REPORT
PROJECT: 137404.6.04.03

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
1515 EARL ARMSTRONG PLAZA
RIVERSIDE SOUTH

Prepared for URBANDALE CORPORATION
by IBI GROUP

MAY 2022

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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to investigate and confirm the adequacy of public services for the proposed site. This report will review major municipal infrastructure including water supply, wastewater collection and disposal and management of stormwater. This report will also include a Sedimentation and Erosion Control Plan. A review of traffic components will be the subject of a separate report.

This report is being prepared as a technical document in support of the draft plan submission for the subject site and was prepared in accordance with the November 2009 “Servicing Study Guidelines for Development Applications” in the City of Ottawa. **Appendix A** contains a customized copy of those guidelines which can be used as a quick reference for the location of each of the guideline items within the study report.

1.2 Background

The Riverside South Community, formerly known as South Urban Community (SUC), is a part of the former City of Gloucester. The Council of the City of Gloucester adopted the first Official Plan for the community in September 1990. The original concept plan for the community served as the basis for both a Gloucester and a Regional OPA. A Master Drainage Plan (MDP) for the community was formulated in June 1992 based on the preliminary land use plan prepared by J. Bousfields and Associates Ltd. in December 1991.

The South Urban Community became a part of the City of Ottawa through amalgamation in 2001 and the new Official Plan of the City of Ottawa designated the areas as “General Urban Area” and “Employment Area” with some adjustments to the urban boundaries. In 2003, the City of Ottawa initiated a Community Design Plan (CDP) for the Riverside South area. The basis of the CDP is the land use plan for the community, which has evolved over the time and has changed significantly since the original plan prepared in early 1990’s.

The South Urban Community River Ridge Master Infrastructure Plan (SUC RR MIP) prepared by Ainley Graham and Associates in 1994 presented a preferred servicing strategy for potable water, sanitary and storm infrastructure in the Riverside South community. The Riverside South Infrastructure Servicing Study Update (ISSU) was issued in 2008 as an update to the SUC RR MIP, to account for modifications to the MDP and CDP since 1994.

There have been significant revisions to the CDP, MDP and City of Ottawa Design Guidelines since 2008 so in June 2017, Stantec helped the City of Ottawa complete an update to the 2008 ISSU for a portion of the Riverside Community called Rideau River Area and which includes the lands proposed to be tributary to Pond 5. The 2017 Riverside South Community Infrastructure Servicing Study Update – Rideau River Area (2017 ISSU) report recognized the approved 2016 CDP which considers changes in land use planning and development densities in accordance with Official Plan objectives. For reference a copy of the 2016 Riverside South Community Design Plan – Land use Plan is included in **Appendix A**. The infrastructure analyses also accounted for existing sewer and infrastructure and the stormwater management pond within the study area.

1.3 Previous Studies

Since the South Urban Community and Riverside South Community have been planned and developed for over twenty five years, there have been numerous background studies dealing with major municipal infrastructure. The following reports, however, were referenced prior to completing this assessment:

1. **Riverside South Community Infrastructure Servicing Study Update (RSCISSU) – by Stantec, September 30, 2008.** The report provides a macro level servicing plan of the Riverside South Community area.
2. **Servicing Brief (Revised for Commercial Block "A") Riverside South Phase 4 Residential Development prepared by J.L. Richards, August 4, 2009** The report provides details on water supply, major and minor storm systems and sanitary sewers for the Phase 4 site north of the subject site.

1.4 Subject Property

The current draft plan of subdivision for the subject property is shown on **Figure 1.2** which is included in **Appendix A**. The site consists of 4 parts, Part 4 is the road right of way connecting Earl Armstrong to Limebank Road. The total site area is 6.15 hectares.

1.5 Existing Infrastructure

Figure 1.3 shows the location of existing infrastructure in the vicinity of the Riverside South Phase 4 development. A 250 mm sanitary sewer stub is provided north of the site which is tributary to sanitary sewers on Dusty Miller Crescent which is the sanitary outlet for the subject site. A 200 mm watermain stub is provided at the same location which is connected to the Phase 4 watermain network. A 400 mm watermain is located on Earl Armstrong Road with a 300mm watermain stub for the subject size. Stormwater Pond 2 is located north of the site, a 2700 mm storm sewer from Limebank Road and 1500 mm storm sewer from Phase 4 both outlet to the pond.

1.6 Pre-Consultation

There was a pre-consultation meeting with the City of Ottawa on January 29, 2020. The meeting notes can be found in **Appendix A**. The following are some of the topics reviewed and discussed:

- Zoning information
- Official plan
- Infrastructure

1.7 Geotechnical Considerations

The subject lands are covered under the following geotechnical investigation report has been prepared by Paterson Group.

