

**Servicing and Stormwater
Management Report
557-584 Wellington Street &
550 Albert Street**

Project #160401211



Prepared for:
City of Ottawa

Prepared by:
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Sign-off Sheet

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Introduction
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1.0 INTRODUCTION

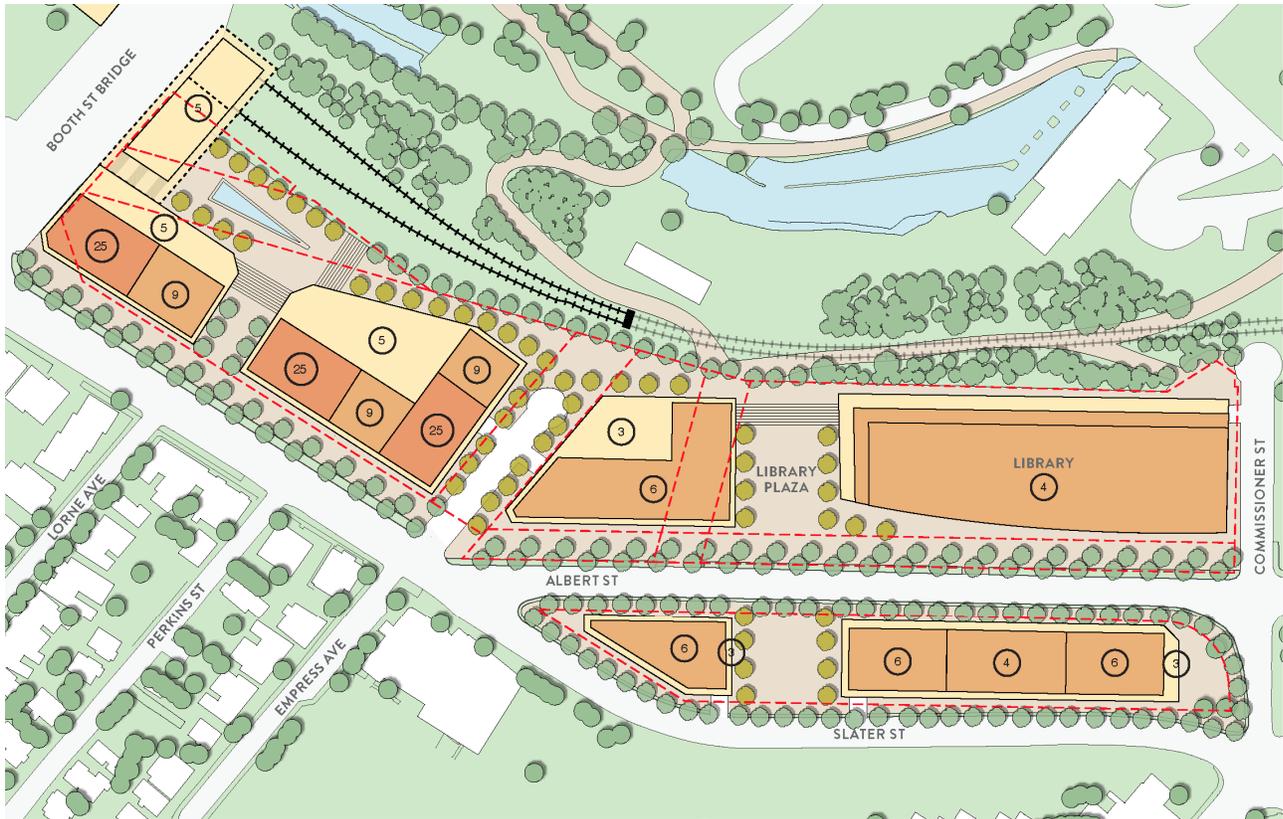
Stantec Consulting Ltd. has been commissioned by the City of Ottawa to prepare the following servicing brief in support of rezoning and official plan amendment for the properties at 557-584 Wellington Street located within the City of Ottawa. The subject properties comprise approximately 2.33ha of land north of Albert Street including an unopened road allowances for Brickhill Street, as well as a further 0.61 ha of land south of Albert Street and north of Slater. The subject properties are currently zoned General Mixed Use (GM7) and Residential Fifth Density (R5O) and are bordered by Albert/Slater Street to the south, Commissioner Street to the east, Booth Street to the west, and the future light rail transit (LRT) route and CSST tunnel to the north. The properties are currently owned by the City of Ottawa and the National Capital Commission (NCC), and are indicated in **Figure 1** below. It is proposed to rezone the subject properties and amend the Official Plan to position the site for future development to support a proposed concept consisting of two high rise residential buildings (maximum of 25 storeys in height), three mid rise residential buildings (maximum of 6 storeys in height), commercial uses at lower levels of proposed residential buildings, a 4 storey institutional use building, and associated subsurface parking areas. The Pimisi station building and associated servicing infrastructure will be assessed by an independent report, and does not form part of the analysis for this report. (see **Appendix E** for concept drawings by Fotenn Planning & Design)

