Robinson
Land Development

4101 Limebank Road, Ottawa, ON
Light Industrial Development
Scoped Master Servicing Study

Prepared For:

Group Montoni

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Robinson Land Development

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LEGAL NOTIFICATION

This report was prepared by Robinson Land Development for the account of **Group Montoni.**

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1. INTRODUCTION

1.1. Purpose

This report has been prepared to support a Site Plan Application for the 4101 Limebank Road lands where existing municipal servicing does not exist.

This report will review the existing and proposed future sanitary, storm and watermain infrastructure that will service the proposed lands as well as the lands upstream of the subject site. This report is conducted in advance of the Riverside South Community Infrastructure Servicing Study Update for Phase 2. The intent of this report is to provide temporary servicing options for the City to consider and give approval of the Site Plan Application.

This report will be a technical document in support of the Site Plan Application proposed for 4101 Limebank Road.

1.2. Background

Robinson Land Development has been retained by Group Montoni to prepare an offsite servicing report in support of a proposed Industrial Site Plan located at 4101 Limebank Road in Ottawa, Ontario.

Through the development review process with the City of Ottawa and review of the previous background studies and plans it was found that the existing infrastructure on Limebank Road and the absence of the new realigned Leitrim Road and its infrastructure would not allow the City to support the approval of a Site Plan Application. The City has recommended that a "Scoped Master Servicing Study" outlining the necessary infrastructure be prepared in support of the application, accounting for the lands upstream of the site as well.

Urbandale previously commissioned IBI Group to prepare an Assessment of Adequacy of Public Services as part of their application for the 3700 Twin Falls Place project that is west of Limebank Road, opposite the subject site. Subsequently, a Phase 1 Design Brief by Arcadis for the 3700 Twin Falls Place project was commissioned and since approved by the City. Phase 1A of 3700 Twin Falls has begun construction at the time of writing this report. This report relies upon the 3700 Twin Falls designs and reports to confirm servicing of the 4101 Limebank Road lands, notably storm servicing.

1.3. Previous Studies

The Riverside South Community in its various forms has been planned and developed for over 25 years. While many studies, plans and reports have been prepared over this period, not all were required to have been reviewed for this report, therefore, the following reports were referenced for the development of this assessment:

1. Riverside South Community Infrastructure Servicing Study Update Phase 1, Mosquito Creek Study Area (ISSU) by IBI Group dated August 2023;
2. Latest Community Design Plan (CDP) dated October 2023;
3. Riverside South Community Master Drainage Plan Updated, Mosquito Creek Study Area (MDP) by IBI Group dated April 2021;
4. Assessment of Adequacy of Public Services, 3700 Twin Falls Place (AAPS) by IBI Group dated March 2023;
5. Design Brief Phase 1, 3700 Twin Falls Place, Riverside South, by Arcadis (April 2024); and,

6. Leitrim Road Realignment and Widening Planning and Environmental Assessment Study (EA) by Parsons dated August 2018.

1.4. Subject Property

The property is located at 4101 Limebank Road and is approximately 15.12 hectares in size. It is located east and north of Spratt Road and in the northwest corner of the future Limebank Road and realigned Leitrim Road intersection. The site falls within the Riverside South Community Secondary Plan – Volume 2 and is zoned Industrial and Logistics (IL) as shown on Schedule A – Designation Plan and would meet the specific zoning once completed. The client is proposing to erect five (5) separate buildings (two industrial condo buildings and three warehouse buildings) along with the associated access roads, parking, sidewalks and landscaping (specific amenities to be determined) all to support a Site Plan Application process. A geotechnical investigation report prepared by EXP Services Inc. dated June 2022 indicated a 1.0 m grade raise restriction which must be taken into account in bringing services to the site. Refer to **Appendix A** for the location plan, secondary plan, preliminary site plan, topographic site survey, and EA alignment of Leitrim Road, Leitrim Road centreline elevations per MDP, and geotechnical report excerpt. It should be noted that the EA and MDP proposed centreline elevations along realigned Leitrim Road along the south of the site that do not agree with one another, and it is the MDP macro grades that we are basing our design upon.

The site is proposed ultimately to have three (3) site entrances: Limebank Road at the northwest corner of the site; realigned Leitrim Road approximately 240 m east of Limebank Road.; and realigned Leitrim Road. at the southeast corner of the site. However, the realigned Leitrim Road will only be built out approximately 250 m from Limebank Road to service the first site entrance for the subject site, with the southeast corner site corner site entrance to be put into service when realigned Leitrim Road is built out further. Realigned Leitrim Road will be a semi-rural cross-section, with ditches on either side of the road and a curb and sidewalk along the north side. This cross-section mirrors the cross-section of Mosquito Drive (realigned Leitrim Road) per the Design Brief Phase 1 of 3700 Twin Falls Place.

1.5. Existing Services

Limebank Road is an existing major collector road that has an existing 375 mm sanitary sewer and a 300 mm watermain within its right of way that stubs north of the future Limebank/Leitrim Road intersection. A 300 mm valved watermain stub was installed that enters the site approximately 80 m north of the future realigned Leitrim Road. See the Riverside South – 3700 Twin Falls Place, Proposed Limbank Road Crossing (South) Figure 4.4 'As Built' Drawing prepared by IBI in **Appendix D** and existing services plan in **Appendix A** for reference.

Although there is an existing storm sewer within Limebank Road, the storm water runoff from the 4101 Limebank Road site has been accounted to flow to Tributary 4 through the Twin Falls development per the MDP, ISSU, AAPS, and Design Brief. Under Phase 1A of the Twin Falls development, a ditch is proposed along the future Leitrim ROW to Tributary 4.

There is an 18 m Trans Northern Pipelines easement that runs diagonally through the southwestern corner of the site. It is understood that there are two gas lines that run through the easement. Attempts to contact Trans Northern Pipelines have been made by Robinson and the City of Ottawa to identify the pipe locations, sizes and depths; and at the time of issuance of this report no responses have been received from Trans Northern Pipelines. Once the pipes have been confirmed the impacts to the infrastructure crossing the easement can be reviewed.

1.6. Pre-consultation

A pre-consultation meeting was held with the City of Ottawa on August 23, 2023. From that meeting a Phase 1 Pre-Application Consultation Meeting Feedback and Zoning By-law Amendment & Site Plan Control – 4101 Limebank Road meeting notes were prepared and distributed to the client. See **Appendix A** for details of the preconsultation notes.

2. WATER SUPPLY

2.1. Existing Conditions

As noted in Section 1.5, there is an existing 300 mm watermain on Limebank Road that runs from Spratt Road to the stub north of the future Leitrim Road, with a 300mm valved watermain stubbed at the subject site. On Spratt Road there is an existing 750 mm feedermain and various local watermains. See the Existing Services Plan in **Appendix A** and relevant plans from the ISSU and AAPS in **Appendix B.**

2.2. Conceptual Water Servicing Criteria

The conceptual watermain system has been designed according to the following standards, guidelines, and background information:

- Ottawa Design Guidelines – Water Distribution (2010) periodically amended as part of Technical Bulletins
- Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (2020)
- MECP Design Guidelines for Drinking-Water Systems (2008)
- Assessment of Adequacy of Public Services, 3700 Twin Falls Place, Riverside South, by IBI Group (March 2023)
- Riverside South Community Infrastructure Servicing Study Update Phase 1, Mosquito Creek Study Area by IBI Group (August 2023)

Accordingly, the following watermain design criteria have been utilized for the subject site:

- Industrial Demand: 35,000 L/gross ha/d
- Employee Demand: 137 L/cap/d (per ISSU)
- Commercial Peaking Factor: 1.5 Max Day; 1.8 Peak Hour
- Minimum Pressure During Peak Hour 276 kPa (40 psi)
- Minimum Pressure During Maximum Day Plus Fire 140 kPa (20 psi)
- Maximum Pressure in Unoccupied Areas 689 kPa (100 psi)
- Maximum Pressure in Occupied Areas 552 kPa (80 psi)

2.3. Proposed Water Demand

Based on the gross hectare criteria (not including the portion of the property to become Leitrim Rd. ROW) the total domestic water demand is

- 5.57 L/s average day
- 8.36 L/s maximum day
- 15.04 L/s peak hour

This is a very conservative estimate since the property is intended to be occupied mostly by warehousing, but will be used in this report for the purposes of assessing adequacy of public services. Refer to **Appendix B** for domestic demand estimate calculations.

As a comparison, the ISSU estimated an average of 76.6 jobs/ha (13,153 jobs in 171.7 ha) in the servicing boundary (F_2C_144) that contains the subject site. Applying the 137 L/cap/d

employee demand this equates to about 1.67 L/s average day demand (about 1054 jobs) that the ISSU had assumed for the subject site. Based on the preliminary site plan, the number of employees is anticipated at an average of 15 per office unit and 35 per warehouse unit. This equates to 775 employees, or an average day demand of 1.23 L/s, less than 25% of the above estimate based on gross hectare criteria.

The ISSU used a system-wide maximum fire flow of 13,000 L/min. The AAPS used both a 10,000 and 13,000 L/min fire flow for the 3700 Twin Falls site. Accordingly, both a 10,000 and 13,000 L/min fire flow was used for the subject site. Preliminary fire demand calculations were also completed to validate a maximum 13,000 L/min fire demand, based on the preliminary site plan. A maximum fire demand of 12,000 L/min was estimated based on sprinklered warehouse buildings with fire wall separation. Refer to **Appendix B** for FUS demand estimate calculations.

2.4. Proposed Water Servicing Plan

Since the average day demands outlined in Section 2.3 exceed 50 m^3/d (0.58 L/s) the site will require two connection points to ensure the required demands are met and provide redundancy. One connection point will be to the existing watermain service stub on the site, and a second location will be at the southwesterly site entrance along realigned Leitrim Road. A 300 mm watermain will be extended from the existing 300 mm watermain on Limebank Road approximately 240 m along realigned Leitrim Road. This watermain will be stubbed for the future development of the upstream Riverside South lands per the ISSU.

As identified in the ISSU and AAPS, a twinned 300 mm watermain will need to be installed along Limebank Road, connected to the 750 mm watermain on Spratt, to provide redundancy of service to the Employment Lands prior to the construction of the 4101 Limebank Road site. The twinning of the 300 mm watermain is also a requirement of the ultimate buildout of 3700 Twin Falls, however Phase 1 has been permitted to proceed with the single watermain on Limebank Road. The status of this twinning work is unknown at the time of writing this report.

Refer to the conceptual servicing plans in **Appendix A** and ISSU and AAPS watermain plans in **Appendix B** for reference.

2.5. Hydraulic Model

The boundary conditions used were from the AAPS, using the connection points for the existing watermain on Limebank Rd. as well as the proposed twinned watermain. The boundary conditions also include the future SUC pressure zone reconfiguration (earliest anticipated reconfiguration is in 2026). The boundary conditions are summarized in **Table 1** below and detailed in **Appendix B**.

Table 1 – Boundary Conditions

Current Demand Scenario	Connection 1 (Twinned WM @ Spratt Rd.) (m)	Connection 2 (Ex. WM @ Limebank & Spratt) (m)
Maximum HGL (Average Day)	131.8	131.8
Minimum HGL (Peak Hour)	125.3	125.3
Max Day + Fire (10,000 L/min)	126.4	127.4
Max Day + Fire (13,000 L/min)	125.3	126.8

Future SUC Reconfiguration Demand Scenario		
Maximum HGL (Average Day)	148.4	148.4
Minimum HGL (Peak Hour)	145.7	145.8
Max Day + Fire (10,000 L/min)	145.1	146.2
Max Day + Fire (13,000 L/min)	144.2	145.8

An EPANET hydraulic model was setup for the watermains on Limebank Rd., and included the ultimate demands for 3700 Twin Falls site per the AAPS. Refer to **Appendix B** for details of the 3700 Twin Falls demands. The model was run for the average day, peak hour, and max day + fire (at 10,000 L/min and 13,000 L/min scenarios) conditions. The demands at the subject site were divided evenly between the two connection locations (Limebank Rd. and Leitrim Rd.) for the purposes of this analysis. The results are summarized in **Table 2** below with the detailed model output provided in **Appendix B**.

Table 2 – Hydraulic Model Results

Current Scenario	4101 Limebank Domestic Demand (L/s)	3700 Twin Falls Domestic Demand (L/s)	Fire Demand (L/min)	Pressure at North Connection (kPa)	Pressure at South Connection (kPa)
Avg. Day	5.57	14.65	-	409 (59.4 psi)	409 (59.4 psi)
Peak Hour	15.04	39.61	-	343 (49.7 psi)	342 (49.7 psi)
Max Day + Fire	8.36	22.00	10,000	318 (46.1 psi)	295 (42.8 psi)
Max Day + Fire	8.36	22.00	13,000	286 (41.5 psi)	250 (36.2 psi)
Future SUC Scenario	**4101 Limebank Domestic Demand (L/s)**	**3700 Twin Falls Domestic Demand (L/s)**	**Fire Demand (L/min)**	**Pressure at North Connection (kPa)**	**Pressure at South Connection (kPa)**
Avg. Day	5.57	14.65	-	572 (83.0 psi)	572 (83.0 psi)
Peak Hour	15.04	39.61	-	543 (78.8 psi)	543 (78.8 psi)
Max Day + Fire	8.36	22.00	10,000	502 (72.8 psi)	479 (69.5 psi)
Max Day + Fire	8.36	22.00	13,000	472 (68.4 psi)	436 (63.2 psi)

As indicated in **Table 2** above, domestic and fire demands are serviceable at current pressure zone configuration and future SUC reconfiguration, meeting minimum pressure requirements. During average day demand in the future SUC reconfiguration scenario, pressures at the subject site's connection points are slightly above the desired maximum of 552 kPa (80 psi). There will be further minor pressure losses within the site's private watermain network that will be investigated during site detailed design to determine whether pressure reducing valves will be needed at the buildings.

3. SANITARY SEWERS

3.1. Existing Conditions

As noted in Section 1.5, there is an existing 375 mm sanitary sewer on Limebank Road that runs from Spratt Road to approximately 200 m north of the realigned Leitrim Road. See the Existing Services Plan in **Appendix A** and relevant plans from the ISSU in **Appendix C**.

3.2. Conceptual Sanitary Design Criteria

The sanitary sewer design follows the following standards, guidelines, and background documents:

- Ottawa Sewer Design Guidelines (2012) periodically amended as part of Technical Bulletins
- MECP Design Guidelines for Sewage Works (2008)
- Riverside South Community Infrastructure Servicing Study Update Phase 1, Mosquito Creek Study Area by IBI Group (August 2023)

Accordingly, the following design parameters have been implemented for the subject site:

- Employment Demand: 35,000 L/gross ha/d (per ISSU)
- Employment Demand: 137 L/cap/d (per ISSU for water)
- Employment Peak Factor: 1.0 if land use >20% area
1.5 if land use <20% area
- Industrial Peak Factor: per OSDG App. 4-B
- Infiltration Allowance: 0.33 L/s/ha
- Velocity Range: 0.60-3.0 m/s

3.3. Proposed Demand

Based on the above gross area criteria, with a lot coverage of approximately 40% based on the preliminary site plan, the peak sanitary demand was calculated to be 11.11 L/s. The balance of the sanitary drainage area defined by the ISSU is assumed for the upstream contribution to the realigned Leitrim Rd. sewer, for a total of 34.37 L/s peak demand per the ISSU. Refer to the sanitary sewer design sheets in **Appendix C** for more details.

Since the land will be largely used for warehousing a gross area estimate will be very conservative. As comparison, the demand was also estimated based on the number of anticipated employees per the preliminary site plan at an average rate of 15 per office unit and 35 per warehouse unit. This equates to 775 employees, or a peak demand of 6.22 L/s (including infiltration), about 55% of the apportioned flow per the ISSU.

3.4. Proposed Sanitary Sewer Plan

The proposed sanitary sewer on the realigned Leitrim Road was anticipated within the ISSU and included the subject site in its drainage area. In the ISSU the sewer was identified as a 375 mm sewer in the plans but a 300 mm sewer in the sewer design sheet. Refer to the plan and sewer design sheet excerpts from the ISSU in **Appendix C** for reference.

Based on the flow demands above and prior to the development of the 4101 Limebank Road site a new 375 mm sanitary sewer at 0.15% will need to be extended from Limebank Road approximately 240 m along the new realigned Leitrim Road corridor to southwesterly site entrance. Refer to the conceptual servicing plans in **Appendix A** for reference.

4. CONCEPTUAL STORM SERVICING

4.1. Existing Conditions

As noted in Section 1.5, although there is an existing storm sewer within Limebank Road, the storm water runoff from the 4101 Limebank Road site has been apportioned to Tributary 4 through the Twin Falls development by the ISSU and AAPS. The existing undeveloped site currently collects runoff in ditches that run east to west towards Limebank Road, overflowing to Pond 3 located adjacent to the south side of the site. See the existing services plan and topographic survey in **Appendix A** and relevant plans from the AAPS, ISSU, and 3700 Twin Falls Design Brief in **Appendix D** for reference.

The developed site, along with 23.18 ha of undeveloped upstream lands have defined flow rates to which they are to be controlled. They will have their flows directed to a ditch along the north side of realigned Leitrim Road where they will flow westerly, through a proposed storm sewer crossing Limebank Road, where it will ultimately be discharging to Tributary 4 of Mosquito Creek through the 3700 Twin Falls development northwest of the Limebank/realigned Leitrim Road intersection. Currently, the 3700 Twin Falls Phase 1 is being constructed with a semi-rural cross section of realigned Leitrim Road ("Mosquito Drive") with a ditch to Tributary 4. The realigned Leitrim Road, which is ultimately anticipated to be an urbanized ROW corridor, will drain to Pond 3 south of the subject site as per the ISSU and MDP.

4.2. Design Criteria

The storm sewer design follows the following standards, guidelines, and background documents:

- MECP Stormwater Management Planning and Design Manual (2003)
- Ottawa Sewer Design Guidelines (2012) periodically amended as part of Technical Bulletins
- Riverside South Community Master Drainage Plan Update, Mosquito Creek Study Area by IBI Group (April 2021)
- Assessment of Adequacy of Public Services, 3700 Twin Falls Place, Riverside South, by IBI Group (March 2023)
- Riverside South Community Infrastructure Servicing Study Update Phase 1, Mosquito Creek Study Area by IBI Group (August 2023)
- Design Brief Phase 1, 3700 Twin Falls Place, Riverside South, by Arcadis (April 2024)

Accordingly, the following design parameters have been implemented for the subject site:

- Peak Flow Control: 159.72 L/s (per ISSU)
- Quantity Control: 600 m^3/ha (per ISSU)
- Quality Control: Enhanced (80% TSS reduction); 90 m^3/ha (per ISSU)
- Max. Ponding Time: 48 hrs (per Airport requirements)

The peak flow control of 159.72 L/s was a static number defined by the ISSU. As comparison, an approximate pre-development flow rate was calculated for the site (not including the Leitrim ROW area) based on the Uplands method for time of concentration and rational method for peak flow rate. A 2-yr pre-development flow was estimated at 148.0 L/s. Quantity control for the employment lands assumed each site would provide individual control, including the use of LID measures. For the subject site this equates to approximately 8,500 m^3 stormwater stored on site. As comparison, a storage requirement was calculated for the site based on modified rational method, and estimated a 100yr storage requirement of 7,300 m^3. Refer to **Appendix D** for details of the stormwater calculations.

4.3. Minor System

A V-bottom ditch along the north side of realigned Leitrim Road will collect the stormwater runoff from the site, controlled to a maximum peak flow of 159.72 L/s. The ditch will have a longitudinal slope of 0.15%. The anticipated upstream flows are limited to 250.4 L/s per the ISSU. Including the temporary semi-rural cross-section of Leitrim Road the maximum anticipated flow up to the 100-yr design storm is approximately 555 L/s. The ditch will therefore have a maximum depth of flow of approximately 0.68 m (maximum velocity of 0.42 m/s). MECP's Stormwater Management Planning and Design Guideline recommends ditch velocities below 0.5 m/s for erosion control and promotion of settlement of suspended solids.

