REPORT
PROJECT: 113459-5.2.2

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES REPORT

99 FIFTH AVENUE

Prepared for Minto Communities Inc.
by IBI Group

November 20, 2017
Revised May, 2018

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1 INTRODUCTION

1.1 Purpose

This Assessment of Adequacy of Public Services Report is prepared in support of the requested re-zoning for a proposed condominium building by Minto Communities Inc. located at 99 Fifth Avenue in the City of Ottawa. IBI Group was retained to review the existing infrastructure and to demonstrate that the proposed development can be serviced by connecting to existing municipal services. Specifically, this report will review the ability of local watermains and sewers to support the proposed development.

This report is also prepared in accordance with the November 2009 Development Servicing Study Checklist by the City. The check list is included in **Appendix A**. It is intended to be a quick reference for location within this report of the checklist items. Because of the nature of the proposed development, many of the check list items are not applicable.

1.2 Pre-Consultation

There was a formal pre-consultation meeting with the City of Ottawa on August 3rd, 2017. A copy of the meeting summary notes is included in **Appendix B**. Some of the key items of discussion included:

- Official Plan & Zoning
- Infrastructure
- Design Elements
- Transportation
- Heritage
- Planning
- Glebe Community Association
- Process

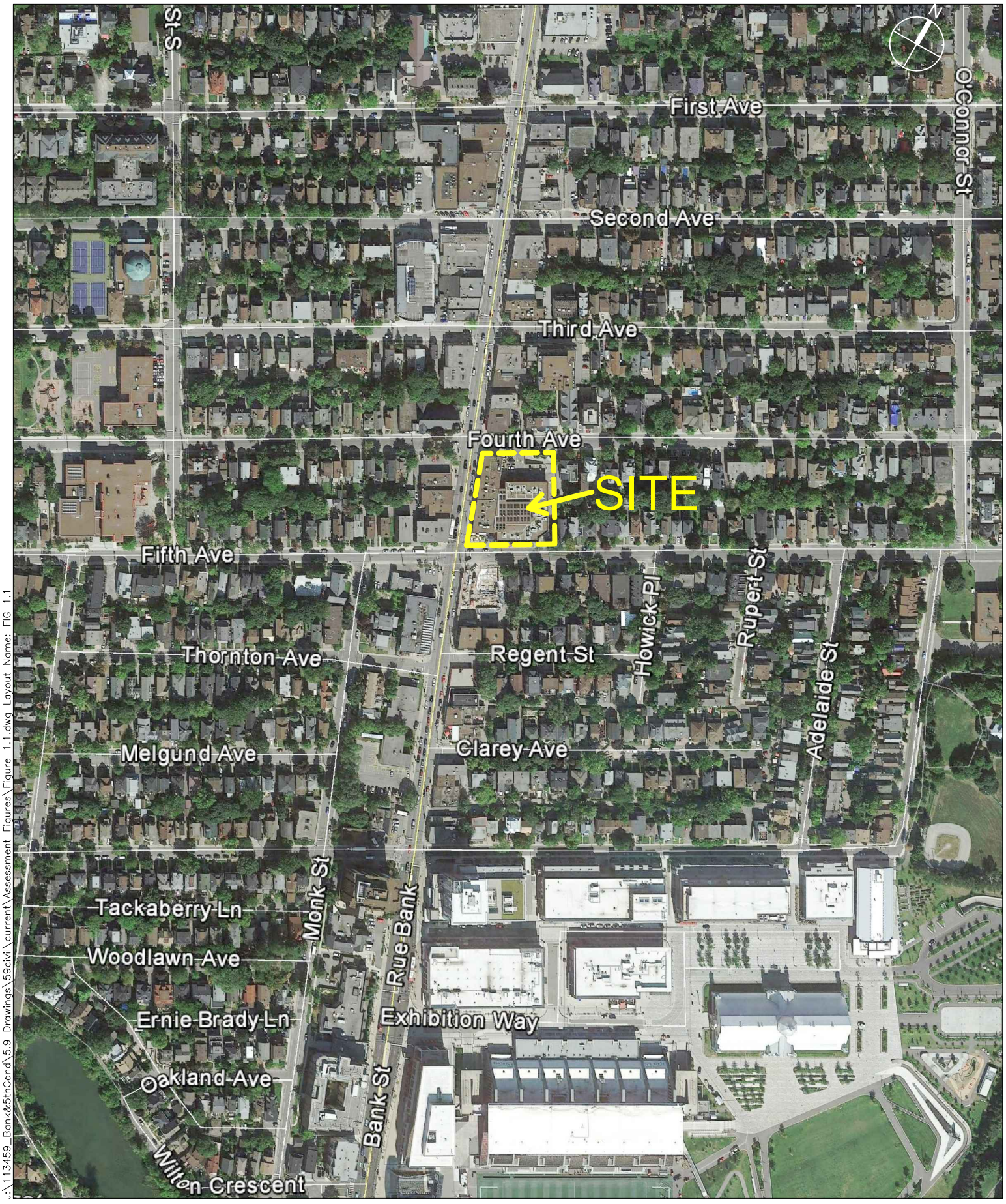
In addition to the formal meeting, there has also been an email exchange between the City's Project Manager and IBI requesting boundary conditions for municipal servicing analysis.

1.3 Subject Property

The subject property is located at 99 Fifth Avenue between Fourth and Fifth Avenue. The location plan is shown on **Figure 1.1**. Bank Street is designated a Traditional Mainstreet in the City of Ottawa Official Plan (2003, Consolidated).

The subject property is zoned Traditional Mainstreet TM[93] H(15) with a site specific height of 15 metres. It is currently improved with a two-storey commercial building fronting Bank Street and a two-storey office complex behind the commercial building. There is one level of underground parking with 68 parking spaces and there are also 16 parking spaces at the surface.