The intent of this report is to provide a servicing scenario for the site in support of the proposed development concept that is free of conflicts, provides on-site servicing in accordance with City of Ottawa requirements, and utilizes the existing local infrastructure in accordance with background drawings and as per consultation with City staff.

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Figure 1: Site Location



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Background
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2.0 BACKGROUND

Documents referenced in preparing the servicing design for the proposed development include:

- City of Ottawa Sewer Design Guidelines, *City of Ottawa*, October 2012.
- City of Ottawa Design Guidelines – Water Distribution, *City of Ottawa*, July 2010.
- Design Guidelines for Drinking Water Systems, *Ministry of the Environment*, 2008
- Design Guidelines for Sewage Works, *Ministry of the Environment*, 2008
- Stormwater Management Planning and Design Manual, *Ministry of the Environment*, March 2003
- Geotechnical and Hydrogeological Investigation, Combined Sewage Storage Tunnel, East-West Tunnel, Western Terminus, Ottawa, Ontario, *Golder Associates Ltd.*, May, 2013.
- Geotechnical Desktop Study – NCC Property at 584 Wellington St., *Stantec Consulting Ltd.*, March 2016.
- Albert Street Reconstruction – Brickhill Street Overflow Design Brief – Storm and Sanitary Sewers, *Robinson Consultants Inc.*, July 2015.
- Somerset – Wellington Area Sewer Servicing Plan, *Stantec Consulting Ltd.*, November 2008.

A transportation analysis report for off-site works and site entrances is to be submitted under separate cover.

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Potable Water Servicing
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3.0 POTABLE WATER SERVICING

3.1 BACKGROUND

The development comprises six mid to high rise residential buildings, institutional/commercial uses, and interconnected subsurface parking areas. The majority of the site will be serviced via an existing 400mm watermain within the Albert Street ROW immediately south of the subject site running from Booth Street to Brickhill Street. No local watermain currently exists for service connections within Albert Street east of Brickhill to Commissioner Street. A local 200mm watermain has been stubbed at the west side of the intersection of Commissioner Street and Albert. 1500mm and 1220mm diameter transmission mains exist within Commissioner Street and Albert Street adjacent to the subject site, but will not be considered for local connection.

3.2 PROPOSED SERVICING

It is assumed that the proposed buildings will be fully sprinkler protected, and will require a minimum service lateral size of 200mm, to be confirmed by the mechanical consultant. Given the size and domestic demand requirements of the proposed high and mid rise buildings, each building area will be required to maintain two separate connections to the main within Albert Street separated by a valve for redundancy. As no local watermain for service connection currently exists within Albert Street east of Brickhill, a 400mm watermain extension is required prior to site development connecting to the 200mm stub east of Commissioner Street and to allow connections for the eastern portion of the site. The 400mm watermain within the Brickhill Street ROW may be required to be relocated to suit development of the property north of Albert Street (see **Servicing Plan Figures 1-2 and Figure 3 in Appendix E** for details).

Currently, municipal fire hydrants are located on the south side of Albert Street. As such, it is expected that private hydrants will be required in access areas or along the southern frontage of the site to meet building code requirements in regards to a maximum 45m separation from proposed building fire department connections.