The ditch will enter a 900 mm storm sewer to cross Limebank Road where it will connect to the ditch on the southside of realigned Leitrim Road in the 3700 Twin Falls lands (called "Mosquito Drive") as per the 3700 Twin Falls Phase 1A Design Brief. In the future, per the ISSU and AAPS, a 975-1050mm storm sewer along realigned Leitrim Road will replace the ditch as part of the ultimate buildout of 3700 Twin Falls. The ditch crosses Gastops Street, runs along "Street 3" and "Access Road" to the discharge to Tributary 4 of Mosquito Creek. In order to accommodate the 4101 Limebank Road site grade raise restrictions, the ditch will be lowered a maximum of 0.76 m, maintaining the 3:1 side slopes and an average longitudinal slope of 0.12%, as well as upsizing the two culverts (600mm to 800mm, and 800mm to 1000mm). The ditch lowering will be designed and constructed in coordination with Urbandale to ensure integration with the 3700 Twin Falls Phase 1A design. See the marked-up 3700 Twin Falls Phase 1A plans for the ditch lowering in **Appendix D** for reference.

The 3700 Twin Falls Phase 1A Design Brief did not account for the upstream flows anticipated by the AAPS and ISSU in the design of the ditch and culverts. The 100-yr peak flows from 3700 Twin Falls site was estimated between 263-445 L/s through the Mosquito Drive (realigned Leitrim Road) and 877 L/s through the Street 3 and Access Road. Including the maximum 555 L/s from the upstream flows, as noted above, the 100-yr peak flows are estimated at 818-1,000 L/s and 1,432 L/s for the two stretches of ditch respectively. New maximum depths of flows were estimated with the additional flows based on the culverts and open channel design. The ditch along Mosquito Drive will have a maximum depth of flow of approximately 1.5 m above the culvert invert at the proposed 800 mm culvert crossing Street 3 (upsized from 600 mm) during the 100-yr storm. The current design has a ditch with and average 1.5 m depth during the 100-yr storm, which will be further lowered 0.76 m. The ditch along Street 3 will have a maximum depth of flow of approximately 1.25 m above the culvert invert at the proposed 1000 mm culvert crossing the access road (upsized from 800 mm) during the 100-yr storm. The current design has a ditch with an average 1.2 m depth during the 100-yr storm, which will be further lowered 0.6 m. Therefore, the additional flows from the upstream lands, up to the 100-yr peak, can be accommodated by the lowered ditch and upsized culverts. The ditch velocities are anticipated to be below 0.5 m/s up to the 100-yr design storm, with exception of the final stretch of ditch along Street 3 and Access Road which will be maximum 0.53 m/s during the 100-yr design storm. See the ditch capacity and culvert design sheets in **Appendix D** for reference.

It should be noted that the 900 mm storm sewer crossing Limebank Rd. is proposed to have a lowered invert on the east side of Limebank Rd. compared to the AAPS, but still maintain the invert on the west side of Limebank Rd. per the AAPS for future tie-in. This lowering is necessary to facilitate the 1.0 m grade raise restrictions associated with the 4101 Limebank Road site as noted in Section 1.4 above, but will still maintain the required capacity. The lowering would also impact the proposed centreline elevation of the realigned Leitrim Road, which will be based on the MDP with a low point at Pond 3. The MDP macro grading plan noted a realigned Leitrim Road low point of 92.30 m, which is proposed to be reduced to 91.38 m. Pond 3 will have approximate 100-yr water level of 88.0 m therefore the proposed lowering of the road low point is not expected to impact the overall Pond 3 drainage design. Refer to the MDP macro grading plan and proposed roadline profile plans in **Appendix A** for reference.

The 100-yr hydraulic grade line for the ditch, estimated based on the ditch and culvert capacities described above and in **Appendix D**, is summarized in Table 3 below.

Table 3 – 100-yr Hydraulic Grade Line

Location	Ditch Invert (m)	Approx. 100-yr HGL (m)	Approx. Min. Roadway Elevation (m)	Capacity Notes
Tributary 4 Outlet	88.50	89.46	90.40	Per Access Road ditch capacity
Access Road Ditch to Tributary 4 Outlet	88.71	89.67	91.05	Per Access Road ditch capacity
Street 3 Ditch Culvert (crossing Access Road)	88.73	90.03	90.88	Per Street 3 culvert inlet control
Street 3 Ditch to Access Road	88.84	90.03	91.20	Per Street 3 culvert inlet control
Mosquito Drive Ditch Culvert (crossing Gastops Street)	88.86	90.01	91.20	Per Mosquito Drive culvert inlet control
Mosquito Drive Ditch to Gastops Street	89.63	90.43	92.26	Per Mosquito Drive ditch capacity
Realigned Leitrim Road Storm Sewer (crossing Limebank Road)	89.88	90.56	91.38	Per realigned Leitrim Road ditch capacity

4.4. Major System & Quantity Control

With the controlled flow rates from the subject site and upstream sites, the minor system described in Section 4.3 above will have sufficient capacity to fully convey the flow up to the 100-yr design storm. The existing overflow route is Pond 3 on the south side of realigned Leitrim Road, and this will be retained for the development of the subject site.

Quantity control is assumed by the MDP and ISSU as being provided at the individual block level in the employment lands. Infiltration-based LID measures had been assumed by the MDP and ISSU for employment lands consisting of a field or swale of grass overtop clear stone infiltration galleries. However, based on a forthcoming Technical Bulletin the City will no longer accept infiltration-based LID measures in areas of clay soils, therefore the LID measures per the MDP and ISSU will not be implemented. Quantity storage will still be provided internally within the subject site based on the maximum site . Using a 25mm storm for comparison between the pre- and post-development runoff volumes the pre-development runoff is estimated at 696 m^3 while the post-development is estimated at 2520 m^3. This is approximately a 260% increase in total runoff volume discharged from the site.

4.5. Quality Control

Quality control is assumed by the ISSU as being provided at the individual block level in the employment lands. Accordingly, the subject site will provide quality control internally within the site. Further settlement is acknowledged, though not credited, within the roadside ditches prior to discharge to Tributary 4 based on a ditch velocity of 0.5 m/s or less as noted in Section 4.3 above.

5. DEVELOPMENT CHARGE ITEMS

Per the ISSU Development Charge items include watermains (diameter 406mm or above), sanitary sewers (nom. diameter 375mm or above), and storm sewers (nom. diameter 1650mm or above). The water and storm sewers do not meet this criteria, however the approximately 240 m sanitary sewer extension on realigned Leitrim Road will be eligible for development charges.

Further, it is acknowledged that area specific development charges (ASDC) will be implemented on all lands tributary to Mosquito Creek in support of erosion control/restoration works.

6. CONCLUSIONS

This Scoped Master Servicing Study has been prepared to support the Site Plan Application for the development of the property located at 4101 Limebank Road in the City of Ottawa. The report has detailed the proposed means of externally servicing the site for potable water, sanitary sewer, and storm sewer. The key elements of this work are described as follows:

- A 375 mm sanitary sewer will be extended from the existing 375 mm sanitary on Limebank Road approximately 240 m east on realigned Leitrim Road for the subject site, and anticipating future upstream connections.
- A 300 mm water will be extended from the existing 300 mm watermain on Limebank Road approximately 240 m east on realigned Leitrim Road for the subject site.
- Two water connections will be utilized for the subject site: the existing 300 mm valved stub approximately 80 m north of realigned Leitrim Road and at the site entrance on realigned Leitrim Road approximately 240 m east of Limebank Road.
- The twinning of the 300 mm existing watermain on Limebank Rd. from Spratt Rd. will be required to provide redundancy and the required domestic and fire flows for the site. Preliminary details of this proposal were provided in the previous Assessment of Adequacy of Public Services for the 3700 Twin Falls Place project by Urbandale.
- The stormwater management will be designed to convey runoff along the roadside ditch north of realigned Leitrim Road, through a 900 mm storm pipe crossing Limebank Road, through the 3700 Twin Falls Phase 1A ditch (which will be lowered a maximum of 0.76 m with upsized culverts), and discharge into Tributary 4 of Mosquito Creek.
- Construction of Leitrim Road to approximately 250 m east of Limebank Road for access to the site. The road will be a semi-rural cross-section with roadside ditches mirroring the 3700 Twin Falls Phase 1 cross-section for Mosquito Drive (realigned Leitrim Road).

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Appendix A

Riverside South / Riverside-sud

SECONDARY PLAN - VOLUME 2

Schedule A - Designation Plan

PLAN SECONDAIRE - VOLUME 2

Annexe A - Plan de désignation

0 125 250 500 750 1,000 m

Planning, Real Estate and Economic Development Department, Geospatial Analytics, Technology and Solutions
Direction générale de la planification, de l'immobilier et du développement économique
Analyse géospatiale, technologie et solutions

Vimy Memorial Bridge / Pont commémoratif Vimy

LEITRIM ROAD REALIGNMENT
NOUVEAU TRACÉ DU CHEMIN LEITRIM

SPRATT ROAD EXTENSION/
PROLONGEMENT DE CHEMIN SPRATT

BOWESVILLE

Airport Operating Influence Zone
Zone d'influence d'exploitation de l'aéroport

MAIN STREET/
RUE PRINCIPALE

Town Centre Boundary
Limite du centre ville

EARL ARMSTRONG

SPRATT

SHORELINE

CANYON WALK

LIMEBANK

RIVIÈRE RIDEAU RIVER

ruisseau Mosquito Creek

COLLECTOR/ COLLECTRICE 'A'

COLLECTOR/ COLLECTRICE 'B'

COLLECTOR/ COLLECTRICE 'C'

COLLECTOR/ COLLECTRICE 'D'

COLLECTOR/ COLLECTRICE 'E'

COLLECTOR/ COLLECTRICE 'F'

COLLECTOR/ COLLECTRICE 'G'

COLLECTOR/ COLLECTRICE 'H'

COLLECTOR/ COLLECTRICE 'I'

COLLECTOR/ COLLECTRICE 'J'

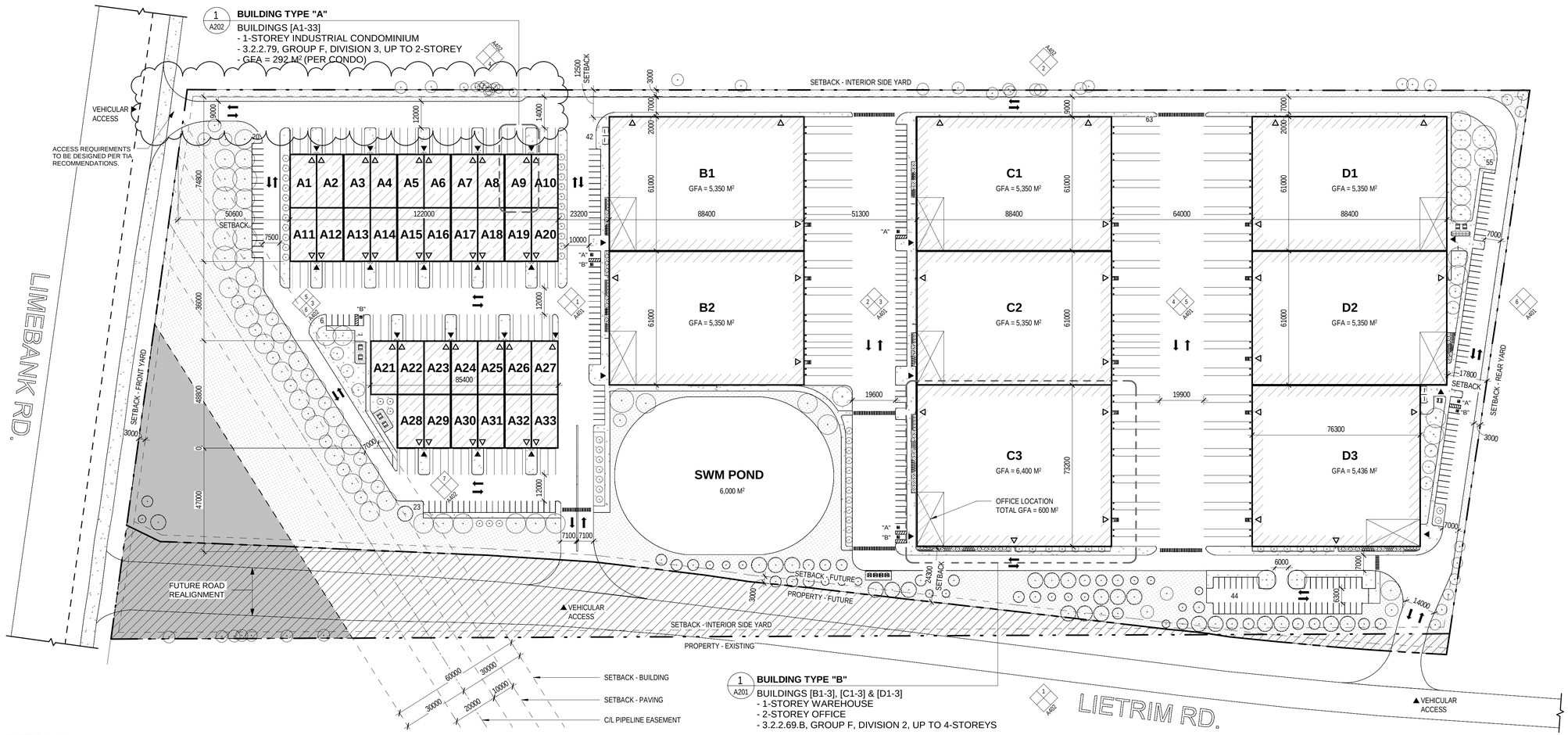
DESIGNATION / DÉSIGNATION

- LD - Neighbourhood - Low Density / Quartier de faible densité
- MD - Neighbourhood - Medium Density / Quartier de densité moyenne
- HD1 - Neighbourhood - High Density 1 / Quartier de densité élevée 1
- HD2 - Neighbourhood - High Density 2 / Quartier de densité élevée 2
- TC - Town Centre / Centre ville
- NC - Commercial - Neighbourhood / Commercial quartier
- LC - Commercial - Local / Commercial local
- IL - Industrial and Logistics / Industrie et Logistique
- I/F - Institutional / Firehall / Institutionnel / Caserne de pompiers
- FC / FP / EC / EP - Schools - Secondary - Elementary / Écoles - secondaire - élémentaire
- DP - Park - District / Parc secteur
- CP - Park - Community / Parc communautaire
- NP - Park - Neighbourhood / Park quartier
- SP - Park - Parkette / Mini-parc
- OS - Passive Open Space(s) / Espace(s) de détente
- NEA - Natural Environment Area / Zone écologique naturelle
- SWM - Stormwater Management Facility / Installation de gestion des eaux pluviales
- UNF - Urban Natural Feature / Caractéristique naturelle zone urbaine
- UC - Green Transportation and Utility Corridor(s) / Transport vert et couloir(s) de(s) service(s) public(s)
- P&R - Park and Ride / Parc-o-bus
- Multi-Use Pathway / Sentier polyvalent

- Transfer Station / Station de correspondance
- Future O-Train Station / Station O-Train (futur)
- O-Train and Station / O-Train et station
- Transitway – at grade / Transitway – Voie à niveau
- Scenic Route / Route panoramique
- Main Street / Rue principale
- Transit Street / Rue longeant la Ligne Trillium, où circulent les autobus
- Secondary Plan Boundary / Limite du Plan secondaire

Consolidation and Amendments / Amendment au plan directeur approuvé

2023-10-31 DRAFT



1 A101 SITE PLAN

1 : 1000

SITE PLAN SYMBOLS LEGEND

- = ENTRANCE
- = EXIT
- = MANHOLE, CATCH BASIN, ETC, REFER TO CIVIL
- = LS, LIGHT STANDARD, REFER TO ELECTRICAL AND STRUCTURAL
- = DENOTES SLOPED GRADE, REFER TO CIVIL
- = DENOTES FIRE TRUCK ACCESS ROUTE, REFER TO CIVIL DRAWINGS
- = PROPERTY LINE
- = PEDESTRIAN WALKWAY
- = SWALE. REFER TO CIVIL DRAWINGS
- = SETBACK LINE
- = BOLLARD
- = SURVEY BAR
- = GRASS
- = LANDSCAPING
- = PAINTED LINES
- = RIGHT-OF-WAY WIDENING PROTECTION
- = OFFICE SPACE
- = STORMWATER MANAGEMENT DESIGNATION AS PER CDP
- = SIDEWALK/ CONCRETE SURFACE

GENERAL NOTES

1. CONTRACTOR TO CONFIRM ALL DIMESIONS AND REPORT ANY DISCREPANCIES TO CONTRACTOR ADMINISTRATOR PRIOR TO CONSTRUCTION.
2. LAYOUT TO APPROVED BY CONTRACT ADMINISTRATOR PRIOR TO ANY CONSTRUCTION OR REMOVALS.
3. ALL DIMENSIONS ARE IN METRIC UNLESS OTHERWISE NOTED.
4. CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATIONS, REMOVALS, DISPOSALS AND ROUGH GRADING AS REQUIRED AS SHOWN ON ALL PLANS, DETAILS AND SPECIFICATIONS.
5. LOCATION OF ALL UTILITITES SHOWN FOR ILLUSTRATION ONLY. CONTRACTOR MUST CONTACT ALL UTILITIES REGARDING RULES FOR WORKING IN THE AREA OF THE UTILITIES PRIOR TO COMMECEMENT OF ANY WORK. CONTRACTOR MUST CONFIRM LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
6. ALL EXISTING EXISTING ROADS, SIDEWALKS, CURBS, FENCING, PAVING, SODDED AREAS, AND APPROACHES, ETC. TO REMAIN TO BE PROTECTED DURING CONSTRUCTION TO CONTRACT ADMINISTRATOR'S APPROVAL AT THE CONTRACTOR'S OWN COSTS.
7. FOR LANDSCAPE, REFER TO LANDSCAPE DRAWINGS.
8. FOR UTILITIES, GRADING, ETC. REFER TO CIVIL DRAWINGS.
9. LEGAL SURVEY BOUNDARIES AND TOPOGRAPHICAL INFORMATION TAKEN FROM TOPOGRAPHICAL PLAN OF SURVEY OF PART OF LOTS 16 & 17 CONCESSION 2 (RIDEAU FRONT) GEOGRAPHIC TOWNSHIP OF GLOUCESTER, DATED DECEMBER 6, 2023, FROM THE OFFICE OF ANNIS, O'SULLIVAN, VOLLEBEKK LTD.

Site Information

Legal Description:	Part of lots 16 & 17, Concession 2 (Rideau Front), Geographic Township of Gloucester, City of Ottawa
P.I.N:	04331 - 0320
Easements:	Inst. GL54354, Part 16, Plan 4R-8983 Inst. GL50325. Part 2. Plan 5R-9196 Inst. OC2191832, Part 1, Plan 4R-32295
Municipal Address:	4101 Limebank Road, Ottawa, Ontario

Parking (4101 Limebank Road)

Requirement

Light Industrial: 0.8 / 100m² for first 5,000m²;
0.4 / 100m² of remaining gross floor area.