- Report No. PG5304-1-Rev1. Geotechnical Investigation Proposed Commercial Plaza Riverside South Residential Development, 1515 Earl Armstrong Road, Ottawa, Ontario, April 26, 2022.

In general, the subsurface profile includes topsoil, underlain by silty clay crust with bedrock 10 to 15 meters below surface. The topography of the site is essentially flat generally sloping to the northeast with elevations between 93 and 92. A grade raise restriction of 1.5 meters within 5 meters of buildings is provided with a grade raise limit for roads is 2 meters.

2 WATER SUPPLY

2.1 Existing Conditions

As noted in Section 1.5 there is an existing 400 mm watermain on Earl Armstrong Road with an existing 300mm stub provided for their site. A 200mm watermain is located north of the site adjacent to Lot 152 Dusty Miller Crescent that was stubbed to service this site. **Figure 1.3** in **Appendix A** shows the location of the existing watermains.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the site based on per unit population density and consumption rates taken from Tables 4.1 and 4.2 of the City of Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- Single Family 3.4 person per unit
- Townhouse and Semi-Detached 2.7 person per unit
- Average Apartment 1.8 person per unit
- Residential Average Day Demand 350 l/cap/day
- Residential Peak Daily Demand 875 l/cap/day
- Residential Peak Hour Demand 1,925 l/cap/day
- Retail Average Day Demand 2,500 l/1,000m^2/day
- Retail Peak Daily Demand 6,250 l/1,000m^2/day
- Retail Peak Hour Demand 11,250 l/1,000m^2/day

A water demand was calculated using the Concept Plan per Figure 1.3 in Appendix A using a retail rate for the commercial and office building.

- Average Day 0.39 l/s
- Maximum Day 0.95 l/s
- Peak Hour 1.71 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point in the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

Fire Underwriters Survey (FUS) Calculations have been done for the three largest buildings shown on the Concept Plan Shown on Figure 1.3 in Appendix A. A fire flow rate of 9,000 l/min was calculated for building I the four-storey office building. Copies of the FUS calculations are included in Appendix B.

2.2.4 Boundary Conditions

The City of Ottawa has provided two boundary conditions at the watermain connection locations at Earl Armstrong (Connection 1) and at Dusty Miller (Connection 2). Boundary conditions are provided for the existing pressure zone and for the SUC Zone Reconstruction. A copy of the boundary condition is included in Appendix B and summarized as follows for the two adjacent locations.

	CONNECTION 1 EXISTING ZONE	CONNECTION 1 SUC ZONE	CONNECTION 2 - EXISTING ZONE	CONNECTION 2 SUC ZONE
Max HGL (Basic Day)	132.3 m	148.7 m	132.2 m	148.7 m
Peak Hour	125.0 m	145.7 m	125.0 m	145.7 m
Max Day + Fire (9,000 l/min Fire Flow)	125.9 m	144.7 m	116.2 m	134.9 m

2.2.5 Hydraulic Model

A computer model has been created for the subject site using the InfoWater 12.4 program. The model includes the hydraulic boundary conditions at the connections to existing watermains.

2.3 Proposed Water Plan

2.3.1 Modeling Results

The hydraulic model was run under basic day, maximum day with fire flows and under peak hour conditions. Water pipes are sized to provide sufficient pressure and to deliver the required fire flows.

Results of the hydraulic model are included in **Appendix B,** and summarized as follows:

Scenario	**Existing Zone**	**SUC Zone Reconfiguration**
Basic Day (Max HGL) Pressure Range	381.6 to 391.8 kPa	542.9 to 553.2 kPa
Peak Hour Pressure Range	310.6 to 320.9 kPa	513.5 to 523.8 kPa
Max Day + 9,000 l/min Fire Flow		
Residual Pressure	143.4 to 220.3 kPa	334.9 to 411.7 kPa

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure — All nodes have basic day pressures under 552 kPa, which do not require pressure reducing control except for Node J7 under the SUC Zone Reconfiguration which has a basic day pressure at 553.2 kPa. When site

	plans are developed for Parts 1 to 3 the pressure can be determined at each building to determine if pressure reducing control is required.
Minimum Pressure	All nodes under both scenarios exceed the minimum value of 276 kPa (40 psi).
Fire Flow	All nodes under both scenarios have residual pressures in excess of the minimum 140 kPa for a 9,000 l/min fire flow.

2.3.2 Watermain Layout

Figure 2.1 in Appendix B shows the proposed Conceptual Water Plan for the proposed development.

A watermain is extended from the Earl Armstrong watermain connection along the Part 4 road. A connection to the Dusty Miller Crescent watermain is made through Part 2. Two potential watermain loops are shown to service the future commercial buildings, the water model can be updated when site plans are available for Parts 1 to 3.

