RIOCAN

REPORT
PROJECT: 38729-5.2.2

SITE SERVICING & STORMWATER MANAGEMENT DESIGN BRIEF
CITY PARK REDEVELOPMENT - PHASE 2
2280 CITY PARK DRIVE
CITY OF OTTAWA

IBI

Prepared for RioCan Management Inc.
by IBI Group
AUGUST 2018

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Preamble

This report was initially prepared in December 2015 in support of the Phase 1 development, and subsequently revised until December 2016, ultimately being approved as City of Ottawa file number D07-12-15-0187.

The Phase 1 high rise residential structure and associated site works are currently under construction with an anticipated completion date of spring 2019.

A pre-consult meeting regarding Phase 2 was held with the City of Ottawa in April 2018, minutes of this meeting can be found in **Appendix F**. The following submission contains revised analysis, figures and drawings in support of the Phase 2 site plan application.

1 INTRODUCTION

1.1 Scope

IBI Group has been retained by RioCan Management Inc. to prepare the necessary engineering plans, specifications and documents to support re-development of the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa.

This brief will present a detailed servicing scheme to support the phase 2 development of the property including sections on water supply, wastewater management, minor and major stormwater management along with erosion and sediment control. This brief will also demonstrate the adequacy of the municipal services needed to support the ultimate development of the site.

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

1.2 Subject Property

The existing site is located in the City of Ottawa (former municipality of Gloucester) and is located adjacent to the Gloucester Center Mall (North East) and the Blair Road transitway/LRT station. The site is subject to the criteria outlined in the Ottawa Transit Orientated Development (TOD) Plans – Lees, Hurdman, Tremblay, St. Laurent, Cyrville and Blair study, and has resulted in approved densification in close proximity to the light rail transit (LRT) station.

The existing site is bound to the North by City Park Drive, to the East by private road to the Gloucester Center Shopping mall and Blair Road transit station, to the South by the Ottawa LRT transitway (currently under construction) and to the West by an existing commercial development site.

The site is currently serviced by all necessary infrastructure to support the proposed redevelopment including the infrastructure recently installed as part of Phase 1.

Existing watermains will be maintained and/or rerouted internally to satisfy the configuration of the current proposed phase of construction.

There is an existing 375 sanitary sewer on City Park Drive which outlets into the existing 1050mm diameter Maxime Relief Sanitary Trunk sewer. Internal sanitary sewers will be maintained.

The entire City Park development is serviced by the Skenkman stormwater management pond (SWF 1615) which then discharges to the Cyrville Drain. Existing storm sewers will be maintained.

1.3 Phasing

It is the Owner's intention, at the time of writing, to proceed with a phased development of the site. Phase 1 consisted of a 23 storey residential apartment tower, the proposed Phase 2 is to be a 20 storey residential apartment tower. Future phases will include the full build out of the ultimate site plan consisting of 3 additional high rise apartment towers, an outdoor amenity area, and a 2 storey commercial building. The remainder of the site shall be constructed at a later date to be determined by the client.

1.4 Previous Studies

1. **Ottawa Transit Orientated Development (TOD) Plans – Lees, Hurdman, Tremblay, St. Laurent, Cyrville and Blair** – Draft – *November 22, 2013*

   Prepared by City staff in support of the intensification of lands surrounding the LRT stations, this report defines a zone of influence surrounding the stations; placing the subject site within the Blair TOD, and acts as guide for future development of the lands. Included in the TOD Plans in a high level assessment of the capacities of major infrastructure services within and adjacent to the TOD Plan areas and defines criteria for how proposed development shall proceed.

2. **LRT Transit Oriented Development Study Area Servicing Overview** TOD Studies Areas: Lees, Hurdman, Train, St. Laurent, Cyrville and Blair – Final Draft Report – *December 2, 2013*

   This report was prepared by Stantec Consulting Ltd for the City of Ottawa and contains detailed assessment of the major infrastructure services within and adjacent to the TOD areas. Included is an analysis of existing capacity conditions, future capacity requirements and upgrades required for municipal water supply, sanitary sewers, storm water sewers, hydro and roadway transportation to support intensification of the TOD sites.

3. **Trinity Development Group Inc. Stormwater Management Report Proposed Commercial Development at Gloucester City Centre South of City Park Drive** – July 14, 1999

   Prepared by Oliver, Mangione, McCalla & Associates to support the development of the site as it exists now. This report details the stormwater management requirements as defined by the City of Gloucester at the time, the design calculations for onsite storm sewer sizing and calculations for onsite storm water quantity control including specifications for inlet control devices.

2 WATER SUPPLY

2.1 Phase 2 Preamble

This water section below was completed during the original Phase 1 application and report. Relevant sections, such as water demands and fire flow rate have been updated with the latest information regarding the Phase 2 application. The updated watermain demands calculation, found in **Appendix A**, and summarized below, demonstrate that the water demands for the ultimate development remain at or below the demands modeled as part of the original application, as such an update to the model has not been completed. Future phases of the development may demonstrate demands greater than the original model which would then trigger an update to the model.

2.2 Existing Conditions

The subject site is located within Pressure Zone 1E of the City of Ottawa's water distribution system. Pressure is provided to the system via the Hurdman Bridge Pump Station. A 305mm watermain exists within the City Park Drive ROW which currently services the site. The existing feedermains are all fed from a reliable source and are expected to be adequate to provide all peak domestic demands and fire flows to the TOD study areas (Stantec 2.20 – 2.21). A looped 203mm private watermain with two connections to the City Park Drive main exists on site providing water service to the existing restaurant and commercial retail units.

2.2.1 Water Demands

Water demands are based on Table 4.2 - Consumption Rates for Subdivisions of 501 to 3,000 persons of the Ottawa Design Guidelines – Water Distribution. Phase 2 consists of a 20 storey apartment building in addition to the existing 23 story Phase 1 tower. The ultimate development for this block consists of a total of five residential towers and one low rise commercial building. The per unit population for apartment buildings is assumed at 1.8 persons per unit per Table 4.1 of the Guidelines and the commercial use has a demand of 1,000 m^2/day per Table 4.2. A watermain demand calculation sheet is included in **Appendix A** and the total water demands are summarized as follows:

	Phase 1 & 2	**Ultimate**
Average Day	3.17 l/s	6.48 l/s
Maximum Day	7.91 l/s	16.17 l/s
Peak Hour	17.39 l/s	35.53 l/s

2.2.2 System Pressure

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

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point in the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed

552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rate

Fire flow rates have 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. In phase 2, a calculation was performed for the proposed 20 storey residential apartment building adjacent to the existing Phase 1 building. Assuming fire resistive construction and a sprinkler system a fire flow rate of 9,000 l/min has been calculated. A copy of the calculation is included in **Appendix A**.

For the ultimate condition fire flow, calculations have been conducted for Phase 2 and for a mixed use building. The mixed use building, assuming non-combustible construction, yields a fire flow rate of 11,000 l/min while Phase 2 has a rate of 9,000 l/min. In the analysis for the ultimate condition, the higher fire flow rate is used. Calculations are included in **Appendix A**.

2.2.4 Boundary Conditions

A boundary condition has been provided by the City of Ottawa at the 305 mm diameter watermain on City Park Drive for the development. A fire flow of 250 l/s (15,000 l/min) was assumed for the development which is higher than the calculated fire flow rates in Section 2.1.3. A copy of the boundary conditions are included in **Appendix A** and summarized as follows:

BOUNDARY CONDITIONS	
SCENARIO	HGL (m) CITY PARK DRIVE (EAST CONNECTION)
Minimum HGL	110.1
Maximum HGL	117.0
Max Day + Fire Flow	108.5

2.2.5 Hydraulic Model

A computer model for the phase 1 and the ultimate development has been developed using the H20 MAPP Version 6.0 program produced by MWH Soft Inc. The model incorporated the boundary condition at City Park Drive, the existing 203 mm watermain loop and the 305 mm watermain on City Park Drive between the two connections to the City Park Drive main. Boundary conditions from Section 2.1.4 were incorporated into the basic day (maximum HGL), peak hour (minimum HGL), and max day plus fire scenarios.

2.3 Proposed Water Plan

The hydraulic water model was run for the Phase 1 and ultimate development to determine if the existing 203 mm watermain is sufficient to meet the City criteria for pressure and to deliver the FUS fire flow. Results of the hydraulic model are included in Appendix A and summarized as follows:

SCENARIO	PHASE I RESULTS	ULTIMATE RESULTS
Basic Day (Max HGL) kPa	411.6-423.3	411.6-424.6
Peak Hour (Min HGL) kPa	344.0-356.6	343.9-353.0
Max Day & Fire (Fire Flow) l/s	222.7-392.0	217.7-386.9

Maximum Pressure	Under both the phase 1 & 2 and ultimate condition scenarios, the pressures are below 552 kPa (80 psi) therefore pressure reducing control is not required for this development.
Minimum Pressure	The minimum pressure at ground floor level is greater than the minimum 276 kPa (40 psi). Due to the height of the building, booster pumps will be required to service higher floors.
Fire Flow	The minimum fire flow for the ultimate development 217.7 l/s which exceeds the required flow of 183.3 l/s (11,000 l/min).

Based on the water analysis a 203 mm watermain with two connections to the existing 305 mm main on City Park Drive is sufficient to service the existing Phase 1 development, along with both the proposed phase 2 and ultimate developments.

3 WASTEWATER DISPOSAL

3.1 Phase 2 Preamble

This wasterwater section below was completed during the original Phase 1 application and report. Relevant sections, such as criteria and sanitary sewer design have been updated with the latest information regarding the Phase 2 application. As the ultimate flow calculated as part of the updated phase 2 application, see ultimate sanitary sewer design sheet in **Appendix B**, is less than the ultimate flow calculated as part of the original application, no additional analysis is warranted at this time. As part of the Phase 2 updated application the only sanitary sewer works proposed is a short service connection from the proposed structure to the existing sanitary sewer network.

3.2 Existing Conditions

The site is currently serviced by a network of 200 mm diameter sanitary sewers connected to a 375 mm diameter local sanitary sewer within the City Park Drive right of way. From the connection the local sewer flows approximately 83m west within the ROW and outlets to the Maxime Relief Trunk sewer. The Maxime Relief Sewer has sufficient capacity to accommodate the ultimate flow projections and therefore no issue is expected.

3.3 Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Our analysis is twofold, flow calculation for the interim condition (phase 1 & 2) and flow calculation for the ultimate build out. The following criteria was used in our calculations.

• Minimum Velocity	0.6 m/s
• Maximum Velocity	3.0 m/s
• Manning Roughness Coefficient	0.013
• Total # residential of units (1.8 p/p/u)	433(Phase1&2)–883 (Ultimate)
• Total est. hectares commercial/institutional use	.042(Phase1&2)-.15 (Ultimate)
• Residential Average Flow	280 l/p/d
• Commercial/Institutional Average Flow	28,000 l/gross Ha/d
• Residential Peaking Factor	Harmon Formula (max 4, min 2) K=0.8
• Commercial/Institutional Peaking Factor	1.5 if ICI >20% 1.0 if ICI in <20%
• Infiltration Allowance	0.33 L/s/Ha
• Minimum Sewer Slopes - 200 mm diameter	0.32%

Given the above criteria, total wastewater flow from the proposed development will 8.32 l/s for phase 1&2 and 18.25 l/s for the ultimate development. The City of Ottawa has stated that the net increase in flow from the ultimate scenario described above can be accommodated by the 375

mm diameter City Park Drive local sewer and the Maxime Relief Sanitary trunk sewer. The confirmation email can be found in **Appendix B**.

The detailed sewer calculations and sanitary drainage area plan are included in **Appendix B**. For the proposed layout of the ultimate sanitary pipe network please see **Appendix E**. Commercial flows were calculated using 28,000 L/gross had/d as future occupancies are unknown at this time.

3.4 Sanitary Sewer Design

Limited changes to the on-site sanitary pipe network will occur during the Phase 2 development. The proposed Phase 2 tower will be connected to the network through the installation of a short section of 200 mm diameter sanitary pipe. Please refer to the site servicing plan C-101 for details. No changes to the connection at City Park Drive are proposed for Phases 1 or 2.

4 STORMWATER MANAGEMENT

4.1 Phase 2 Preamble

This stormwater management section below was completed during the original Phase 1 application and report, the overall release rate and storm sewer network remains unchanged from the Phase 1 application. Relevant sections, such as existing conditions, stormwater management, inlet controls etc. have been updated with the latest information regarding the Phase 2 application.

As part of the Phase 2 updated application the only storm sewer works proposed are a short service connection from the proposed structure to the existing storm sewer network and 2 catchbasins connecting into the existing storm sewer network that provide drainage in the temporary landscaped areas surrounding Phase 2.

The proposed phase 2 tower will result in the elimination of some ponding in the area surrounding the structure as well as some modifications to the associated drainage areas. The two proposed catchbasins will provide additional ponding as well as a stormwater management cistern to be located within the Phase 2 tower, similar to Phase 1.

The stormwater drainage area plan, ponding plan, design sheets and stormwater management calculations have all been updated in support of the phase 2 application and can be found in **Appendix C**.

4.2 Existing Conditions

The site currently consists of a 23 story residential apartment building and associated vehicle drive isle and parking areas that are currently under construction. Additionally, there is a small restaurant at the north east corner of the site that will remain open during and after the construction of Phase 2.

An internal network of storm sewers, leftover from the previous use of the site currently collects stormwater and discharges to the trunk sewer in City Park Drive. The modified rational method sewer design sheet prepared by Oliver, Mangione, McCalla & Associates in 1999 in support of the existing development is included in Appendix C.

4.3 Design Criteria

As part of Transportation Orientated Development (TOD) Plan, the subject site has a total allowable release rate equivalent to the 5 year flow for the site at a C=0.50. With this in mind, the stormwater system was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

- Design Storm — 1:5 year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.30
  - Asphalt/Concrete — C = 0.90
  - Roof — C = 0.90
- Pipe Velocities — 0.80 m/s to 6.0 m/s

4.4 Proposed Minor System

Using the above-noted criteria, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated storm sewer drainage area plan is included in **Appendix C**. Note that Storm Sewer Design Sheet in **Appendix C** shows the calculation for TC (17.27 min) used in determining $Q_{ALLOWABLE.}$ The TC is shown as the final time at the downstream structure within the City Park Drive ROW (EXMH1).

4.5 Stormwater Management

The subject site will be limited to a release rate the 5year flow generated from the site using a C=0.50 (per the TOD report). This will be achieved through a combination of new and existing inlet control devices (ICD's) at inlet locations and surface storage. Flows generated that are in excess of the site`s allowable release rate will be stored on site in strategic surface storage areas or by the use of underground, inline pipe storage and gradually released into the minor system so as not to surcharge the downstream sewers. The maximum surface retention depth of the re-developed areas will be limited to 300mm during a 1:100 year event. Overland flow routes will be provided in the grading and parking area design to permit emergency overland flow from the site.

At certain locations within the site, the opportunity to store runoff is limited due to grading constraints and building geometry. These locations are generally located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties, and it is not always feasible to capture or store stormwater runoff. These "uncontrolled" areas are minimal – 0.26 hectares in total. Based on a 1:100 year storm, the uncontrolled areas generate 38.72 l/s runoff (refer to Section 4.5 for calculation).

The stormwater management report by Oliver, Mangione, McCalla & Associates for the existing site details the current restricted flow rates from the commercial retail building and restaurant roofs. We shall also make use of the existing restricted roof top flow rates where feasible for phase 1 to facilitate maintaining as much of the existing underground storm infrastructure as possible. However, the new tower will not incorporate rooftop storage; consequently, an internal cistern storage tank will be provided to collect and retain all stormwater from the roof and podium levels.

Where possible, major overland flow has been directed towards the south perimeter of the site, where any water in an emergency situation would be directed to the existing swale along the Transitway. The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site. Refer to the SWM calculations in **Appendix C** for further calculations on the overflow.