The proposed building is comprised of 26 one-bedroom units, 85 two-bedroom units, ten townhouse units and 580 m^2 of ground floor amenity space. A total of 118 parking spaces are proposed, all of which will be accommodated in two levels of underground parking. The proposed



J:\113459_Bank&5thCond\5.9 Drawings\59civil\current\Assessment Figures\Figure 1.1.dwg Layout Name: FIG 1.1

Project Title	Drawing Title	Sheet No.
99 FIFTH AVENUE ASSESSEMENT OF ADEQUACY OF PUBLIC SERVICES	LOCATION PLAN	FIGURE 1.1

site plan is shown in **Figure 1.2**. Although the site plan covers 0.30 ha, the proposed building will cover an area of 0.18 ha.

Site access to the existing underground parking lot is from a rear one-way drive aisle from Fifth Avenue. Access to the proposed underground parking lot will be from an underground ramp directly off of Fifth Avenue. The rear access lane will no longer remain. The main access to the new condominium building will be from both Fourth and Fifth Avenues.

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Project Title	Drawing Title	Sheet No.
99 FIFTH AVENUE ASSESSEMENT OF ADEQUACY OF PUBLIC SERVICES	SITE PLAN	FIGURE 1.2

2 WATER SUPPLY

2.1 Existing Condition

The existing site, including the heritage building, has access to three existing watermains:

- A 200 mm diameter main in Fifth Avenue
- A 300 mm diameter main in Bank Street
- A 400 mm diameter main in Fourth Avenue

The heritage building is presently serviced from a watermain in Bank Street, while the two-storey office complex is serviced from a watermain in Fifth Avenue. **Figure 2.1** shows the location of the existing watermain system adjacent to the subject property.

2.2 Design Criteria

The following design criteria, which were extracted from the City's Water Distribution Design Guidelines, were used to estimate the water demand requirements for the site:

- Average Daily Demand (ADD) = 350 l/cap/day
- Maximum Daily Demand (MDD) = 2.5 X ADD = 875 l/cap/day
- Peak Hourly Demand = 2.5 X MDD = 1925 l/s
- Fire Demand = 208 l/s (as per Fire Underwriters Survey)

Hydraulic Gradient:

- Minimum – max hour 276 kPa
- Minimum – max day and fire 140 kPa

The following are the boundary conditions provided by the City:

- Maximum Day plus Fire Flow 102.4 m
- Minimum HGL (Peak Hour) 105.9 m
- Maximum HGL 114.9 m

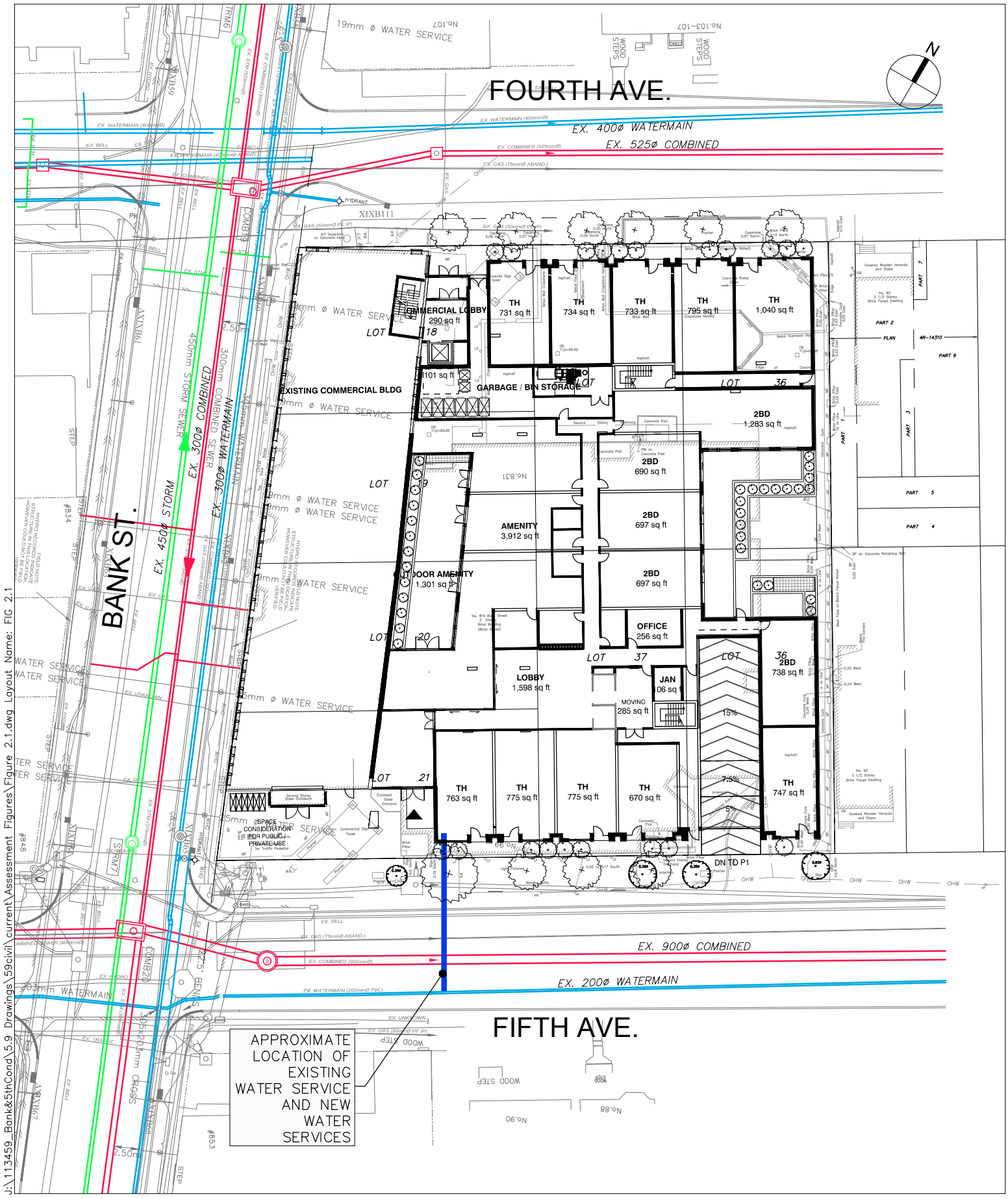
The preliminary ground floor elevation for the new building will be approximately 69.70 m. Under the Minimum HGL condition, the water pressure inside the building at ground level is 355 kPa, which exceeds the minimum requirement of 276 kPa per the City guidelines. Because the pressure on the 7th floor of the building is less than the requirement of 276 kPa, a water pump will be required.