3.3 WATER DEMANDS

Water demands for the development were estimated using the Ministry of Environment's Design Guidelines for Drinking Water Systems (2008). A daily rate of 5 L/m² of commercial/institutional building space (for retail, offices, and potential institutional uses) was used, which corresponds to the high end of the 'shopping centres' range presented in the Design Guidelines. It is predicted that such facilities will be operated 12 hours per day. A daily rate demand of 350 L/cap/day has been applied for the residential population of the proposed site. Population densities have been assumed at 1.8 persons/unit based on typical apartment population density.



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The domestic demands were divided into 6 distinct areas separated by subsurface parking structures (see **Appendix A.1**), with each area requiring 2 service connections due to domestic demands greater than 50m³/day. The average day demand (AVDY) for sites 1-6 was determined to be 1.91L/s, 3.65L/s, 0.82L/s, 1.16L/s, 0.31L/s, and 0.97L/s respectively. The maximum daily demand (MXDY) is 1.5 times the AVDY for commercial property and 2.5 for residential properties, which totals 4.40L/s, 8.46L/s, 1.60L/s, 1.73L/s, 0.74L/s, and 2.26L/s. The peak hour demand (PKHR) is 1.8 times the MXDY for commercial property and 2.2 for residential property, totaling 9.46L/s, 18.22L/s, 3.25L/s, 3.12L/s, 1.59L/s, and 4.86L/s. It is anticipated that the current 400mm main within Albert Street in addition to the 400mm extension to Commissioner Street will be adequate to supply the required demands for the subject site.

Non-combustible construction was considered in the assessment for fire flow requirements according to the FUS Guidelines. The FUS Guidelines indicate that low hazard occupancies include apartments, dwellings, dormitories, hotels, and schools, and as such, a low hazard occupancy / limited combustible building contents credit was applied to proposed residential buildings. 2-hour fire separations were considered between each floor per requirements for buildings over six-storeys per the Ontario Building Code. Additionally, it is anticipated that all buildings will be sprinklered, with final sprinkler design to conform to NFPA 13. Based on calculations per the FUS Guidelines (**Appendix A.2**), the minimum required fire flows for Buildings 1-6 are 117, 133, 117, 150, 67, and 117 L/s respectively.

Per the boundary conditions provided by the City of Ottawa, and based on an approximate elevation on-site at buildings 1-6 ranging from 62.60m to 66.00m, adequate flows are available for the subject site with minimum and maximum pressures ranging from 45.0m (64.0 psi) to 53.9m (76.6psi) for buildings 1 and 2, from 44.8m (63.7 psi) to 53.7m (76.4 psi) for building 3, from 43.6m (62.0 psi) to 52.5m (74.7psi) for building 4, from 44.8m (63.7 psi) to 53.7m (76.4 psi) for building 5, and from 41.6m (59.2 psi) to 50.5m (71.8psi) for building 6. These pressure ranges lie within the guidelines of 50-80psi based on Ottawa's Design Guidelines for Water Distribution.

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Wastewater Servicing
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4.0 WASTEWATER SERVICING

4.1 BACKGROUND

An existing 450mm diameter PVC sanitary sewer exists within the Albert Street ROW, and was constructed recently as part of the reconstruction and sewer separation of Albert Street. Currently, the sanitary sewer drains from east to west from Brickhill Street to Booth before connection via drop structure to the downstream collector sewer and Booth/Wellington Regulator. Upstream of Brickhill Street, the sanitary sewer receives combined sewer discharge from properties along Bronson, Albert, Slater and Queen Streets. A flow separator has been constructed within a manhole (MH228) at the intersection of Brickhill and Albert Street that permits dry weather flows to exit the manhole using the lower 300mm of the 450mm sanitary sewer, whereas wet weather flows bypass to an adjacent existing 900mm diameter storm sewer. The splitter has the effect of ensuring pipe capacity in the upper 150mm of the 450mm sewer between Brickhill and Booth Street exists during rainfall events. An overflow sewer connecting the sanitary sewer to the storm sewer exists within Albert Street midway between Brickhill and Commissioner Street. Decommissioning of this structure may proceed as separation of the storm and sanitary systems continues westward along with site development (see **Figures 1-2 in Appendix E**).