4.6 Inlet Controls

The allowable release rate for the 2.86 Ha site can be calculated as follows:

$\mathbf{Q_{allowable}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A** where:

C = 0.50

$\mathbf{I_{5yr}}$ = Intensity of 5-year storm event (mm/hr)

= $998.071 \times (T_c + 6.053)^{0.814}$ = 76.87 mm/hr; where T_c = 17.27 minutes*

A = Area = 2.86 Ha

= **305.61 L/s**

*based on total time to leave the site from the 5 year rational method storm sewer design sheet in Appendix C

As noted in Section 4.4, a small portion of the site will be left to discharge to the surrounding boulevards and roadways at an uncontrolled rate.

Based on a 1:100 year event, the flow from the 0.26 Ha uncontrolled area can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A** where:

C = Average runoff coefficient of uncontrolled area = 0.30

$\mathbf{i_{100yr}}$ = Intensity of 100-year storm event (mm/hr)

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

A = Uncontrolled Area = 0.26 Ha

Therefore, the uncontrolled release rate can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**

= 2.78 x 0.30 x 178.56 x 0.26

= **38.72 L/s**

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

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

= 305.61 L/s – 38.72 L/s

= **266.89 L/s**

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen in the design. The design of the inlet control devices is unique to each drainage area and is determined based on a number of factors, including hydraulic head and allowable release rate. The inlet control devices were sized according to the manufacturer's design charts. The restrictions will cause the on-site catchbasins and manholes to surcharge, generating surface ponding in the parking areas and/or in-line storage in the sewers. Ponding locations and elevations are summarized on the Ponding Plan 38729-C-401, and included in **Appendix C**.

4.7 On-Site Detention

Any excess storm water up to the 100-year event is to be stored on-site in order to not surcharge the downstream municipal storm sewer system. Detention will be provided in parking and landscape areas, building rooftops and cistern(s), where feasible. As previously noted, the volume of storage is dependent on the characteristics of each individual drainage area and the ICD's were chosen accordingly.

4.7.1 Site Inlet Control

With the exception of a small unrestricted area around the perimeter of the site, all parking and landscape areas will be have restricted flow to the storm sewer system.

The following Table summarizes the on-site storage requirements during both the 1:5-year and 1:100-year events.

ICD AREA	TRIBUTARY AREA	AVAILABLE STORAGE (M^3)	100-YEAR STORM		5-YEAR STORM	
			RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)	RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)
1	0.38	175.10	4.00	172.81	4.00	75.43
2,3,4	0.31	97.26	25.00	97.51	25.00	35.91
5A	0.08	24.42	2.00	10.27	2.00	3.24
5B	0.14	40.76	2.00	22.17	2.00	7.73
5	0.12	26.06	27.00	19.59	27.00	4.62
6	0.08	5.32	21.00	11.27	21.00	2.29
1, 19, 7	0.55	212.44	30.00	204.07	30.00	67.20
20	0.09	7.20	19.80	14.99	19.80	3.60
12/13	0.20	43.88	33.00	41.80	33.00	12.05
10	0.04	4.63	18.00	2.70	18.00	0.88
9	0.08	3.00	28.00	8.02	28.00	0.80
Unrestricted	0.26					
TOTAL	**2.33**	**640.07**	**209.8**	**605.2**	**209.8**	**213.75**

In all instances the required storage is met with surface ponds which retain the stormwater and discharge at the restricted flow rate to the sewer system. Refer to the ponding plan in **Appendix C** for storage information.

4.7.2 Roof Inlet Controls

The two existing buildings on-site have, and will maintain, roof inlet controls that help to control the amount of stormwater being released into the system. A cistern has been proposed to capture building runoff for tower A and associated podium area. A summary table on the drawing that indicates the proposed release rates based on a theoretical ponding height. The restricted flow rates for the existing BLDG 1 and BLDG 2 has been derived from the OMM report referenced as report #3 in section 1.4. Flow control from the proposed cistern servicing Tower A shall be confirmed with the mechanical consultant once one has been retained.

ICD AREA	TRIBUTARY AREA	100-YEAR STORM		5-YEAR STORM	
		RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)	RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)
14 - Tower A	0.19	36.00	35.82	36.00	9.56
PHASE 2	0.27	15.00	99.48	15.00	39.24
11 - EX BLD 2	0.05	2.10	20.42	2.10	8.37
TOTAL	**0.51**	**53.10**	**155.72**	**53.10**	**57.17**

4.7.3 Overall Release Rate

As demonstrated above, the site uses existing and new inlet control devices to restrict the 100 year storm event to the criteria set out in the TOD report. Restricted stormwater will be contained onsite by utilizing surface ponding and underground in-line storage. In the 100 year event, there will be no overflow off-site from restricted areas.

The sum of restrictions on the site, rooftops and cistern is (209.80 l/s + 53.10 l/s) 262.90 l/s, which is less than the allowable release of 266.89 l/s noted in section 4.5.

4.8 Water Quality

The Rideau Valley Conservation Authority (RVCA) has a mandate to improve water quality when and where possible. A recommendation to ensure that all surface runoff released to a watercourse has had 70% total suspended solids removed has been made by the RVCA. Acknowledging such a goal is beneficial to all community stakeholders, we will be implementing a water quality control program as part of the development of the ultimate construction phase. As we are proposing limited changes to the existing infrastructure during phase 2 we feel implementing on-site quality control will be most feasible and efficient if completed during the ultimate build out.

5 SEDIMENT AND EROSION CONTROL

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

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

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

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

During construction of any development both imported and native soils are stockpiled. Mitigative measures and proper management to prevent these materials entering the sewer systems is needed.

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

The Sediment and Erosion Control Plan 38729-C-901 is included in **Appendix D**.

6 GRADING

As mentioned earlier, the grading of the site is dependent on both the geometry of the buildings, drive isles and the tie-in to surrounding roadways and adjacent properties. Phase 2 works will result in the majority of the existing grading remaining unchanged.

The existing and proposed site grading is designed so that major overland flow routes are provided to convey stormwater safely from the site. Parking areas have been designed to maximize on-site ponding in order to minimize runoff from the site.

7 CONCLUSIONS

In summary, this report demonstrates that Phase 2 of the proposed 2280 City Park Drive redevelopment and ultimate re-developments can be serviced by the adjacent existing municipal infrastructure. All municipal infrastructure designs have been done in conformance with current City of Ottawa guidelines.

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

Prepared by:

IBI GROUP

Terry Brulé, P. Eng.

Associate

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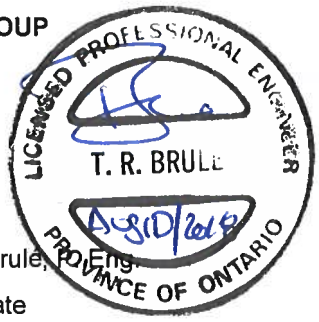

Terry Brulé, P.Eng.
Associate

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APPENDIX A

James Battison

From: Robertson, Syd <Syd.Robertson@ottawa.ca>
Sent: Wednesday, August 19, 2015 10:40 AM
To: James Battison
Cc: White, Joshua
Subject: FW: City Park - RIO-CAN - 38729 - Infrastructure Information Request
Attachments: 2280 City Park August 2015.pdf

Hi James:

The following are boundary conditions, HGL, for hydraulic analysis at 2280 City Park (zone 1E) assumed to be connected to the 305mm on City Park Drive (see attached PDF for location).

Minimum HGL = 110.1m

Maximum HGL = 117.0m

MaxDay (16.41 L/s) + FireFlow (250 L/s) = 108.5m

These are for current conditions and are based on computer model simulation.

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

Syd Robertson, C.E.T.
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Development Review Services Branch, Urban Outer Core
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From: James Battison [mailto:James.Battison@ibigroup.com]
Sent: Thursday, August 13, 2015 4:47 PM
To: White, Joshua
Cc: Terry Brule; Lance Erion
Subject: RE: City Park - RIO-CAN - 38729 - Infrastructure Information Request

Josh,

We will be proposing a dual connection to City Park Dive.

The looped nature of the 305mm watermain under City Park along with a dual connection to the site should satisfy the redundancy needs.

To further increase the capabilities of the two feed connection, a valve chamber could be installed between the feeds.

James Battison

email James.Battison@ibigroup.com web www.ibigroup.com

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From: White, Joshua [mailto:Joshua.White@ottawa.ca]
Sent: Thursday, August 13, 2015 4:31 PM
To: James Battison
Subject: RE: City Park - RIO-CAN - 38729 - Infrastructure Information Request

Hi James,

Where are you going to be looping the water system to? For a development of this size we will need to water main connections into the City system.

Cheers

Josh

From: James Battison [mailto:James.Battison@ibigroup.com]
Sent: Thursday, August 13, 2015 3:34 PM
To: White, Joshua
Subject: FW: City Park - RIO-CAN - 38729 - Infrastructure Information Request

Mr. White,

Please see the updated sanitary flow below;

We are requesting information regarding the sanitary sewer and watermain in the vicinity of the above referenced project. Attached please find the concept plan showing the 3 residential towers on the site fronting on the south side of City Park Dive.

At this time we are using a total estimated build out of **900 residential apartment units** (average 1.8 persons per unit) for the entire site.

Watermain

For the proposed development, using the criteria described above, we have calculated the following;

Average Daily Demand: **6.56 l/s**
Maximum Daily Demand: **16.41 l/s**

Peak Hour Demand: **36.09 l/s**
Fire Flow Demand: **250 l/s**

- **Please provide the watermain boundary conditions on City Park Drive approximately 100m east of the intersection of City Park Drive and Ambassador Avenue.**

Sanitary

Given the conditions described we have calculated total peak sanitary flow for the proposed site to be **24.78 l/s**.

- **Please confirm the local sewer on City Park Drive and the downstream receiving infrastructure (Maxime Relief Trunk sewer) can accommodate this flow increase.**

Should you have any further questions please contact me.

James Battison

email James.Battison@ibigroup.com web www.ibigroup.com

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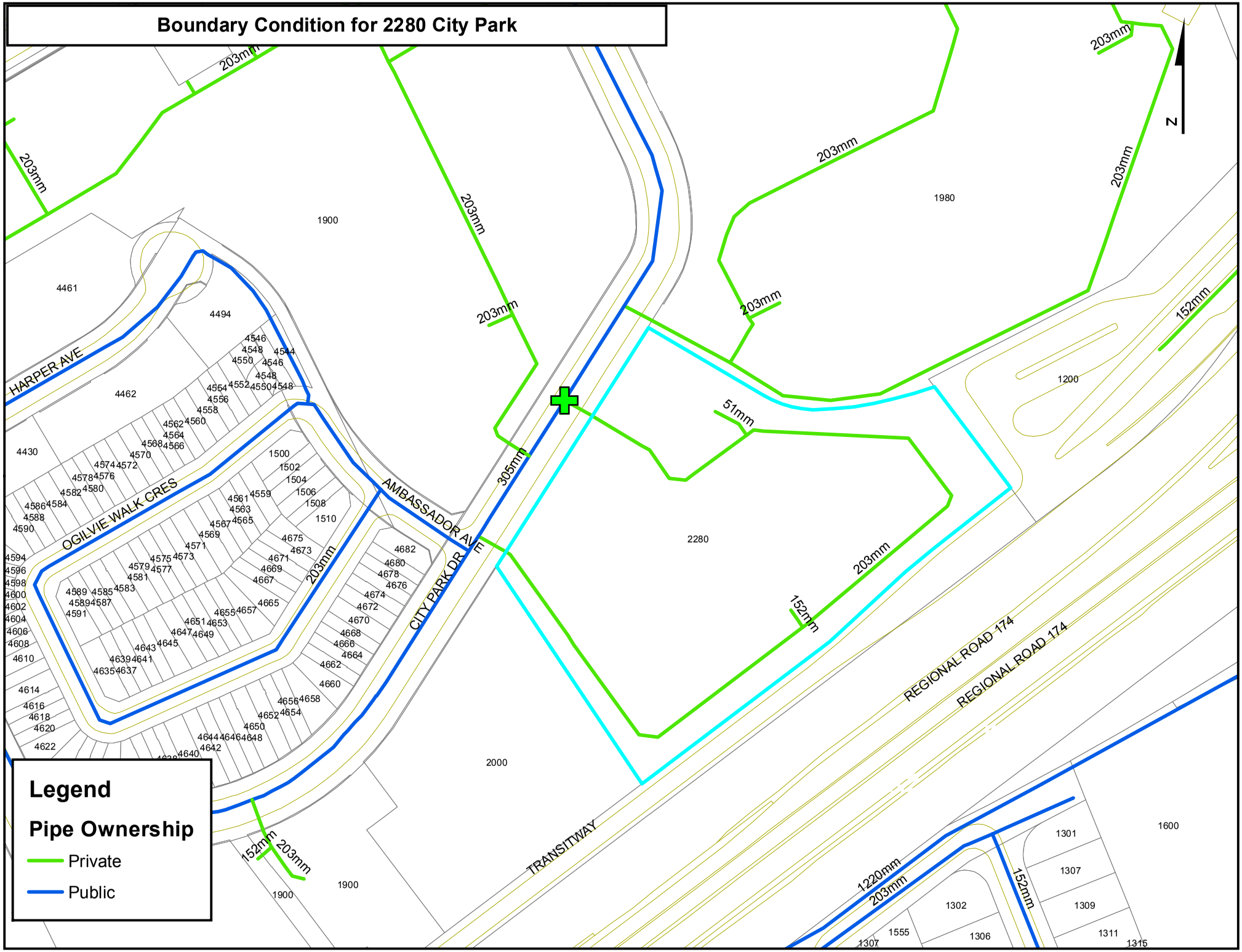

Boundary Condition for 2280 City Park
203mm
203mm
203mm
203mm
203mm
203mm
203mm
203mm
152mm
51mm
305mm
203mm
152mm
203mm
152mm
1220mm
203mm
152mm
1900
1980
1200
2280
2000
1900
1600
1900
4461
4494
4462
4430
HARPER AVE
OGILVIE WALK CRES
AMBASSADOR AVE
CITY PARK DR
TRANSITWAY
REGIONAL ROAD 174
REGIONAL ROAD 174
1301
1307
1309
1311
1315
1302
1306
1555
1307
N
Legend
Pipe Ownership
Private
Public

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : 2280 City Park Drive Redevelopment - Phase 2
LOCATION : City of Ottawa
DEVELOPER : Rio-Can Management Inc.