Under the Maximum HGL condition the water pressure is 498 kPa at the P2 parking level, which is less than the maximum allowed of 552 kPa per City guidelines. Pressure reducing valves are not required.

The Maximum Day plus Fire Flow pressure is 321 kPa, which exceeds the minimum of 140 kPa per City guidelines. There will be sufficient fire flow pressure available for the site.

2.3 Proposed Water Plan

The boundary conditions provided by the City are based on the assumption that the proposed mid-rise building will be serviced from the existing 200 mm dia watermain in Fifth Avenue. That location and other related details, such as size, will be reviewed and confirmed by the architects and mechanical designers at the time of final design. Because the average demand is greater than 50,000 l/day, two service connections will be required. The two laterals will be connected via a tee in the building mechanical room from where a single service pipe will supply water to the building.



J:\113459_Bank&5thCond\5.9 Drawings\59civil\current\Assessment Figures\Figure 2.1.dwg Layout Name: FIG 2.1

Project Title	Drawing Title	Sheet No.
99 FIFTH AVENUE ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES	EXISTING MUNICIPAL INFRASTRUCTURE AND PROPOSED SERVICE LOCATIONS	FIGURE 2.1

The water meter will be installed on the single water service line in the mechanical room. The water demand calculations are included in **Appendix C.** The proposed water service locations are also shown on **Figure 2.1**.

3 SANITARY SEWERS

3.1 Existing Conditions

The subject site has access to an existing 900 mm dia combined sewer in Fifth Avenue and a 525 mm dia combined sewer in Fourth Avenue. The locations of the existing combined sewers are shown in **Figure 2.1**.

3.2 Design Criteria

The following design criteria were used to estimate the expected peak wastewater flow from the proposed development. The criteria are taken from the City's Sewer Design Guidelines.

- Average Residential Flow 350 l/cap/day
- Peak Factor Harmon Formula (max. 4.0)
- Infiltration Rate 0.28 l/s/ha
- One-bedroom Population Density 1.4 ppu
- Two-bedroom Population Density 2.1 ppu
- Townhouse Population Density 2.7 ppu

Based on these criteria, the peak wastewater flow estimate for the proposed mid-rise building is 4.00 l/s. A copy of the sanitary sewer flow calculation is included in **Appendix C**.

3.3 Proposed Wastewater Plan

It is proposed to discharge wastewater from the new condominium building to either the Fourth Avenue Street sewer or the Fifth Avenue sewer. The final decision can be made after review with both the City and the mechanical designer at the time of final design. Potential wastewater service locations are shown on **Figure 2.1**.

4 STORMWATER

4.1 Existing Conditions

The site currently contains a ground level asphalt parking lot on the northern side and very little internal landscaping features. Surface drainage is generally from the south to the north, towards Fourth Avenue. This portion of the site is serviced with two ground level catchbasins which outlet to the Fouth Avenue combined sewer.

The remainder of the site drains to catchbasins on Fourth Avenue and Fifth Avenue. The locations of the existing combined sewers are shown in **Figure 2.1**.

4.2 Design Criteria

The City of Ottawa was contacted to confirm the stormwater management criteria for the subject site. The site presently discharges uncontrolled surface runoff to the local combined sewer and the City has set a limit for post development total combined flows from the site. To determine that flow rate, the City provided the following criteria:

- Rainfall Intensity = 1:2 yr. City of Ottawa
- Average Runoff Coefficient = 0.40
- Time of Concentration = 10 minutes

Based on the City's criteria and a Time of Concentration of 10 min., the total allowable post-development flow from the site to the combined sewer system is 25.62 l/s.

Based on the proposed development, which includes 121 condominium units, the estimated peak wastewater flow is 4.00 l/s. Therefore, there could be a total flow of 29.62 l/s generated from the new development. The runoff coefficient of the final site will most likely be greater than 0.40 and on-site storage will be required. The flow calculations are included in **Appendix C**.

4.3 Proposed Stormwater Plan

There are two existing combined sewers adjacent to the site, one in Fourth Avenue and the other in Fifth Avenue. With the use of on-site storage, the allowable release rate into the existing sewer will be able to be met. Although there are benefits to locating the sewer laterals adjacent to the proposed watermain service, the final location should be reviewed by the mechanical designer and architect.

5 SEDIMENT AND EROSION CONTROL PLAN

5.1 General

During construction, existing conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These will include:

- Installation of bulkhead barriers at the nearest downstream manhole in each sewer which connects to an existing downstream sewer. These will be maintained during construction and removed after construction.
- Installation of filter cloths on open surface structures such as maintenance holes and catchbasins during building construction.
- Installation of silt fence on the site perimeter, where practical.

6 APPROVALS AND PERMIT REQUIREMENTS

6.1 City of Ottawa

The City of Ottawa will review all re-zoning applications as they relate to provision of water supply, wastewater collection and disposal, and stormwater conveyance and treatment. Ultimately, the City will issue final approvals for construction, including:

- Commence Work Notification;
- Building Permits

6.2 Province of Ontario

It is anticipated that an Environmental Compliance Approval from the provincial Ministry of Environment and Climate Change will be required for potential stormwater storage.