4.2 DESIGN CRITERIA

As outlined in the MOE's Design Guidelines for Sewage Works and the City of Ottawa's Sewer Design Guidelines, the following criteria were used to calculate estimated wastewater flow rates and to verify capacity within downstream sanitary sewers:

- Minimum Velocity – 0.6 m/s
- Maximum Velocity – 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes – 0.013
- Minimum size – 250mm dia.
- Average Wastewater Generation (Commercial, Institutional) – 5L/day/m² of building space
- Peak Factor (ICI) – 1.5
- Average Wastewater Generation (Residential) – 350L/day/person
- Peak Factor (Residential) – per Harmon Equation (max. 4.0)
- Population per Single Family Home – 3.4
- Population per Townhouse unit – 2.7
- Population per Average Apartment – 1.8
- Population per Net Hectare of Medium Density Apartments - 540
- Extraneous Flow Allowance – 0.28 l/s/ha (conservative value), 3.0 l/s/ha in combined areas
- Manhole Spacing – 120 m
- Minimum Cover – 2.5m



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External drainage areas have been based on those within the *Albert Street Reconstruction – Brickhill Street Overflow Design Brief by Robinson Consultants (July 2015)*, which in turn reference a design sheet prepared by Stantec Consulting in November 2008 as part of a sewer separation plan for the Somerset/Wellington area. Populations for contributing drainage areas south of Albert Street and west of Bronson Avenue were based on building/unit counts through Google Earth streetview and background documents where available. Estimated populations for drainage areas west of Bronson Avenue were based on those presented by the *Stantec 2008* report. As the subject site was not included as part of the catchment area for the Albert Street sanitary sewer, a sanitary sewer design sheet has been prepared to confirm available pipe capacity per section 4.3 below.

4.3 PROPOSED SERVICING

The proposed site will be serviced by a network of gravity sewers which will direct wastewater flows from the site to the existing sanitary sewer on Albert Street. An extension of the 450mm diameter PVC sanitary sewer within Albert Street from Brickhill to Commissioner Street is proposed to be installed concurrent with extension of the existing 400mm watermain and storm sewer trunk. The proposed site is expected to be serviced via five separate connections to the sanitary line within Albert Street as delineated by underground parking from the site concept. One connection is proposed downstream of the flow splitter (MH228), one downstream of the splitter west of MH204, and three to the partially separated sewer immediately south of Commissioner Street. Monitoring manholes will likely be required on-site due to the presence of commercial activities within each building site.

Backflow preventers will be required for the on-site buildings in the event of surcharge of the sanitary sewer, and will be coordinated with building mechanical engineers. The proposed drainage pattern is in accordance with design assumptions made during the reconstruction of Albert Street infrastructure, and is detailed on **Figure 4** in **Appendix E**. A sanitary sewer design sheet confirming available pipe capacity is included in **Appendix B. Table 1** summarizes the estimated peak sanitary discharge rates for each development area.

Table 1: Peak Sanitary Discharge Rates

Area ID (Building #)	Area (ha)	Residential Population	Commercial Area (ha)	Institutional Area (ha)	Peak Flow (L/s)
SA204A (1)	0.22	382	0.62	0.00	6.8
SA202A (2)	0.65	738	1.14	0.00	12.8
SA228A (3)	0.56	90	0.80	0.00	2.3
SA10A (4)	0.91	0	0.00	2.00	2.0
SA10C (5)	0.46	65	0.09	0.00	1.3
SA10B (6)	0.71	198	0.29	0.00	3.7

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Based on design for the flow splitter in existing MH228, pipe capacity for sanitary flows during wet weather events for pipe segments between existing MH228 and MH215 is reduced to that of the upper portion of the existing 450mm diameter sewer at 0.5% grade (upstream pipe inflow restricted to 110L/s per the *Brickhill Street Overflow Design Brief*). Upon installation of the proposed 450mm sanitary sewer and 900mm storm sewer within Albert Street, the flow splitter may be decommissioned and relocated east of Commissioner Street in anticipation of further sewer separation activities in the area.