Proposed Buildings	227 Spaces
Accessible Parking	3 - Type A (5200 mm x 3400 mm (MIN.)) 4 - Type B (5200 mm x 2400 mm (MIN.))
Total Site Required	227 Spaces (Including Accessible Parking)

Provided

Total Site Provided	253 Spaces (Including 4 Type-A and 4 Type-B Accessible Parking)

	Requirement	Provided
Bicycle Parking		
Light Industrial: 1 / 1000m² of gross floor area	63 Spaces	63 Spaces
Loading Spaces		116 Spaces

Zoning Statistics

Zoning: General Industrial (IG) - Currently Development Reserve Zone (DR)

Proposed Use:
Building Type "A" [Industrial Condo]: Group F, Division 3 Occupancy, Up to 2-Storeys
Building Type "B" [Warehouse]: Group F, Division 2 Occupancy, Up to 4-Storeys

Standard		Requirement	Provided
Lot Area (min.)		1,000 m²	151,250 m²
Lot Coverage (max.)		65%	36%
Gross Floor Area	Condo	N/A	9,636 m²
	Office	N/A	4,800 m²
	Warehouse	N/A	41,536 m²
	Total	N/A	55,972 m²
Front Yard and Corner Side Yard (min.)		3.0 m	50.6 m
Side Yard (min.)			
Adjoining Residential or Institutional		15.0 m	N/A
All other cases		3 m	24.3 m [South] 12.5 m [North]
Rear Yard (min.)			
Adjoining Residential or Institutional		15.0 m	N/A
All other cases		3 m	17.8 m
Maximum Floor Space Index		2.0	0.4
Maximum Building Height			
Within 20M of Adjoining Residential Zone		11.0 m	N/A
All other cases		22.0 m	≤ 22.0 m
Minimum Width of Landscape Area		3.0 m	3 m
Landscaped Area within Parking Lot		N/A	5-10%
Total Vegetation and Landscaped Area		N/A	18%

ARCHITECTURE 49
ARCHITECTURE49
1345 ROSEMOUNT AVENUE | CORNWALL, ON, CANADA K6J 3E5
Phone: 613-933-5604 | cornwall@architecture49.com | architecture49.com

CONSULTANT

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CLIENT

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SEAL:

THIS BAR IS 25mm LONG WHEN PLOTTED AT CORRECT SCALE. DO NOT SCALE DRAWINGS. 25mm

NORTH ARROW: TRUE NORTH

DIGITAL REFERNECE:

PROJECT NO.: CA0014797.3416 CONTRACT NO.

DRAWN BY: TS CHECKED BY: APPROVED BY:

KEYPLAN:

NO.	DATE	ISSUED
1	2024-03-15	ISSUED FOR SITE PLAN APPLICATION

PROJECT

4101 Limebank Road Site Plan Application

DRAWING TITLE

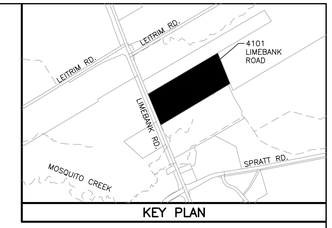
GENERAL SITE PLAN

DRAWING NO. A101

PRINT DATE: 2024-07-24 12:17:03 PM

ARCH D (24" x 36" | 610mm x 914mm)





KEY PLAN

LEGEND

- PROPERTY BOUNDARY (4101 LIMEBANK RD.)
- FUTURE LEITRIM RD. REALIGNMENT
- EASEMENT

NOT FOR CONSTRUCTION

NOTES

THE POSITION OF ALL PROPERTY BOUNDARIES, EASEMENTS, FEATURES, AND UTILITIES, EXISTING AND FUTURE, ARE ILLUSTRATIVE ONLY.

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR CLIENT REVIEW	25/01/24	CC

SCALE

0 25m 50m 100m

HORIZONTAL 1:2500

Robinson Land Development
350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcii.com

DESIGN	SM
CHECKED	CC
DRAWN	SM
CHECKED	CC
APPROVED	CC

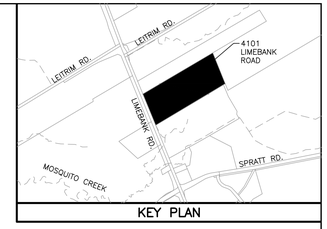
GROUPE MONTONI

4101 LIMEBANK RD.
CITY OF OTTAWA

LOCATION PLAN

PROJECT No.	23074
SURVEY	-
DATED	JAN 2024
DWG. No:	23074-L1





KEY PLAN

LEGEND

- PROPERTY BOUNDARY (4101 LIMEBANK RD.)
- FUTURE LEITRIM RD. REALIGNMENT
- EASEMENT
- WATERMAIN
- SANITARY SEWER & MANHOLE
- STORM SEWER & MANHOLE

NOT FOR CONSTRUCTION

NOTES

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NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR CLIENT REVIEW	25/01/24	CC

SCALE

0 25m 50m 100m

HORIZONTAL 1:2500

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350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcii.com

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APPROVED	CC

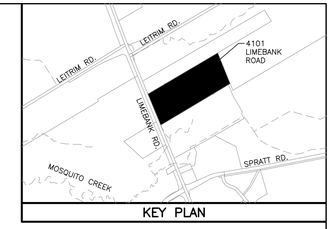
GROUPE MONTONI

4101 LIMEBANK RD.
CITY OF OTTAWA

EXISTING SERVICES PLAN

PROJECT No.	23074
SURVEY	-
DATED	JAN 2024
DWG. No:	23074-EX1

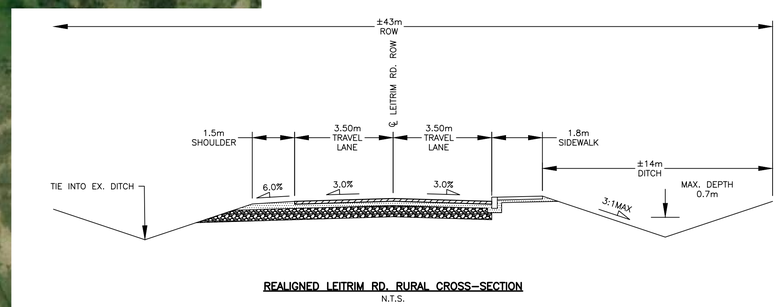




KEY PLAN

LEGEND

- PROPERTY BOUNDARY (4101 LIMEBANK RD.)
- FUTURE LEITRIM RD. REALIGNMENT
- EASEMENT
- EXISTING WATERMAIN
- FUTURE WATERMAIN
- EXISTING SANITARY SEWER & MANHOLE
- FUTURE SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- FUTURE STORM SEWER & MANHOLE
- ROADSIDE DITCH



REALIGNED LEITRIM RD. RURAL CROSS-SECTION
N.T.S.

NOT FOR CONSTRUCTION

NOTES
THE POSITION OF ALL PROPERTY BOUNDARIES, EASEMENTS, FEATURES, AND UTILITIES, EXISTING AND FUTURE, ARE ILLUSTRATIVE ONLY.

NO.	REVISION DESCRIPTION	DATE	BY
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1	ISSUED FOR CLIENT REVIEW	25/01/24	CC

SCALE
0 25m 50m 100m
HORIZONTAL 1:2500

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350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcii.com

DESIGN	SM
CHECKED	CC
DRAWN	SM
CHECKED	CC
APPROVED	CC

GROUPE MONTONI

4101 LIMEBANK RD.
CITY OF OTTAWA

OFFSITE SERVICING - SERVICING PLAN

PROJECT No.	23074
SURVEY	AOV
DATED	AUG 2024
DWG. No:	23074-OS1

TOPOGRAPHICAL PLAN OF SURVEY OF

PART OF LOTS 16 & 17
CONCESSION 2 (RIDEAU FRONT)
GEOGRAPHIC TOWNSHIP OF GLOUCESTER
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 750

50 22.5 15 7.5 0 15 30 Metres

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 5th day of December, 2023.

December 6, 2023 — Date

A. J. Brokham — Andrew J. Brokham, Ontario Land Surveyor

Notes & Legend

Denotes

○	=	Survey Monument Planted
■	=	Survey Monument Found
SIB	=	Standard Iron Bar
SSIB	=	Short Standard Iron Bar
IB	=	Iron Bar
(Wit)	=	Witness
Meas	=	Measured
(P1)	=	Plan 5R-9196
(P2)	=	Plan 5R-12444
(P3)	=	Plan 4R-32295
(P4)	=	Registered Plan 4M-1363
(P5)	=	Plan 5R-13368
○ MH-ST	=	Maintenance Hole (Storm)
○ MH-S	=	Maintenance Hole (Sanitary)
⊖ VC	=	Valve Chamber (Watermain)
ST	=	Underground Storm Sewer
S	=	Underground Sanitary Sewer
W	=	Underground Water
P	=	Underground Power
T	=	Underground Traffic
G	=	Underground Gas
OHW	=	Overhead Wires
○ UP	=	Utility Pole
○ AN	=	Anchor
○ LS	=	Light Standard
□ CB	=	Catch Basin
□ CBI	=	Catch Basin Inlet
CSP	=	Corrugated Steel Pipe
⊙ FH	=	Fire Hydrant
□ HH	=	Handhole
PWF	=	Post and Wire Fence
Inv.	=	Invert
T/P	=	Top of Pipe
T/G	=	Top of Grate
C/L	=	Centreline
+65.00	=	Location of Elevations
+65.00*	=	Top of Concrete Curb Elevation

Bearings are grid and are referred to the northerly limit of Block 8 Registered Plan 4M-1363 having a bearing of N 58° 49' 50" E as shown thereon.

For bearing comparisons, a rotation of 1°04'00" counter-clockwise was applied to bearings on P2.

For bearing comparisons, a rotation of 1°03'40" counter-clockwise was applied to bearings on P5.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
4. Underground utility data derived from City of Ottawa utility sheet reference: Y-05-22, Y-06-28, Z-06-04, 14293p&p03R2, 14293p&p04R2, 14293p&p05R2 & 14293p&p06.
Sanitary and storm sewer grades and inverts were compiled from: City of Ottawa Utility Sheets.

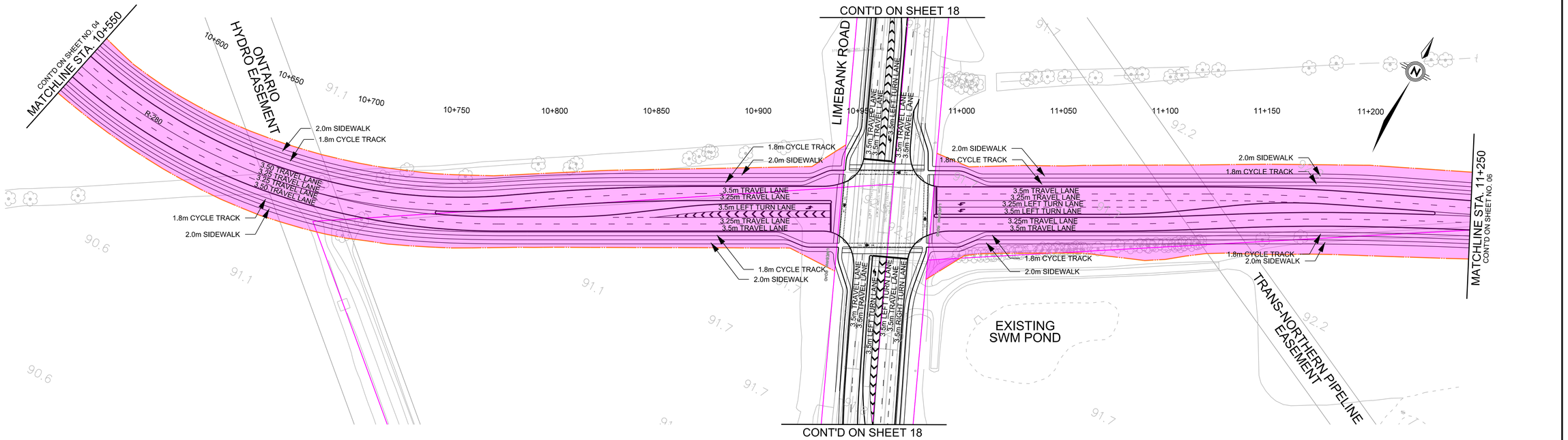
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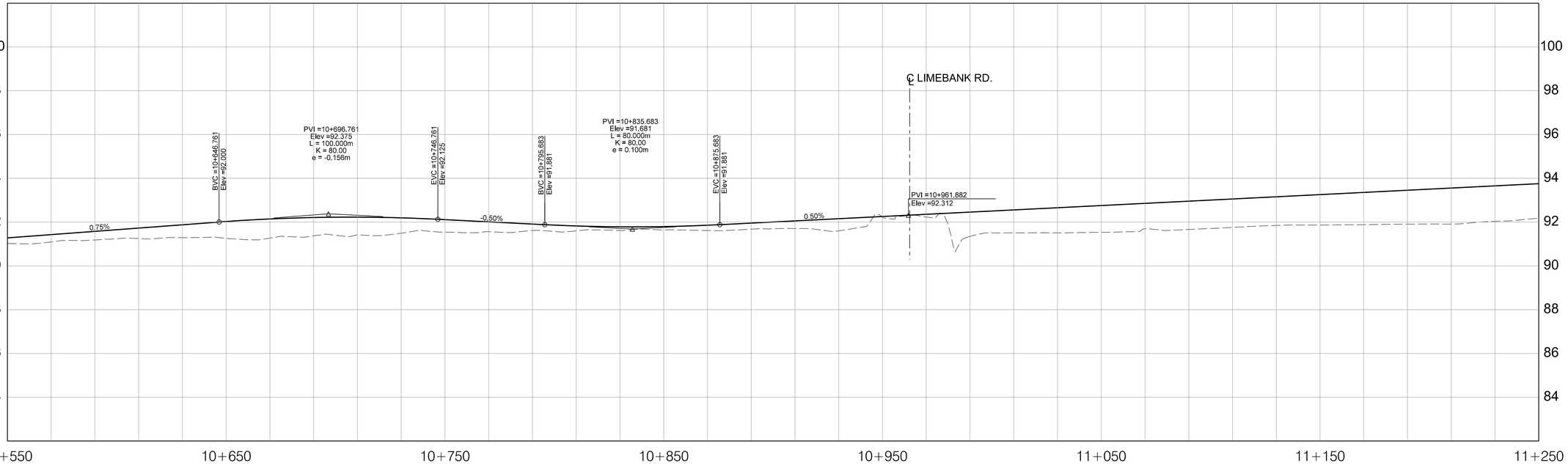
ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-89086
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ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: howson@mvlec.com
Ontario Land Surveyors — Job No. 24206-23 400 Limebank Rd PLN5 877 Cpn2 T F

TITLE FRAME: 790mm x 534mm City of Ottawa 2008
Plot Date: $DATE$ $TIME$
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Consultant's Information: H:\SOU\476262\300\DWGS\01-PRELIMINARY\01-476262-EA-GAD-05.Dgn





March-2020

PARSONS

Scale:

0m 10 20 40 60 100



Legend:

- EXISTING PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED PROPERTY ACQUISITION
- PROPOSED BARRIER
- PROPOSED NEW INFRASTRUCTURE
- EXISTING INFRASTRUCTURE
- EXISTING BUILDING

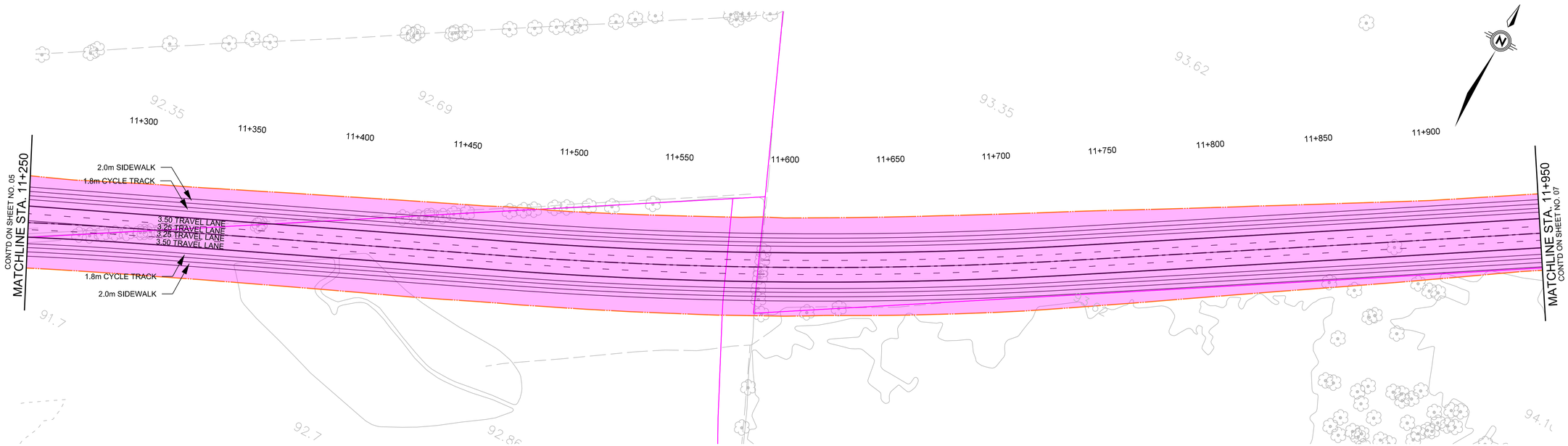
Ottawa

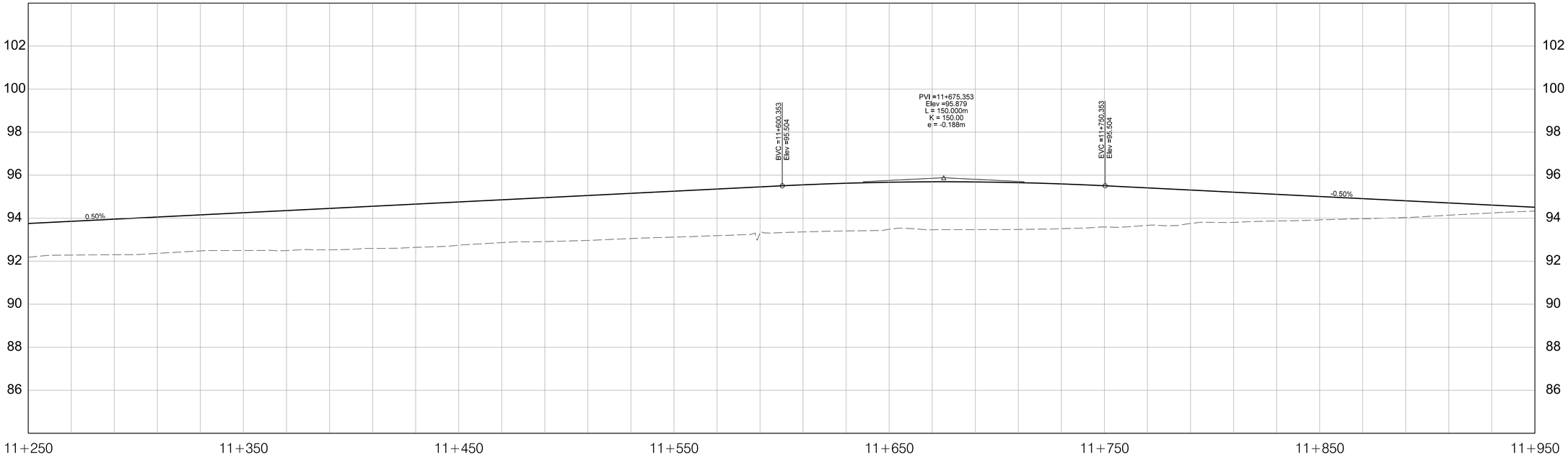
LEITRIM ROAD REALIGNMENT AND WIDENING
Environmental Assessment Study

RECOMMENDED PLAN - FUNCTIONAL DESIGN PLAN AND PROFILE 10+550 TO STA. 11+250

05

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March-2020

PARSONS

Scale:

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Legend:

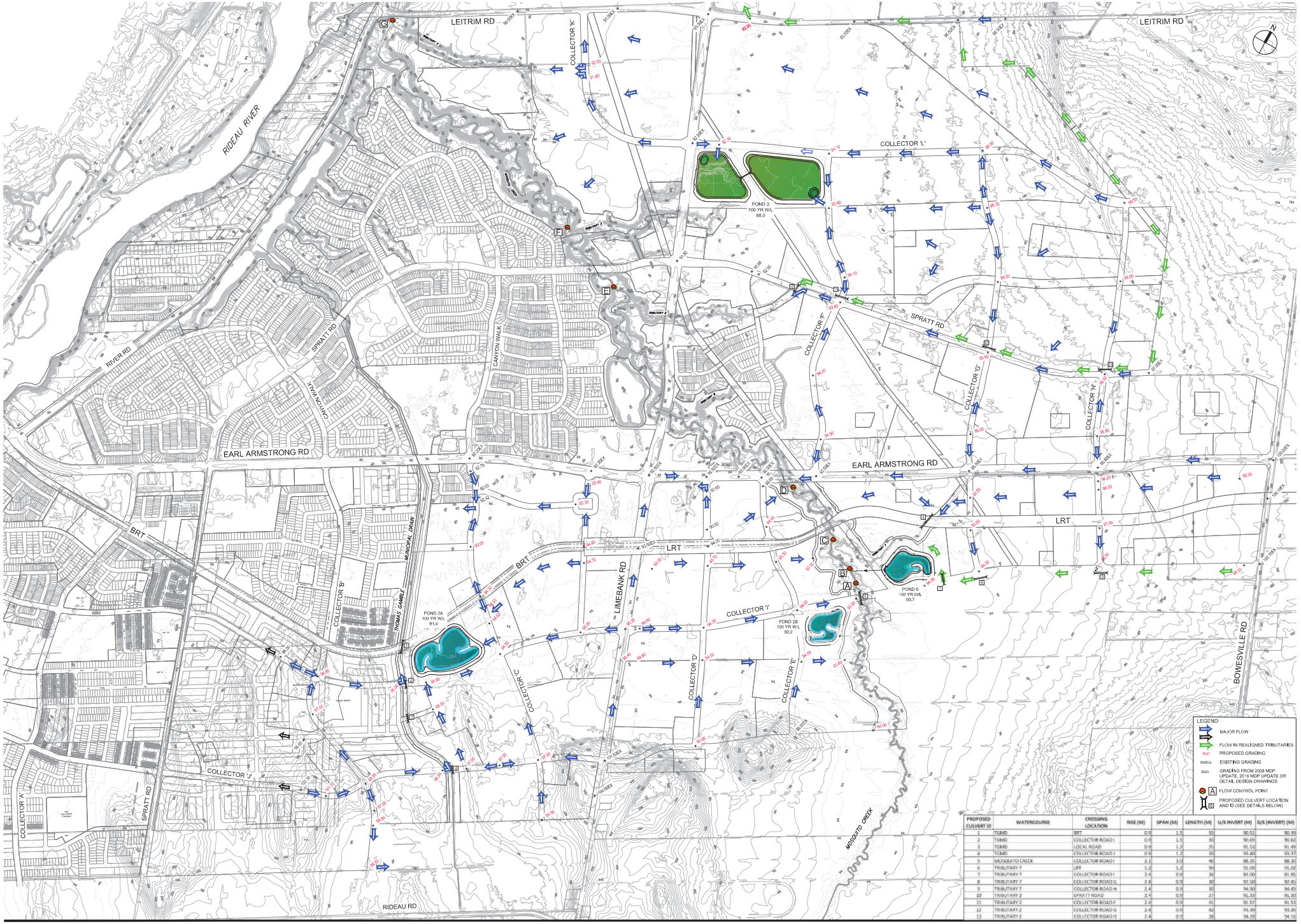
- EXISTING PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED PROPERTY ACQUISITION
- PROPOSED BARRIER
- PROPOSED NEW INFRASTRUCTURE
- EXISTING INFRASTRUCTURE
- EXISTING BUILDING

Ottawa

LEITRIM ROAD REALIGNMENT AND WIDENING
Environmental Assessment Study

RECOMMENDED PLAN - FUNCTIONAL DESIGN PLAN AND PROFILE 11+250 TO STA. 11+950

06



PROPOSED CULVERT ID	WATERCOURSE	CROSSING LOCATION	RISE (M)	SPAN (M)	LENGTH (M)	U/S INVERT (M)	D/S (INVERT) (M)
1	TGMD	BRT	0.9	1.5	55	90.51	90.39
2	TGMD	COLLECTOR ROAD I	0.9	1.5	30	90.65	90.62
3	TGMD	LOCAL ROAD	0.6	1.2	25	91.53	91.49
4	TGMD	COLLECTOR ROAD J	0.9	1.2	30	93.40	93.37
5	MOSQUITO CREEK	COLLECTOR ROAD I	2.1	3.0	40	88.35	88.30
6	TRIBUTARY 7	LRT	1.2	1.2	90	91.09	91.02
7	TRIBUTARY 7	COLLECTOR ROAD I	3.4	0.9	36	90.99	91.95
8	TRIBUTARY 7	COLLECTOR ROAD G	2.4	0.9	30	92.50	92.45
9	TRIBUTARY 7	COLLECTOR ROAD H	2.4	0.9	30	94.50	94.45
10	TRIBUTARY 2	SPRATT ROAD	2.4	0.9	27	91.33	91.30
11	TRIBUTARY 2	COLLECTOR ROAD F	2.4	0.9	62	91.57	91.53
12	TRIBUTARY 2	COLLECTOR ROAD G	2.4	0.9	62	93.36	93.26
13	TRIBUTARY 2	COLLECTOR ROAD H	2.4	0.9	35	94.70	94.16

Scale: 1:5000

Project Title: RIVERSIDE SOUTH COMMUNITY
MASTER DRAINAGE PLAN UPDATE
MOSQUITO CREEK STUDY AREA

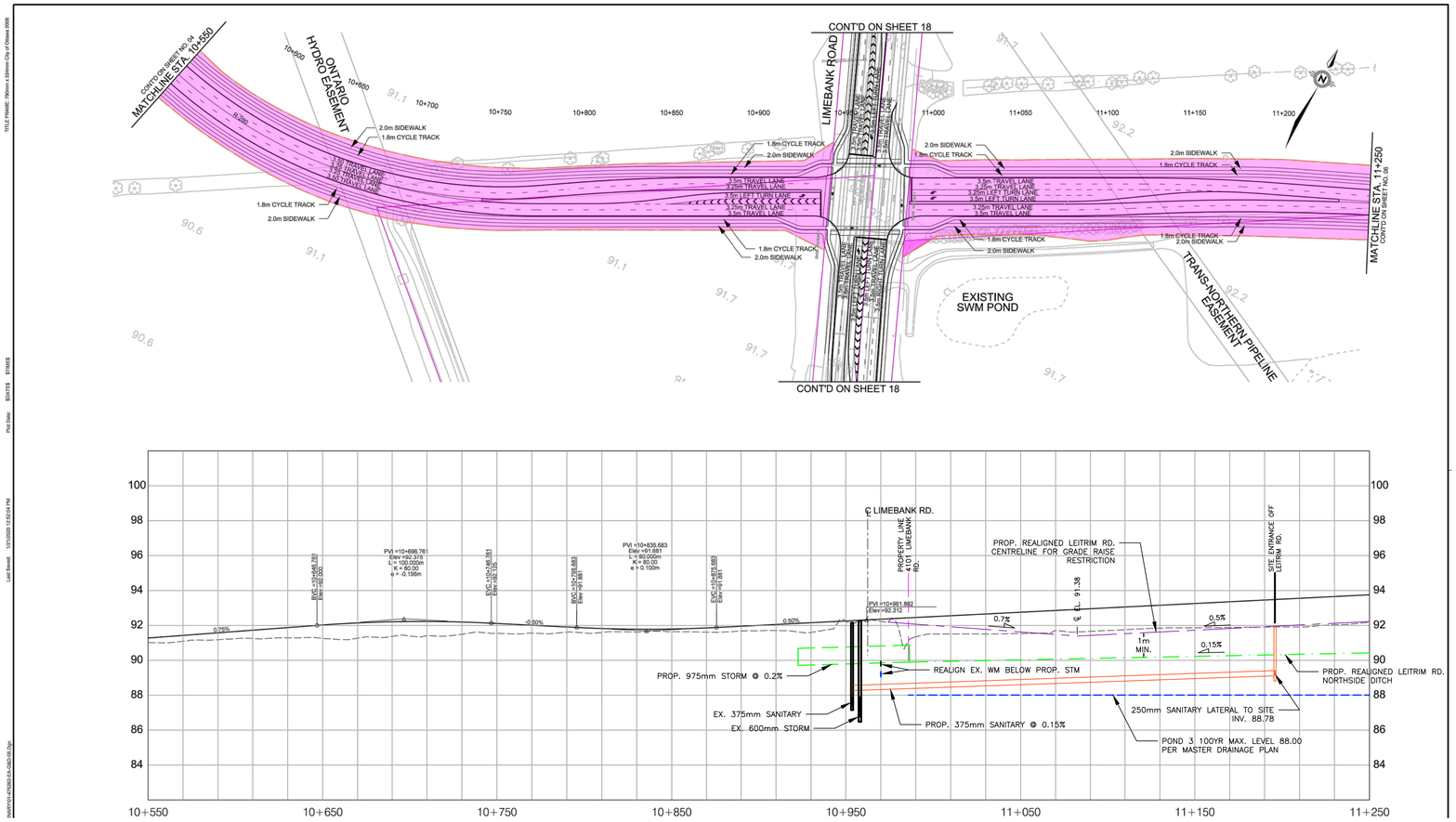
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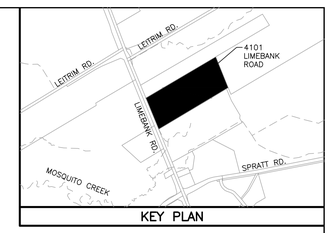
SCALE: 1:5000

Sheet No.: FIGURE 7.5

6. Grade Raise Restrictions

As discussed in Section 7.0 of the report, the maximum grade raise at the site should be limited to 1.0 m. The existing grade at the site should not be lowered as this will result in a decrease in thickness of the desiccated silty clay. Any excavation required to strip the topsoil and the highly weathered brown silty clay crust should be limited to 0.5 m.





KEY PLAN

LEGEND

- PROPERTY BOUNDARY (4101 LIMEBANK RD.)
- PROP. REALIGNED LEITRIM RD. CENTRELINE
- EXISTING WATERMAIN
- PROP. WATERMAIN
- EXISTING SANITARY SEWER & MANHOLE
- PROP. SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROP. STORM SEWER & MANHOLE
- PROP. ROADSIDE DITCH

NOT FOR CONSTRUCTION

NOTES

THE POSITION OF ALL PROPERTY BOUNDARIES, EASEMENTS, FEATURES, AND UTILITIES, EXISTING AND FUTURE, ARE ILLUSTRATIVE ONLY.

NO.	REVISION DESCRIPTION	DATE	BY
2	REISSUED FOR CLIENT REVIEW	30/08/24	CC
1	ISSUED FOR CLIENT REVIEW	08/02/24	CC

SCALE

HORIZONTAL 1:1500 (0, 15m, 30m, 60m)

VERTICAL 1:150 (0, 1.5m, 3m, 6m)

Robinson Land Development
350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcii.com

DESIGN	SM
CHECKED	CC
DRAWN	SM
CHECKED	CC
APPROVED	CC

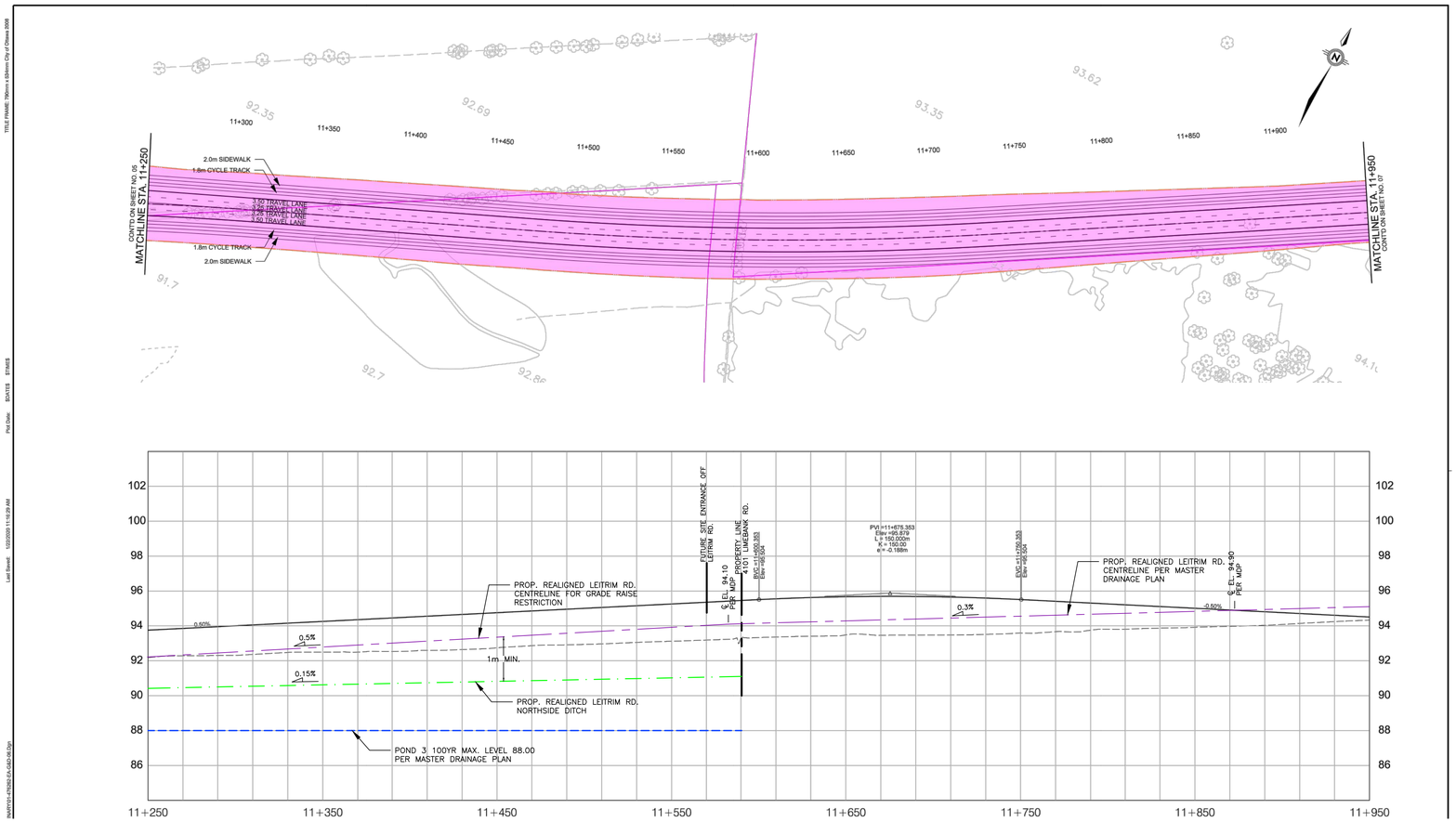
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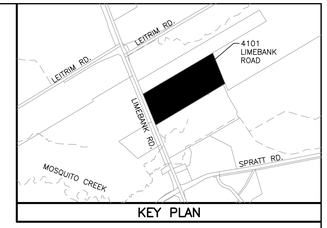
4101 LIMEBANK RD.
CITY OF OTTAWA

OFFSITE SERVICING
-
LEITRIM RD. PROFILE PLAN

PROJECT No.	23074
SURVEY	AOV
DATED	AUG 2024
DWG. No:	23074-OP1

TITLE FRAME: P:\Work\ LSM\mm City of Ottawa 2009
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Last Saved: 12/12/2023 12:05:24 PM
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KEY PLAN

LEGEND

- PROPERTY BOUNDARY (4101 LIMEBANK RD.)
- PROP. REALIGNED LEITRIM RD. CENTRELINE
- EXISTING WATERMAIN
- PROP. WATERMAIN
- EXISTING SANITARY SEWER & MANHOLE
- PROP. SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROP. STORM SEWER & MANHOLE
- PROP. ROADSIDE DITCH

NOT FOR CONSTRUCTION

NOTES

THE POSITION OF ALL PROPERTY BOUNDARIES, EASEMENTS, FEATURES, AND UTILITIES, EXISTING AND FUTURE, ARE ILLUSTRATIVE ONLY.

NO.	REVISION DESCRIPTION	DATE	BY
2	REISSUED FOR CLIENT REVIEW	30/08/24	SM
1	ISSUED FOR CLIENT REVIEW	08/02/24	CC

SCALE

HORIZONTAL 1:1500 (0, 15m, 30m, 60m)

VERTICAL 1:150 (0, 1.5m, 3m, 6m)

Robinson Land Development
350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcii.com

DESIGN	SM
CHECKED	CC
DRAWN	SM
CHECKED	CC
APPROVED	CC

GROUPE MONTONI

4101 LIMEBANK RD.
CITY OF OTTAWA

LEITRIM RD. PROFILE PLAN

PROJECT No.	23074
SURVEY	AOV
DATED	AUG 2024
DWG. No:	23074-P2

TITLE FRAME: 190mm x 430mm City of Ottawa 2009
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Last Saved: 10/20/2009 11:18:58 AM
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File No.: PC2023-0184

August 30, 2023

Tyler Yakichuk
Fotenn Planning and Design
Via email: yakicuk@fotenn.com

Subject: **Phase 1 Pre-Application Consultation Meeting Feedback**
Zoning By-law Amendment & Site Plan Control – 4101 Limebank Road

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-application consultation meeting held on August 23, 2023.

Pre-Application Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

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

Next Steps

1. As discussed during the Phase 1 pre-application consultation meeting, staff strongly recommend waiting for the **completion of the Mosquito Creek Master Servicing Study** prior to proceeding with the Phase 3 pre-application consultation application.

   When you are prepared to submit the Phase 3 pre-application consultation application, please send the completed form and studies/plans to planningcirculations@ottawa.ca.

2. In the next pre-application consultation submission, please include a detailed cover letter outlining how each of the comments were addressed. Please coordinate the numbering of the responses in your cover letter with the comment numbers herein.

Please note that if the proposal changes significantly in scope, design, or density, you may need to complete a Phase 2 pre-application consultation.

Supporting Information and Material Requirements

The attached **Study and Plan Identification List** outlines the information and material required (R) or advised (A) as for the Zoning By-law Amendment and Site Plan Control applications.

The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, are available on Ottawa.ca.

Please note that the new ToR and Guidelines outline specific requirements to deem a plan and/or study adequate at the Phase 3 pre-application consultation.

Consultation with External Agencies

Staff encourage applicants to consult with external technical agencies early in the development of the project concept and application process. External agencies include:

- Ottawa Airport Authority – Delroy Brown at Delroy.Brown@yow.ca
- Trans Northern Pipeline Inc. – W. Watt at wwatt@tnpi.com
- Riverside South Landowners Cost Sharing Agreement - Ursula Melinz, Soloway Wright

Planning Comments – Siobhan Kelly, Planner I

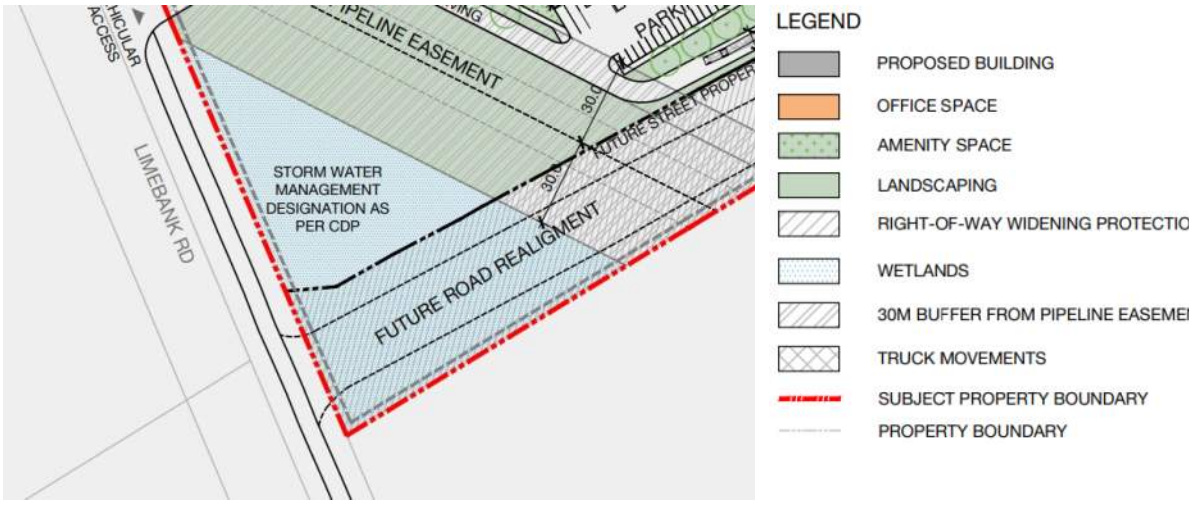
1. The Official Plan designates the property Industrial & Logistics in the Suburban Transect. The property is also within the Riverside South Secondary Plan area (to be drafted and approved by Council).

