2.10	2.87	0.18	0.01
C60	3.42	3.45	4.95	0.18	0.01
C61	5.10	5.10	5.27	0.17	0.01
C62	5.37	5.37	5.61	0.20	0.01
C63	5.72	5.72	5.90	0.27	0.01
C7	0.03	0.03	1.81	0.01	0.01
C8	1.28	1.30	1.65	0.17	0.03
C9	8.38	8.38	8.61	0.01	0.01
W4	8.61	8.61	8.91	0.01	0.01

Analysis begun on: Thu May 11 15:43:58 2023
Analysis ended on: Thu May 11 15:44:08 2023
Total elapsed time: 00:00:10

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)



CLIENT PARTNERSHIP

Ottawa

OSEG
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

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 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

CATCHMENT AREA PLAN

DATE

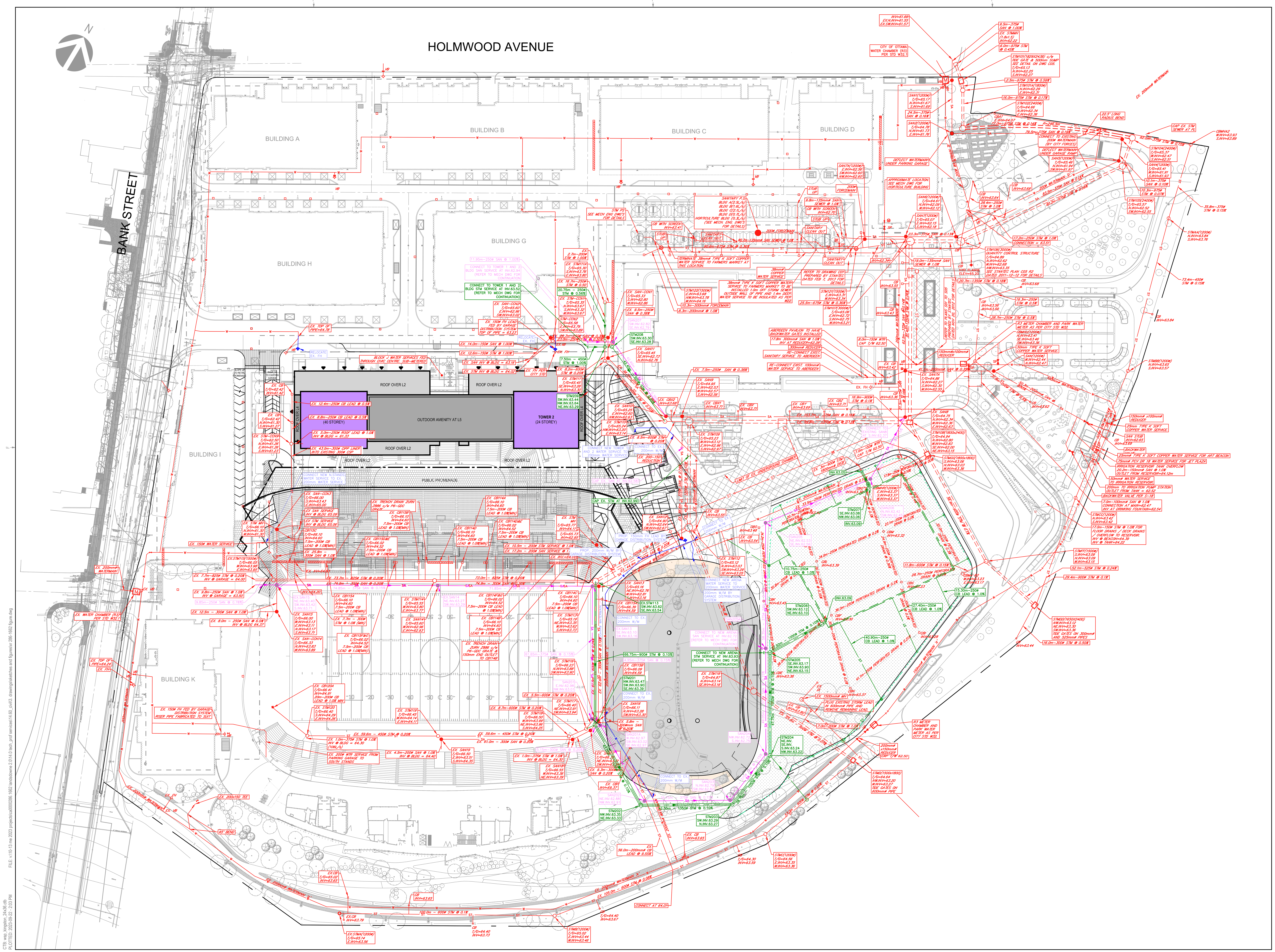
SCALE 1:600

REVISION # 4

DRAWING No. C03

V:\01-634\active\1604_00832_Lansdowne Park Competition\design\drawing\160400832 Civil Stantec.dwg Feb06 ,2012 - 3:16pm

APPENDIX



CLIENT:

CLIENT REF. #:

WSP CANADA INC.
2611 QUEENSVIEW DR #300,
OTTAWA, ONTARIO
CANADA K2B 8K2
PHONE: 613-829-2800
WWW.WSP.COM

PROJECT NUMBER: CA0000286.1662

CONSULTANT TEAM:

KEY PLAN:

REVISION:

REV	DATE	DESCRIPTION	BY
2	2023-09-22	ISSUED FOR CITY REIVEW	DY
1	2023-05-25	ISSUED FOR CITY REIVEW	DY

ORIGINAL SCALE: 1:750
DATE: 2023-09-22
DRAWN BY: JT
CHECKED BY: DY
APPROVED BY: DY
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
CA0000286.1662

DISCIPLINE:
CIVIL

TITLE:
CONCEPTUAL
OVERALL SERVICING

PROJECT:
LANDSDOWN PARK
REDEVELOPMENT
EXHIBITION WAY
OTTAWA, ONTARIO

DRAWING NUMBER: F4
REV. 0A