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Storm Servicing and Stormwater Management
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5.0 STORM SERVICING AND STORMWATER MANAGEMENT

5.1 BACKGROUND

The subject site is in its majority currently vacant, and occupied by a temporary construction staging area and associated gravel parking areas. The site generally sheet drains from south to north towards the Fleet Street Aqueduct. A 900mm diameter storm trunk sewer has been recently installed as part of the reconstruction and sewer separation works on Albert Street, which currently exists between Booth Street and Brickhill Street. East of Brickhill, the sewer is combined and varies in diameter from 525mm to 675mm. A flow separator has been constructed within manhole MH228 at the intersection of Brickhill and Albert Street that permits wet weather flows from the upstream combined sewer to bypass to the downstream 900mm diameter storm sewer. An additional overflow sewer interconnecting the sanitary sewer to the storm sewer exists within Albert Street midway between Brickhill and Commissioner Street.

5.2 SWM OBJECTIVES

The intent of the stormwater management plan presented herein is to mitigate any negative impact that the proposed development will have on the existing storm sewer infrastructure, while providing adequate levels of service to the proposed buildings and access areas. The proposed stormwater management plan is designed to detain runoff on the surface, on rooftops, and potentially within subsurface cisterns to ensure that peak flows after construction will not exceed the predevelopment flow rates from the site. The design methodology for the SWM component of the development is as follows:

- Restrict inflows to the sewer to the 5-year predevelopment rate within all areas with the exception of arterial roadways, which are to fully capture the 10-year event runoff.
- Storm events beyond the 5-year predevelopment peak release rate to be stored on-site.
- Predevelopment runoff coefficient to be determined as per existing conditions, but in no case more than 0.5.
- Minimum time of concentration of 10 minutes or as calculated.
- In the event that connection to an existing combined system is required, peak outflows to the combined sewer are to be limited to the 2-year storm event pre-development rate with allowance for sanitary discharge, and the maximum predevelopment runoff coefficient is reduced to 0.4.

5.3 ALBERT STORM SEWER CAPACITY

Storm drainage catchment areas and estimated runoff coefficient 'C' values were determined for the Albert Street storm sewer as part of the *Albert Street Reconstruction - Brickhill Street Overflow Design Brief* by Robinson Consultants. The report identifies a substantial upstream contribution to the main from combined sewer areas within Laurier, Slater, Albert and Queen



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Streets. Drainage from the subject site was not identified as tributary to the sewer at Albert Street. As such, a proposed design sheet has been created (see **Appendix C**) to confirm capacity of the Albert Street main in consideration of the site development. Similar to the Stantec 2008 report (*Somerset – Wellington Area Sewer Servicing Plan, November 2008*) An upsized 900mm diameter sewer is required to be installed from Brickhill to Commissioner Street to ensure capacity exists within the main for the subject site and upstream areas. As a watermain extension is proposed in this area to service the subject site as part of Section 3 of this report, it is further proposed that sewer separation works be completed at the time of storm sewer replacement and reconstruction of Albert from Brickhill to Commissioner Street. Upon separation, the flow separator manhole may be decommissioned and relocated east of Commissioner Street in anticipation of further sewer separation activities in the area.

5.4 PROPOSED SERVICING

The proposed site will be serviced by a network of gravity sewers which will direct stormwater flows from the site to the storm sewer on Albert Street. The proposed site is expected to be serviced via three separate connections to the storm line within Albert Street as delineated by underground parking from the site concept. One connection is proposed downstream of the flow splitter (MH228), and two to the partially separated sewer within Albert Street immediately south of Commissioner Street. Monitoring manholes will likely be required on-site due to the presence of commercial activities within each building site.

5.5 WATER QUANTITY CONTROL

The Modified Rational Method was employed to assess the rate and volume of runoff generated during post-development conditions. The site was subdivided into subcatchments (subareas) tributary to stormwater controls as defined by the location of discharge points assumed at each site service location. A summary of subareas and runoff coefficients is provided in **Appendix C**, and **Figure 5** in **Appendix E** indicates the stormwater management subcatchments.