2. The property is subject to the Riverside South Community Design Plan. Please ensure that the Planning Rationale submitted in support of the application considers the policy and built form directions, including Section 6.3 Employment Areas Built Form.

3. Provide a copy of the registered easement agreement for the transmission pipeline with the application submission.

4. The Concept Plan submitted with the Phase 1 pre-application consultation shows a stormwater management (SWM) pond in the south-west corner of the site. Please note that the completed Mosquito Creek Master Servicing Study may reveal that a SWM pond is not required in this location.

5. The Concept Plan identifies the SWM pond as a wetland based on the notation in legend. Please confirm if the pond (if required) will be constructed as a wetland or dry pond.



6. For the Phase 3 application consultation please confirm if any site-specific amendments are needed to facilitate the proposed development. Provisions from the General Industrial (IG) zone to make note of include:

- Accessory display and sale areas are capped at 25% of the GFA of the warehouse use.

- Parking rates – if the office uses are accessory to the warehouse (i.e., service the warehouses on-site), you can rely on the warehouse parking rate.

7. Preliminary site plan comments:

    - Snow storage area(s) should be strategically located given the size of the site and amount of surface parking and loading spaces. If parking any spaces are used for snow storage, be aware that those spaces cannot contribute to the required parking space count.

    - Aisle width dimensions for loading spaces will depend on the angle of the loading space.

8. Section 37 requirements / Community Benefits Charge

    a. The former Section 37 regime has been replaced with a "Community Benefits Charge", By-law No. 2022-307, of 4% of the land value. This charge will be required for ALL buildings that are 5 or more storeys and 10 or more units and will be required at the time of building permit unless the development is subject to an existing registered Section 37 agreement. Questions regarding this change can be directed to Ranbir.Singh@ottawa.ca.

If you have any questions or require further information, please contact Siobhan Kelly, Planner I, at siobhan.kelly@ottawa.ca

Engineering Comments – Reed Adams, Infrastructure Project Manager

9. Phase 2 of the Mosquito Creek Master Servicing Study (IBI is the consultant completing the study) must be completed before the submission of this application.

    a. For updates on Phase 2 of the master servicing study, please refer to the following contacts:

        i. Terry Brule, P.Eng. Associate Director – Practice Lead, Land Engineering at Arcadis (formerly IBI), terry.brule@arcadis.com, Cell: 819-664-7322

        ii. Marcel Denomme, Vice President of Land Development at Urbandale Corporation, mdenomme@urbandale.com Office Number: 613-731-6712 ext: 1230, Cell 613-889-6204

10. Existing Public Services (Storm, Sanitary & Water Supply)

    a. 305mm watermain along Limebank Rd. (see water section below).

    b. 375mm sanitary sewer along Limebank Rd. (see sanitary section below).

    c. 600mm storm sewer along Limebank Rd. (see stormwater section below).

d. Monitoring manholes are required. They must be located in an accessible location on private property near the property line (ie. Not in a parking area).

11. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

    a. Location of service

    b. Type of development and the amount of fire flow required (as per FUS).

    c. Average daily demand: ___ l/s.

    d. Maximum daily demand: ___l/s.

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

12. An MECP Environmental Compliance Approval for **Industrial/Municipal/Private Sewage Works** will be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation (pre-submission consultation only required for direct submission applications):

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

13. Water

    a. The watermain currently under Limebank Rd is inactive and would need to be commissioned when approaching the service connection date. The commissioning would be done by City forces. An automatic private flushing chamber may also be required for water quality purposes.

    b. A second watermain will be required to provide looping to the proposed development if the anticipated flows are greater than 50 cum/day. Urbandale Corporation is currently in the process obtaining draft plan approval for a subdivision at 3700 Twin Falls. Contact Urbandale Corp to discuss opportunities to extend another watermain along Leitrim Rd to provide looping.

14. Sanitary

    a. The sanitary outlet for this site would be to the future sanitary sewer in the future Leitrim road realignment.

15. Stormwater

    a. There are no storm sewers or end of pipe facilities planned for the business park.

    b. The storm outlet for this site would be going through Urbandale's realigned Leitrim Rd as part of their proposed subdivision.

    c. On-site stormwater quality and quantity control is required via LIDs (i.e. infiltration measures). Based on the current site plan, there does not appear to be any open space

for such LID features. This needs to be explored further to comply with the approved Mosquito Creek Master Drainage Plan.

d. A ditch type outlet would need to be accommodated along the future Leitrim Rd realignment and outlet to proposed (as part of Urbandale's future subdivision) 975mm diameter culvert under Limebank Road.

e. The existing drainage feature to the north of the site must be maintained.

f. Maximum release rate:

    a. 159.72 L/s (based on draft MSS Storm Drainage Plan Drawing 500)

g. The site is tributary to Tributary 4 (watercourse located at the corner of Leitrim and River Rd. that outlets to the Rideau River, to refer to Mosquito Creek Master Drainage Plan).

h. Quality control is required for the site, with enhanced TSS removal being required (80% TSS removal).

16. Background studies

    a. Riverside South Community Master Drainage Plan Update Mosquito Creek Study Area, 2021

If you have any questions or require further information, please contact Reed Adams, Infrastructure Project Manager, at reed.adams@ottawa.ca

Urban Design Comments – Molly Smith, Planner II

17. A Design Brief is required. Please refer to the **attached terms of reference**. The Design Brief is to be a standalone document and should follow the structure of Section 3.

18. Please review the guidelines in the Riverside South Community Design Plan. There is a section on 'Employment Areas Built Form', which applies to the site. The CDP seeks large landscape buffers (ideally 6m) and pedestrian connections within the site, and articulated elevations. A response to the CDP policies will be required to be included in the Design Brief.

19. The parking bays adjacent to the future road alignment are not supported by the CDP and should be internal to the site, not adjacent to the street edge.

20. Please ensure that pedestrian connections are direct to entrances from parking lots or are marked clearly. Where there are opportunities, please include trees in parking islands.

21. An outdoor refuge area would be beneficial for employees. Staff recommend locating this refuge area in proximity to a landscaped area, LIDs or include shade structures.

22. Please find locations for large tree plantings. The pipeline easement seems to be a great opportunity to provide plantings but please check with the pipeline that trees can be planted.

If you have any questions or require further information, please contact Molly Smith, Planner II, at molly.smith@ottawa.ca

Noise & Transportation – Neeti Paudel, Transportation Project Manager

23. A stationary noise study is **only required** if there will be any exposed mechanical equipment in proximity to neighbouring noise sensitive land uses. Please provide confirmation as part of the next submission.

24. A Transportation Impact Assessment (TIA) is required and should be prepared in accordance with the City's TIA Guidelines.

    a. The applicant will need to submit Step 2 of the TIA with the Phase 2 pre-application consultation. If a Phase 2 pre-application consultation is not warranted, it is the applicant's responsibility to submit Step 2 of the TIA to the Transportation Project Manager. Please submit this as soon as possible or at the latest, 14 days prior to the Phase 3 pre-application consultation submission. Failure to do so will result in deeming the application for a Phase 3 pre-application consultation incomplete.

    b. There is currently no timeline for the Leitrim Road realignment. The TIA should include an assessment of the Limebank Road access without future access on the realigned Leitrim Road. .

    c. Collaboration and communication between the applicant and City staff is required at the end of each step of the TIA process.

25. Corner triangle on Limebank Road and future Leitrim Road should be protected in accordance with the functional design of the EA. Please refer to the **attached drawing for realigned Leitrim Road**.

26. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16. Design for Leitrim is attached. Please note right of way requirements are reviewed and approved by Transportation Planning.

27. Clear throat requirements as per the Transportation Association of Canada (TAC) Guidelines should be met.

28. Site Plan comments:

    a. Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.

    b. Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).

    c. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.

    d. Show lane/aisle widths.

    e. Sidewalk is to be continuous across access as per City Specification 7.1.

29. As the proposed site is industrial and for public use, the Accessibility for Ontarians with Disabilities Act (AODA) applies.

    a. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

    b. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements. https://ottawa.ca/en/city-hall/creating-equal-inclusive-and-diverse-city/accessibility-services/accessibility-design-standards-features#accessibility-design-standards

If you have any questions or require further information, please contact Neeti Paudel, Transportation Project Manager, at Neeti.paudel@ottawa.ca

Environmental Planning Comments – Mark Elliott, Planner II

30. Environmental Planning staff have concerns with the lack of soft landscaping on site from the perspective of meeting the urban tree canopy, climate resilience, and urban heat island effect goals. More plantings (as preferred in the Bird Hazard Zone guide), are recommended.

31. A Tree Conservation Report is required to ensure the protection of species-at-risk butternut trees, should they exist in the hedgerows along the perimeter. An Environmental Impact Statement (EIS) is not required provided that the TCR fully addresses the butternut trees.

32. Based on the materials provided, it does not appear that the proposed development will encroach on the watercourse located in the southwestern corner of the property. The proposal should adhere to the Riverside South Master Drainage Plan.

33. The property is within the Airport Primary and Secondary Bird Hazard Zones, which impacts the types of trees that should be planted. Staff will follow up with a copy of the suggested planting guide.

If you have any questions or require further information, please contact Mark Elliott, Planner II, mark.elliott@ottawa.ca

Parks and Facilities Planning Comments – Burl Walker, Planner III

34. The parkland dedication requirement has been estimated for the proposed development based on the Site Information shown on Concept Plan – Option 1B revised June 16, 2023, and the rates established in the Parkland Dedication By-law No. 2022-280 for a parkland dedication requirement of 0.303 ha as follows:

    Table 1: Parkland Dedication Requirement.

Proposed Use	Gross Land Area (ha)	Parkland Dedication Rate	Parkland Dedication Requirement (ha)
Industrial	15.125 ha	2% of Gross Land Area	0.303

The Riverside South CDP Land Use Plan and the draft Land Use Plan for the Riverside South Secondary Plan do not identify any parks within the subdivision.

The Riverside South Landowners Cost Sharing Agreement is intended to address the sharing of park land and development costs in the Riverside South CDP area. Pursuant to Policy 11.6.11 of the Official Plan, the owner would be required to contribute to the cost sharing of the park land and development costs and to provide a letter from the Agreement Administrator stating that the owner is in good standing prior to the registration of the site plan agreement.

The subject lands correspond with the property described as 845471 Ontario Inc. in the schedules to the Riverside South Landowners Cost Sharing Agreement. 845471 Ontario Inc. is identified in the Agreement as a participating landowner. The Shared Park Land schedule to the agreement identifies a contribution from the site towards the overall parkland dedication in Riverside South. If the Parkland Dedication By-law requires a greater parkland dedication requirement compared to the owner's share of parkland dedication in the Cost Sharing Agreement, the remaining parkland dedication requirement may be taken in the form of cash-in-lieu of parkland dedication.

For further information on the Riverside South Landowners Cost Sharing Agreement, the applicant or owner should contact the Agreement Administrator, **Ursula Melinz at Soloway Wright**.

If you have any questions or require further information, please contact Burl Walker at burl.walker@ottawa.ca

Planning Forestry Comments – Hayley Murray, Forester

35. Confirm if there are any trees 10 cm or greater in size on the property and if there are any adjacently owned trees with critical root zones that extend into the property. If the answer is yes, a Tree Conservation Report (TCR) is required for the Site Plan Control application.

36. A landscape plan is required for the Site Plan Control application. Staff recommend submitting a high-level conceptual landscape plan with the Zoning By-law Application to demonstrate that there is adequate space and soil volume for tree planting.

37. Maximize tree planting opportunities on the property to mitigate the urban heat island effect and contribute to the City's 40% urban canopy cover target (as per Official Plan Sections 2.2.3 and 4.8.2).

38. Incorporate tree planting around the perimeter of the property and throughout the site where feasible.

39. Ensure that the landscape plan complies with the City's new terms of reference for landscape plans: https://documents.ottawa.ca/sites/documents/files/landscape_tor_en.pdf

40. Tree Conservation Report (TCR) requirements:

    a. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter, and health condition.

    b. Please identify trees by ownership – private onsite, private on adjoining site, city owned, boundary (trees on a property line).

    c. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.

    d. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca

    e. The location of tree protection fencing must be shown on the plan.

    f. The City encourages the retention of healthy trees; if possible, please seek opportunities for tree retention that will contribute to the design/function of the site.

    g. For more information on the process or help with tree retention options, contact Hayley Murray hayley.murray@ottawa.ca or on City of Ottawa

    41. Landscape Plan Tree Planting Requirements:

        a. Minimum Setbacks

            - Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
            - Maintain 2.5m from curb.
            - Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
            - Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when **planting around overhead primary conductors.**

        b. Tree specifications

            - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
            - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.

- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

c. Hard surface planting

- Curb style planter is highly recommended.
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade.

d. Soil Volume

- Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

** Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay **

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines for trees in the Right of Way

e. Tree Canopy

- The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.

- At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

If you have any questions or require further information, please contact Hayley Murray, Forester at Hayley.murray@ottawa.ca

Rideau Valley Conservation Authority – Eric Lalonde, Senior Planner

42. There are no natural hazards or regulated features on the property. The RVCA has no comments.

If you have any questions or require further information, please contact Eric Lalonde, Senior Planner at eric.lalande@rvca.ca

Other Notes

High-Performance Development Standards (HPDS)

- The High-Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. Council passed the HPDS on April 13, 2022.

- The HPDS is not currently in effect and Council referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.

- Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

If you have any questions or require further information, please feel free to to contact myself or the contacts identified for the above disciplines.

Regards,

Siobhan Kelly
Planner I
Development Review – South
Planning, Real Estate and Economic Development Department

cc.

Stream Shen, Planner III
Molly Smith, Planner II, Urban Design
Reed Adams, PM
John Sevigny, Senior PM
Neeti Paudel, TPM
Mark Elliott, Planner II, Environmental Planning
Hayley Murray, Forester
Burl Walker, Planner III, Parks & Facilities
Planning Circulations - planningcirculations@ottawa.ca

Appendix B

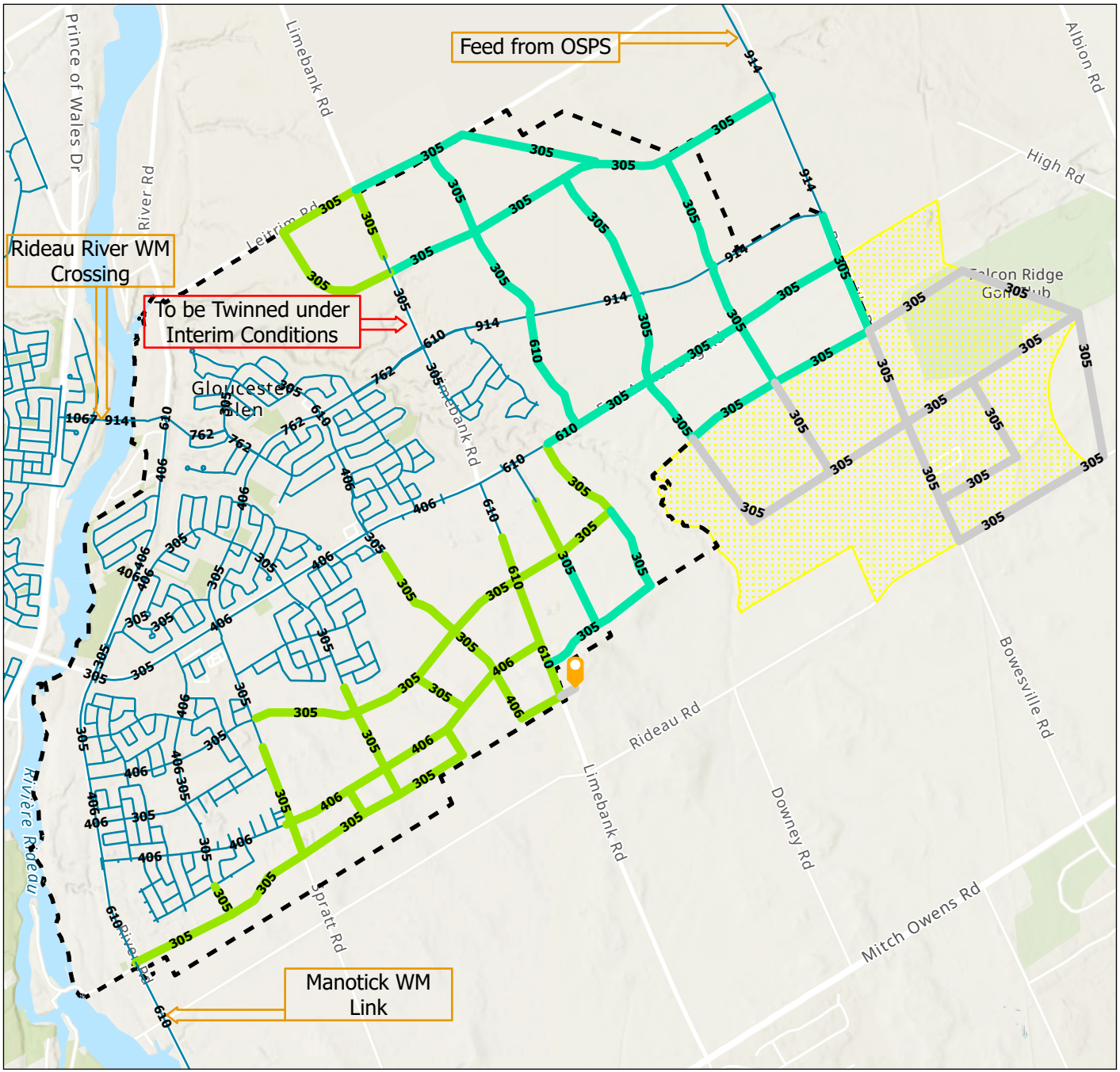


Figure No.
3-2

Title
Potable Water Servicing Plan

Client/Project
Riverside South Development Corporation
Riverside South ISSU Update
Potable Water Servicing

Project Location
Riverside South
Ottawa, Ontario

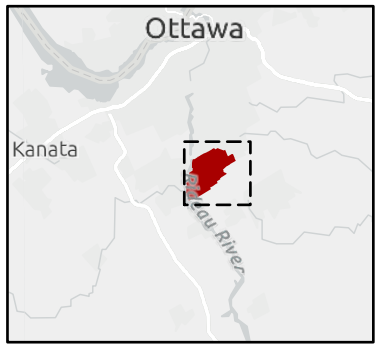
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Legend

- Riverside South CDP Lands
- Expansion Lands
- Proposed Riverside South Elevated Tank
- Existing Watermain
- Proposed Watermain - Phase 1
- Proposed Watermain - Phase 2
- Proposed Watermain - Other



Notes
1. Coordinate System: NAD 1983 CSRS MTM 9
2. Watermain layout east of Bowesville Rd based on highlevel indications provided by Novatech.