FILE: 38729.5.7
DATE PRINTED: 6-Aug-18
DESIGN: JEB
PAGE : 1 OF 1

NODE	RESIDENTIAL UNITS SF	RESIDENTIAL UNITS APT	RESIDENTIAL UNITS ST	POP'N	NON-RESIDENTIAL INDTRL (ha.)	NON-RESIDENTIAL INST. (ha.)	NON-RESIDENTIAL RETAIL (m^2)	AVERAGE DAILY DEMAND (l/s) Res.	AVERAGE DAILY DEMAND (l/s) Non-res.	AVERAGE DAILY DEMAND (l/s) Total	MAXIMUM DAILY DEMAND (l/s) Res.	MAXIMUM DAILY DEMAND (l/s) Non-res.	MAXIMUM DAILY DEMAND (l/s) Total	MAXIMUM HOURLY DEMAND (l/s) Res.	MAXIMUM HOURLY DEMAND (l/s) Non-res.	MAXIMUM HOURLY DEMAND (l/s) Total	FIRE DEMAND (l/min)
Phase 1 & 2																	
N1																	
N2							420	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.03	0.03	
N3		227		409				1.66	0.00	1.66	4.14	0.00	4.14	9.10	0.00	9.10	
N4		206		371				1.50	0.00	1.50	3.76	0.00	3.76	8.26	0.00	8.26	
N5																	
HYD1																	9,000
HYD2																	9,000
HYD3																	9,000
Totals										3.17			7.91			17.39	
Ultimate																	
N1																	
U1 - COMM							1520	0.00	0.04	0.04	0.00	0.07	0.07	0.00	0.12	0.12	
N2 - PH5		190		342				1.39	0.00	1.39	3.46	0.00	3.46	7.62	0.00	7.62	
N3 - PH1		227		409				1.66	0.00	1.66	4.14	0.00	4.14	9.10	0.00	9.10	
N5 - PH4		170		306				1.24	0.00	1.24	3.10	0.00	3.10	6.82	0.00	6.82	
U2 - PH2		206		371				1.50	0.00	1.50	3.76	0.00	3.76	8.26	0.00	8.26	
U3 - PH3		190		342				1.39	0.00	1.39	3.46	0.00	3.46	7.62	0.00	7.62	
HYD1																	9,000
HYD2																	9,000
HYD3																	9,000
HYD4																	9,000
Totals										7.22			17.99			39.54	

ASSUMPTIONS

RESIDENTIAL DENSITIES
- Single Family (SF) 3.4 p / p / u
- Apartment (APT) average 1.8 p / p / u
- Stacked Townhouse (ST) 2.3 p / p / u

AVG. DAILY DEMAND
- Residential 350 l / cap / day
- Industrial 50,000 l / ha / day
- Institutional 35,000 l / ha / day
- Retail (Shopping Centre) 2,500 l / 1000m^2 / day

MAX. DAILY DEMAND
- Residential 875 l / cap / day
- Industrial (Business Park) 75,000 l / ha / day
- Institutional 52,500 l / 1000m^2 / day
- Retail (Shopping Centre) 3750 l / 1000m^2 / day

MAX. HOURLY DEMAND
- Residential 1,925 l / cap / day
- Industrial (Business Park) 135,000 l / ha / day
- Institutional 94,500 l / 1000m^2 / day
- Retail (Shopping Centre) 6,750 l / 1000m^2 / day

FIRE FLOW
-Phase 1 8,000 l / min
-Ultimate 9,000 l / min

Fire Flow Requirement from Fire Underwriters Survey

City Park Rio-Can Towers - Phase 2

Building B Floor Area
(2 largest adjoining floors plus 50% of floors above up to eight for fire resistive building)

Floor 1 & 2	5,000	m^2
50% Floors 3 to 10	4,600	m^2
Total	9,600	m^2

Fire Flow

$F = 220C\sqrt{A}$

C	0.6		C =	1.5 wood frame
A	9,600	m^2		1.0 ordinary
				0.8 non-combustible
F	12,933	l/min		0.6 fire-resistive
Use	13,000	l/min		

Occupancy Adjustment

Use	-15%		
Adjustment	-1950	l/min	
Fire flow	11,050	l/min	

-25%	non-combustible
-15%	limited combustible
0%	combustible
+15%	free burning
+25%	rapid burning

Sprinkler Adjustment

Use	-30%	
Adjustment	-3315	l/min

-30%	system conforming to NFPA 13
-50%	complete automatic system

Exposure Adjustment

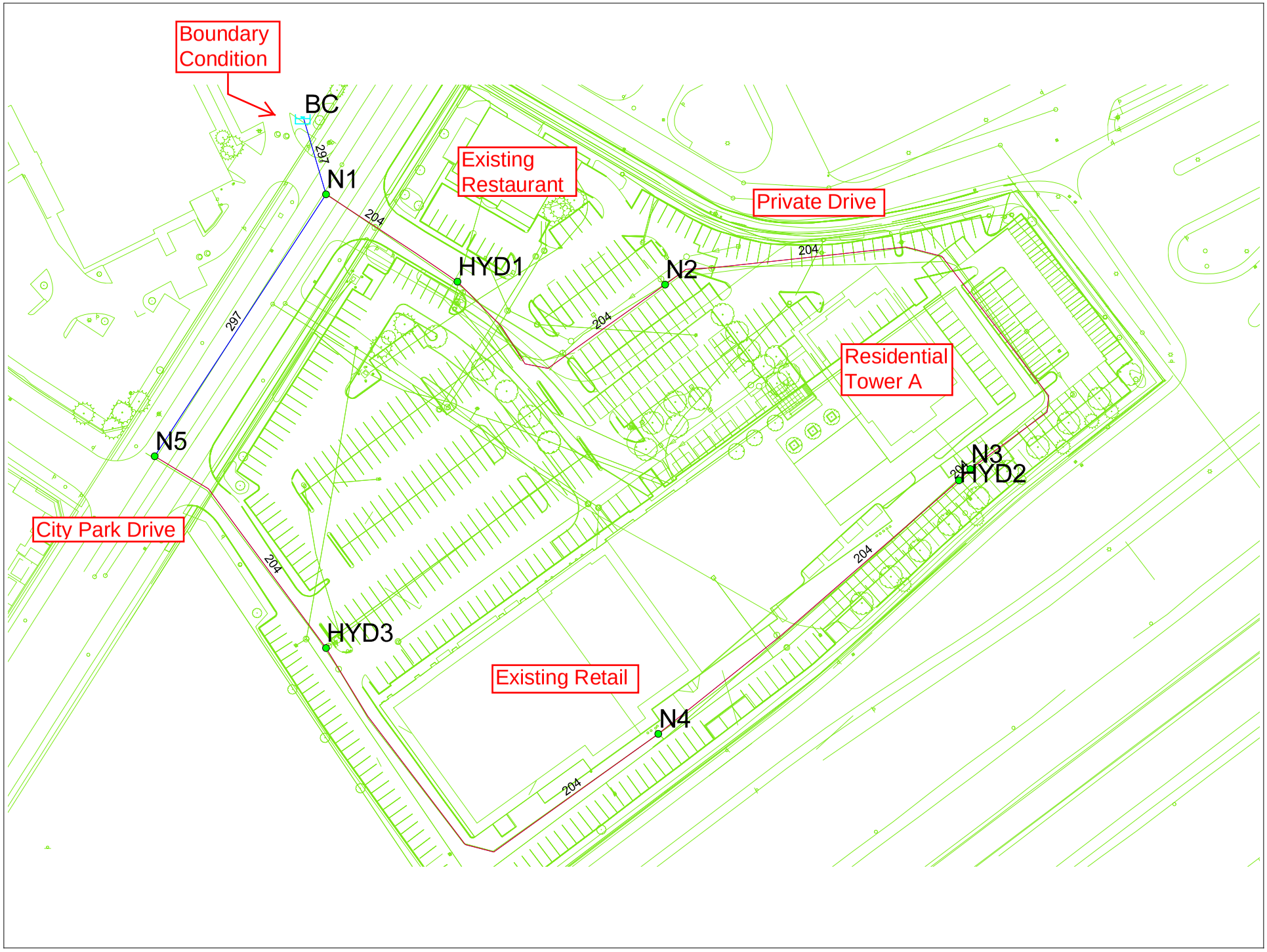
Building Face	Separation	Charge	
north		0%	
east	24	10%	
south		0%	
west	31	5%	
Total		15%	
Adjustment		1,658	l/min

Separation	Charge
0 to 3m	+25%
3.1 to 10m	+20%
10.1 to 20m	+15%
20.1 to 30m	+10%
30.1 to 45m	+5%

Required Fire Flow

Total adjustments	(1,658)	l/min
Fire flow	9,393	l/min
Use	**9,000**	**l/min**
	150.0	**l/s**

Phase 1 Water Model



Date: Thursday, November 12, 2015

Phase 1 - Basic Day (Max Pressure) HGL = 117.0m - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1		HYD1	0.00	74.70	117.00	414.50
2		HYD2	0.00	73.80	117.00	423.29
3		HYD3	0.00	74.45	117.00	416.95
4		N1	0.00	75.00	117.00	411.57
5		N2	0.01	74.60	117.00	415.47
6		N3	2.25	73.80	117.00	423.29
7		N4	0.09	73.65	117.00	424.77
8		N5	0.00	74.40	117.00	417.44

Phase 1 - Peak Hour HGL = 110.1 m - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1		HYD1	0.00	74.70	110.08	346.74
2		HYD2	0.00	73.80	110.01	354.80
3		HYD3	0.00	74.45	110.08	349.10
4		N1	0.00	75.00	110.10	343.95
5		N2	0.04	74.60	110.06	347.47
6		N3	12.35	73.80	110.01	354.79
7		N4	0.24	73.65	110.04	356.56
8		N5	0.00	74.40	110.10	349.80

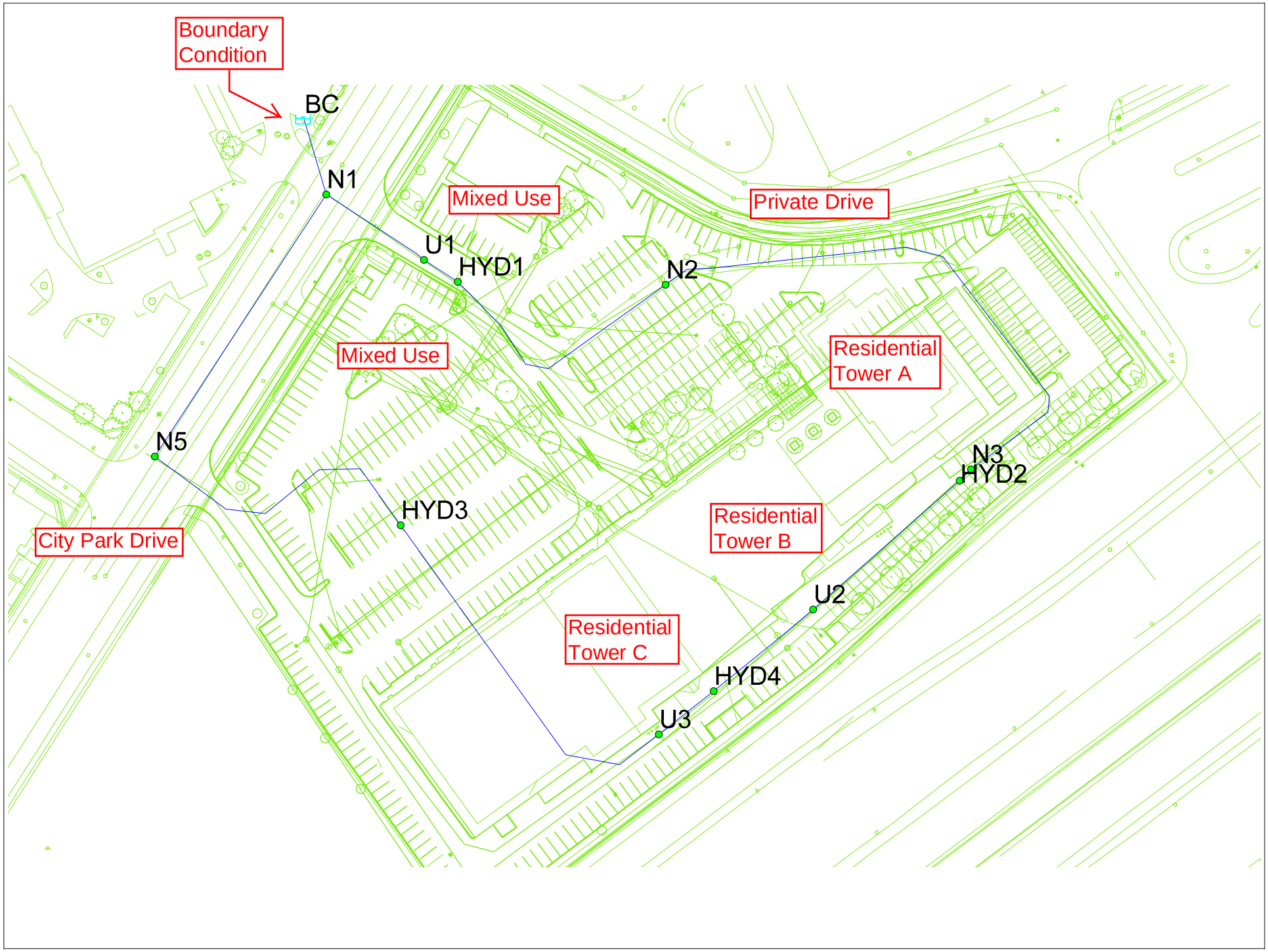
Phase 1 - Max Day + Fire HGL = 108.5 m - Fireflow Design Report

		ID	Total Demand (L/s)	Critical Node 1 ID	Critical Node 1 Pressure (kPa)	Critical Node 1 Head (m)	Adjusted Fire-Flow (L/s)	Available Flow @Hydrant (L/s)	Critical Node 2 ID	Critical Node 2 Pressure (kPa)	Critcal Node 2 Head (m)	Adjusted Available Flow (L/s)	Design Flow (L/s)
1		HYD1	133.30	HYD1	304.43	105.77	391.97	391.98	HYD1	139.96	88.98	391.98	391.97
2		HYD2	133.30	HYD2	260.32	100.37	222.69	222.70	HYD2	139.96	88.08	222.70	222.69
3		HYD3	133.30	HYD3	290.52	104.10	303.93	303.94	HYD3	139.96	88.73	303.94	303.93

Phase 1 - Peak Hour HGL 110.1 m - Pipe Report

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
1		11	N1	HYD1	40.26	204.00	110.00	6.57	0.20	0.01	0.37
2		13	BC	N1	1.00	297.00	120.00	12.63	0.18	0.000	0.17
3		17	N2	N3	145.86	204.00	110.00	6.53	0.20	0.05	0.37
4		19	N3	HYD2	4.10	204.00	110.00	-5.82	0.18	0.00	0.30
5		21	N4	HYD3	120.69	204.00	110.00	-6.06	0.19	0.04	0.32
6		23	HYD2	N4	100.33	204.00	110.00	-5.82	0.18	0.03	0.30
7		25	HYD3	N5	66.53	204.00	110.00	-6.06	0.19	0.02	0.32
8		27	N1	N5	79.84	297.00	120.00	6.06	0.09	0.00	0.04
9		29	HYD1	N2	69.97	204.00	110.00	6.57	0.20	0.03	0.37

Ultimate Water Model



Date: Thursday, November 12, 2015

Ultimate Basic Day (Maximum Pressure) HGL = 117.0 m - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1		HYD1	0.00	74.70	117.00	414.46
2		HYD2	0.00	73.80	116.98	423.13
3		HYD3	0.00	74.45	116.99	416.87
4		HYD4	0.00	73.65	116.98	424.61
5		N1	0.00	75.00	117.00	411.57
6		N2	0.61	74.60	116.99	415.38
7		N3	2.25	73.80	116.98	423.13
8		N5	0.00	74.40	117.00	417.44
9		U1	0.51	74.80	117.00	413.49
10		U2	1.87	73.70	116.98	424.11
11		U3	1.52	73.65	116.98	424.62

Ultimate - Peak Hour HGL = 110.1 m - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1		HYD1	0.00	74.70	109.99	345.85
2		HYD2	0.00	73.80	109.64	351.22
3		HYD3	0.00	74.45	109.90	347.36
4		HYD4	0.00	73.65	109.66	352.90
5		N1	0.00	75.00	110.10	343.94
6		N2	3.17	74.60	109.85	345.40
7		N3	12.35	73.80	109.64	351.22
8		N5	0.00	74.40	110.07	349.58
9		U1	2.81	74.80	110.02	345.08
10		U2	10.27	73.70	109.64	352.19
11		U3	8.34	73.65	109.68	353.02

Ultimate - Max Day + Fire HGL 108.5 m - Fireflow Design Report

		ID	Total Demand (L/s)	Critical Node 1 ID	Critical Node 1 Pressure (kPa)	Critical Node 1 Head (m)	Adjusted Fire-Flow (L/s)	Available Flow @Hydrant (L/s)	Critical Node 2 ID	Critical Node 2 Pressure (kPa)	Critcal Node 2 Head (m)	Adjusted Available Flow (L/s)	Design Flow (L/s)
1		HYD1	183.30	HYD1	280.80	103.36	386.86	386.86	HYD1	139.96	88.98	386.86	386.86
2		HYD2	183.30	HYD2	191.71	93.36	217.67	217.68	HYD2	139.96	88.08	217.68	217.67
3		HYD3	183.30	HYD3	243.70	99.32	282.53	282.56	HYD3	139.96	88.73	282.56	282.53
4		HYD4	183.30	HYD4	200.24	94.08	224.73	224.74	HYD4	139.96	87.93	224.74	224.73

Ultimate - Peak Hour HGL = 110.1 m - Pipe Report

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
1		11	N1	U1	29.99	204.00	110.00	19.52	0.60	0.08	2.78
2		13	BC	N1	1.00	297.00	120.00	36.94	0.53	0.00	1.24
3		17	N2	N3	145.86	204.00	110.00	13.54	0.41	0.21	1.41
4		19	N3	HYD2	4.10	204.00	110.00	1.19	0.04	0.0000	0.02
5		21	U3	HYD3	98.64	204.00	110.00	-17.42	0.53	0.22	2.25
6		23	HYD2	U2	49.72	204.00	110.00	1.19	0.04	0.000	0.02
7		25	HYD3	N5	78.56	204.00	110.00	-17.42	0.53	0.18	2.25
8		27	N1	N5	79.84	297.00	120.00	17.42	0.25	0.02	0.31
9		29	HYD1	N2	69.97	204.00	110.00	16.71	0.51	0.15	2.09
10		31	U1	HYD1	10.29	204.00	110.00	16.71	0.51	0.02	2.09
11		33	U2	HYD4	32.81	204.00	110.00	-9.08	0.28	0.02	0.67
12		35	HYD4	U3	17.81	204.00	110.00	-9.08	0.28	0.01	0.67

APPENDIX B

IBI GROUP
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PHASE 2

SANITARY SEWER DESIGN SHEET

City Park Drive Rio-Can Redevelopment
City of Ottawa
RioCan Management Inc.