6.3 Conservation Authority

No approvals required.

6.4 Federal Government

No approvals required.

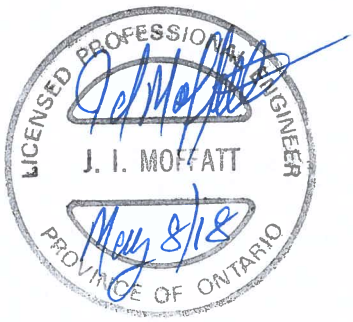
7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusion

The municipal infrastructure needed to support the proposed development already exists in both Fourth Avenue and Fifth Avenue, immediately adjacent to the property. The City has already provided operating conditions for the existing 200 dia watermain in Fifth Avenue. Connection to the Fifth Avenue watermain will provide the new building with a reliable water supply meeting the City of Ottawa design guidelines. Both the adjacent combined sewers also have capacity to service the proposed development since it is likely there will be less total flow from the proposed development than from the current site due to on-site storage. Therefore, existing public services, including water supply and sewage disposal have spare capacity to service the subject site.

7.2 Recommendation

It is recommended that the City of Ottawa acknowledge that there is capacity in the existing municipal water and wastewater infrastructure to support the proposed development at 99 Fifth Avenue.



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APPENDIX A

Development Servicing Study Checklist

The following table is a customized copy of the current City of Ottawa's Development Servicing Study Checklist. It is meant to be a quick reference for location of each of the items included on the list. The list contains the various item description and the study section in which the topic is contained.

GENERAL CONTENT

	ITEM DESCRIPTION	LOCATION
	Executive Summary (for larger reports only)	N/A
√	Date and revision number of the report	Front Cover
√	Location Map and plan showing municipal address, boundary, and layout of proposed development.	Figure 1.1 Figure 1.2
√	Plan showing the site and location of all existing services.	Figure 2.1
√	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.3
√	Summary of Pre-consultation Meeting with City and other approval agencies.	Appendix B
	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	N/A
√	Statement of objectives and servicing criteria	Section 1.1, 2.2, 2.3, 3.2, 3.3, 4.2, 4.3
√	Identification of existing and proposed infrastructure available in the immediate area.	Figure 2.1
	Identification of Environmentally Significant Areas, Watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A
	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	N/A
	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
	Proposed phasing of the development, if applicable.	N/A
	Reference to geotechnical studies and recommendations concerning servicing.	N/A

√	All preliminary and formal site plan submissions should have the following information: • Metric scale • North arrow (including construction North) • Key plan • Name and contact information of applicant and property owner • Property limits including bearings and dimensions • Existing and proposed structures and parking areas • Easements, road widening and rights-of-way • Adjacent street names	Noted

DEVELOPMENT SERVICING REPORT: WATER

	ITEM DESCRIPTION	LOCATION
	Confirm consistency with Master Servicing Study, if available	N/A
√	Availability of public infrastructure to service proposed development	Section 2.1, 3.1, 4.1
	Identification of system constraints – external water needed	N/A
√	Identify boundary conditions	Section 2.1
√	Confirmation of adequate domestic supply and pressure	Section 2.2, 2.3
√	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 2.2
√	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Section 2.2
	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defining phases of the project including the ultimate design.	N/A
√	Address reliability requirements such as appropriate location of shut-off valves.	Detail Design
	Check on the necessity of a pressure zone boundary modification.	N/A
√	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Section 2.2
√	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Detail Design
	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities and timing of implementation.	N/A
√	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 2.2
√	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Detailed Design

DEVELOPMENT SERVICING REPORT: WASTEWATER

	ITEM DESCRIPTION	LOCATION
√	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 3.2
	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
√	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age condition of sewers.	Detail Design
√	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 3.1, Appendix B
√	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Detail Design
√	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix "C") format.	Detail Design
√	Description of proposed sewer network including sewers, pumping stations and forcemains.	Section 3.1, Appendix B
	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
	Special considerations such as contamination, corrosive environment etc.	N/A

DEVELOPMENT SERVICING REPORT: STORMWATER CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 4.1, Appendix B
√	Analysis of available capacity in existing public infrastructure.	Detail Design
√	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Detail Design

√	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Detail Design
√	Water quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Detail Design
√	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Detail Design
	Set-back from private sewage disposal systems.	N/A
	Watercourse and hazard lands setbacks.	N/A
	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
√	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Detail Design
	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
√	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Detail Design
	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
√	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Detail Design
	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A
	Identification of potential impacts to receiving watercourses	N/A
	Identification of municipal drains and related approval requirements.	N/A
√	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Detail Design
√ √	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Detail Design
	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
√	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 5
	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

APPROVAL AND PERMIT REQUIREMENTS: CHECKLIST

	ITEM DESCRIPTION	LOCATION
	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A
	Application for Certification of Approval (CofA) under the Ontario Water resources Act.	N/A
	Changes to Municipal Drains	N/A
√	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	Section 6

CONCLUSION CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Clearly stated conclusions and recommendations	Section 7.1 & 7.2
√	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	Detail Design
√	All draft and final reports shall be signed and stamped by professional Engineer registered in Ontario.	Completed

APPENDIX B

99 Fifth Avenue/189 Bank Street "Bank at Fifth"
Meeting Summary Notes
August 3, 2017, Ottawa City Hall

Attendees:

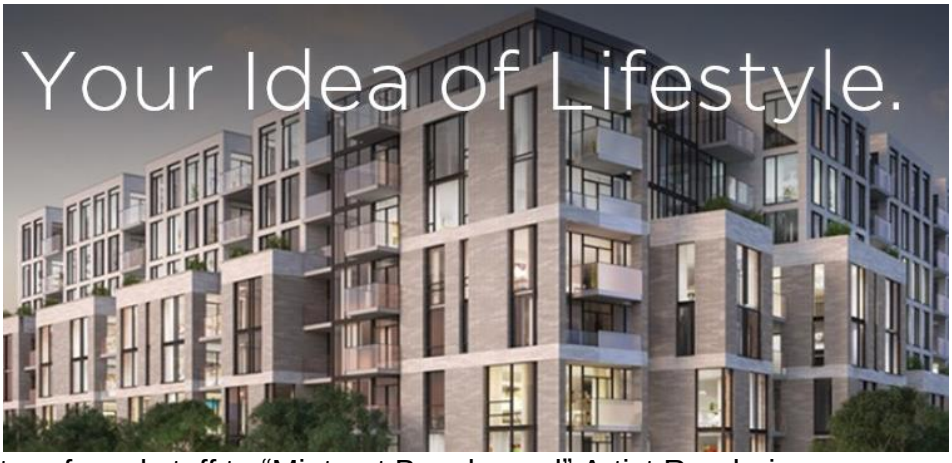
- Kevin Harper, Minto
- Hugo Lalonde, Minto
- Thomas Couper, Minto
- Peter Hook, Glebe Community Association
- David Maloney (Heritage Planner, City of Ottawa)
- Abdul Mottalib (Project Manager, City of Ottawa)
- Christopher Moise (Urban Designer, Architect, City of Ottawa)
- Miles Weeks (Planning Student)
- Tracey Scaramozzino (File Lead, Planner, City of Ottawa)

Issue of Discussion:

- Proposed redevelopment of the site

- Proposed Massing, July 12, 2017, looking north-east from Bank and Fifth

1. **<u>Overview by Minto</u>:**
   a. "Fifth Avenue Court" was rebranded "Bank at Fifth" after the Lansdowne Park Development was completed.
   b. Property has been owned by Minto since the 1980's and is one of their prominent buildings.
   c. Capital expenditures are rising and they are looking for a way to obtain more revenue
   d. Proposal to redevelop in the rear for something relatively small, well-designed and green.
   e. Concept 1: retain existing 1920's building, rezone from a permitted height of 15 metres (4-storeys) to allow construction of an 8-storey residential, mid-rise apt bldg., attached to the rear of the 1920's building.
   f. Concept 2: (briefly discussed, no images): demolish the entire site and rezone from a permitted height of 15 metres (4-storeys) to allow construction of an 8-storey mixed-use building.
   g. Proposed to submit for rezoning and UDRP by end of Oct. and submit for Site Plan by end of December and Launch the project in fall 2018.
   h. The Councillor has been briefed and has indicated that 6-storeys is acceptable, but that 8-storeys is not acceptable
   i. Minto understands the benefit of retaining the 1920's building and have purposefully moved the addition 5m off of the older building due to structural issues
   j. Minto will eventually sever the 1920's building off from the new construction
   k. They have developed the lot as 'one lot for zoning purposes"
   l. The commercial tenants will be on private collection and the residential portion will be on City service.
   m. Attempt to keep the businesses open during construction
   n. They will likely provide car-sharing opportunities
   o. The number of parking spaces could drop, depending on how much space is allocated to storage lockers for the tenants.
   p. The Minto at Beechwood development was designed by the same architect as proposed for this project (TACT) and is 8-storeys with 129 units.
   q. Minto has indicated that they need 8-storeys and that is what they will be submitting to the City.



   - Minto referred staff to "Minto at Beechwood" Artist Rendering, same architect as 99 Fifth Ave proposal

2. **Official Plan:**
   a. designated “Traditional Mainstreet”.
   b. OPA 150 – Council’s direction speaks to a maximum of 6-storeys on a TM, unless there is a secondary plan that supports a higher maximum.
   c. OPA 76 – Currently in effect – does not place a cap on the maximum heights, but speaks to the possibility of taller buildings if they can be well integrated (S.12)

3. **Zoning Information:**
   a. TM [93] H(15) – maximum allowed height is 15 metres (4-storeys)
      a. [93] limits gfa for certain uses, requires 79 parking spaces for the non-residential uses, allows internal ground-floor uses without direct access to Bank Street.
      b. Based on the discussions at the preconsultation meeting, the proposal only shows 7 commercial parking spaces and the rest of the parking is to be re-allocated to the residential units. This will need to be defended as part of the re-zoning application.

4. **Infrastructure/Servicing (Abdul):**

Note: It was mentioned by the developer in the meeting that this property would be severed later on. If so, please keep provision for independent services for future the retain and severed land now as independent services are a requirement for severance of a land.

Capacity issues for sewers

Please find the Servicing Study Guidelines” in the attachment and prepare the servicing study accordingly. For capacity issue, please see section 3.2.1 page 3-3 and follow this section. A completed checklist with corresponding references from the servicing study is mandatory for the completeness of the study. Please add a completed checklist in the report.

ServicingGuidelines_final_Dec...

Storm and Sanitary sewer capacity

The allowable release rate should be based on the existing Zoning Designation using the City's Sewer Guidelines. If the proposal requires a greater flow than the allowable, then please do an analysis of the City’s sewers system as per servicing guidelines to determine available capacity in the City’s sewers system.

Please calculate the sewers demand for the proposed development and send it to us ASAP, if you want to verify whether or not there is enough capacity in the city system. Normally, it takes 10 business days to get response back from the internal circulation.

Required information for Water boundary conditions (not required if you're using existing service)

Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the city street in front of the development. Please use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons.

1. Location of Service
2. Street Number & Name
3. Type of development and units
4. Amount of fire flow required ___l/s (Calculation as per the FUS Method).
5. Average daily demand: -l/s
6. Maximum daily demand: -l/s
7. Maximum hourly daily demand: -l/s

Please note proposed development will require 2 separate service connections from the city watermains if the basic day demand is greater than 50m^3/day to avoid the creation of a vulnerable service area. Two water meters will be required for two service connections and the service connections will have to be looped.