Stantec

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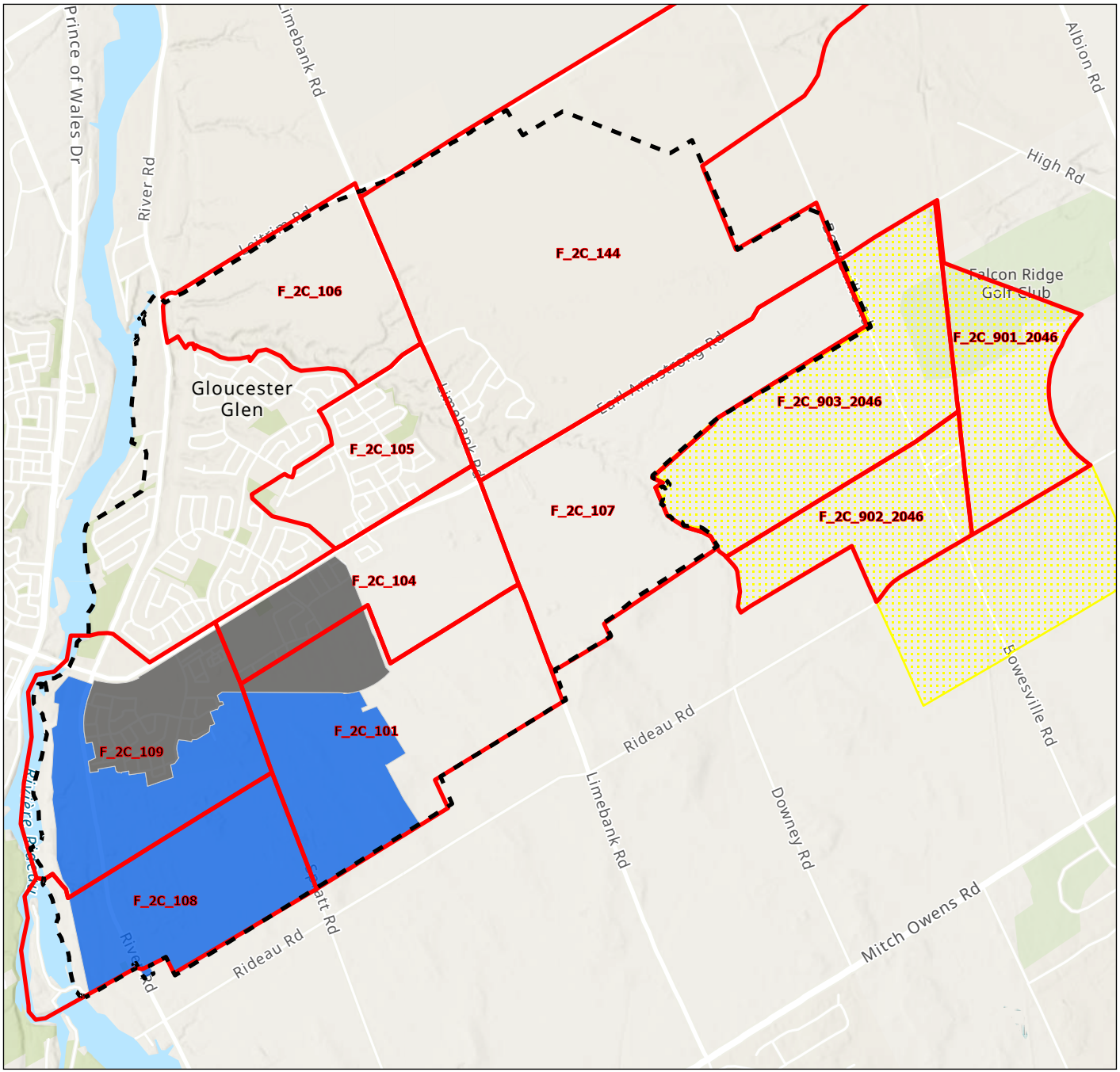


Figure No.
3-1

Title
SUC Growth Polygons

Client/Project
Riverside South Development Corporation
Riverside South ISSU Update
Potable Water Servicing

Project Location
Riverside South
Ottawa, Ontario

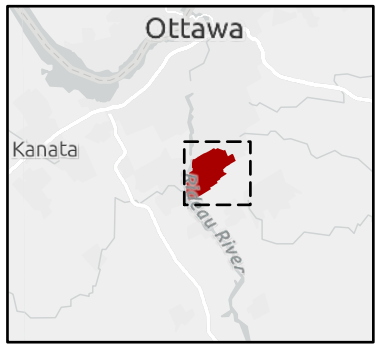
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Legend

- SUC Growth Polygon
- Riverside South CDP Lands
- Existing Development
- Rideau River Pond 5 Development Area
- Expansion Lands

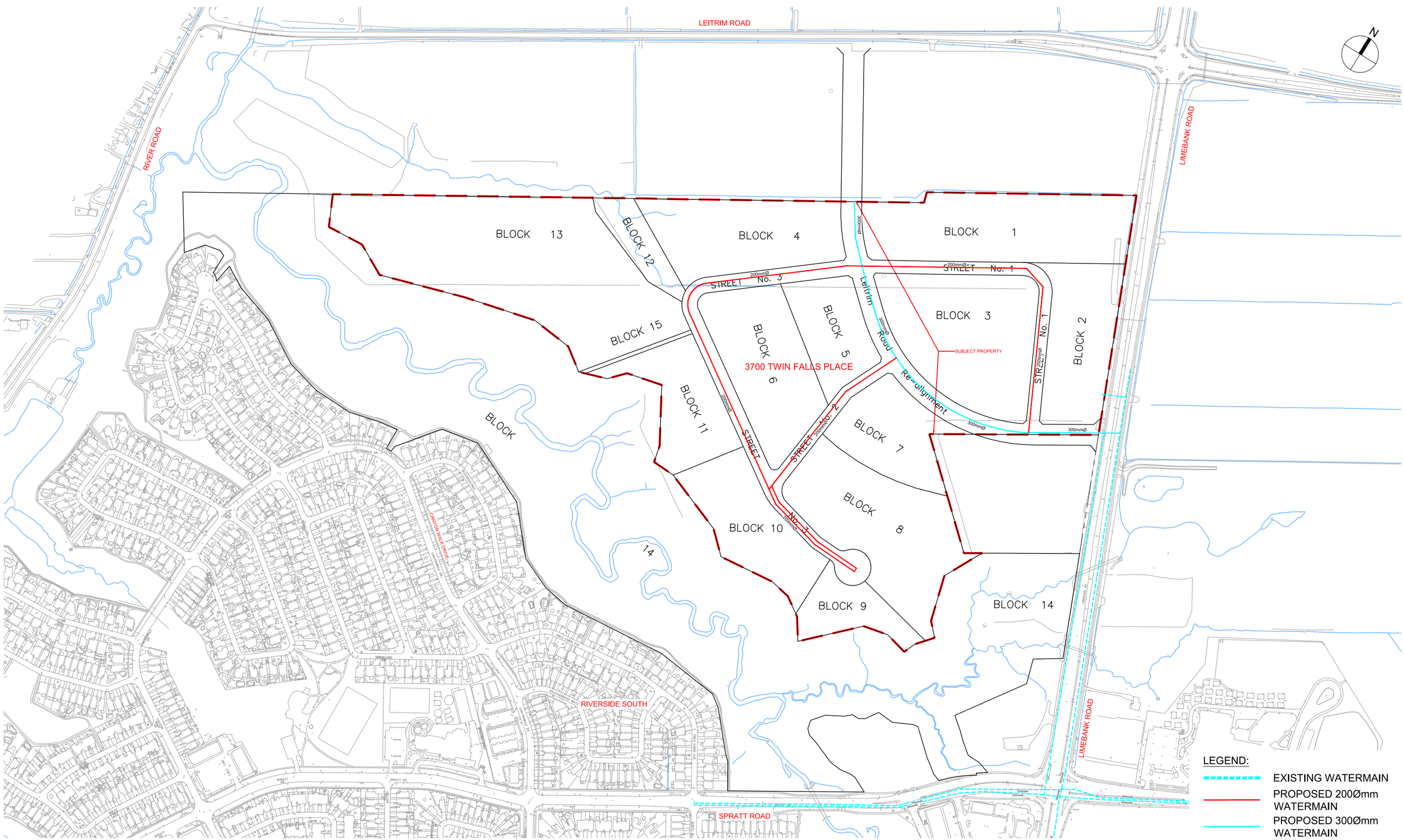


Notes
1. Coordinate System: NAD 1983 CSRS MTM 9

Stantec

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J:\136974_RSS_Employme\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\FIGURE 2.1 CONCEPTUAL WATER SERVICES.dwg Layout Name: CONCEPTUAL WATER SERVICES Last Saved By: Chris.Cormier Last Saved At: Mar. 14, 23



Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	RIVERSIDE SOUTH 3700 TWIN FALLS PLACE	CONCEPTUAL WATER SERVICES	FIGURE 2.1

Boundary Conditions
Employment Lands

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	786	13.10
Maximum Daily Demand	1,968	32.80
Peak Hour	4,332	72.20
Fire Flow Demand #1	10,000	166.67
Fire Flow Demand #2	13,000	216.67

Location



Results – Existing Conditions

Connection 1 – Spratt Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	131.8	56.9
Peak Hour	125.3	47.7
Max Day plus Fire 1	126.4	49.3
Max Day plus Fire 2	125.3	47.7

Ground Elevation = 91.7 m

Connection 2 – Limebank Rd. / Spratt Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	131.8	56.9
Peak Hour	125.3	47.7
Max Day plus Fire 1	127.4	50.7
Max Day plus Fire 2	126.8	49.9

Ground Elevation = 91.8 m

Results – SUC Zone Reconfiguration

Connection 1 – Spratt Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.4	80.5
Peak Hour	145.7	76.7
Max Day plus Fire 1	145.1	75.9
Max Day plus Fire 2	144.2	74.6

Ground Elevation = 91.7 m

Connection 2 – Limebank Rd. / Spratt Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.4	80.5
Peak Hour	145.8	76.8
Max Day plus Fire 1	146.2	77.4
Max Day plus Fire 2	145.8	76.9

Ground Elevation = 91.8 m

Notes

1. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

WATERMAIN DESIGN SHEET

4101 Limebank Rd., City of Ottawa

Project No. 23074

Robinson Consultants

	RESIDENTIAL POPULATION				NON-RES				AVG. DAILY					MAX. DAILY					PEAK HOURLY				
	ACTUAL COUNT				IND.	IND.	COMM.	INST.	DEMAND (L/s)					DEMAND (L/s)					DEMAND (L/s)				
	Low Density	Medium Density	High Density	Total Population	(ha)	(pop.)	(ha)	(ha)	RES.	IND.	COMM.	INST.	TOTAL	RES.	IND.	COMM.	INST.	TOTAL	RES.	IND.	COMM.	INST.	TOTAL
GROSS LAND					13.75					5.57			5.57		8.36			8.36		15.04			15.04
EMPLOYEES						775				1.23			1.23		1.84			1.84		3.32			3.32

Note: gross area does not include property to be transferred to realigned Letrim Rd.

Residential Densities

Low Density (SFH's) =	3.4	cap/unit
Medium Density (Townhouses) =	2.7	cap/unit
High Density (Apartments) =	1.8	cap/unit

Avg. Daily Demand:			Max. Daily Demand:		Max. Hourly Demand:	
Residential =	280	L/cap/day	2.5	x Avg. Day	2.2	x Max. Day
Employment*=	137	L/cap/day	1.5	x Avg. Day	1.8	x Max. Day
Industrial (Light) =	35000	L/ha/day	1.5	x Avg. Day	1.8	x Max. Day
Commercial =	28000	L/ha/day	1.5	x Avg. Day	1.8	x Max. Day
Institutional =	28000	L/ha/day	1.5	x Avg. Day	1.8	x Max. Day

*Employee demand based on Riverside South Community Infrastructure Servicing Study Update Phase 1, Mosquito Creek Study Area

Note: employee count based on preliminary site plan: average 15 employees per office unit, 35 per warehouse unit

2024-08-07

Project Name:	4101 Limebank Rd.
Project Location:	Ottawa ON
Project No:	23074
Date:	07-Aug-24
Building Type:	Industrial
Building Being Considered:	Bldg C3

Robinson Land Development

Calculations for Total Required Fire Flow

Step	Parameter				Value	
A	Type of Construction	**Options**	**C**			
		Wood Frame (Type V)	1.5	Non-Combustible Construction (Type II)	0.8	
		Ordinary Construction (Type III)	1.0			
		Non-Combustible Construction (Type II)	0.8			
		Fire Resistive Construction (Type I)	0.6			
B	Ground Floor Area				12948.0	m^2
	Total Effective Floor Area				**12,948.0**	**m^2**
C	**Fire Flow**				**20,000**	**L/min**
D	Occupancy Class	**Options**	**Charge**			
		Non-combustible	-0.25	Free burning	0.15	
		Limited Combustible	-0.15			
		Combustible	0.00			
		Free burning	0.15			
		Rapid Burning	0.25			
	Occupancy Adjustment				**3000**	**L/min**
	Fire Flow				**23,000**	**L/min**
E	Sprinkler Protection	**Options**	**Charge**			
		Automatic Sprinkler Protection	-0.30	Automatic Sprinkler Protection	-0.30	
		None	0.00			
		Water Supply is Standard for System and Hose Lines	-0.10	Yes	-0.10	
		Full Supervision of the Sprinker System	-0.10	Yes	-0.10	
	Sprinkler Reduction				**-11,500**	**L/min**
	Exposures					
	West Side					
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems				Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems				Yes	
	Exposed Wall Length				73	m
	Exposed Wall No. of Storeys				2	
	Length-Height Factor of Exposed Wall				146	m.storeys
	Construction Type of Exposed Wall	**Options**				
		Wood Frame		Noncombustible or Fire Resistive with Unprotected Openings		
		Ordinary with Unprotected Openings				
		Ordinary without Unprotected Openings				
		Noncombustible or Fire Resistive with Unprotected Openings				
		Noncombustible or Fire Resistive without Unprotected Openings				
	Separation Distance			**>30m; No Exposure**	100	m
	West Side Exposure Charge				**0.00**	
	North Side					
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems				Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems				Yes	
	Exposed Wall Length				88.4	m
	Exposed Wall No. of Storeys				2	
	Length-Height Factor of Exposed Wall				176.8	m.storeys
	Construction Type of Exposed Wall	**Options**				
		Wood Frame		Noncombustible or Fire Resistive with Unprotected Openings		
		Ordinary with Unprotected Openings				
		Ordinary without Unprotected Openings				
		Noncombustible or Fire Resistive with Unprotected Openings				
		Noncombustible or Fire Resistive without Unprotected Openings				

	Separation Distance		**Fire Wall Separation**	0	m
	North Side Exposure Charge			**0.00**	
F	**East Side**				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Wall Length			73	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			146	m.storeys
	Construction Type of Exposed Wall	**Options**	Noncombustible or Fire Resistive with Unprotected Openings		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	64	m
	East Side Exposure Charge			**0.00**	
	South Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Wall Length			88.4	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			176.8	m.storeys
	Construction Type of Exposed Wall	**Options**	Noncombustible or Fire Resistive with Unprotected Openings		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	100	m
	South Side Exposure Charge			**0.00**	
	Total Exposure Charage			**0**	**< 0.75**
	Increase for Exposures			**0**	**L/min**
G	**Total Required Fire Flow**			**12,000**	**L/min**

Notes:

1. Fire flow calculations have been prepared in accordance with Fire Underwriters Survey (v. 2020)

2. Building construction type and fire wall dividing blocks assumed based on preliminary site plan

3. Floor areas used in Step B equivalent to 2-storey due to building height

4. Where buildings are at a diagonal to each other, the shortest separtion distance is increased by 3 metres and used as the exposure distance (Ref. FUS v.2020 pg.30).

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

FILE: 136974
DATE PRINTED: 09-Mar-23
DESIGN: LE
PAGE : 1 OF 1

PROJECT : RIVERSIDE SOUTH - 3700 TWIN FALLS PLACE
LOCATION : CITY OF OTTAWA
DEVELOPER : RIVERSIDE SOUTH DEVELOPMENT CORPORATION

NODE	BLOCK	RESIDENTIAL UNITS SF	RESIDENTIAL UNITS SD & TH	RESIDENTIAL UNITS MD (ha)	RESIDENTIAL POP'N	NON-RESIDENTIAL INDTRL (ha.)	NON-RESIDENTIAL COMM. (ha.)	NON-RESIDENTIAL INST. (ha.)	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)
J2	2						2.56		0.00	0.83	0.83	0.00	1.24	1.24	0.00	2.24	2.24	13,000
J3	3						4.61		0.00	1.49	1.49	0.00	2.24	2.24	0.00	4.03	4.03	13,000
J4	1						4.16		0.00	1.35	1.35	0.00	2.02	2.02	0.00	3.64	3.64	13,000
J5	5						1.52		0.00	0.49	0.49	0.00	0.74	0.74	0.00	1.33	1.33	13,000
J8	4, 13						11.92		0.00	3.86	3.86	0.00	5.79	5.79	0.00	10.43	10.43	13,000
J9	6, 11						5.41		0.00	1.75	1.75	0.00	2.63	2.63	0.00	4.73	4.73	13,000
J10	10						2.72		0.00	0.88	0.88	0.00	1.32	1.32	0.00	2.38	2.38	13,000
J11	8, 9						6.52		0.00	2.11	2.11	0.00	3.17	3.17	0.00	5.71	5.71	13,000
J12	7						1.95		0.00	0.63	0.63	0.00	0.95	0.95	0.00	1.71	1.71	13,000
J13	OTHER						3.90		0.00	1.26	1.26	0.00	1.90	1.90	0.00	3.41	3.41	13,000
											14.65			22.00			39.61	

ASSUMPTIONS

RESIDENTIAL DENSITIES

- Single Family (SF) 3.4 p / p / u
- Semi Detached (SD) & Townhouse (T 2.7 p / p / u
- Apartment (APT) 1.8 p / p / u
- -Medium Density Area (MD) 130 p / p / ha

AVG. DAILY DEMAND

- Residential 280 l / cap / day
- ICI 28,000 l / ha / day

MAX. DAILY DEMAND

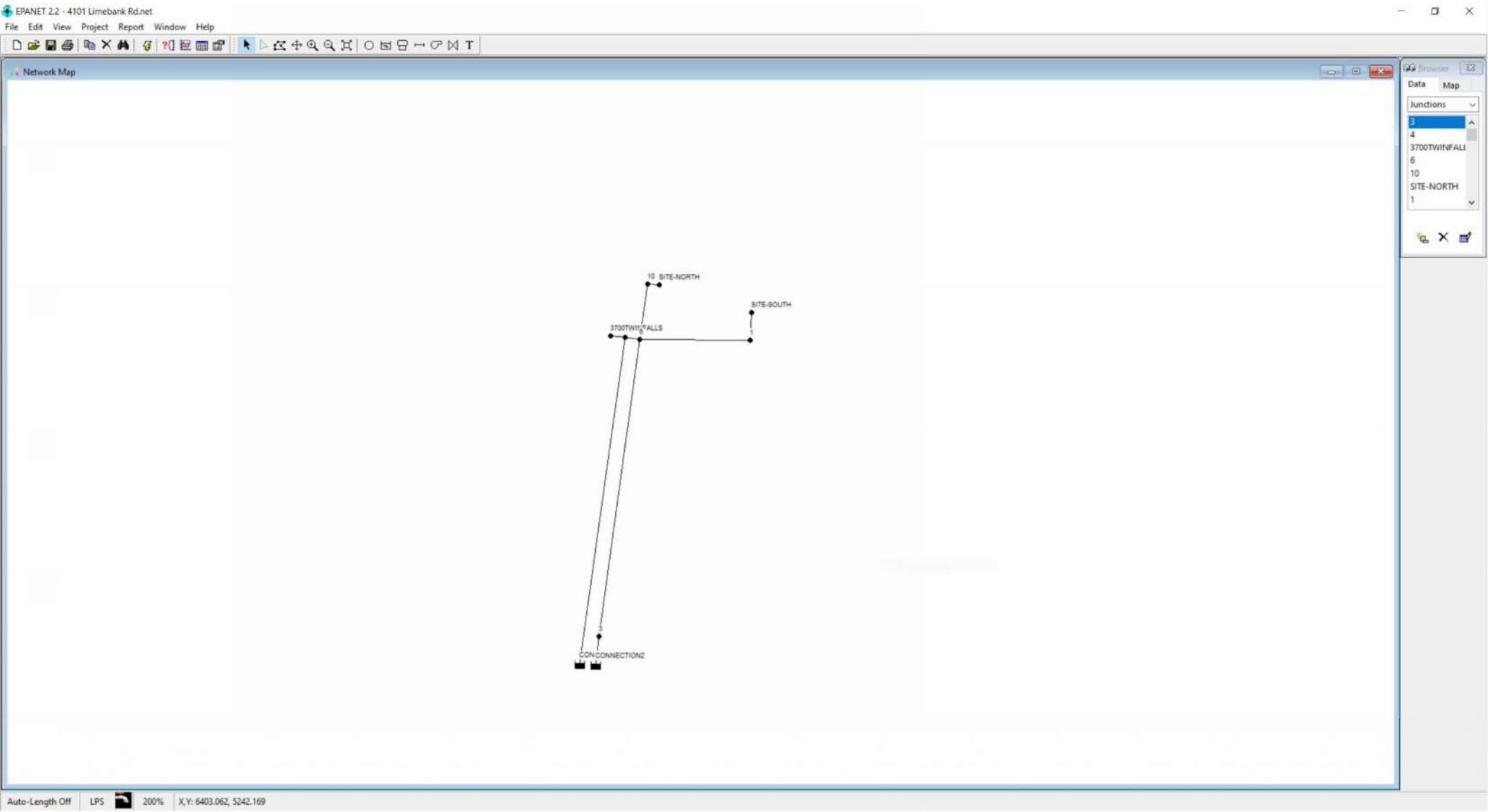
- Residential 700 l / cap / day
- ICI 42,000 l / ha / day