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW	TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						PEAK FLOW (L/s)		AREA (Ha)		FLOW			CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
														INSTITUTIONAL		COMMERCIAL		INDUSTRIAL														
STREET	AREA ID	FROM MH	TO MH		SF	SD	TH	APT		IND	CUM			IND	CUM	IND	CUM	IND	CUM			IND	CUM	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
	1A, 2A, 12A, 3A, 4A, 5A	BLDG "A"	EXMH3A					227	1.95	408.6	408.6	3.41	4.52									1.95	1.95	0.64		5.16	39.61	48.80	200	1.34	1.221	34.44	86.96%
	PHASE 2	PHASE 2	EXMH3A					206	0.26	370.8	370.8	3.43	4.12									0.26	0.26	0.09		4.21	34.22	16.06	200	1.00	1.055	30.01	87.70%
	6A	EXMH3A	EXMH2A							0.0	779.4	3.29	8.32								0.00	0.00	2.21	0.73		9.05	24.67	45.00	200	0.52	0.761	15.63	63.33%
	7A, 8A, 9A	EX "REST"	EXMH11A						0.18							0.05	0.05				0.04	0.23	0.23	0.08		0.12	24.19	3.25	200	0.50	0.746	24.08	99.51%
	10A	EXMH11A	EXMH2A						0.21								0.05				0.04	0.21	0.44	0.15		0.19	30.22	46.00	200	0.78	0.932	30.03	99.38%
	11A	EXMH2A	EXMH1A						0.32		779.4	3.29	8.32				0.05				0.04	0.32	2.97	0.98		9.34	21.09	50.00	200	0.38	0.650	11.75	55.70%

Design Parameters:

Residential		
SF	3.4	p/p/u
TH/SD	2.7	p/p/u
APT	1.8	p/p/u
Other	60	p/p/Ha

ICI Areas			
			Peak Factor
INST	50,000	L/Ha/day	1.5
COM	50,000	L/Ha/day	1.5
IND	35,000	L/Ha/day	MOE Chart
	17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5))
where P = population in thousands

Designed: JEB

Checked: TRB

Dwg. Reference: 38729-501

No.	Revision	Date
1.	City submission No. 1	8/8/2018

File Reference: 38729.5.7.1
Date: 8/8/2018
Sheet No: 1 of 1

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ULTIMATE SCENERIO

SANITARY SEWER DESIGN SHEET

City Park Drive Rio-Can Redevelopment
City of Ottawa
RioCan Management Inc.

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW	TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						PEAK FLOW (L/s)		AREA (Ha)		FLOW			CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	SD	TH	APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL				IND	CUM	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
														IND	CUM	IND	CUM	IND	CUM														
		EX Phase 1	MH101A					227		409	409	3.41	4.52									0.00	0.00	0.00		4.52	39.61	48.80	200	1.34	1.221	35.09	88.59%
		Phase 2	MH101A					206		371	371	3.43	4.12									0.00	0.00	0.00		4.12	34.22	16.06	200	1.00	1.055	30.09	87.95%
		MH101A	MH102A							0	779	3.29	8.32									0.00	0.00	0.00		8.32	33.98	18.11	250	0.30	0.671	25.66	75.52%
		Phase 3	MH102A					155		279	279	3.47	3.14									0.00	0.00	0.00		3.14	34.22	20.00	200	1.00	1.055	31.08	90.82%
		MH102A	MH103A							0	1058	3.23	11.07									0.00	0.00	0.00		11.07	33.98	37.94	250	0.30	0.671	22.91	67.42%
		Phase 4	MH103A					135		243	243	3.49	2.75									0.00	0.00	0.00		2.75	34.22	20.00	200	1.00	1.055	31.47	91.96%
		MH103A	MH104A							0	1301	3.18	13.41									0.00	0.00	0.00		13.41	33.98	36.75	250	0.30	0.671	20.57	60.55%
		COMM	MH104A							0	0	3.80	0.00			0.15	0.15			0.13		0.15	0.15	0.00		0.13	34.22	20.00	200	1.00	1.055	34.09	99.62%
		MH104A	City Park Drive							0	1301	3.18	13.41			0.00	0.15			0.13		2.50	2.50	0.83		14.36	33.98	33.15	250	0.30	0.671	19.62	57.74%
		PH5	Maxime Collector					160		288	288	4.00	3.73									0.47	0.47	0.16		3.89	34.22	13.01	200	1.00	1.055	30.33	88.64%

Design Parameters:

Residential			ICI Areas			
						Peak Factor
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	50,000	L/Ha/day	1.5
APT	1.8	p/p/u	COM	50,000	L/Ha/day	1.5
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
				17000	L/Ha/day	

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 300 L/day
3. Infiltration allowance: 0.33 L/s/Ha 0.4 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands

Designed: JEB

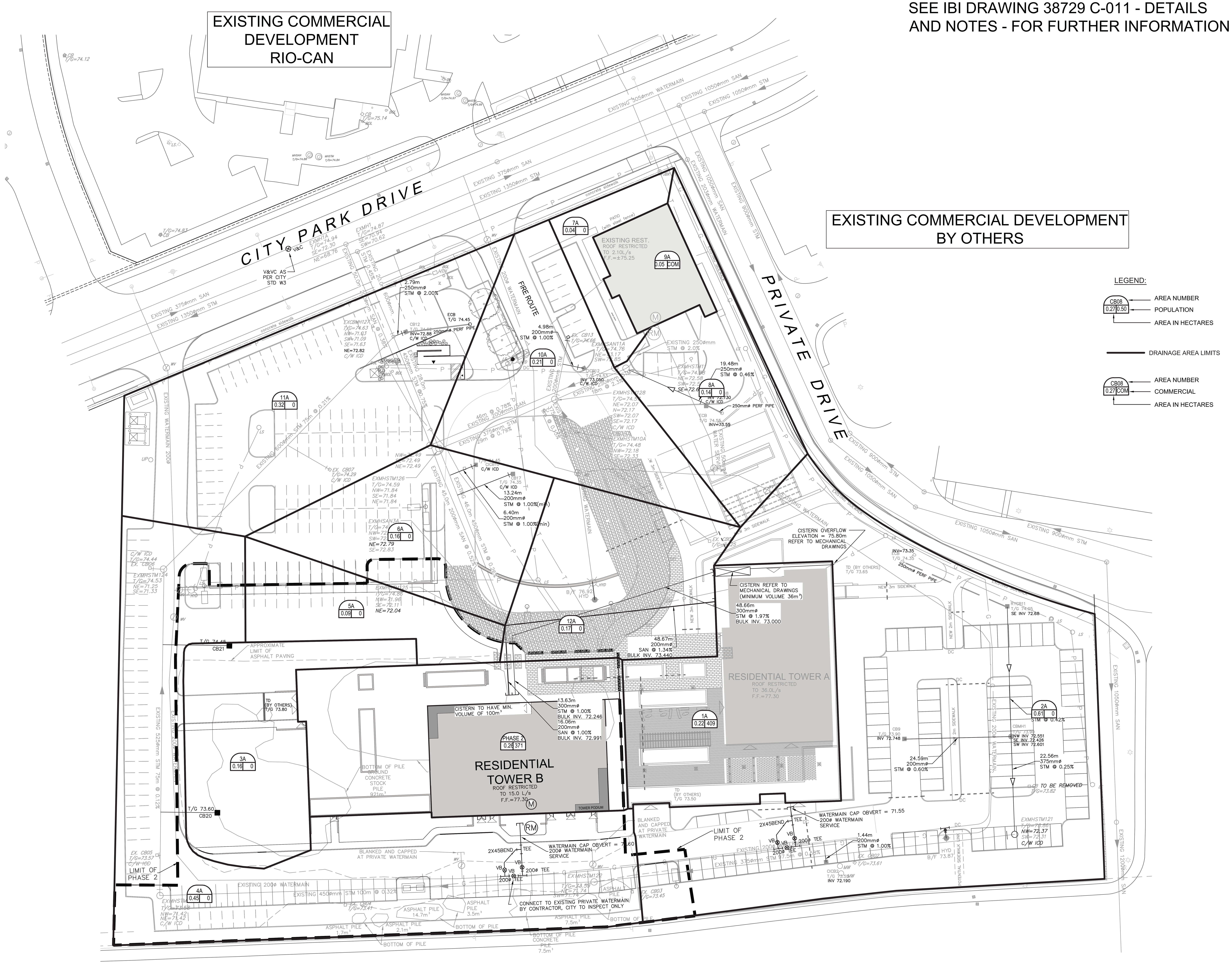
Checked: TRB

Dwg. Reference: 38729 - C-102

No.	Revision	Date
1.	City submission No. 1	8/8/2018

File Reference:	Date:	Sheet No:
38729.5.7.1	8/8/2018	1 of 1

SEE IBI DRAWING 38729 C-011 - DETAILS AND NOTES - FOR FURTHER INFORMATION



SITE

APPROVED ☐ REFUSED ☐

THIS ___ DAY OF ___________, 20____

DON HERWEYER, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

RIO CAN
REAL ESTATE INVESTMENT TRUST

Killam PROPERTIES INC

No.	REVISIONS	By	Date
14			
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1	ISSUED TO CITY	TRB	18:08:08

HOBIN ARCHITECTURE

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

Project Title
2280 CITY PARK DEVELOPMENT
PHASE 2

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2018/08/08
PROVINCE OF ONTARIO

N

Drawing Title
SANITARY DRAINAGE AREA PLAN

Scale
1 : 400

Design	Date
J.E.B.	AUG. 2018
Drawn	**Checked**
E.H.	T.R.B.
Project No.	**Drawing No.**
38729	C-551

D07-12-15-0187

17090

From: Jort-Conway, Melissa
Sent: August 20, 2015 11:27 AM
To: 'Paul Black'
Cc: Robertson, Syd; Dubyk, Wally; Moise, Christopher
Subject: Pre-application Summary - 2280 City Park Drive (PC2015-0190)

Hello Paul,

These comments are being provided following the meeting held on July 29, 2015 as well as a follow e-mail which you sent to me on August 11, 2015 outlining your application strategy. It is my understanding that we are to provide requirements for a complete submission for the following applications, which are to be submitted concurrently:

- A Site Plan application for area of the site zoned TD3 [2084] – link to application form
- A Zoning By-law Amendment (Major) application for the area of the site zoned MC [1349] F(1.1) H(22) – link to application form

Regarding the application for Site Plan, it is our expectation that you will submit separate drawings for a) the interim development (TD3 building) and; b) the ultimate development concept for the site. We require that the transportation and engineering studies provide an analysis of the total demands of the entire site and in addition address (in plan and text form) how the work is to be phased.

Confederation Line Proximity Study
Input from the Light Rail Office of the City indicates that a Level 2 Proximity Study is required. Here is the link to the Confederation Line Proximity Study Guidelines.

Multi-Use Pathway (MUP) dedication
We require the dedication of an 8 metre Multi-Use Pathway (MUP) which will extend east-west along the south property line connecting with the transit station property. The 8 metres would be broken down as follows: 3.0 metre paved MUP, 1.5 metre buffer (grass), and 3.5 metre green space. This requirement is consistent with other sites to the west of the property that we have pre-consulted with.

Urban Design comments
This proposal is subject to the Urban Design Review Panel (UDRP) and a Design Brief for that meeting should be prepared in appropriate detail. The design should take into consideration the planned MUP connections to the adjacent property to the west and along the southern property line. Consideration should also me made for the future condition of the southern drive aisle and parking area when potentially shielded from appropriate safety standards due to the podium and LRT line to the south.

Engineering comments
Please note the following servicing comments pertaining to the above noted site:

1. Stormwater Management:
   - The City will be requiring on-site quantity control based on the 5 yr storm event, a calculated time of concentration & C = 0.5, as per the City's sewer design guidelines.
   - The downstream City storm system outfalls to the Shenkman Pond (SWF 1615) – Contact Jocelyn Chandler, Planner, RVCA regarding on-site stormwater quality treatment

requirements noting that the receiving watercourse is the north Cyrville Drain that flows to Greens Creek.

2. Sanitary Sewer System:
   - The local 375mm diameter sanitary sewermain on City Park Place and the Maxime Relief Sanitary Trunk sewer have sufficient capacity to accommodate the net increase in sanitary flows from the subject site (approx 23 L/s).

3. Water Supply – Boundary Conditions:
   - The following are boundary conditions, HGL, for hydraulic analysis at 2280 City Park (zone 1E) assumed to be connected to the 305mm on City Park Drive (see attached PDF for location).
     Minimum HGL = 110.1m
     Maximum HGL = 117.0m
     MaxDay (16.41 L/s) + FireFlow (250 L/s) = 108.5m
   - Boundary conditions were based on the following water demand data provided by the consultant:

Average Daily Demand:	6.56 l/s
Maximum Daily Demand:	16.41 l/s
Peak Hour Demand:	36.09 l/s
Fire Flow Demand:	250 l/s

These are for current conditions and are based on computer model simulation.

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

Zoning

Here is a link to the TD3 zone. The concept provided at the meeting appears to provide an oversupply of parking. Please ensure that the plan respects the parking requirements for development in a TOD area - see Section 195, (9) and (10). Specifically, please refer to the requirements in Table 195 which is found in Section 195 of the Zoning By-law (link provided). We also point out the requirements for the portion of the site that is within the *Active Street Frontage* area shown on Schedule 316 of the Zoning By-law.

Density Targets

The Official Plan sets out minimum density targets for the Blair – 174 Mixed Use Centre of 200 people and jobs per gross hectare. New development is required to meet these requirements and also in conformity with the Blair TOD Secondary Plan. Please note that at some time in the future, it is expected that the Zoning By-law will convert the requirements from gross density to net density and from people and jobs per hectare to dwelling units and gross floor area. In the interim, please ensure that you demonstrate that the proposed densities are in line with the Blair TOD Secondary Plan and Official Plan Figure 2.3 (Section 2.2.2. (4) of OPA 150).

Landscaping and Amenity space

If there are no existing trees on site, there is no requirement for a Tree Conservation Report. A Landscape Plan only in this instance will suffice. Native trees only. If there are existing trees on site

which are either to be maintained or removed, a TCR is required to outline the tree protection measures to be used. Details on the type of the amenity features is requested. Pedestrian linkages are to be shown internal as well as along the municipal right-of-way in accordance with City specifications. Areas set aside for bicycle parking are to be shown as well details on type.

Should you wish the discuss the comments provided here, please do not hesitate to contact me.

Thank you.