5.5.1 Allowable Release Rate

The predevelopment release rate for the area has been determined using the Rational Method and the 5-year storm event IDF curves as provided within the City of Ottawa's *Sewer Design Guidelines*. In the predevelopment condition, approximately 70% of the site north of Albert Street is covered by gravel parking (runoff $C=0.75$). As such, the maximum runoff coefficient value of 0.5 for determination of predevelopment peak flow rate was selected based on criteria identified during pre-consultation for the subject site. The southern property lying between Albert and Slater Street is currently undeveloped, and is predominantly grass covered. Site areas between Albert and Slater have been identified in the *Albert Street Reconstruction – Brickhill Street Overflow Design Brief* as prepared by Robinson Consultants to be tributary to the Albert Street storm sewer to a post-development runoff coefficient of 0.70 (see **Appendix D** for report excerpts). Airport method calculations for approximate time of concentration of the two



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predevelopment areas are demonstrated within **Appendix C**, and utilizing a minimum time of concentration of 10 minutes where applicable. It is of note that that predevelopment conditions listed herein are based on a high level analysis without full topographical data, and will be required to be reassessed at time of detailed design. Peak flow rates have been calculated using the rational method as follows:

$$Q = 2.78 CiA$$

Where: Q = peak flow rate, L/s

A = drainage area, ha

I = rainfall intensity, mm/hr (per Ottawa IDF curves)

C = site runoff coefficient

Target release rates for the site are summarized in **Table 2** below:

Table 2: Target Release Rates

Development Parcel	Design Storm	Target Flow Rate (L/s)
North of Albert Street	5-Year	292.7
North of Albert Street	100-Year	292.7
South of Albert Street	5-Year	122.7
South of Albert Street	100-Year	122.7

5.5.2 Storage Requirements

The site requires quantity control measures to meet the restrictive stormwater release criteria. It is proposed that inlet-control devices in combination with surface grading (for ponding), rooftop storage, or alternately, subsurface cisterns be used to reduce site peak outflow.

5.5.2.1 Surface Storage

It is proposed to detain stormwater on building rooftops, on the surface within access areas, and potentially within subsurface cisterns to reduce peak outflow from the proposed site. The modified rational method was employed to determine the peak volume of storage required on-site to permit restriction of peak outflows to target levels. Inlet control devices were sized based on the available target discharge rate for each site area during the 5 and 100 year storm events.

Table 2 summarizes the estimated storm release rates and storage volumes during the 5 and 100 events. Drainage areas will be required to provide storage volumes at or in excess of that noted within the 100-year event $V_{required}$ column.

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Table 3: 5 and 100 Year Peak Surface Volume and Controlled Discharge Summary

Drainage Area	5-Year Event			100-Year Event		
	Discharge (L/s)	Vrequired (m3)	Vavailable (m3)	Discharge (L/s)	Vrequired (m3)	Vavailable (m3)
ST101A	99.3	70.5	208.0	104.3	207.7	208.0
ST101B	73.7	15.5	68.0	77.4	67.2	68.0
ST101C	43.2	9.1	40.0	45.3	39.4	40.0
ST135A	78.7	55.9	165.0	82.6	164.6	165.0
ST135B	76.7	54.5	161.0	80.6	160.5	161.0
ST135C	24.0	17.1	51.0	25.2	50.3	51.0

100-year volume available based on required surface storage/rooftop storage/subsurface storage and a maximum surface spill depth not to exceed 0.35m, where required.

Refer to calculations included as part of **Appendix C** for details.

5.5.3 Climate Change

Per the *City of Ottawa Sewer Design Guidelines*, drainage systems are to be stress tested using the design 100-year storm event incorporating a 20% increase to IDF curve rainfall values. Major system grading is to be designed in such a manner as to ensure the stress test water level remains below the lowest building opening during the event. At least 15cm of vertical clearance is required between the spill elevation on the street and the ground elevation at the nearest building envelope in proximity of the flow route or ponding area. Emergency overland flow routes are expected to be maintained to the Fleet Street Aqueduct / Albert Street per **Figure 5** in **Appendix E**. Final detailed building, site grading, and stormwater management designs are required to meet the above criteria.

5.5.4 Results

Table 3 demonstrates that the proposed stormwater management plan provides adequate attenuation storage to meet the target peak outflow rates for the site.