MAX. HOURLY DEMAND

- Residential 1,540 l / cap / day
- ICI 75,600 l / ha / day

FIRE FLOW

- SF, SD, TH & ST 10,000 l / min
- l / min
- ICI 13,000 l / min


EPANET 2.2 - 4101 Limebank Rd.net
File Edit View Project Report Window Help
Network Map
10 SITE-NORTH
SITE-SOUTH
3700TWINFALLS
6
1
3
CONCONNECTION2
Browser
Data Map
Junctions
3
4
3700TWINFALL
6
10
SITE-NORTH
1
Auto-Length Off
LPS
200%
X,Y: 6403.062, 5242.169

```
******************************************************************
*                          E P A N E T                           *
*                   Hydraulic and Water Quality                  *
*                   Analysis for Pipe Networks                   *
*                         Version 2.2                            *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Average Day Demand, Current Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	131.80	40.30	0.00	
4	0.00	131.74	41.74	0.00	
3700TWINFALLS	14.65	131.74	41.74	0.00	
6	0.00	131.74	41.74	0.00	
10	0.00	131.74	41.74	0.00	
SITE-NORTH	2.80	131.74	41.74	0.00	
1	0.00	131.74	41.74	0.00	
SITE-SOUTH	2.80	131.74	41.74	0.00	
CONNECTION1	-10.00	131.80	0.00	0.00	Reservoir
CONNECTION2	-10.25	131.80	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	10.25	0.04	0.00	Open
2	10.25	0.14	0.11	Open

3	10.00	0.14	0.10	Open
4	14.65	0.21	0.21	Open
5	-4.65	0.07	0.03	Open
10	2.80	0.04	0.01	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-2.80	0.04	0.01	Open
7	2.80	0.04	0.01	Open
8	2.80	0.09	0.08	Open

```
*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************
```

Input File: 4101 Limebank Rd.net
Average Day Demand, Future Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	148.40	56.90	0.00	
4	0.00	148.34	58.34	0.00	
3700TWINFALLS	14.65	148.34	58.34	0.00	
6	0.00	148.34	58.34	0.00	
10	0.00	148.34	58.34	0.00	
SITE-NORTH	2.80	148.34	58.34	0.00	
1	0.00	148.34	58.34	0.00	
SITE-SOUTH	2.80	148.34	58.34	0.00	
CONNECTION1	-10.00	148.40	0.00	0.00	Reservoir
CONNECTION2	-10.25	148.40	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	10.25	0.04	0.00	Open
2	10.25	0.14	0.11	Open

3	10.00	0.14	0.10	Open
4	14.65	0.21	0.21	Open
5	-4.65	0.07	0.03	Open
10	2.80	0.04	0.01	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-2.80	0.04	0.01	Open
7	2.80	0.04	0.01	Open
8	2.80	0.09	0.08	Open

```
******************************************************************
*                          E P A N E T                           *
*                   Hydraulic and Water Quality                  *
*                   Analysis for Pipe Networks                   *
*                         Version 2.2                            *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Peak Hour Demand, Current Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	125.30	33.80	0.00	
4	0.00	124.94	34.94	0.00	
3700TWINFALLS	39.61	124.93	34.93	0.00	
6	0.00	124.95	34.95	0.00	
10	0.00	124.94	34.94	0.00	
SITE-NORTH	7.52	124.94	34.94	0.00	
1	0.00	124.93	34.93	0.00	
SITE-SOUTH	7.52	124.92	34.92	0.00	
CONNECTION1	-27.00	125.30	0.00	0.00	Reservoir
CONNECTION2	-27.65	125.30	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	27.65	0.10	0.02	Open
2	27.65	0.39	0.69	Open

3	27.00	0.38	0.66	Open
4	39.61	0.56	1.34	Open
5	-12.61	0.18	0.16	Open
10	7.52	0.11	0.06	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-7.52	0.11	0.06	Open
7	7.52	0.11	0.06	Open
8	7.52	0.24	0.52	Open

```
******************************************************************
*                          E P A N E T                           *
*                   Hydraulic and Water Quality                  *
*                   Analysis for Pipe Networks                   *
*                         Version 2.2                            *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Peak Hour Demand, Future Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	145.80	54.30	0.00	
4	0.00	145.39	55.39	0.00	
3700TWINFALLS	39.61	145.38	55.38	0.00	
6	0.00	145.40	55.40	0.00	
10	0.00	145.39	55.39	0.00	
SITE-NORTH	7.52	145.39	55.39	0.00	
1	0.00	145.38	55.38	0.00	
SITE-SOUTH	7.52	145.37	55.37	0.00	
CONNECTION1	-24.94	145.70	0.00	0.00	Reservoir
CONNECTION2	-29.71	145.80	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	29.71	0.11	0.03	Open
2	29.71	0.42	0.79	Open

3	24.94	0.35	0.57	Open
4	39.61	0.56	1.34	Open
5	-14.67	0.21	0.21	Open
10	7.52	0.11	0.06	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-7.52	0.11	0.06	Open
7	7.52	0.11	0.06	Open
8	7.52	0.24	0.52	Open

```
******************************************************************
*                            E P A N E T                         *
*                     Hydraulic and Water Quality                *
*                     Analysis for Pipe Networks                 *
*                          Version 2.2                           *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Max Day + 10,000 L/min Fire Demand, Current Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	127.39	35.89	0.00	
4	0.00	123.13	33.13	0.00	
3700TWINFALLS	22.00	123.12	33.12	0.00	
6	0.00	123.04	33.04	0.00	
10	0.00	122.54	32.54	0.00	
SITE-NORTH	87.50	122.43	32.43	0.00	
1	0.00	121.82	31.82	0.00	
SITE-SOUTH	87.50	120.09	30.09	0.00	
CONNECTION1	-89.41	126.40	0.00	0.00	Reservoir
CONNECTION2	-107.59	127.40	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	107.59	0.38	0.29	Open
2	107.59	1.52	8.53	Open

3	89.41	1.26	6.06	Open
4	22.00	0.31	0.45	Open
5	67.41	0.95	3.59	Open
10	87.50	1.24	5.82	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-87.50	1.24	5.82	Open
7	87.50	1.24	5.82	Open
8	87.50	2.79	49.28	Open

```
******************************************************************
*                            E P A N E T                         *
*                     Hydraulic and Water Quality                *
*                     Analysis for Pipe Networks                 *
*                          Version 2.2                           *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Max Day + 10,000 L/min Fire Demand, Future Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	146.19	54.69	0.00	
4	0.00	141.88	51.88	0.00	
3700TWINFALLS	22.00	141.87	51.87	0.00	
6	0.00	141.79	51.79	0.00	
10	0.00	141.29	51.29	0.00	
SITE-NORTH	87.50	141.18	51.18	0.00	
1	0.00	140.56	50.56	0.00	
SITE-SOUTH	87.50	138.84	48.84	0.00	
CONNECTION1	-88.72	145.10	0.00	0.00	Reservoir
CONNECTION2	-108.28	146.20	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	108.28	0.38	0.29	Open
2	108.28	1.53	8.64	Open

3	88.72	1.26	5.97	Open
4	22.00	0.31	0.45	Open
5	66.72	0.94	3.52	Open
10	87.50	1.24	5.82	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-87.50	1.24	5.82	Open
7	87.50	1.24	5.82	Open
8	87.50	2.79	49.28	Open

```
******************************************************************
*                            E P A N E T                         *
*                     Hydraulic and Water Quality                *
*                     Analysis for Pipe Networks                 *
*                          Version 2.2                           *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Max Day + 13,000 L/min Fire Demand, Current Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	126.79	35.29	0.00	
4	0.00	120.33	30.33	0.00	
3700TWINFALLS	22.00	120.32	30.32	0.00	
6	0.00	120.17	30.17	0.00	
10	0.00	119.38	29.38	0.00	
SITE-NORTH	112.50	119.20	29.20	0.00	
1	0.00	118.22	28.22	0.00	
SITE-SOUTH	112.50	115.48	25.48	0.00	
CONNECTION1	-112.12	125.30	0.00	0.00	Reservoir
CONNECTION2	-134.88	126.80	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	134.88	0.48	0.44	Open
2	134.88	1.91	12.97	Open

3	112.12	1.59	9.21	Open
4	22.00	0.31	0.45	Open
5	90.12	1.27	6.15	Open
10	112.50	1.59	9.27	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-112.50	1.59	9.27	Open
7	112.50	1.59	9.27	Open
8	112.50	3.58	78.49	Open

```
******************************************************************
*                            E P A N E T                         *
*                     Hydraulic and Water Quality                *
*                     Analysis for Pipe Networks                 *
*                          Version 2.2                           *
******************************************************************
```

Input File: 4101 Limebank Rd.net
Max Day + 13,000 L/min Fire Demand, Future Pressure Zone

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	CONNECTION2	3	30	600
2	3	6	510	300
3	CONNECTION1	4	540	300
4	4	3700TWINFALLS	10	300
5	4	6	25	300
10	10	SITE-NORTH	20	300
6	10	6	85	300
7	6	1	210	300
8	1	SITE-SOUTH	35	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
3	0.00	145.79	54.29	0.00	
4	0.00	139.27	49.27	0.00	
3700TWINFALLS	22.00	139.27	49.27	0.00	
6	0.00	139.12	49.12	0.00	
10	0.00	138.33	48.33	0.00	
SITE-NORTH	112.50	138.15	48.15	0.00	
1	0.00	137.17	47.17	0.00	
SITE-SOUTH	112.50	134.43	44.43	0.00	
CONNECTION1	-111.56	144.20	0.00	0.00	Reservoir
CONNECTION2	-135.44	145.80	0.00	0.00	Reservoir

Link Results:

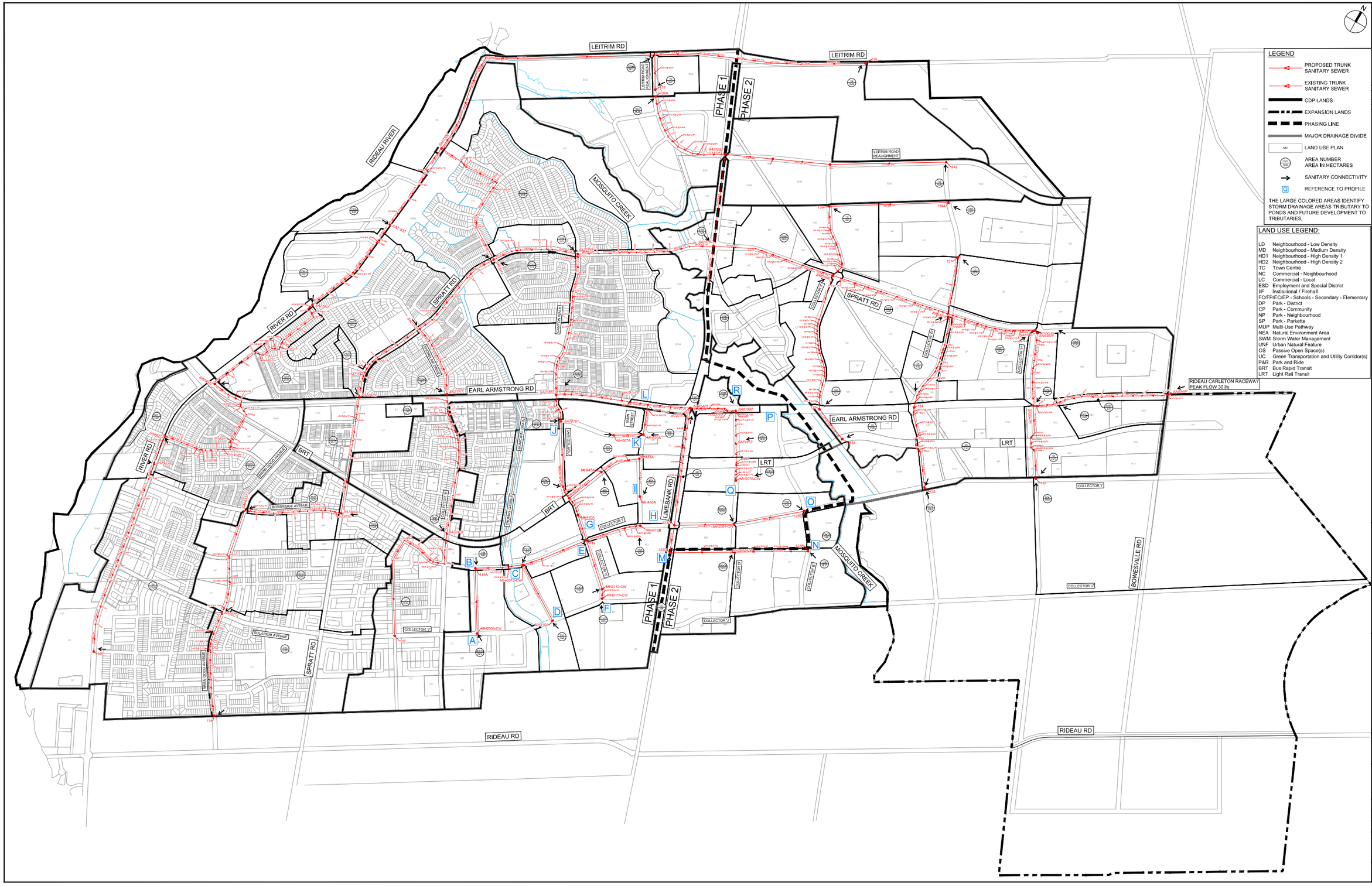
Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
1	135.44	0.48	0.45	Open
2	135.44	1.92	13.07	Open

3	111.56	1.58	9.13	Open
4	22.00	0.31	0.45	Open
5	89.56	1.27	6.08	Open
10	112.50	1.59	9.27	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
6	-112.50	1.59	9.27	Open
7	112.50	1.59	9.27	Open
8	112.50	3.58	78.49	Open

Appendix C



LEGEND

- PROPOSED TRUNK SANITARY SEWER
- EXISTING TRUNK SANITARY SEWER
- CDP LANDS
- EXPANSION LANDS
- PHASING LINE
- MAJOR DRAINAGE DIVIDE
- LAND USE PLAN
- AREA NUMBER / AREA IN HECTARES
- SANITARY CONNECTIVITY
- REFERENCE TO PROFILE

THE LARGE COLORED AREAS IDENTIFY STORM DRAINAGE AREAS TRIBUTARY TO PONDS AND FUTURE DEVELOPMENT TO TRIBUTARIES.

LAND USE LEGEND:

LD	Neighbourhood - Low Density
MD	Neighbourhood - Medium Density
HD1	Neighbourhood - High Density 1
HD2	Neighbourhood - High Density 2
TC	Town Centre
NC	Commercial - Neighbourhood
LC	Commercial - Local
ESD	Employment and Special District
I/F	Institutional / Firehall
FC/FP/EC/EP	Schools - Secondary - Elementary
DP	Park - District
CP	Park - Community
NP	Park - Neighbourhood
SP	Park - Parkette
MUP	Multi-Use Pathway
NEA	Natural Environment Area
SWM	Storm Water Management
UNF	Urban Natural Feature
OS	Passive Open Space(s)
UC	Green Transportation and Utility Corridor(s)
P&R	Park and Ride
BRT	Bus Rapid Transit
LRT	Light Rail Transit

CLIENT

Ottawa

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ISSUES

No.	DESCRIPTION	DATE
1	RSU PH 1 SUBMISSION 1	2022-12-02
2	RSU PH 1 SUBMISSION 2	2023-03-24
3	RSU PH 1 SUBMISSION 3	2023-05-19

CONSULTANTS

1:4000 (ANSI D) 1:8000 (ANSI E)

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PROJECT
RIVERSIDE SOUTH COMMUNITY INFRASTRUCTURE SERVICING STUDY UPDATE PHASE 1
MOSQUITO CREEK STUDY AREA

PROJECT NO: 125127	
DRAWN BY: C.C.	CHECKED BY: L.E.
PROJECT MGR: M.B.	APPROVED BY: R.W.