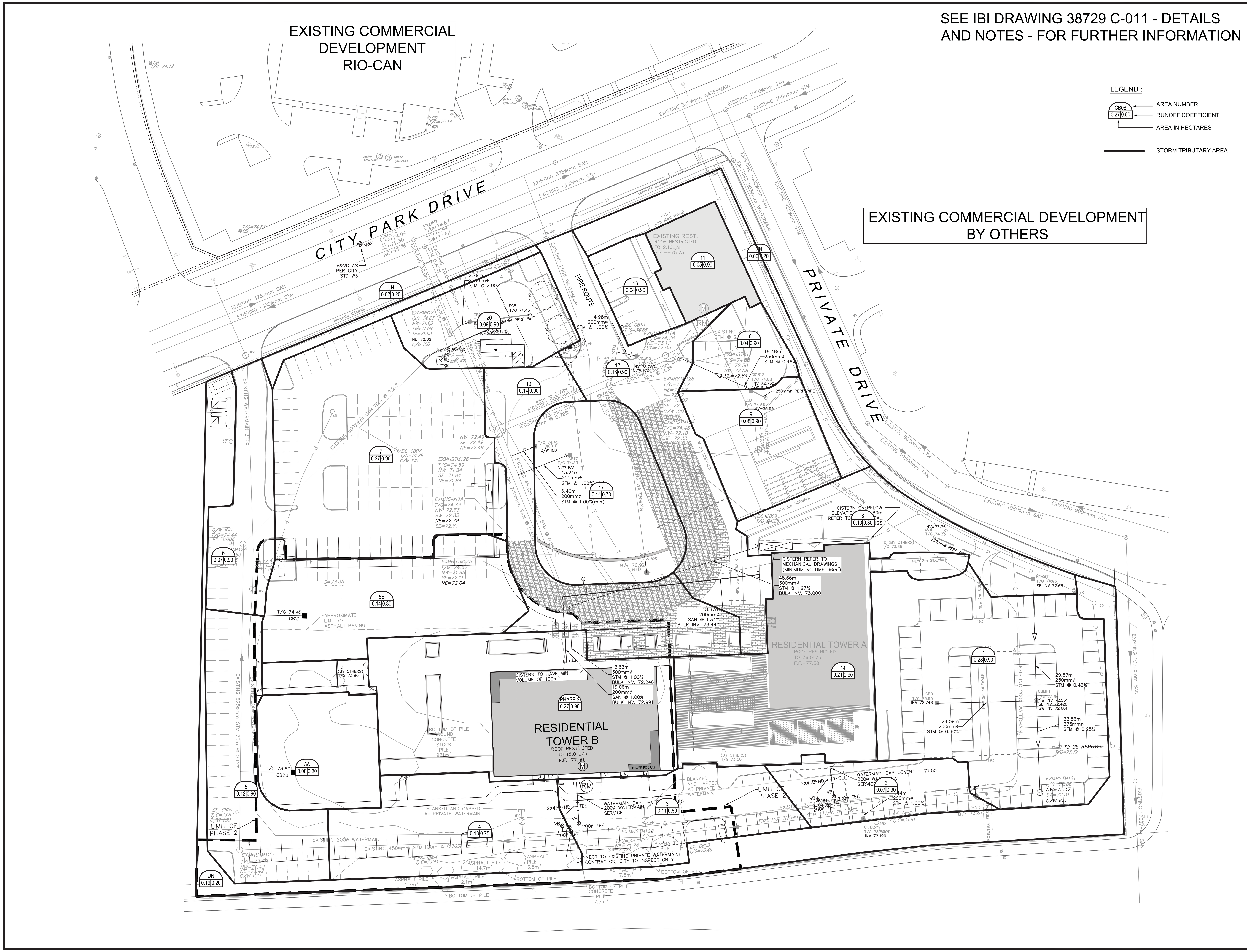
Melissa

Melissa Jort-Conway, MCIP, RPP
Planner
Development Review, Urban Services
Urbaniste
Examen des projets d'aménagement

PLANNING AND GROWTH MANAGEMENT
URBANISME ET GESTION DE LA CROISSANCE

City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 16187
ottawa.ca/planning / ottawa.ca/urbanisme

APPENDIX C



SITE

APPROVED ☐ REFUSED ☐

THIS___ DAY OF ___________ , 20____

DON HERWEYER, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

RIO CAN
REAL ESTATE INVESTMENT TRUST

Killam PROPERTIES INC

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HOBIN ARCHITECTURE

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Project Title
2280 CITY PARK DEVELOPMENT
PHASE 2

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2018/08/08
PROVINCE OF ONTARIO

N

Drawing Title
STORM DRAINAGE AREA PLAN

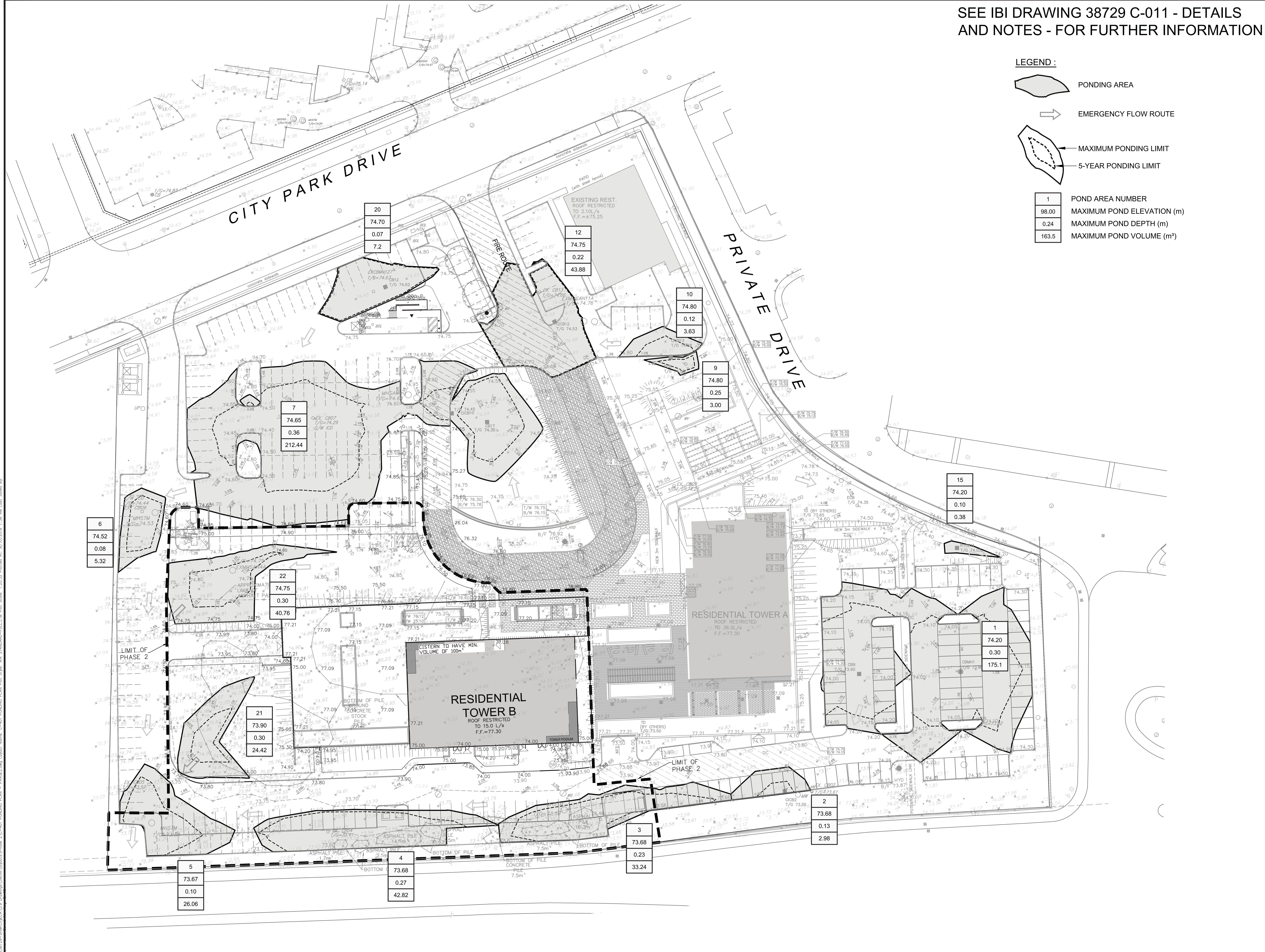
Scale
1 : 400

Design	Date
J.E.B.	AUG. 2018
Drawn	Checked
E.H.	T.R.B.
Project No.	Drawing No.
38729	C-501

D07-12-15-0187

17090

SEE IBI DRAWING 38729 C-011 - DETAILS AND NOTES - FOR FURTHER INFORMATION



LEGEND :

- PONDING AREA
- EMERGENCY FLOW ROUTE
- MAXIMUM PONDING LIMIT
- 5-YEAR PONDING LIMIT

1	POND AREA NUMBER
98.00	MAXIMUM POND ELEVATION (m)
0.24	MAXIMUM POND DEPTH (m)
163.5	MAXIMUM POND VOLUME (m³)

APPROVED ☐ REFUSED ☐

THIS___ DAY OF ___________, 20_____

DON HERWEYER, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE AND ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

RIO CAN
REAL ESTATE INVESTMENT TRUST

Killam PROPERTIES INC

No.	REVISIONS	By	Date
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1	ISSUED TO CITY	TRB	18:08:08

HOBIN ARCHITECTURE

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Project Title
2280 CITY PARK DEVELOPMENT
PHASE 2

LICENSED PROFESSIONAL ENGINEER T. R. BRULE 2018/08/08 PROVINCE OF ONTARIO

Drawing Title
PONDING PLAN

Scale 1:400

Design	Date
J.E.B.	AUG. 2018
Drawn	**Checked**
E.H.	T.R.B.
Project No.	**Drawing No.**
38729	C-401

D07-12-15-0187

17090

City of Gloucester
STORM SEWER COMPUTATION FORM
Client: Trinity Development Group Ltd.
Project: Gloucester City Center
Date:Revised February 1999
Designed by: Michel Kearney
Checked by: Charles Warnock

Rational Method:
(IDF curve for Ottawa Airport
5 yr frequency)

Q= 2.78AIR
Tc= Time of Concentration = 15
n= 0.013
R= Runoff coefficient
I = Rainfall Intensity = 30.3 x t ^(-.727(

Area	From MH	To MH	Roof Area (ha.)	Roof Flow (L/sec)	AREA (ha) R 0.5	AREA (ha) R 0.6	AREA (ha) R 0.9	Ind. 2.78AR	Accum. 2.78AR	Time of Conc. (min)	Rainfall Intensity (mm/hr) (I)	Peak Flow Q(L/sec)	Type of Pipe	Diameter (mm) (nom.)
28,29,30	121	122					0.51	1.28	1.28	15.00	83.0	106.3	PVC	375
31	122	123					0.10	0.25	1.53	16.63	77.0	117.8	PVC	450
32,33	123	124					0.15	0.38	1.91	18.19	72.2	137.8	PVC	525
34	124	127					0.40	1.00	2.91	19.56	68.4	199.2	PVC	600
35,37	128	126	0.05	2.1			0.60	1.50	1.50	15.00	83.0	126.6	PVC	375
Retail 1 to 7	125	126	0.66	22.8			0.25	0.63	0.63	15.00	83.0	75.1	PVC	450
	126	127						0.00	2.13	15.35	81.6	198.8	PVC	450
36	127	Existing					0.10	0.25	5.29	20.34	66.5	376.8	PVC	600

City of Gloucester
STORM SEWER COMPUTATION FORM
Client: Trinity Development Group Ltd.
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28,29,30	121	122					0.51	1.28	1.28	15.00	83.0	106.3	PVC	375
31	122	123					0.10	0.25	1.53	16.63	77.0	117.8	PVC	450
32,33	123	124					0.15	0.38	1.91	18.19	72.2	137.8	PVC	525
34	124	127					0.40	1.00	2.91	19.56	68.4	199.2	PVC	600
35,37	128	126	0.05	2.1			0.60	1.50	1.50	15.00	83.0	126.6	PVC	375
Retail 1 to 7	125	126	0.66	22.8			0.25	0.63	0.63	15.00	83.0	75.1	PVC	450
	126	127						0.00	2.13	15.35	81.6	198.8	PVC	450
36	127	Existing					0.10	0.25	5.29	20.34	66.5	376.8	PVC	600
		Total	0.71				2.11							

IBI GROUP
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

PHASE 2

STORM SEWER DESIGN SHEET

City Park Drive Rio-Can Redevelopment
City of Ottawa
RioCan Management Inc.

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW												SEWER DATA									
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.30	C= 0.40	C= 0.50	C= 0.57	C= 0.70	C= 0.75	C= 0.70	C= 0.80	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (5yr) (L/s)	(%)
	8	RYCB11	CBMH1		0.10									0.08	0.08	10.00	0.63	10.63	104.19	122.14	178.56	8.69				8.69	40.21	29.87	250			0.42	0.793	31.52	78.39%
	1	CBMH1	EXMH121										0.28	0.70	0.78	10.63	0.41	11.04	100.99	118.37	173.02	79.17				79.17	91.46	19.96	375			0.25	0.802	12.28	13.43%
	2, 3	EXMH121	EXMH122									0.11	0.07	0.42	1.20	11.04	1.33	12.37	98.99	116.02	169.56	119.16				119.16	139.30	97.50	375			0.58	1.222	20.14	14.46%
	4	EXMH122	EXMH123							0.13				0.27	1.47	12.37	1.63	14.00	93.14	109.12	159.44	137.36				137.36	168.25	100.00	450			0.32	1.025	30.90	18.36%
	5, 5A, 5B	EXMH123	EXMH124		0.22								0.12	0.48	1.96	14.00	1.80	15.80	86.94	101.83	148.73	170.27				170.27	155.42	75.00	525			0.12	0.696	-14.85	-9.56%
	6, 7	EXMH124	EXCBMH127										0.34	0.85	2.81	15.80	1.24	17.04	81.07	94.93	138.61	227.75				227.75	293.54	75.00	600			0.21	1.006	65.79	22.41%
	9, 10	CICB13	EXMHSTM11										0.12	0.30	0.30	10.00	0.40	10.40	104.19	122.14	178.56	31.28				31.28	42.08	19.69	250			0.46	0.830	10.79	25.65%
	11	EX "REST"	EXMH11										0.05	0.00	0.00	10.00	0.10	10.10	104.19	122.14	178.56	0.00			2.10	2.10	87.74	10.00	250			2.00	1.731	85.64	97.61%
		EXMH11	EXMH128										0.00	0.00	0.30	10.40	0.16	10.56	102.15	119.74	175.03	30.67			2.10	32.77	94.09	18.00	250			2.30	1.857	61.32	65.17%
	12, 13	EXMH128	EXMH126										0.20	0.50	0.80	10.40	0.34	10.73	102.15	119.74	175.03	81.79			2.10	83.89	162.57	29.00	375			0.79	1.426	78.69	48.40%
	14	BLDG A	EXMH125										0.21	0.53	0.53	10.00	0.37	10.37	104.19	122.14	178.56	0.00			36.00	36.00	141.59	42.80	300			1.97	1.941	105.59	74.58%
	PHASE 2	PHASE 2	EXMH125										0.27	0.68	0.68	10.00	0.52	10.52	104.19	122.14	178.56	0.00			15.00	15.00	100.88	42.80	300			1.00	1.383	85.88	85.13%
	17, 19	EXMH125	EXMH126						0.14				0.14	0.62	0.62	10.37	0.83	11.20	102.29	119.90	175.27	63.70			51.00	114.70	151.66	46.00	450			0.26	0.924	36.96	24.37%
		EXMH126	EXCBMH127											0.00	1.42	10.73	0.30	11.03	100.47	117.76	172.12	143.00			53.10	196.10	257.58	28.00	450			0.75	1.569	61.48	23.87%
	20	EXCBMH127	EXMH1										0.09	0.23	4.46	17.04	0.23	17.26	77.50	90.73	132.45	345.48			53.10	398.58	429.70	20.00	600			0.45	1.472	31.12	7.24%

Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013
2. Existing pipe diameters taken from OMM design brief dated February 1999
3. Existing pipe lengths and slopes taken from field survey data by Stantec and IBI Group

Designed: Designed: JEB

Checked: Checked: TRB

Dwg. Reference: 38729-500

No.	Revision	Date
1.	City submission No. 1	August 10, 2018

File Reference:	Date:	Sheet No:
38729.5.7.1	8/8/2018	1 of 1

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT: RioCan Silver City
DATE: 11/3/2015
FILE: 38729 - 5.7
REV #: 4 - 2018-08-09
DESIGNED BY: JEB
CHECKED BY: TB