Utility conflict with the proposed servicing

- It is the consultant's sole responsibility to investigate the existing utilities in the proposed servicing area while preparing the Servicing and Grading Plans to avoid any conflict with the proposed services and will require a note stating this on the servicing plan.

Underground and above ground building footprints

All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the existing property lines, sight triangles and/or future road widening protection limits.

Grade limitations for underground ramps (Wally)

Underground ramps should be limited to a 12% grade and must contain a subsurface melting device when exceeding 6%. If the ramp's break over slope exceeds 8%, a vertical-curve transition or a transition slope of half the ramp slope should be used.

On Bank Street: 450 mm concrete storm sewer and 300mm combined sewer
On Fifth Avenue: 900mm combined sewer and 203mm watermain
On Fourth Avenue: 525combined sewer and 406 watermain

SWM Criteria for separated sewer system for the Catchment Area of the site being redeveloped: (Quantity control criteria)

- Allowable release rate will be 5-year pre-development rate for Collectors and for Arterial roads at 10 years.
- C Coefficient of runoff will need to be determined **as per existing conditions** but in no case more than 0.5
- TC =20 minutes or can be calculated,
- TC should not be less than 10 minute, since the IDF curves become unrealistic less than 10min.
- Any storm events greater than 5 years, up to 100 years, and including 100-year storm event must be detained on site.

Stormwater Management criteria connecting into the combined sewer system (Quantity control criteria)

- Total (storm +sanitary) allowable release rate will be 2-year pre-development rate.
- C Coefficient of runoff will need to be determined **as per existing conditions** but in no case more than 0.4
- TC =20 minutes or can be calculated,
- TC should not be less than 10 minute, since the IDF curves become unrealistic less than 10min.
- Any storm events greater than 2 years, up to 100 years, and including 100-year storm event must be detained on site

TECHNICAL BULLETIN PIEDTB-2016-01

Section 5.4.9.2, Page 5.31,

While rear yard grading will create low points and storage at each catch basin, the storage will not be considered in the available storage requirements. It will be assumed that all backyard flows in excess of the 2-year will flow towards the roads. Effective available storage will only be considered on streets and open space/park storage. Furthermore, there must be at least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope.

Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street with the following geometry: a minimum slope of 1.5% and a minimum depth of 150 mm. The maximum allowable depth of a swale/ditch shall be 600 mm. The maximum side slope of swales/ditches shall be 3 horizontals to 1 vertical.

Section 8.3.11.6, Page 8.20:

Rear Yard storage cannot be accounted for in the water storage calculation. It should be assumed that all water in excess of the 2-year event will flow to the street. The maximum depth of flow depth in rear yards is 300 mm. Furthermore, there must be at

least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope. See Section 5.4.9 for further information. Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street.

Stormwater management criteria (Quality Control Issues)

It is consultant's responsibility to check with the Rideau Valley Conservation Authority (RVCA) for quality control issues and include this information in the SWM report under Quality Control Section. Please contact Jocelyn Chandler at the RVCA for further information.

Implementation considerations

- Accounting for external overland drainage
- Use of standard ICDs
- Requirement for ICD plans
- Requirement for plans showing 100-year and stress-test ponding limits

Deep Services (Storm, Sanitary & Water Supply)

- Provide a dead end manhole but connect the services directly to the extended storm/sanitary sewermain using a manufactured TEE as per Std Dwg S11.1.
- Provide a foundation drain backwater valve installed as per Std Dwg S14.
- Note that the connection must be inside a manhole if the service will exceed 50% the diameter of the rigid main sewer. Use an existing manhole if possible.
- Provide a full port backwater valve, in the sanitary building drain, installed as per Std Dwg S14.1.
- Connect the water service to the existing /extended watermain and show proposed fire route and existing fire hydrant on the plan.

Monitoring MHs

Onsite Monitoring MHs are required for sewers (sanitary and storm) if there will be commercial component with the residential development.

Engineering Studies required for ZBLA/Site Plan application

- Serviceability Study
- Erosion and sediment Control Plan, it can be combined with grading plan
- Stormwater Management Report
- Geotechnical Study
- TIA study is required please contact Wally
- Phase 2 Noise Control Detailed Study, Bank street is an arterial road
- ESA-Phase 1 Study, needs to be prepared by a QP as per current MOECC regulation not as per CSA standards,
- ESA-Phase 2, Depend on the Phase I recommendation if required needs to be prepared by a QP as per current MOECC regulation not as per CSA standard

- RSC is needed for more sensitive land usage; - RSC is required before ZA approval.

Plans required ;

a. Site Servicing Plan (Plan and Profile's for all services requiring MOE ECA)
b. Grade Control and Drainage Plan
c. Erosion and Sediment Control Plan
d. Plan and profile for MOE application under transfer of Review program

MOECC SWM Requirement:

- Connecting storm service lateral to a combined sewer will require an MOECC ECA approval under Direct Submission
- Multiple parcels using same infrastructures also require an MOE application

MOECC Other Requirements:

- If the propose land use generate stationary noise from heating, ventilating and air conditioning (HVAC) equipment, rotating machinery, generator, etc

Additional Information;

- 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
- Servicing and site works shall be in accordance with the following documents:
  - ⇨ Ottawa Sewer Design Guidelines (October 2012)
  - ⇨ Ottawa Design Guidelines – Water Distribution (2010)
  - ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
  - ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
  - ⇨ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
  - ⇨ City of Ottawa Park and Pathway Development Manual (2012)
  - ⇨ City of Ottawa Accessibility Design Standards (2012)
  - ⇨ Ottawa Standard Tender Documents (latest version)
  - ⇨ Ontario Provincial Standards for Roads & Public Works (2013)
- Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

5. **Design Comments (Christopher Moise):**
   a. Should attend UDRP sooner, rather than later
   b. Good sensitivity with transition east-west.
   c. Provide massing drawings to show the north-south (the shoulders) of the building and transition.
   d. From a design perspective, is not concerned with the height due to the location of the 7th and 8th storeys – at a distance from both the abutting residential properties to the east and from Bank Street to the west.
   e. Pleased to see retention of the heritage building.
   f. Provide massing to show how the rear of the building/site will look and feel for the residents in the new building – specifically for the ground floor units that face the rear of the property.