SHEET TITLE
SANITARY DRAINAGE AREA PLAN

SHEET NUMBER 400 | ISSUE 3

Plotted: May 24, 2023 by Chris Cummer
Last Saved: May 24, 2023 by Chris Cummer
File Location: C:\Users\ccummer\OneDrive - IBI Group\Documents\125127 Riverside South Phase 1 Update\Drawings\Sanitary\125127 Riverside South Phase 1 Update Sanitary.dwg

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SANITARY SEWER DESIGN SHEET

RSS ISSU Phase 1 Mosquito Creek Study Area - With Expansion Lands
City of Ottawa

LOCATION				RESIDENTIAL															ICI AREAS												ROAD LRT/BRT (Ha)	PARK O/S (Ha)	INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN							
				DENSITIES (POP/Ha)						UNIT TYPE				POPULATION		RES PEAK FACTOR	K FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	ICI PEAK FLOW (L/s)							AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	LD	MD	HDI	HD2	TC	EXP	SF	TH/SD	APT	AREA (Ha)	IND	CUM				INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	EMPLOYMENT IND	EMPLOYMENT CUM								IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
				59.5	71.8	97.2	194.4	122.4	60.0																																			
Collector K	136A	136A	MH1126-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	47.61	47.61	1.50	19.29	5.65	2.12	55.38	55.38	18.28	0.00	0.00	37.56	115.68	101.13	375	0.40	1.015	78.12	67.53%
		MH1126-N	MH1125-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	74.00	375	0.40	1.015	78.12	67.53%
		MH1125-N	MH1124-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	80.55	375	0.40	1.015	78.12	67.53%
		MH1124-N	MH1123-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	83.33	375	0.40	1.015	78.12	67.53%
		MH1123-N	MH1122-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	95.60	375	0.40	1.015	78.12	67.53%
		MH1122-N	MH1120-N											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	68.51	375	0.40	1.015	78.12	67.53%
		MH1120-N	SA61082											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	47.61	1.50	19.29			0.00	55.38	18.28	0.00	0.00	37.56	115.68	125.63	375	0.40	1.015	78.12	67.53%
Collector L	142	142	141											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.12	36.12	1.50	14.63	8.15	15.54	59.81	59.81	19.74	0.00	0.00	34.37	59.68	693.70	300	0.35	0.818	25.31	42.41%
		141	140											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	36.12	1.50	14.63			0.00	59.81	19.74	0.00	0.00	34.37	59.68	342.94	300	0.35	0.818	25.31	42.41%
		140	SA61082											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	36.12	1.50	14.63			0.00	59.81	19.74	0.00	0.00	34.37	59.68	285.07	300	0.35	0.818	25.31	42.41%
Limebank Road		SA61082	SA21757											0.0	0.0	3.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	83.73	1.50	33.92			0.00	115.19	38.01	0.00	0.00	71.93	113.19	537.93	375	0.38	0.993	41.26	36.45%
Spratt Road	21757	SA21757	SA21760		2.12	0.92								242.0	17,964.4	2.36	0.80	137.36	1.66	30.73	3.16	5.15	0.00	84.70	1.50	51.75	4.66	6.72	19.24	483.66	159.61	0.00	30.00	378.72	630.29	143.65	900	0.11	0.960	251.56	39.91%
		SA21760	SA21759											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	664.00	*113.26*	*900*	*0.12*	1.011	285.27	42.96%
		SA21759	SA21758											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	783.39	98.80	900	0.17	1.193	404.66	51.66%
		SA21758	SA21756											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	704.73	*107.73*	*900*	*0.14*	1.073	326.00	46.26%
		SA21756	SA21769											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	685.42	98.70	900	0.13	1.044	306.70	44.75%
		SA21769	SA21752											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	732.12	*126.43*	*900*	*0.15*	1.115	353.39	48.27%
		SA21752	SA21749											0.0	17,964.4	2.36	0.80	137.36	0.00	30.73	0.00	5.15	0.00	84.70	1.50	51.75			0.00	483.66	159.61	0.00	30.00	378.72	1,399.23	125.70	900	0.55	2.131	1020.50	72.93%
Collector D	2076-CW	MH2076-CW	MH2077-CW					11.63						1,423.5	1,423.5	3.16	0.80	14.56	0.00	0.00	0.00	0.00	11.63	11.63	1.50	4.71	5.31	0.51	17.45	17.45	5.76	0.00	0.00	25.03	81.80	35.31	375	0.20	0.717	56.77	69.40%
		MH2077-CW	SA61914											0.0	1,423.5	3.16	0.80	14.56	0.00	0.00	0.00	0.00	0.00	11.63	1.50	4.71			0.00	17.45	5.76	0.00	0.00	25.03	81.80	53.36	375	0.20	0.717	56.77	69.40%
		SA61914	SA61913											0.0	1,423.5	3.16	0.80	14.56	0.00	0.00	0.00	0.00	0.00	11.63	1.50	4.71			0.00	17.45	5.76	0.00	0.00	25.03	91.23	*18.89*	*375*	*0.25*	0.800	66.20	72.56%
	61913	SA61913	SA61912					15.55						1,903.3	3,326.8	2.92	0.80	31.52	0.00	0.00	0.00	0.00	15.55	27.18	1.50	11.01	2.77		18.32	35.77	11.80	0.00	0.00	54.33	70.42	113.35	375	0.15	0.618	16.09	22.85%
		SA61912	SA61911											0.0	3,326.8	2.92	0.80	31.52	0.00	0.00	0.00	0.00	0.00	27.18	1.50	11.01			0.00	35.77	11.80	0.00	0.00	54.33	68.79	*106.74*	*375*	*0.14*	0.603	14.47	21.03%
		SA61911	SA61989											0.0	3,326.8	2.92	0.80	31.52	0.00	0.00	0.00	0.00	0.00	27.18	1.50	11.01			0.00	35.77	11.80	0.00	0.00	54.33	70.88	77.91	375	0.15	0.622	16.55	23.35%
		SA61989	SA61988											0.0	3,326.8	2.92	0.80	31.52	0.00	0.00	0.00	0.00	0.00	27.18	1.50	11.01			0.00	35.77	11.80	0.00	0.00	54.33	78.61	*10.83*	*375*	*0.18*	0.689	24.28	30.89%
Earl Armstrong Road	61988	SA61988	SA61986					2.95						361.1	3,687.9	2.89	0.80	34.56	0.00	0.00	0.00	0.00	2.95	30.13	1.50	12.21	1.88		4.83	40.60	13.40	0.00	0.00	60.16	79.13	48.09	375	0.19	0.694	18.96	23.96%
		SA61986	SA61985											0.0	3,687.9	2.89	0.80	34.56	0.00	0.00	0.00	0.00	0.00	30.13	1.50	12.21			0.00	40.60	13.40	0.00	0.00	60.16	84.41	*23.48*	*375*	*0.21*	0.740	24.25	28.72%
		SA61985	SA61984											0.0	3,687.9	2.89	0.80	34.56	0.00	0.00	0.00	0.00	0.00	30.13	1.50	12.21			0.00	40.60	13.40	0.00	0.00	60.16	81.16	91.43	375	0.20	0.712	20.99	25.87%
		SA61984	SA61423											0.0	3,687.9	2.89	0.80	34.56	0.00	0.00	0.00	0.00	0.00	30.13	1.50	12.21			0.00	40.60	13.40	0.00	0.00	60.16	82.71	*112.47*	*375*	*0.20*	0.726	22.55	27.26%
	123B	123B	MH2041-CW	18.69	2.53									1,293.8	1,293.8	3.18	0.80	13.33	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.93	3.22	26.37	26.37	8.70	0.00	0.00	22.04	70.84	211.17	375	0.15	0.621	48.81	68.89%
		MH2041-CW	MH2042-CW											0.0	1,293.8	3.18	0.80	13.33	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00			0.00	26.37	8.70	0.00	0.00	22.04	70.84	237.98	375	0.15	0.621	48.81	68.89%
	2024-CW	MH2042-CW	123C	10.04	5.33									980.2	2,273.9	3.03	0.80	22.35	1.16	1.16	1.07	1.07	0.00	0.00	1.00	0.72	2.15		19.75	46.12	15.22	0.00	0.00	38.30	81.80	376.12	375	0.20	0.717	43.50	53.18%
Limebank Road	123C	123C	123D											0.0	2,273.9	3.03	0.80	22.35	0.00	1.16	0.00	1.07	0.00	0.00	1.00	0.72	3.38		3.38	49.50	16.34	0.00	0.00	39.41	155.42	166.57	525	0.12	0.696	116.01	74.64%
	123E	123E	MH2081-CW		4.09			6.20						1,052.6	1,052.6	3.23	0.80	11.01	2.94	2.94	0.00	0.00	6.20	6.20	1.50	3.94	2.35		15.58	15.58	5.14	0.00	0.00	20.10	45.12	427.98	300	0.20	0.618	25.02	55.46%
	2081-CW	MH2081-CW	123D		4.28			5.63						996.5	2,049.1	3.06	0.80	20.33	0.00	2.94	0.00	0.00	5.63	11.83	1.50	6.22	1.84		11.75	27.33	9.02	0.00	0.00	35.57	70.84	355.81	375	0.15	0.621	35.27	49.78%
Limebank Road	123D	123D	SA61994											0.0	4,323.1	2.84	0.80	39.82	0.00	4.10	0.00	1.07	0.00	11.83	1.50	7.31	3.34		3.34	80.17	26.46	0.00	0.00	73.58	221.90	293.52	600	0.12	0.760	148.31	66.84%
		SA61994	SA61993											0.0	4,323.1	2.84	0.80	39.82	0.00	4.10	0.00	1.07	0.00	11.83	1.50	7.31			0.00	80.17	26.46	0.00	0.00	73.58	214.04	79.71	600	0.11	0.733	140.45	65.62%
		SA61993	SA61992											0.0	4,323.1	2.84	0.80	39.82	0.00	4.10	0.00	1.07	0.00	11.83	1.50	7.31			0.00	80.17	26.46	0.00	0.00	73.58	245.20	*92.13*	*600*	*0.15*	0.840	171.61	69.99%
		SA61992	SA61991											0.0	4,323.1	2.84	0.80	39.82	0.00	4.10	0.00	1.07	0.00	11.83	1.50	7.31			0.00	80.17	26.46	0.00	0.00	73.58	215.64	120.00	600	0.11	0.739	142.06	65.88%
		SA61991	SA61423											0.0	4,323.1	2.84	0.80	39.82	0.00	4.10	0.00	1.07	0.00	11.83	1.50	7.31			0.00	80.17	26.46	0.00	0.00	73.58	245.28	*120.04*	*600*	*0.15*	0.840	171.70	70.00%
Earl Armstrong Road	61423	SA61423	SA61424											0.0	8,011.0	2.64	0.80	68.53	0.00	4.10	0.00	1.07	0.00	41.96	1.50	19.51	3.41		3.41	124.18	40.98	0.00	0.00	129.02	231.80	*7.64*	*600*	*0.13*	0.794	102.78	44.34%
		SA61424	SA61425											0.0	8,011.0	2.64	0.80	68.53	0.00	4.10	0.00	1.07	0.00	41.96	1.50	19.51			0.00	124.18	40.98	0.00	0.00	129.02	227.85	110.65	600	0.13	0.781	98.83	43.37%
		SA61425	SA61456											0.0	8,011.0	2.64	0.80	68.53	0.00	4.10	0.00	1.07	0.00	41.96	1.50	19.51			0.00	124.18	40.98	0.00	0.00	129.02	203.96	*138.09*	*600*	*0.10*	0.699	74.94	36.74%
	507A	MH507A	MH520A					7.41						907.0	907.0	3.26	0.80	9.59	0.00	0.00	0.00	0.00	7.41	7.41	1.50	3.00	1.25	9.62	18.28	18.28	6.03	0.00	0.00	18.62	45.12	177.43	300	0.20	0.618	26.49	58.73%
	520A	MH520A	MH2125-CW					4.89						598.5	1,505.5	3.14	0.80	15.33	0.00	0.00	0.00	0.00	4.89	12.30	1.50	4.98	3.26	0.33	8.48	26.76	8.83	0.00	0.00	29.15	70.84	131.34	375	0.15	0.621	41.69	58.86%
		MH2125-CW	SA61456											0.0	1,505.5	3.14	0.80	15.33	0.00	0.00	0.00	0.00	0.00	12.30	1.50	4.98			0.00	26.76	8.83	0.00	0.00	29.15	70.84	50.65	375	0.15	0.621	41.69	58.86%
Earl Armstrong Road		SA61456	SA31030											0.0	9,516.5	2.58	0.80	79.59	0.00	4.10	0.00	1.07	0.00	54.26	1.50	24.49			0.00	150.94	49.81	0.00	0.00	153.90	254.43	*101.41*	*600*	*0.16*	0.872	100.54	39.51%
		SA31030	SA61020											0.0	9,516.5	2.58	0.80	79.59	0.00	4.10	0.00	1.07	0.00	54.26	1.50	24.49			0.00	150.94	49.81	0.00	0.00	153.90	247.72	120.36	600	0.15	0.849	93.82	37.87%
		SA61020	SA61019											0.0	9,516.5	2.58	0.80	79.59	0.00	4.10	0.00	1.07	0.00	54.26	1.50	24.49			0.00	150.94	49.81	0.00	0.00	153.90	202.55	*120.01*	*600*	*0.10*	0.694	48.65	24.02%
		SA61019	SA61018											0.0	9,516.5	2.58	0.80	79.59	0.00	4.10	0.00	1.07	0.00	54.26	1.50	24.49			0.00	150.94	49.81	0.00	0.00	153.90	228.86	117.51	600	0.13	0.784	74.96	32.75%
		SA61018	SA21883											0.0	9,516.5	2.58	0.80	79.59	0.00	4.10	0.00	1.07	0.00	54.26	1.50	24.49			0.00	150.94	49.81	0.00	0.00	153.90	232.45	*91.13*	*600*	*0.13*	0.796	78.55	33.79%
	2006-CW	MH2006-CW	119A	17.13	2.88									1,226.1	1,226.1	3.19	0.80	12.69	1.27	1.27	1.51	1.51	0.00	0.00	1.00	0.90	5.33		28.12	28.12	9.28	0.00	0.00	22.87	70.84	390.25	375	0.15	0.621	47.97	67.72%
Collector I	119A	119A	MH-2137CW		2.80									201.1	1,427.2	3.16	0.80	14.60	0.00	1.27	0.00	1.51	0.00	0.00	1.00	0.90	0.88		3.68	31.80	10.49	0.00	0.00	25.99	70.84	163.31	375	0.15	0.621	44.85	63.31%
		MH-2137CW	MH-2012-CW											0.0	1,427.2	3.16	0.80	14.60	0.00	1.27	0.00	1.51	0.00	0.00	1.00	0.90			0.00	31.80	10.49	0.00	0.00	25.99	70.84	120.15	375	0.15	0.621	44.85	63.31%
	310A	MH310A	MH-2012-CW	9.75										580.1	580.1	3.35	0.80	6.30	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.97	4.67	15.39	15.39	5.08	0.00	0.00	11.38	45.12	377.37	300	0.20	0.618	33.73	74.77%
Collector I	2012-CW	MH-2012-CW	MH2011-CW		4.22									303.1	2,310.4	3.03	0.80	22.68	0.00	1.27	0.00	1.51	0.00	0.00	1.00	0.90	1.78	7.91	13.91	61.10	20.16	0.00	0.00	43.74	103.03	118.30	450	0.12	0.628	59.29	57.55%
		MH2011-CW	119											0.0	2,310.4	3.03	0.80	22.68	0.00	1.27	0.00	1.51	0.00	0.00	1.00	0.90			0.00	61.10	20.16	0.00	0.00	43.74	103.03	288.83	450	0.12	0.628	59.29	57.55%
Collector C	2111-CW	MH2111-CW	MH2110-CW	15.66										931.8	931.8	3.26	0.80	9.83	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.30	1.09	18.05	18.05	5.96	0.00	0.00	15.79	70.84	57.00	375	0.15	0.621	55.05	77.71%
	2110-CW	MH2110-CW	119	12.01										714.6	1,646.4	3.12	0.80	16.65	2.68	2.68	0.00	0.00	0.00	0.00	1.00	0.87	2.38		17.07	35.12	11.59	0.00	0.00	29.10	70.84	306.46	375	0.15	0.621	41.74	58.92%
Collector I	410B	MH410B	MH411A		8.22									590.4	590.4	3.35	0.80	6.41	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.29		9.51	9.51	3.14	0.00	0.00	9.55	45.12	62.02	300	0.20	0.618	35.57	78.84%
		MH411A	MH412A											0.0	590.4	3.35	0.80	6.41	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00			0.00	9.51	3.14	0.00	0.00	9.55	45.12	74.23	300	0.20	0.618	35.57	78.84%
		MH412A	119											0.0	590.4	3.35	0.80	6.41	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00			0.00	9.51	3.14	0.00	0.00	9.55	45.12	197.97	300	0.20	0.618	35.57	78.84%
Collector C		119	MH440A											0.0	4,547.1	2.83	0.80	41.65	0.00	3.95	0.00	1.51	0.00	0.00	1.00	1.77			0.00	105.73	34.89	0.00	0.00	78.31	155.42	158.71	525	0.12	0.696	77.11	49.61%
		MH440A	MH2016-CW											0.0	4,547.1	2.83	0.80	41.65	0.00	3.95	0.00	1.51	0.00	0.00	1.00	1.77			0.00	105.73	34.89	0.00	0.00	78.31	155.42	62.84	525	0.12	0.696	77.11	49.61%
		MH2016-CW	MH460A											0.0	4,547.1	2.83	0.80	41.65	0.00	3.95	0.00	1.51	0.00	0.00	1.00	1.77			0.00	105.73	34.89	0.00	0.00	78.31	155.42	51.29	525	0.12	0.696	77.11	49.61%
	450A	MH450A	MH455A					6.35						777.2	777.2	3.29	0.80	8.30	3.72	3.72	0.00	0.00	6.35	6.35	1.50	4.38	2.06		12.13	12.13	4.00	0.00	0.00	16.68	81.80	225.12	375	0.20	0.717	65.12	79.61%
		MH455A	MH446A											0.0	777.2	3.29	0.80	8.30	0.00	3.72	0.00	0.00	0.00	6.35	1.50	4.38			0.00	12.13	4.00	0.00	0.00	16.68	81.80	139.26	375	0.20	0.717	65.12	79.61%
	445A	MH446A	MH445A					8.18						1,001.2	1,778.5	3.10	0.80	17.87	0.00	3.72	0.00	0.00	8.18	14.53	1.50	7.69	1.95		10.13	22.26	7.35	0.00	0.00	32.91	81.80	107.45	375	0.20	0.717	48.89	59.77%
		MH445A	MH460A											0.0	1,778.5	3.10	0.80	17.87	0.00	3.72	0.00	0.00	0.00	14.53	1.50	7.69			0.00	22.26	7.35	0.00	0.00	32.91	81.80	247.53	375	0.20	0.717	48.89	59.77%
		MH460A	MH2017-CW											0.0	6,325.6	2.72	0.80	55.74	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86			0.00	127.99	42.24	0.00	0.00	106.84	155.42	44.97	525	0.12	0.696	48.58	31.26%
		MH2017-CW	MH2018-CW											0.0	6,325.6	2.72	0.80	55.74	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86			0.00	127.99	42.24	0.00	0.00	106.84	155.42	35.27	525	0.12	0.696	48.58	31.26%
	2018-CW	MH2018-CW	SA70791		8.81									632.7	6,958.3	2.69	0.80	60.60	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86	1.38	8.51	18.70	146.69	48.41	0.00	0.00	117.87	155.42	389.43	525	0.12	0.696	37.55	24.16%
Portico Way	70791	SA70791	SA70790			1.65				140	380	24	1,662.4	8,620.7	2.61	0.80	73.05	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86		2.61	27.86	174.55	57.60	0.00	0.00	139.51	204.74	52.82	525	0.21	0.916	65.23	31.86%
		SA70790	SA70789											0.0	8,620.7	2.61	0.80	73.05	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86			0.00	174.55	57.60	0.00	0.00	139.51	191.87	*49.21*	*525*	*0.18*	0.859	52.36	27.29%
		SA70789	SA21883											0.0	8,620.7	2.61	0.80	73.05	0.00	7.67	0.00	1.51	0.00	14.53	1.00	8.86			0.00	174.55	57.60	0.00	0.00	139.51	255.60	61.62	525	0.32	1.144	116.08	45.42%

SANITARY SEWER DESIGN SHEET
for
4101 LIMEBANK RD., CITY OF OTTAWA

Robinson
Land Development

LOCATION					INDUSTRIAL FLOW				CUM. PEAK DESIGN FLOW (L/s)	PIPE						
	FROM MH	TO MH	DRAINAGE AREA (ha)	INFILTRATION AREA (ha)	POPULATION	AVG FLOW (L/s)	PEAK FLOW (L/s)	EXTRAN. FLOW (L/s)		LENGTH (m)	DIAMETER (mm)	SLOPE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	EXCESS CAPACITY (L/s)	PERCENT FULL
	142	141	21.00	44.69		8.51	8.51	14.75	**23.25**	680	300	0.35%	57.27	0.81	34.01	41%
	141	140				0.00	0.00	0.00	**23.25**	390	300	0.35%	57.27	0.81	34.01	41%
GROSS AREA	SITE	140	15.12	15.12		6.13	6.13	4.99	**11.11**	35	250	0.30%	32.60	0.66	21.49	34%
EMPLOYEES	SITE	140	15.12	15.12	775	1.23	1.23	4.99	**6.22**	35	250	0.30%	32.60	0.66	26.39	19%
	140	SA61082				0.00	0.00	0.00	**34.37**	250	375	0.15%	67.97	0.62	33.60	51%

DESIGN PARAMETERS

Employment Flow =	137	L/cap/day	per ISSU for water
Employment Flow =	35000	L/ha/day	per ISSU
Maximum Residential Peak Factor =	4.0		
Employment Peak Factor =	1.0	if >20% area	per ISSU
Employment Peak Factor =	1.5	if <20% area	per ISSU
Extraneous Flow =	0.33	L/s/ha	
Minimum Velocity =	0.6	m/s	
Maximum Velocity =	3.0	m/s	

Note: employee count based on preliminary site plan: average 15 employees per office unit, 35 per warehouse unit

2024-09-24