STORMWATER MANAGEMENT

Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = $732.951 / (T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = $998.071 / (T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = $1735.688 / (T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate (based TOD 5y @ C=0.5)

C =	0.5		
T_c =	17.27	min	*as per proposed Storm Sewer Design sheet
i_{100yr} =	76.87	mm/hr	
A_{TOTAL} =	2.86	Ha	
Q_{TOTAL} =	305.61	L/s	

Q_{TOTAL} =	305.61	L/s

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

C =	0.3	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.26	Ha
$Q_{uncontrolled}$ =	38.72	L/s

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

$Q_{max\ allowable}$ =	266.89	L/s

MODIFIED RATIONAL METHOD (100-Year & 5-Year)

Drainage Area	***1***	(1 & 8 with weighted average C)	
Area (Ha)	0.380		
C =	0.79	Restricted Flow Q_r (L/s)=	4.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
183	23.59	19.74	4.00	15.74	172.80
185	23.39	19.57	4.00	15.57	172.81
186	23.29	19.48	4.00	15.48	**172.81**
187	23.19	19.40	4.00	15.40	172.81
189	22.99	19.24	4.00	15.24	172.80

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	172.81	175.10	3.90	0.00

Drainage Area	***1***		
Area (Ha)	0.380		
C =	0.70	Restricted Flow Q_r (L/s)=	4.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
95	23.31	17.23	4.00	13.23	75.43
97	22.94	16.96	4.00	12.96	75.43
98	22.76	16.83	4.00	12.83	**75.43**
99	22.58	16.70	4.00	12.70	75.43
101	22.24	16.44	4.00	12.44	75.41

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	75.43	175.10	3.90	0.00

IN-LINE STORAGE (Structure)

0.6m X 0.6m CB			1.2mDia CBMH's		
0.36 m3/m	Height	Storage	1.13 m3/m	Height	Storage
	(m)	(m3)		(m)	(m3)
RYCB11	1.12	0.40	CBMH1	1.17	1.33
RYCB12	1.02	0.37		Total:	**1.33**
CB9	0.85	0.31			
	Total:	**1.08**			

overflows to: 2,3,4

IN-LINE STORAGE (Structure)

IN-LINE STORAGE (Pipe)

Pipe storage			
Structure to Structure	Length	Dia	Storage
	(m)	(m)	(m3)
RYCB12 - RYCB11	23.29	0.20	0.73
RYCB11 - CBMH1	28.43	0.25	1.40
CB9 - CBMH1	24.59	0.20	0.77
CBMH1 - EXMHSTM121	22.56	0.38	2.49
		Total:	**5.39**

overflows to: 2,3,4

Drainage Area	2,3,4				
Area (Ha)	0.310				
C =	1.00	Restricted Flow Q_r (L/s)=		25.00	

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
27	98.66	85.02	25.00	60.02	97.24
29	94.01	81.02	25.00	56.02	97.48
30	91.87	79.17	25.00	54.17	**97.51**
31	89.83	77.41	25.00	52.41	97.49
33	86.03	74.14	25.00	49.14	97.31

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	97.51	81.48	15.75	0.28

IN-LINE STORAGE (Structure)

0.6m X 0.6m CB			1.2mDia CBMH's		
0.36 m3/m	Height	Storage	1.13 m3/m	Height	Storage
	(m)	(m3)		(m)	(m3)
CICB2	1.35	0.49	EXMHSTM121	1.37	1.55
EXCB03	1.10	0.40	EXMHSTM122	1.85	2.09
EXCB04	0.85	0.31		Total:	**3.64**
	Total:	**1.19**			

overflows to: offsite

Drainage Area	2,3,4				
Area (Ha)	0.310				
C =	0.90	Restricted Flow Q_r (L/s)=		25.00	

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
13	90.63	70.29	25.00	45.29	35.33
15	83.56	64.81	25.00	39.81	35.83
16	80.46	62.41	25.00	37.41	**35.91**
17	77.61	60.19	25.00	35.19	35.90
19	72.53	56.25	25.00	31.25	35.63

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	35.91	81.48	15.75	0.00

IN-LINE STORAGE (Pipe)

Pipe storage			
Structure to Structure	Length	Dia	Storage
	(m)	(m)	(m3)
MHSTM121 - MHSTM122	97.50	0.38	10.77
MHSTM122 - MHSTM123	100.00	0.45	15.90
		Total:	**26.67**

overflows to: offsite

Drainage Area	5				
Area (Ha)	0.120				
C =	1.00	Restricted Flow Q_r (L/s)=		27.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
8	199.20	66.45	27.00	39.45	18.94
10	178.56	59.57	27.00	32.57	19.54
11	169.91	56.68	27.00	29.68	**19.59**
12	162.13	54.09	27.00	27.09	19.50
14	148.72	49.61	27.00	22.61	19.00

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
6.38	25.97	26.06	0	0.00

overflows to: offsite

Drainage Area	5				
Area (Ha)	0.120				
C =	0.90	Restricted Flow Q_r (L/s)=		27.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
2	182.69	54.85	27.00	27.85	3.34
4	152.51	45.79	27.00	18.79	4.51
5	141.18	42.39	27.00	15.39	**4.62**
6	131.57	39.50	27.00	12.50	4.50
8	116.11	34.86	27.00	7.86	3.77

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.62	26.06	0	0.00

overflows to: offsite

Drainage Area	5A				
Area (Ha)	0.080				
C =	0.38	Restricted Flow Q_r (L/s)=		2.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
33	86.03	7.18	2.00	5.18	10.25
35	82.58	6.89	2.00	4.89	10.26
36	80.96	6.75	2.00	4.75	**10.27**
37	79.42	6.62	2.00	4.62	10.26
39	76.51	6.38	2.00	4.38	10.25

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
	10.27	24.42	0	0.00

Drainage Area	5A				
Area (Ha)	0.080				
C =	0.30	Restricted Flow Q_r (L/s)=		2.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
15	83.56	5.57	2.00	3.57	3.22
17	77.61	5.18	2.00	3.18	3.24
18	74.97	5.00	2.00	3.00	**3.24**
19	72.53	4.84	2.00	2.84	3.24
21	68.13	4.55	2.00	2.55	3.21

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	3.24	24.42	0	0.00

Drainage Area	5B				
Area (Ha)	0.140				
C =	0.38	Restricted Flow Q_r (L/s)=		2.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
60	55.89	8.16	2.00	6.16	22.17
62	54.54	7.96	2.00	5.96	22.17
63	53.89	7.87	2.00	5.87	**22.17**
64	53.26	7.77	2.00	5.77	22.17
66	52.05	7.60	2.00	5.60	22.16

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
	22.17	40.76	0	0.00

Drainage Area	5B				
Area (Ha)	0.140				
C =	0.30	Restricted Flow Q_r (L/s)=		2.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
28	56.49	6.60	2.00	4.60	7.72
30	53.93	6.30	2.00	4.30	7.73
31	52.74	6.16	2.00	4.16	**7.73**
32	51.61	6.03	2.00	4.03	7.73
34	49.50	5.78	2.00	3.78	7.71

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	7.73	40.76	0	0.00

Drainage Area	6				
Area (Ha)	0.080				
C =	1.00	Restricted Flow Q_r (L/s)=		21.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
6	226.01	50.26	21.00	29.26	10.54
8	199.20	44.30	21.00	23.30	11.19
9	188.25	41.87	21.00	20.87	**11.27**
10	178.56	39.71	21.00	18.71	11.23
12	162.13	36.06	21.00	15.06	10.84

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.43	11.70	5.32	0	6.38

overflows to: 5

Drainage Area	6				
Area (Ha)	0.080				
C =	0.90	Restricted Flow Q_r (L/s)=		21.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
1	203.51	40.73	21.00	19.73	1.18
3	166.09	33.24	21.00	12.24	2.20
4	152.51	30.53	21.00	9.53	**2.29**
5	141.18	28.26	21.00	7.26	2.18
7	123.30	24.68	21.00	3.68	1.55

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.29	5.32	0	0.00

overflows to: 5

Drainage Area	1, 19 & 7				
Area (Ha)	0.550				
C =	1.00	Restricted Flow Q_r (L/s)=		30.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
41	73.83	112.89	30.00	82.89	203.91
42	72.57	110.96	30.00	80.96	204.01
43	71.35	109.10	30.00	79.10	**204.07**
44	70.18	107.31	30.00	77.31	204.09
46	67.96	103.91	30.00	73.91	203.99

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
8.80	212.87	212.44	0.00	0.43

overflow from: 20, 19

overflows to: 6

Drainage Area	1, 19 & 7				
Area (Ha)	0.550				
C =	0.80	Restricted Flow Q_r (L/s)=		30.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
18	74.97	91.70	30.00	61.70	66.64
20	70.25	85.93	30.00	55.93	67.12
21	68.13	83.34	30.00	53.34	**67.20**
22	66.15	80.91	30.00	50.91	67.20
24	62.54	76.50	30.00	46.50	66.96

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	67.20	212.44	0	0.00

overflows to: 6

Drainage Area	20			
Area (Ha)	0.090			
C =	1.00	Restricted Flow Q_r (L/s)=	19.80	Existing

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
8	199.20	49.84	19.80	30.04	14.42
10	178.56	44.68	19.80	24.88	14.93
11	169.91	42.51	19.80	22.71	**14.99**
12	162.13	40.57	19.80	20.77	14.95
14	148.72	37.21	19.80	17.41	14.62

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	14.99	7.20	0.00	7.79

overflows to: 1, 19 & 7

Drainage Area	20			
Area (Ha)	0.090			
C =	0.90	Restricted Flow Q_r (L/s)=	19.80	

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
2	182.69	41.14	19.80	21.34	2.56
4	152.51	34.34	19.80	14.54	3.49
5	141.18	31.79	19.80	11.99	**3.60**
6	131.57	29.63	19.80	9.83	3.54
8	116.11	26.15	19.80	6.35	3.05

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	3.60	7.20	0	0.00

overflows to: 1, 19 & 7

Drainage Area	12, 13			
Area (Ha)	0.200			
C =	1.00	Restricted Flow Q_r (L/s)=	33.00	

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
12	162.13	90.15	33.00	57.15	41.15
14	148.72	82.69	33.00	49.69	41.74
15	142.89	79.45	33.00	46.45	**41.80**
16	137.55	76.48	33.00	43.48	41.74
18	128.08	71.21	33.00	38.21	41.27

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
3.08	44.89	43.88	0.00	1.01

overflow from: 10.00 overflows to: 19

Drainage Area	12, 13			
Area (Ha)	0.200			
C =	0.90	Restricted Flow Q_r (L/s)=	33.00	

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
4	152.51	76.32	33.00	43.32	10.40
6	131.57	65.84	33.00	32.84	11.82
7	123.30	61.70	33.00	28.70	**12.05**
8	116.11	58.10	33.00	25.10	12.05
10	104.19	52.14	33.00	19.14	11.48

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	12.05	43.88	0	0.00

overflows to: 19

Drainage Area	10				
Area (Ha)	0.040				
C =	1.00	Restricted Flow Q_r (L/s)=	18.00		
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
2	315.00	35.03	18.00	17.03	2.04
4	262.41	29.18	18.00	11.18	2.68
5	242.70	26.99	18.00	8.99	**2.70**
6	226.01	25.13	18.00	7.13	2.57
8	199.20	22.15	18.00	4.15	1.99

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
5.02	7.71	3.63	1.00	3.08

overflow from: 9.00 overflows to: 12

Drainage Area	10				
Area (Ha)	0.040				
C =	0.30	Restricted Flow Q_r (L/s)=	18.00		
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-5	956.98	31.92	18.00	13.92	-4.18
-3	402.34	13.42	18.00	-4.58	0.82
-2	319.47	10.66	18.00	-7.34	**0.88**
-1	266.98	8.91	18.00	-9.09	0.55
1	203.51	6.79	18.00	-11.21	-0.67

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.88	3.63	1	0.00

overflows to: 12

Drainage Area	9				
Area (Ha)	0.080				
C =	1.00	Restricted Flow Q_r (L/s)=	28.00		
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
3	286.05	63.62	28.00	35.62	6.41
5	242.70	53.98	28.00	25.98	7.79
6	226.01	50.26	28.00	22.26	**8.02**
7	211.67	47.07	28.00	19.07	8.01
9	188.25	41.87	28.00	13.87	7.49

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	8.02	3.00	0.00	5.02

overflows to: 10

Drainage Area	9				
Area (Ha)	0.080				
C =	0.30	Restricted Flow Q_r (L/s)=	28.00		
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-5	956.98	63.85	28.00	35.85	-10.75
-3	402.34	26.84	28.00	-1.16	0.21
-2	319.47	21.32	28.00	-6.68	**0.80**
-1	266.98	17.81	28.00	-10.19	0.61
1	203.51	13.58	28.00	-14.42	-0.87

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.80	3.00	0	0.00

overflows to: 10

Drainage Area	PHASE 2				
Area (Ha)	0.270				
C =	1.00	Restricted Flow Q_r (L/s)=	15.00		
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
40	75.15	56.40	15.00	41.40	99.37
42	72.57	54.47	15.00	39.47	99.46
43	71.35	53.56	15.00	38.56	**99.48**
44	70.18	52.68	15.00	37.68	99.47
46	67.96	51.01	15.00	36.01	99.39

Storage (m^3)

Overflow	Required	Cistern	Sub-surface	Balance
0.00	99.48	100.00	0.00	0.00

overflows to:

Drainage Area	PHASE 2				
Area (Ha)	0.270				
C =	0.90	Restricted Flow Q_r (L/s)=	15.00		
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
21	68.13	46.02	15.00	31.02	39.09
23	64.29	43.43	15.00	28.43	39.23
24	62.54	42.25	15.00	27.25	**39.24**
25	60.90	41.14	15.00	26.14	39.21
27	57.88	39.10	15.00	24.10	39.04

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	39.24	100.00	0	0.00

overflows to: 0.00

Drainage Area	11				
Area (Ha)	0.050				
C =	1.00	Restricted Flow Q_r (L/s)=	2.10		
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
53	61.28	8.52	2.10	6.42	20.41
54	60.44	8.40	2.10	6.30	20.41
55	59.62	8.29	2.10	6.19	**20.42**
56	58.83	8.18	2.10	6.08	20.42
57	58.07	8.07	2.10	5.97	20.42

Storage (m^3)

Overflow	Required	Roof	Sub-surface	Balance
0.00	20.42	22.00	0.00	0.00

overflows to:

Drainage Area	11				
Area (Ha)	0.050				
C =	0.90	Restricted Flow Q_r (L/s)=	2.10		
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
28	56.49	7.07	2.10	4.97	8.34
30	53.93	6.75	2.10	4.65	8.36
31	52.74	6.60	2.10	4.50	**8.37**
32	51.61	6.46	2.10	4.36	8.36
34	49.50	6.19	2.10	4.09	8.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	8.37	22.00	0	0.00

overflows to: 0.00

Drainage Area	14 (TWR A)				
Area (Ha)	0.210				
C =	1.00	Restricted Flow Q_r (L/s)=	36.00		
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
12	162.13	94.65	36.00	58.65	42.23
13	155.11	90.55	36.00	54.55	42.55
14	148.72	86.82	36.00	50.82	**42.69**
15	142.89	83.42	36.00	47.42	42.68
16	137.55	80.30	36.00	44.30	42.53

Storage (m^3)

Overflow	Required	Cistern	Sub-surface	Balance
0.00	42.69	48.00	0.00	0.00

overflows to:

Drainage Area	14 (TWR A)				
Area (Ha)	0.210				
C =	0.90	Restricted Flow Q_r (L/s)=	36.00		
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
4	152.51	80.13	36.00	44.13	10.59
6	131.57	69.13	36.00	33.13	11.93
7	123.30	64.79	36.00	28.79	**12.09**
8	116.11	61.01	36.00	25.01	12.00
10	104.19	54.75	36.00	18.75	11.25