6. **Transportation (Wally Dubyk):**
   a. Corner sight triangle required at Bank and Fifth (5x5).
   b. Corner sight triangle required at Bank and Fourth (5x5).
   c. Road Widening required for 23m crossection.
   d. A 'screening test' will be required to determine if a transportation study is required.
   e. TIA Guidelines have recently changed and they must be followed. They can be found on the City of Ottawa's website www.ottawa.ca/TIA
   f. City needs minimum 2.0 m monolithic concrete sidewalk.

7. **Heritage (David Maloney):**
   a. Pleased to see retention of 1920's building.
   b. The commercial buildings fronting Bank Street are a very important example of traditional North American 'Main Street' commercial architecture in the Glebe. They contain their original cornice and brick stringcourses and are a crucial part of the Glebe's traditional commercial streetscape. At this time the subject property is not designated under Part IV or V of the Ontario Heritage Act, so a formal Cultural Heritage Impact Statement would not be required, however a heritage statement should be submitted which describes:
      1) exactly which building(s) are to be preserved and what is being demolished (identified on a plan);
      2) proposed alterations to these buildings;
      3) details of the connection between the existing buildings and new atrium / corridor;
      4) summary of impacts of new construction on the Bank Street traditional commercial streetscape.
   c. The building is currently not designated, but it could be added to the heritage registry in fall 2017, as the buildings in the Glebe are currently being reviewed
   d. Pleased with the towns facing Fourth Ave and Fifth Avenue, as there were dwellings fronting onto Fourth Ave., in the early 1900's.
   e. If the property is placed on the heritage registry, the Owner will be notified and will then be required to notify the City Heritage Dept. if they wish to demolish the building. At that time, the building could become designated.
   f. This 1920's building is significant and is a rare example of an entire block that still retains it's original building in this part of the city.

8. **Glebe Community Association (Peter Hook):**
    a. Pleased to see how deep the property is and how well the 8-storeys can be hidden.
    b. The massing n-s will be interesting to review.
    c. Keep the heritage building.
    d. The Community Association will expect 15m as per the Zoning and the proposed 8-storeys will be met with resistance by certain residents.
    e. Consider the impact of the increased height from further east and west into the lower density residential areas.
    f. Pleased that the 8-storey building has a reasonable height due to lesser floor-ceiling heights of each floor.

9. **Planning (Tracey Scaramozzino):**
    a. Zoning Issues:
        a. City would prefer to see 6-storeys as per the direction in the OP.
        b. The Applicant must provide very solid rationale if they chose to come in at 8-storeys that the additional height can be accommodated without undue adverse impact on the abutting neighbours and surrounding properties.
        c. 8-storeys will be very controversial with the Councillor and the Community Association.
        d. 8-storeys may trigger a Section 37 Agreement.
        e. Advised Minto to speak to the Councillor (which they have already done) and with the Community Association (Peter Hook advised that he could arrange for a meeting).
    b. Site Plan Issues:
        a. Be aware of additional pedestrian and bicycles along Fifth Avenue once the bridge to Clegg St. is constructed.
        b. Note the Hydro wires along Bank Street.
        c. 45 degree angle at the rear is good.
        d. How will the corner of Fifth Ave. and Bank Street be treated? A POPS would be appropriate.
        e. Internalize the loading space to minimize it's impact on the residents on and off the site. Confirm that the loading space size is adequate for manoeuvering.

10. **Process/Required Applications:**
    a. Urban Design Review Panel (UDRP – November 2, December 7)
    b. Re-zoning
    c. Site Plan, Manager Approval, Public Consultation

Michael Black

From: Lance Erion
Sent: Tuesday, October 24, 2017 9:58 AM
To: Michael Black
Cc: Jim Moffatt
Subject: FW: 99 Fifth Avenue - Request for boundary Conditions
Attachments: 99 Fifth Oct 2017.pdf

Lance Erion P.ENG

Associate

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Defining the cities of tomorrow
ibigroup.com

From: Mottalib, Abdul [mailto:Abdul.Mottalib@ottawa.ca]
Sent: Tuesday, October 24, 2017 9:56 AM
To: Lance Erion <lerion@IBIGroup.com>
Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: FW: 99 Fifth Avenue - Request for boundary Conditions

Please see below as requested.

Thanks,

Abdul Mottalib, P. Eng.

From: .....
Sent: October 11, 2017 2:40 PM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: .....
Subject: RE: 99 Fifth Avenue - Request for boundary Conditions

Hi Abdul,

Please see the boundary condition information below based on one connection. Note that the daily demand appears to be greater than 50m3/day.

The following are boundary conditions, HGL, for hydraulic analysis at 99 Fifth (zone 1W) assumed to be connected to the 203 mm on Fifth Ave (see attached PDF for location).

Minimum HGL = 105.9 m

Maximum HGL = 114.9 m

Max Day + Fire Flow = 102.4 m

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.

Thanks,

.....

From: Lance Erion [mailto:lerion@IBIGroup.com]
Sent: October 03, 2017 5:18 PM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: 99 Fifth Avenue - Request for boundary Conditions

We are working on a new proposed 8 storey 124 unit residential building at 99 Fifth Avenue which is adjacent to the existing commercial building on 819 Bank Street between Fifth and Fourth Avenues as shown on the attached and are requesting a watermain boundary condition. The existing 2 storey commercial building (819 Bank street) fronting Bank Street will remain with the new building separate from it. Attached is a water demand calculation and FUS fire flow calculation summarized as follows:

Average day demand	0.89 l/s
Max day demand	2.23 l/s
Max hour demand	4.90 l/s
Fire flow	200 l/s

As the daily demand is less than 50 m^3/day only one watermain connection will be required. A peak sanitary flow of 3.65 l/s has been calculated. As the building area matches the previous building area there is no change in the storm runoff coefficient.