3 SANITARY SEWERS

3.1 Existing Conditions

As noted in Section 1.5, there is an existing 250 mm sanitary sewer stub adjacent to Lot 152 Dusty Miller Crescent. The sanitary stub is connected to the sanitary sewer on Dusty Miller Crescent.

3.2 Riverside South Phase 4 (2008 JLR)

In the Riverside South phase 4 Servicing Brief, a sanitary drainage area plan and sanitary sewer design sheet is provided. The sanitary drawing area plan (Drawing D2-SAN) shows an area of 6.25 hectares of Commercial Development tributary to the Dusty Miller sewer. In the design sheet a commercial area of 6.49 hectares at a rate of 50,000 l/s/ha is assigned to the sewer. A copy of the sewer design sheet and drainage area plan is included in **Appendix C**.

3.3 Design Criteria

The estimated wastewater flows from the subject site are based on the revised City of Ottawa design criteria. Among other items, these include:

- Average residential flow = 280 l/c/d
- Peak residential flow factor = (Harmon Formula) x 0.80
- Average commercial flow = 28,000 l/s/ha
- Average institutional flow = 28,000 l/s/ha
- Peak ICI flow factor = 1.5 if ICI area is ≤ 20% total area
  1.0 if ICI area is > 20% total area
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter

In accordance with the City of Ottawa Sewer Design Guidelines table 4.2, the following density rates are estimated for the subject site:

- Single units = 3.4
- Semi units = 2.7
- Townhouse and back to back units = 2.7
- Apartment units = 1.8

3.4 Recommended Sanitary Plan

A sanitary sewer is proposed on the Part 4 roadway that will outlet to the Dusty Miller stub through Part 2. Connections from proposed buildings to the sanitary sewer will be determined when site plans are prepared for the Parts. A conceptual sanitary plan is included in **Figure 3.1** in **Appendix C**.

No external sanitary flows are anticipated to cross the subject lands. As such, all sanitary sewers are proposed to be at normal depth and size. The peak sanitary flow from the site using the average commercial flow rate of 28,000 l/sec is calculated at 4.02 l/s including infiltration, while a peak flow of 7.45 l/s was included in the Phase 4 design per Section 3.2.

4 STORMWATER MANAGEMENT

4.1 Existing Conditions

Storm runoff from the property is tributary to Pond 2 north of the site. As stated in Section 1.5 there is a 1500 mm storm sewer from Phase 4 and a 2700 mm storm sewer on Limebank Road which outlets to Pond 2.

4.2 Riverside South Phase 4 (2008 JLR)

In the Riverside South Phase 4 Servicing Brief, the Storm Drainage Area Plan (Drawing No. D2-ST) shows 6.25 hectares of the commercial site tributary to the 2700 mm storm sewer east of Pond No. 2 which is from Limebank Road. In the Phase 4 storm sewer design sheet, the 1500 mm storm sewer outlet from Phase 4 has a residual capacity of 596.3 l/s for a 5 year flow outletting to Pond 2. For the subject site with an area of 6.15 hectares and a runoff coefficient of 0.8 and using the same inlet time of 29.8 minutes from the design sheet, the 2 year flow from the site is 550.5 l/s which is less than the residual capacity of the existing 1500 mm storm sewer. The decision on which storm sewer the commercial site will connect to can be made at detailed design.

4.3 Minor Storm Sewer Design Criteria

The minor system storm sewers for the subject site are proposed to be sized based on the rational method, applying standards of both the City of Ottawa and MECP. Some of the key criteria for this site include the following:

- Sewer Sizing: Rational Method
- Design Return Period: 1:2 year (local streets)
  1:5 year (collector streets)
- Initial Time of Concentration 10 minutes
- Manning's: 0.013
- Minimum Velocity: 0.80 m/s
- Maximum Velocity: 3.00 m/s

PIPE DIAMETER (MM)	SLOPE (%)
250	0.43
300	0.34
375	0.25
450	0.20
525	0.16
600	0.13
675	0.11
750 and larger	0.1

- Runoff Coefficients (per MDP Update, to be confirmed at detailed design stage):

LAND USE		RUNOFF COEFFICIENT
Residential	Low Density	0.60
	Medium Density	0.85
	High Density	0.85
Commercial		0.85
Green Space		0.20
Institutional		0.90
Park		0.30
Transitway		0.67
Arterial Road		0.70
Collector Road		0.70

4.4 Recommended Minor Storm Plan

A storm sewer is proposed on the Part 4 roadway that will outlet to Pond 2 either to the existing 2700 mm storm sewer from Limebank Road or the existing 1500 mm storm sewer from Phase 4, through Part 2. Connections from proposed buildings and parking lots will be determined when site plans area prepared for the Parts. A conceptual storm plan is included in **Figure 4.1** in **Appendix D**.