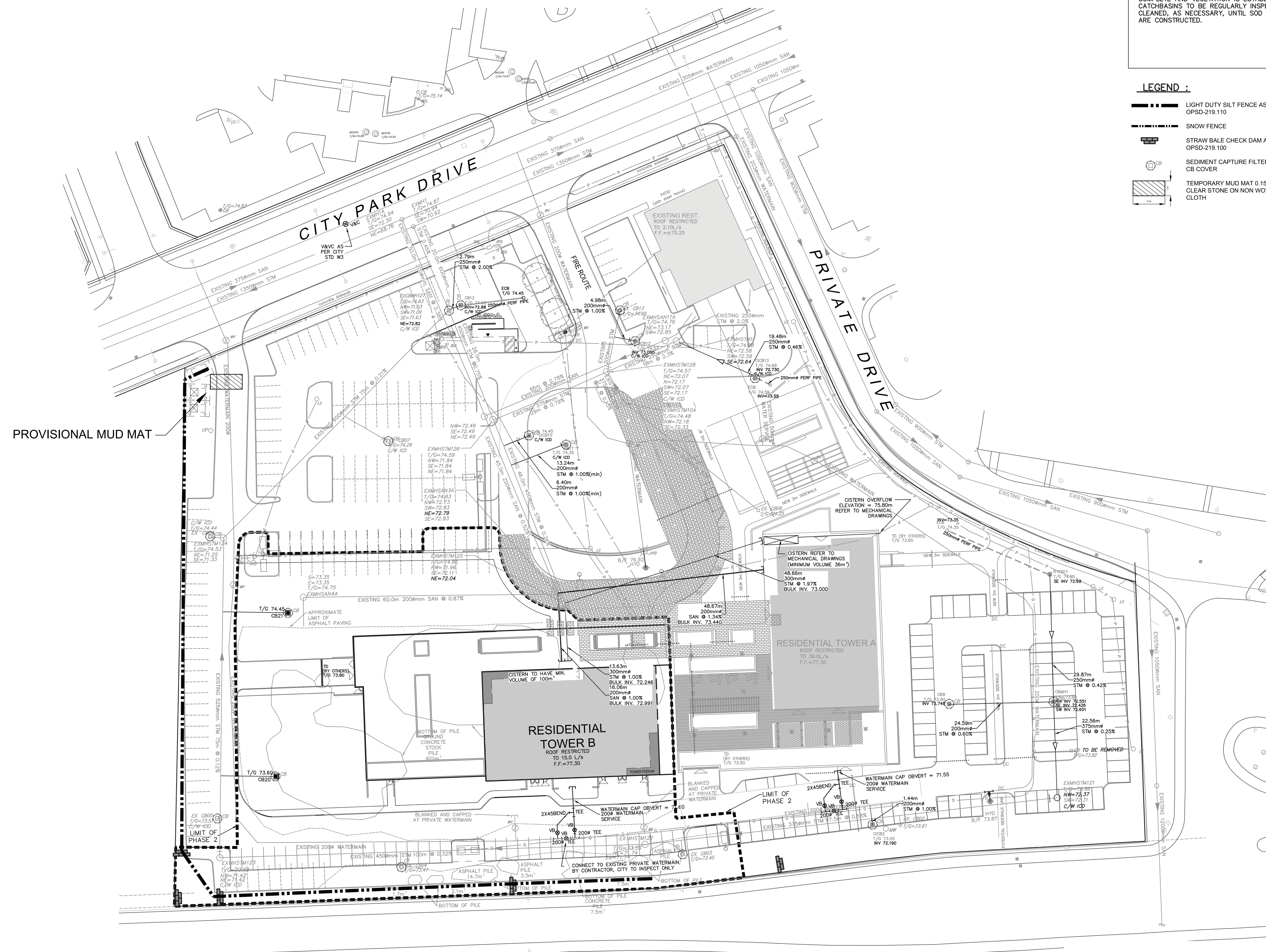
Storage (m^3)

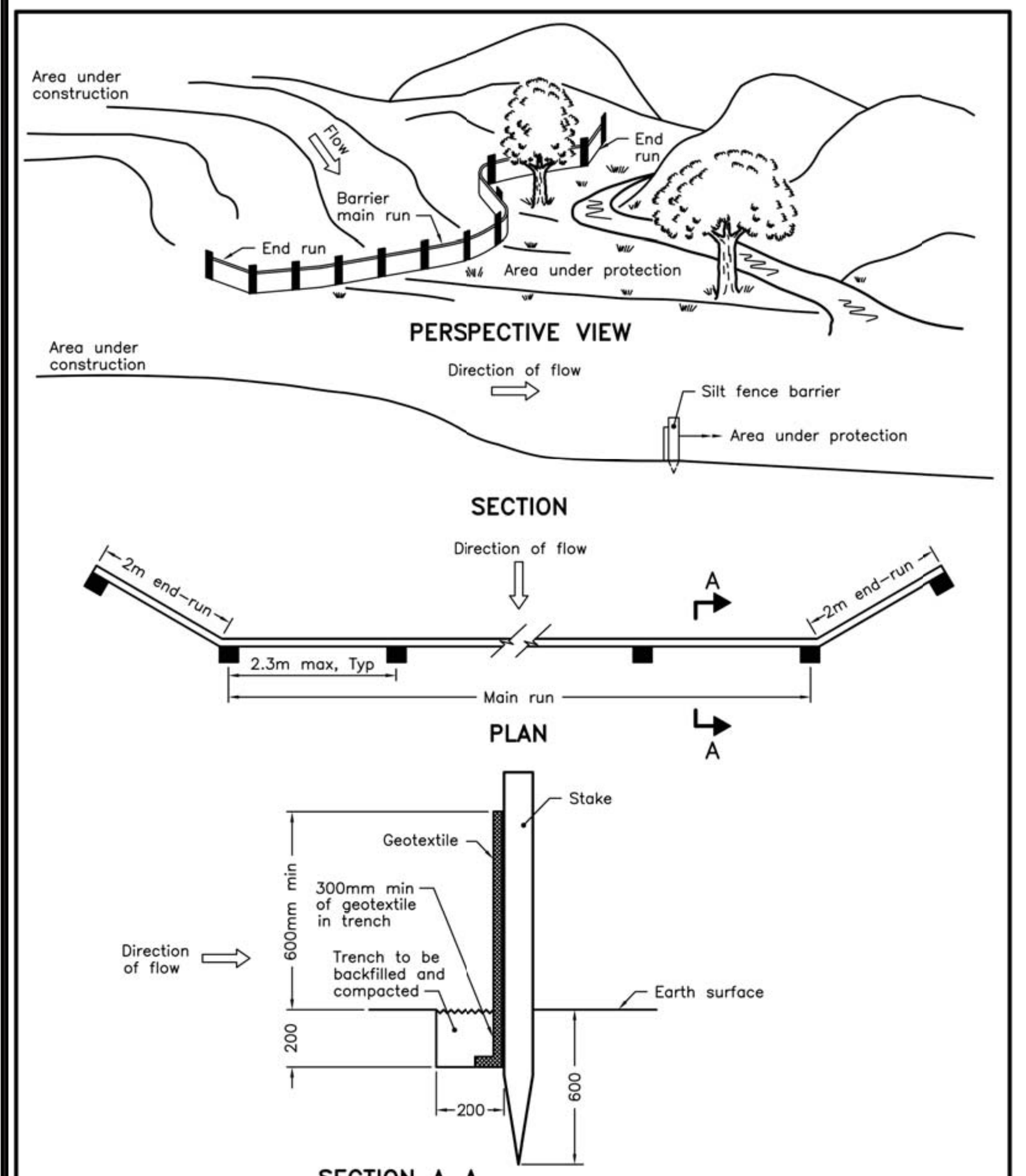
Overflow	Required	Surface	Sub-surface	Balance
0.00	12.09	48.00	0	0.00

overflows to: 0.00

APPENDIX D

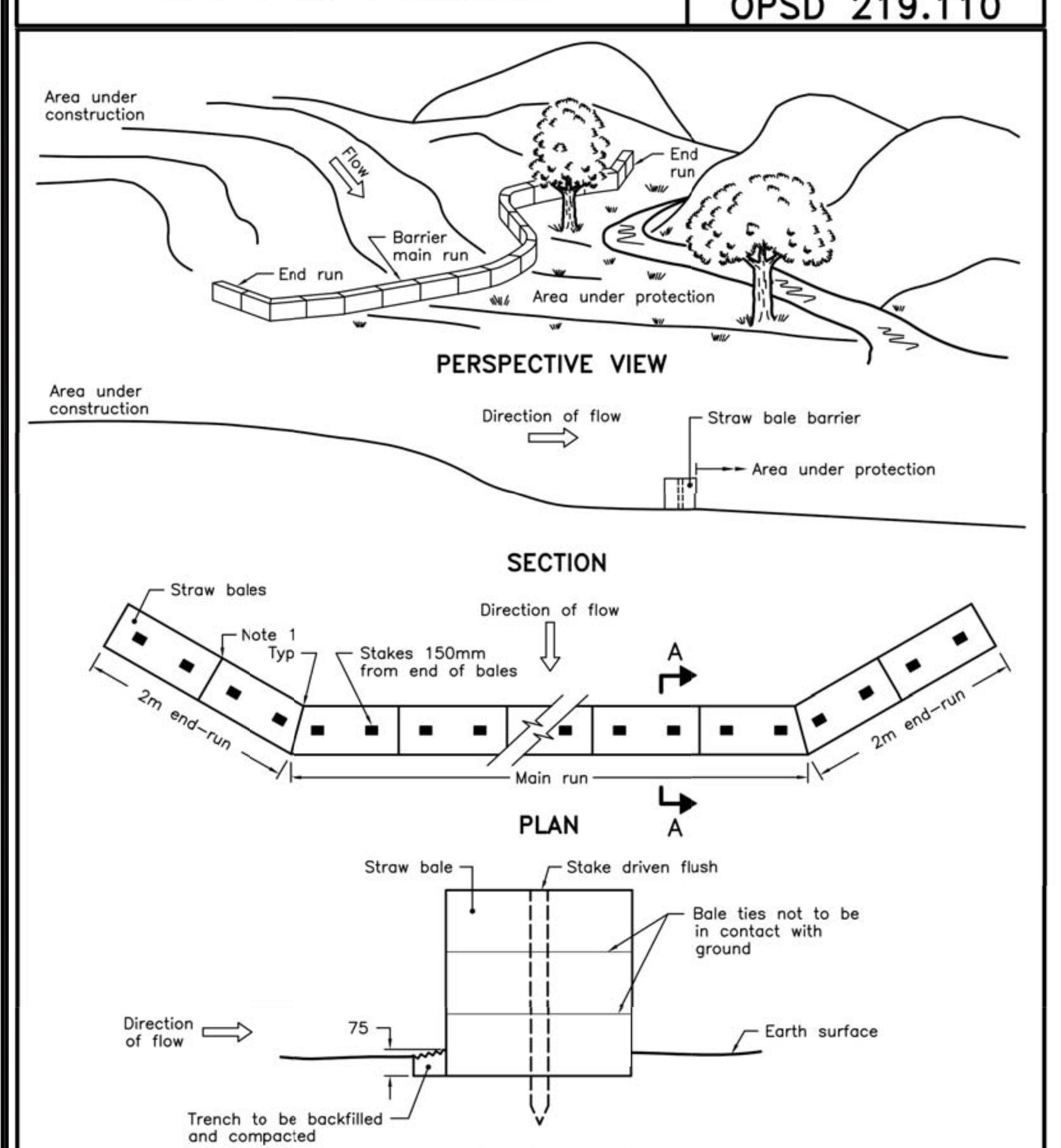
SEE IBI DRAWING 38729 C-011 - DETAILS AND NOTES - FOR FURTHER INFORMATION





NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2006	Rev 1
LIGHT-DUTY SILT FENCE BARRIER		OPSD 219.110



NOTES:
1 Straw bales to be butted tightly against adjoining bales to prevent sediment flow through barrier.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2006	Rev 1
LIGHT-DUTY STRAW BALE BARRIER		OPSD 219.100

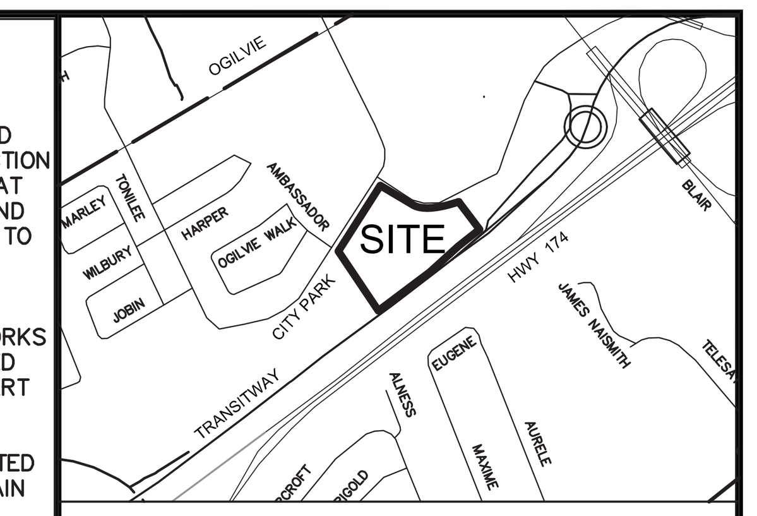
NOTES:

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

1. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
2. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
3. SEDIMENT CAPTURE FILTER SOCK TO BE PLACE UNDER COVER OF ALL CATCHBASINS. FILTER SOCKS IN CB'S TO REMAIN UNTIL BASE COURSE ASPHALT IS COMPLETE AND VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.

LEGEND:

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.100
- SEDIMENT CAPTURE FILTER SOCK UNDER CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH



APPROVED ☐ REFUSED ☐

THIS___ DAY OF __________, 20_____

DON HERWEYER, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

RIOCAN
REAL ESTATE INVESTMENT TRUST

Killam PROPERTIES INC

No.	REVISIONS	By	Date
14			
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10			
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8			
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4			
3			
2			
1	ISSUED FOR REVIEW	TRB	18:08:08

HOBIN ARCHITECTURE

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

Project Title
CITY PARK
PHASE 2

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2018/08/08
PROVINCE OF ONTARIO

Drawing Title
EROSION AND SEDEMENTATION CONTROL PLAN

Scale
1:500

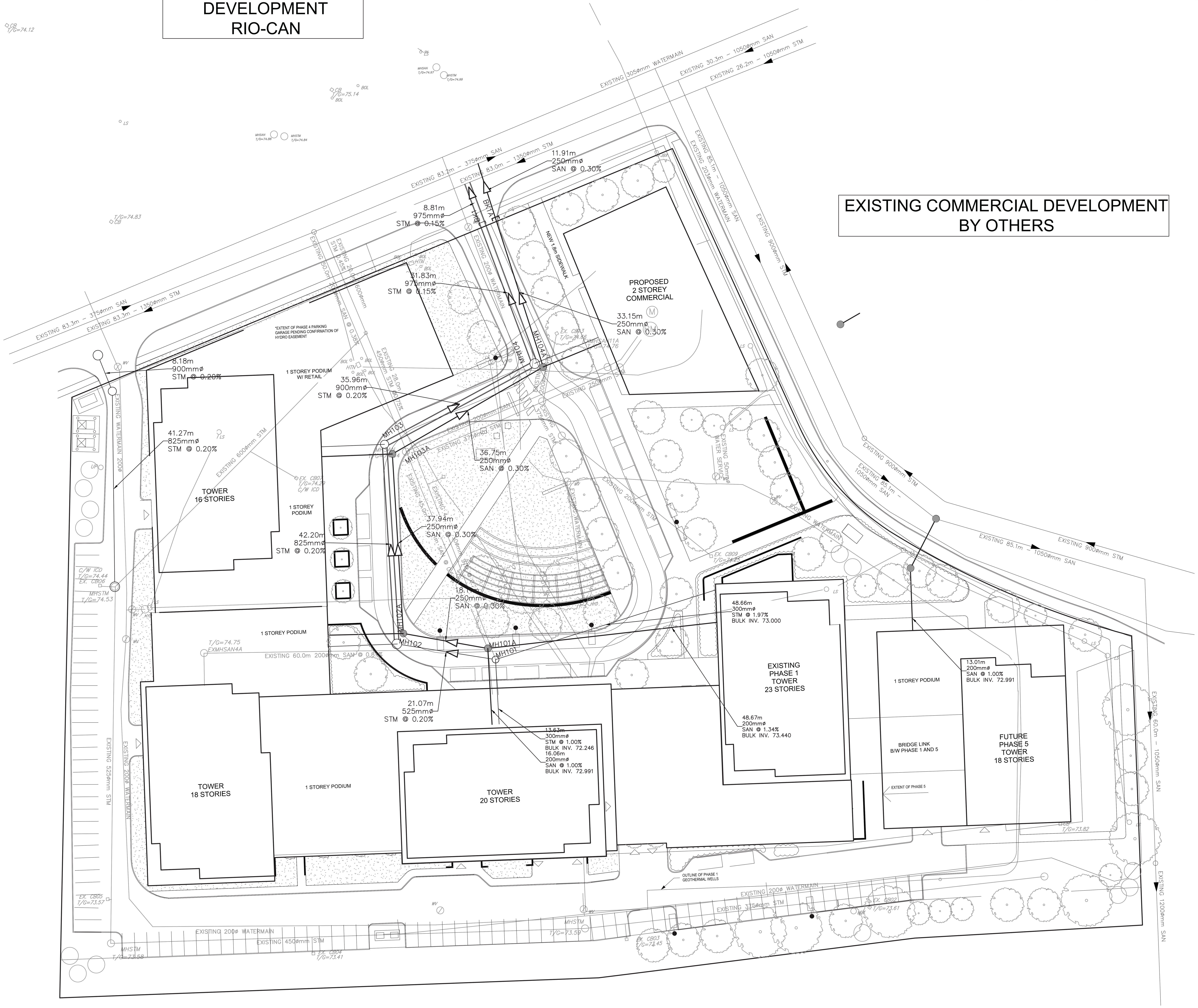
Design	Date
J.E.B.	SEPTEMBER 2015
Drawn	Checked
E.H.	T.R.B.
Project No.	Drawing No.
38729	C-901