Thank you for your assistance with this project.

Lance Erion P.ENG

Associate

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APPENDIX C

WATERMAIN DEMAND CALCULATION SHEET

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT : 99 Fifth Avenue
LOCATION : City of Ottawa
DEVELOPER :

FILE: 113459-5.7.3
DATE PRINTED: 2018-05-08
DESIGN: 2018-05-04
PAGE : 1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND
	UNITS			POP'N	INDTRL	COMM.	RETAIL										
	1bd	2bd	TH		(ha.)	(ha.)	(m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/min)
BUILDING	26	85	10	242				0.98	0.00	**0.98**	2.45	0.00	**2.45**	5.39	0.00	**5.39**	**12,500**

ASSUMPTIONS

RESIDENTIAL DENSITIES

One-bedroom (1bd)	1.4	p / p / u
Two-bedroom (2bd)	2.1	p / p / u
Townhouse (TH)	2.7	p / p / u

AVG. DAILY DEMAND

Residential:	350	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	2,500	l / 1000m^2 / day

MAX. DAILY DEMAND

Residential:	875	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	3750	l / 1000m^2 / day

MAX. HOURLY DEMAND

Residential:	1,925	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	6,750	l / 1000m^2 / day

FIRE FLOW

From FUS Calculation	12,500	l / min

Fire Flow Requirement from Fire Underwriters Survey - 99 Fifth Avenue

Building

Floor Area (1 & 2)	4,097	m^2
50% Floor Area (3 to 8)	4,400	m^2
Total Floor Area	8,497	m^2

7866

Area	
1 & 2	**3 to 8**
21826	21278
22252	20949
	20759
	19501
	12189
44078	**94676** sqft
4097	**8800** sqm
	4400 sqm (50%)

$F = 220C\sqrt{A}$

C	0.6	C =	1.5 wood frame
A	8,497 m^2		1.0 ordinary
			0.8 non-combustible
F	12,168 l/min		0.6 fire-resistive
use	12,200 l/min		

Occupancy Adjustment

	-25%	non-combustible
	-15%	limited combustible
Use -15%	0%	combustible
	+15%	free burning
Adjustment -1830 l/min	+25%	rapid burning
Fire flow 10,370 l/min		

Sprinkler Adjustment

	-30%	system conforming to NFPA 13
	-50%	complete automatic system
Use 30%		
Adjustment 3111 l/min		

Exposure Adjustment

Building Face	Separation	Charge
north	20.5	10%
east	5	20%
south	20.5	10%
west	20.5	10%
Total		50%
Adjustment		5,185 l/min
Fire flow		12,444 l/min
Use		**12,500 l/min**
		208 l/s

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%

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SANITARY SEWER DESIGN SHEET

99 Fifth Ave.
CITY OF OTTAWA

LOCATION				RESIDENTIAL										ICI AREAS							INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		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	AVAILABLE CAPACITY	
														INSTITUTIONAL		RETAIL		INDUSTRIAL														
STREET	AREA ID	FROM MH	TO MH		Studio	1bd	2bd	TH		IND	CUM			IND	CUM	IND	CUM	IND	CUM		IND	CUM	(L/s)	IND	CUM		(L/s)	(m)	(mm)	(%)	(full) (m/s)	L/s	(%)
FIFTH AVE.	99 FIFTH					26	85	10		241.9	241.9	4.00	3.92			0.00	0.00			0.00	0.30	0.30	0.08			4.00	26.50	10.00	200	0.60	0.817	22.50	84.89%

Design Parameters:

Residential			ICI Areas		
1bd	1.4	p/p/u	INST	28,000	L/Ha/day
2bd	2.1	p/p/u	RET	28,000	L/Ha/day
TH	2.7	p/p/u	IND	35,000	L/Ha/day
				17000	L/Ha/day

MOE Chart

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 350 L/day 300 L/day
3. Infiltration allowance: 0.28 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands

Designed: MB

Checked: LE

Dwg. Reference:

No.	Revision	Date
1.	Assessment of Adequacy of Public Services Report - Submission No. 1	2017-11-20
2.	Assessment of Adequacy of Public Services Report - Submission No. 2	2018-05-08

File Reference:	Date:	Sheet No:
113459-5.7.1	2017-10-30	1 of 1

IBI GROUP
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STORM SEWER DESIGN SHEET

99 Fifth Avenye
City of Ottawa
Minto Communities

LOCATION				AREA (Ha)												RATIONAL DESIGN FLOW										SEWER DATA									
				C= 0.20	C= 0.25	C= 0.40	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.70	C= 0.76	C= 0.80	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	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 (2yr) (L/s)	(%)
Storm						0.30								0.33	0.33	10.00	0.19	10.19	76.81	104.19	122.14	178.56	25.62	34.76	40.75	59.57		25.62	43.87	10.00	250			0.50	0.866	18.25	41.59%
Sanitary																												4.00	26.50	10.00	200			0.60	0.817	22.50	84.91%
Total																												29.62									

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 = 732.951 / (TC+6.199)^0.810] 2 YEAR
[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

Designed: MB
Checked: JIM
Dwg. Reference: N/A

No.	Revision	Date
1.	Assessment of Adequacy of Public Services Report - Submission No. 1	2017-11-20
2.	Assessment of Adequacy of Public Services Report - Submission No. 2	2018-05-08

File Reference:	Date:	Sheet No:
113459-5.7.1	2017-10-26	1 of 1