Table 4: Summary of Total 5 and 100 Year Event Release Rates

	5-Year Peak Discharge (L/s)	100-Year Peak Discharge (L/s)
Controlled – Surface Total	400.6	415.5
Target	415.5	415.5

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5.6 WATER QUALITY CONTROL

On-site quality control measures are anticipated for the proposed development access areas where vehicular traffic is expected. It is assumed that enhanced protection (80% removal of suspended solids) will be required for the site based on similar developments in the region. The RVCA will need to be consulted to verify the above statement at detailed design, and as to whether additional criteria are required for development. One or more oil grit separators are expected to be proposed to treat runoff from impervious areas directed to catchbasins on-site. The oil-grit separator units will be privately maintained, and designed based on the impervious area directed to each unit at time of detailed design.

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Grading and Geotechnical Concerns
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6.0 GRADING AND GEOTECHNICAL CONCERNS

The proposed development site measures approximately 2.93ha in area and is currently vacant property. The topography across the site slopes from south to north and currently sheet drains in its majority to the Fleet Street Aqueduct down an off-site embankment to the north, to the Transitway, and to Albert Street from the portion of the site located between Albert and Slater. Grade differential between the south and north property line of the northern portion of the site varies from 1.25m to 5.0m, with the most change in grade experienced along the east property line at Commissioner Street. The property between Albert and Slater experiences a change in grade of approximately 8m from northeast to southwest. As buildings are proposed to cover the vast majority of the subject site, wall design and internal staircases/risers will be required as part of site design to mitigate the change in grade across the existing site. A retaining wall may be necessary at the northeast corner of the subject site to permit a gravity outlet to the storm sewer trunk on Albert Street, the height and location of which is to be identified at detailed design. A substantial retaining wall currently exists along the northern curb of Slater between Albert and Bronson. Grading of access areas will require provisions for an overland flow route to Albert Street.

It is assumed that all surficial soils will be removed as part of construction of underground parking infrastructure for the proposed site. An environmental site assessment will be required to confirm if soil contamination is present within the proposed property in relation to removal and disposal of surficial soils.

A desktop geotechnical study for the NCC property at 584 Wellington Street was prepared to confirm the suitability of subsurface soils/rock for development of low to mid-rise residential buildings including up to 3 levels of subsurface parking. The report concludes that the subsurface conditions are amenable for development of buildings with low to medium structural loads, and provides options to be explored during detailed design for deep foundations for larger structural loads. Although the report does not identify any specific geotechnical concerns that would indicate an issue for high-rise development, further localized geotechnical assessment is required at the site plan stage to confirm structural capacities of any deep foundations for the proposed high rise buildings, and to speak to proximity of the development to the adjacent LRT route to the north.

The current site concept plan proposes buildings above the location of the CSST and a portion of the 1220mm HPTM watermain at the eastern boundary of the site. It is assumed that future proposed site plans for the region will avoid building in proximity to the trunk watermain, with an expected easement of 6-9m dependent on geotechnical recommendations for the region. Underground parking and building pile foundations within proximity to the CSST will be limited in depth to ensure the absence of adverse settlement or vibration effects. A vibration monitoring program, settlement monitoring program and engineering report will be required at detailed design for any proposed grade adjustments within proximity to the watermain/CSST.



SERVICING AND STORMWATER MANAGEMENT REPORT 557-584 WELLINGTON STREET & 550 ALBERT STREET

Utilities
September 11, 2017

7.0 UTILITIES

7.1 HYDRO

Subsurface Hydro infrastructure exists within the Albert Street ROW within the proposed site. A temporary on-site pad-mounted transformer and permanent hydro duct bank currently exists approximately 9.5m from the property line along Albert between Brickhill and Commissioner Street. As the Albert Street ROW is to be widened by 10m from the existing ROW line, no easement is expected to be required across the proposed site for the hydro duct bank. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. Electrical loading for the proposed buildings will be finalized after design circulation to confirm the above.

7.2 GAS

Similarly to Hydro, gas infrastructure exists within the Albert Street ROW via 300mm gas line. On-site ducts will be required to connect to the proposed high rise buildings. Gas loadings for the proposed buildings will be required following design circulation to confirm adequacy of the existing gas main.

7.3 TELECOMMUNICATIONS

Existing telecommunications infrastructure is expected to be able to service the proposed site via secondary connection to ducts located within the Albert Street ROW. Adequacy of existing servicing for the proposed development is to be confirmed following design circulation.