D07-12-15-0187

17090

APPENDIX E

SEE IBI DRAWING 38729 C-011 - DETAILS AND NOTES - FOR FURTHER INFORMATION



APPROVED ☐ REFUSED ☐

THIS ____ DAY OF __________ , 20_____

DON HERWEYER, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

RIO CAN REAL ESTATE INVESTMENT TRUST

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No.	REVISIONS	By	Date
14			
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1	ISSUED TO CITY	TRB	18:08:08

HOBIN ARCHITECTURE

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

Project Title

2280 CITY PARK DEVELOPMENT
PHASE 2

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2018/08/08
PROVINCE OF ONTARIO

Drawing Title

ULTIMATE SITE SERVICING

Scale 1 : 400

Design	Date
J.E.B.	AUG. 2018
Drawn	Checked
E.H.	T.R.B.
Project No.	Drawing No.
38729	C-102

D07-12-15-0187

17090

APPENDIX F

MEMO

Date:	May 2, 2018
To / Destinataire	Shoma Murshid, Planner
From / Expéditeur	Isaac Wong, Project Manager, Infrastructure Approvals
Subject / Objet	**Pre-Application Consultation** **2280 City Park, Ward 11 – Beacon Hill - Cyrville** *Phase 2 – 20 storey residential tower* File No. PC2018-0101

Please note the following information regarding the engineering design submission for the above noted site:

****Note:** Some items may not be required as part of your submission and are for informational purposes.

1. The Servicing Study Guidelines for Development Applications are available at the following address: http://ottawa.ca/en/development-application-review-process-0/servicing-study-guidelines-development-applications

2. The following Engineering plans and reports are requested for submission:

   a. Site Servicing Plan

   b. Site Servicing Study

   c. Grade Control and Drainage Plan

   d. Geotechnical Study

   e. Erosion and Sediment Control Plan

   f. Stormwater Management Report

3. Plans are to be submitted on standard **A1 size** (594mm x 841mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400, or 1:500). With all submitted plans and reports, please provide an individual PDF format of the files.

4. Servicing and site works shall be in accordance with the following documents:

- ⇨ Ottawa Sewer Design Guidelines (October 2012)
- ⇨ Ottawa Design Guidelines – Water Distribution (2010)
- ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
- ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
- ⇨ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
- ⇨ City of Ottawa Park and Pathway Development Manual (2012)
- ⇨ City of Ottawa Accessibility Design Standards (2012)
- ⇨ Ottawa Standard Tender Documents (latest version)
- ⇨ Ontario Provincial Standards for Roads & Public Works (2013)

5. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

6. The Stormwater Management Criteria, for the subject site, is to be based on the following:

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

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

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

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

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

vi. For a combined sewer system the maximum C= 0.4 or the pre-development C value, whichever is less. In the absence of other information the allowable release rate shall be based on a 2 year storm event.

Note: There may be area specific SWM Criteria that may apply. Check for any related SWM &/or Sub-watershed studies that may have been completed.

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

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

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

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

iv. Review provision of a high-level sewer.

v. Provide information on the type of connection permitted

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

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

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

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

d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

e. No submerged outlet connections.

8. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:

   i. Location of service

   ii. Type of development and the amount of fire flow required (as per FUS, 1999).

   iii. Average daily demand: ___ l/s.

   iv. Maximum daily demand: ___l/s.

   v. Maximum hourly daily demand: ___ l/s.

9. MOECC ECA Requirements – The applicant shall consult with the local office of the MOECC to determine which ECA, if any, are required. **NOTE: Site Plan Approval, or Draft Approval, is required before any Ministry of the Environment and Climate Change application is sent to the MOECC.**

   For residential applications: Charlie Primeau

   (613) 521-3450, ext. 251

   Charlie.Primeau@ontario.ca

   For I/C/I applications: Emily Diamond

   (613) 521-3450, ext. 238

   Emily.Diamond@ontario.ca

10. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Should you have any questions or require additional information, please contact me directly at (613) 580-2424, x 24169 or by email at Isaac.Wong@ottawa.ca.

MEMO / NOTE DE SERVICE

To / Destinataire	Shoma Murshid, Planner Development Review East	File/N° de fichier: Pre-consultation
From / Expéditeur	Mary Ellen Wood, Planner Parks and Facilities Planning Branch	
Subject / Objet	Pre-consultation Follow-up 2280 City Park Drive Site Plan – Phase 2	Date: 10 May 2018

The second phase of development for 2280 City Park Drive proposes a 20-storey residential tower adjacent to the Phase 1 building and parking area. Phase 2 will also include the extension of the underground parking garage. Parks and Facility Planning would like to note, that a designated Parks planner was not involved in the review of the Phase 1 site plan. With the proposed site plan application, Parks have taking the opportunity to review the entire site and taken into consideration the proposed Master Plan for the RioCan land holdings and provide the following comments.

Please find below our comments on the above-noted development application:

1. The Blair TOD Plan – Green Plan contemplates a future public park within the area district, which includes the property at 2280 City Park Drive. The park location is to be determined through the site plan approval process. Within the area district, the number of public parks spaces will be determined by monitoring the type and density of development within the district and identifying the size, location and function of the park space. The revised long-term site plan for 2280 City Park Drive introduces a fifth residential tower with approximately 155 units. It is reasonable for Parks and the applicant to revisit the need for a public park within this development to serve the residents and the community at large.

2. The Blair TOD Plan – Green Plan also identifies the general location of outdoor private amenity areas, and illustrates a private amenity area at 2280 City Park Drive. The proposed Village Lawn will function as private amenity space.

3. Parks position on the redevelopment of 2280 City Park Drive is that the owner shall convey land to the City for parkland purposes in accordance with the *Planning Act* and the City of Ottawa Parkland Dedication By-law.

4. The City's Parkland Dedication by-law requirement of 1 hectare/300 units, but for apartments, the parkland conveyance will not exceed a maximum of 10% of the land area of the site being developed. The total property area for 2280 City Park Drive is 2.83ha. Phase 1 has been developed on an area of 0.54ha. Therefore, the remaining property to be developed equals 2.29ha, which equates to 0.229 hectares of required parkland dedication.

5. Please introduce a new 0.229ha public park fronting City Park Drive. The park will complement the active street frontage of City Park Drive and will serve as a visual forecourt to the towers. Placement of the public park fronting City Park Drive, provides public frontage and invites users into the space and opens up the availability of the Village Lawn. This will help to avoid the sense that the Village Lawn is a privatized space, it should read as a public park. Placement of the public park along City Park Drive services as a gathering or communal space next to the Phase 4 building. If the Phase 4 building introduces ground floor retail/commercial uses, these uses will achieve an active street frontage along City Park Drive.

   Placement of the public park along City Park Drive also provides a strong connection to the future park development proposed in the Master Plan on RioCan lands north of 2280 City Park Drive. The public park allow access to both the proposed Village Lawn to the south and future public or semi-private amenity space developed on the Sliver City lands.

6. Parks position to request a new public park with frontage on City Park Drive is consistent with the UDRP recommendations of February 2016. The Panel recommended introducing a new public park with frontage on City Park Drive. The public park would complement the future cycle track along City Park Drive and would draw people into the Village Lawn so it would read as a public space.

7. At the time of registration of the site plan agreement and transfer of ownership of the park block to the city, the park block will be developed as detailed in the Park Development Manual 2ed edition 2017. The expected cost of the design, construction, review and inspection of this park will be in accordance with the rate per hectare and indexing rate utilized for park development at a minimum or other negotiated rate. Site Plan conditions will be included to address the park development.

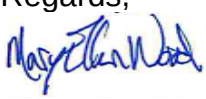
8. Please note when servicing the site, site servicing should include services and utilities for the requested park block. The Owner will be responsible for and shall provide services and utilities to the park block including storm sewer, water line, sanitary sewer and hydro service as per the standard park servicing condition applicable at the time of registration. Site Plan conditions will be included to address the inclusion of the required services and utilities.

9. As the zoning currently stands, the portion of the property zoned TD2 [2084], does not list ‘park’ as a permitted use. Introducing a public park block on 2280 City Park Drive will require an amendment to permit a park.

Parks and Facility Planning recommend a separate meeting with the applicant to discuss the above noted comments prior to a formal submission of a site plan control application.

I would be please to arrange a meeting to discuss further.

Regards,



Mary Ellen Wood, Park Planner
Parks and Facility Planning
Recreation, Cultural and Facility Service Dept.

Subject: FW: 2280 City Park Drive - Follow-Up to Pre-consultation for Site Plan Control (phase 2 building)
From: Paul Black <black@fotenn.com>
Date: 10/05/2018 8:04 AM
To: "pbisson@hobinarc.com" <pbisson@hobinarc.com>, "dbrooks@hobinarc.com" <dbrooks@hobinarc.com>

Hi guys,
Attached and below are the City's comments on the Phase 2 site plan application for City Park. RioCan has received these already.

I have a call with them tomorrow to go over the subdivision options and then we should have some more clarity on how they wish to move forward.

Thanks,
Paul

Paul Black, MCIP RPP
Senior Planner
T 613.730.5709 ext. 239

From: Murshid, Shoma [mailto:Shoma.Murshid@ottawa.ca]
Sent: May-08-18 3:21 PM
To: Paul Black <black@fotenn.com>
Cc: Young, Mark <Mark.Young@ottawa.ca>; Wong, Isaac <Isaac.Wong@ottawa.ca>; Reed, Kerry <kerry.reed@ottawa.ca>; Gratton, Dennis <Dennis.Gratton@ottawa.ca>; Young, Mark <Mark.Young@ottawa.ca>; Wood, Mary Ellen <MaryEllen.Wood@ottawa.ca>; Giles, Peter <peter.giles1@ottawa.ca>; Blanchett, Paul <Paul.Blanchett@ottawa.ca>; 'Stuart Craig' <scraig@riocan.com>
Subject: 2280 City Park Drive - Follow-Up to Pre-consultation for Site Plan Control (phase 2 building)

Hello Paul,

Thank you for meeting with us this past April 30, 2018 to discuss the phase 2, 20-storey residential high-rise building at 2280 City Park Drive, adjacent to Phase I. This will trigger a "Revision of an Existing Application – Manager Approval, Public Consultation" with a submission fee of $20,287.13.

Standard plans and reports that are required at time of submission shall be:

Site Plan – 15 copies + PDF
Landscape Plan/TCR (Tree Conservation Report) – 15 copies + PDF
Grade Control and Drainage Plan – 15 copies + PDF
Site Servicing Plan – 15 copies + PDF
Survey Plan – 2 copies +PDF
Stormwater Management Report – 6 copies + PDF
Geotechnical Study – 4 copies + PDF
Erosion and Sediment Control Plan – 8 copies + PDF
Noise/Vibration Study – 3 copies + PDF
Transportation Impact Assessment including functional plans of road modifications, if any – 8 copies + PDF
Confederation Line Proximity Study – 9 copies + PDF

Planning rationale, including Design Statement and Section 37 density counts (as outlined in the agreement and update)
Architectural Elevations (dimensioned) – 3 copies + PDF
Floor Plans – 3 copies + PDF
Concept Plan showing Ultimate Use of Lands – 3 copies + PDF
Plans(s) showing underground Parking Garage Layout – 3 copies + PDF
Wind Study – 3 copies + PDF
Sun Shade Study – 3 copies + PDF
Phase 1 ESA – 5 copies + PDF
Cross-section of Building(s) – 3 copies + PDF
Blasting Letter – 2 copies + PDF

Design Considerations:

- Please ensure there is a separation distance of 23 m between the tower portions of Phase 1 and 2.
- Please provide a stronger pedestrian/cycling connection between the building and the MUP across the rear of the property.
- Please consider the treatment of the rear of the parking garage which will be exposed. This will require a creative approach.
- There is some confusion regarding accessibility/levels at the front of Phase 2 as it relates to the private street. This will need to be clear in the submission materials (a cross–section should be provided).
- Phase 2 should be reviewed by the UDRP. A formal review for site plan control is requested.

Also, note that with each amending site plan control at this parcel, amendments to the Private Road Naming Agreement and Section 37 requirements will be revisited.

With regards to an easement for the service pipes, the City will not entertain taking an easement on the pipes as the maintenance and repairs are at the responsibility of the owner. Attached, you will find the pre-application consultation servicing memo for 2280 City Park Drive.

Please use native and low water demand species, in keeping with energy conservation objectives. As per section 4 subsection 4.9 – Energy Conservation Through Design in the OP, landscaping designs shall consider energy and water conservation in landscape design by selecting the appropriate location and choice of species to provide shade and cooling during summer and wind protection in winter and utilizing native species and species with low watering requirements wherever possible. Utilize permeable, light-coloured or landscaped surfaces wherever practical to reduce heat retention and encourage natural infiltration of stormwater.

Design and orientation of subdivisions and developments should maximize the opportunity for use of alternative and renewable energy systems by maximizing solar exposure through street and building orientation and ensuring that opportunities presented by access to sunlight are not impaired on adjacent properties.

If applicable, a permit is needed from PIED for the removal of any tree 10cm or larger in diameter. Also, please provide coniferous tree and other plantings instead of deciduous species along the MUP area, within the Phase 2 lands.

I do believe Parks and Recreation would like to add comments further to our pre-consultation meeting. I will ask that they send it as an addendum to this e-mail for all of our records. Mary Ellen, please send us your follow-up.

Please do not hesitate to contact me if there are any further outstanding questions or concerns.

Kindest regards,

Shoma Murshid, MCIP, RPP
File Lead, Planner II
Responsable de dossier, urbaniste II
City of Ottawa/ Ville d'Ottawa
Development Review (Suburban Services, East)/ Examen des projets d'aménagement (Services suburbains Est)
Planning, Infrastructure, and Economic Development Department/ Service de la planification, de l'infrastructure et du développement économique
110 Laurier Avenue West, 4th Floor, Ottawa ON K1P 1J1/ 110, avenue Laurier Ouest, 4e étage, Ottawa (Ontario) K1P 1J1
Mail Code/ Code de courrier : 01-14
Tel/ Tél: (613) 580-2424 ext. 15430
Fax/ Téléc. : (613) 580-4751
e-mail/ courriel : shoma.murshid@ottawa.ca
www.ottawa.ca

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Attachments:

Pre-application Consultation Servicing Memo - 2280 City Park.docx 40.9 KB