SERVICING AND STORMWATER MANAGEMENT REPORT 557-584 WELLINGTON STREET & 550 ALBERT STREET

Approvals
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8.0 APPROVALS

Pre-consultation with Ontario Ministry of Environment and Climate Change (MOECC) staff concerning Environmental Compliance Approvals (ECAs, formerly Certificates of Approval (CofA)) under the Ontario Water Resources Act will be required prior to detailed design of the site, and is expected to confirm that an ECA Approval will be required for stormwater quantity and quality control for the proposed site, as well as for off-site improvements to Albert Street. The Rideau Valley Conservation Authority will need to be consulted in order to obtain municipal approval for site development and to confirm stormwater quality control criteria for the site.

An MOECC Permit to Take Water (PTTW) is likely to be required for construction dewatering works in relation to excavations for underground parking.

SERVICING AND STORMWATER MANAGEMENT REPORT

557-584 WELLINGTON STREET & 550 ALBERT STREET

Conclusions
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9.0 CONCLUSIONS

9.1 POTABLE WATER SERVICING

It is proposed that each proposed building area will be required to maintain two separate connections to the main within Albert Street separated by a valve for redundancy. As no watermain currently exists within Albert Street east of Brickhill, a 400mm watermain extension is required connecting to the 200mm stub east of Commissioner Street to allow connections for the eastern portion of the site. Fire hydrants will be required to be installed along Albert east of Empress Avenue to service the proposed site in conjunction with installation of new watermain along Albert. It is anticipated that the proposed watermain extension and existing mains will be adequate to supply the required domestic and fire flow demands for the subject site. The building mechanical engineer is required to confirm the size and location of service connections at time of detailed design.

9.2 SANITARY SERVICING

The proposed site will be serviced by a network of gravity sewers which will direct the wastewater flows to the existing main via five separate service connections delineated by underground parking for the site concept. Extension of the existing 450mm diameter sewer from the intersection of Albert and Brickhill Street along Albert Street to Commissioner is proposed to provide a sufficiently sized gravity outlet for the subject site.

9.3 STORM SERVICING AND STORMWATER MANAGEMENT

The proposed stormwater management plan is in compliance with the goals specified through consultation with City of Ottawa staff, as well as provincial standards. Inlet control devices are proposed to limit inflow from the site area into the minor system to the estimated pre-development flows from the subject site. Sufficient storage will be required on rooftops, within surface ponding areas, and potentially within subsurface cisterns to permit restriction of peak flows to predevelopment levels. A 900mm diameter storm sewer is proposed along Albert Street from Brickhill to Commissioner to provide receiving capacity for the subject site. A total of 670m³ of storage volume is required on-site to attenuate the 100-year peak flows to required levels.

9.4 GRADING AND GEOTECHNICAL CONCERNS

Building wall design and internal staircases/risers will be required as part of site design to mitigate the change in grade across the existing site. Grading of access areas will require provisions for an overland flow route to either Albert Street or Commissioner Street per stormwater management requirements, and is to reflect the recommendations made in the referenced geotechnical reports.



SERVICING AND STORMWATER MANAGEMENT REPORT 557-584 WELLINGTON STREET & 550 ALBERT STREET

Conclusions
September 11, 2017

An environmental site assessment will be required to confirm if soil contamination is present within the proposed property in relation to removal and disposal of surficial soils.

Further localized geotechnical assessment is required at the site plan stage to confirm structural capacities of any deep foundations for the proposed high rise buildings, and to speak to proximity of the development to the adjacent LRT route to the north. A vibration monitoring program, settlement monitoring program and engineering report will be required at detailed design for any proposed grade adjustments within proximity to the existing 1220mm trunk watermain/CSST.

9.5 UTILITIES

Utility infrastructure exists within the Albert Street ROW within the proposed site. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site, and is to be confirmed following design circulation. The location of required easements and secondary connections is to be confirmed at time of detailed design.

9.6 APPROVALS

It is expected that an ECA Approval will be required for stormwater quantity and quality control for the proposed site, as well as for off-site improvements to Albert Street. The Rideau Valley Conservation Authority will need to be consulted in order to obtain municipal approval for site development and to confirm stormwater quality control criteria for the site. An MOECC Permit to Take Water (PTTW) is likely to be required for construction dewatering works in relation to excavations for underground parking.