4.5 Dual Drainage

Development of the subject site will include a stormwater strategy using the dual drainage system. The system features a combination of on-site detention (surface ponding) with inlet control devices (ICDs) and direct conveyance with no ponding. It accommodates both minor and major stormwater runoff. During frequent storms the effective runoff collected by catchment areas is directly released via catch basin inlets into the network of storm sewers, called the minor system. During less frequent storms, the balance of the flow (in excess of the minor flow) is accommodated by a system of rear yard swales and street segments (or other forms of underground storage or surface storage such as dry ponds). The main advantage of this arrangement is its ability to adjust the rate of total inflow into the minor system to satisfy the required level of service. The required total inflow is typically maintained by the restriction of the capacity and the density of the inlets directly connected into this system. As noted, during less frequent storms, the balance of the flow is accommodated by the major system. Typically, this accommodation is achieved by the attenuation on catchment surfaces called on-site detention and/or direct conveyance of the flow to a recipient.

Emergency flow routing from the commercial site is to be directed to Pond 2. Emergency flow routing from the road Part 4 will follow the direction of the storm sewer and outlet to Pond 2 through Part 2. A Macro Grading Plan is provided in **Figure 5.1** in **Appendix A**.

4.6 Stormwater Evaluation

The subject site was accounted for in the modeling to support the recent MDP Update. For the purposes of this submission, the area has been discretized from one drainage area to four to reflect the legal parts. This has been done to facilitate the design of the next phase of development, namely to quantify minor system capture for each respective legal part. The modeling completed for the MDP Update was updated to reflect this refinement in drainage areas. It should be noted that at the MDP level of design, minor flow was connected directly to the Pond 2 inlet structure. Since a connection to the existing Phase 4 storm sewer is being considered, for the purposes of this submission, minor flow from the subject site has been connected to the most downstream maintenance hole of this storm sewer (detailed design MH646 and identified as MHST48704 on geoOttawa). This was done to evaluate what, if any, hydraulic impacts there may be on the Phase 4 sewer.

Table 4.1 Summary of drainage area parameters

DRAINAGE AREA ID	TYPE OF DEVELOPMENT	AREA (HA)	SUBCATCHMENT IMPERVIOUSNESS (%)	SUBCATCHMENT WIDTH (M)	TARGET MINOR SYSTEM DESIGN STORM	ON-SITE STORAGE
2-CC_Part 1	Block	2.5281	99	569	2 year	100 year on-site control
2-CC_Part 2	Block	1.2996	99	292	2 year	100 year on-site control
2-CC_Part 3	Block	0.6842	99	369	2 year	100 year on-site control
2-CC_Part 4	Public ROW	1.6383	71	720	2 year	Estimated 70 m^3/ha

Minor system capture for the four parts is summarized in the below table. It should be noted that the capture of the public ROW has been increased above the two year storm to eliminate major flow cascading onto private property.

Table 4.2 Summary of minor system capture

DRAINAGE AREA ID	GENERATED FLOW ON CATCHMENT (L/S) DURING TARGET MINOR SYSTEM STORM	MINOR SYSTEM CAPTURE (L/S) DURING 100 YEAR 3 HOUR CHICAGO STORM
2-CC_Part 1	529	609
2-CC_Part 2	272	313
2-CC_Part 3	343	394
2-CC_Part 4	105	237

The downstream 400 m of the existing Phase 4 storm sewer was accounted for in the MDP model. As noted above, the minor system connection of the subject site is being considered at MH646 of the Phase 4 storm sewer. This is immediately west of the Pond 2 inlet structure. The hydraulic grade line elevations in the Phase 4 storm sewer were reviewed against underside of footing elevations from the Phase 4 detailed design. The referenced as-constructed Phase 4 drawings are enclosed in **Appendix D**. It should be noted that HGL results are presented for the 100 year 24 hour SCS Type II storm, more critical than the 100 year 3 hour Chicago storm.

Table 4.3 Phase 4 hydraulic grade line elevations

PCSWMM JUNCTION ID	DETAILED DESIGN MH ID	USF ELEVATION (M) *(EXISTING GROUND WHERE NOTED)*	HGL (M)	FREEBOARD TO USF (M) *(TO EXISTING GROUND WHERE NOTED)*
J646	646(1)	*91.5 Existing Ground*	88.94	*2.56 to Existing Ground*
J645	645	90.41	89.11	1.30
J638	638	90.33	89.23	1.10
J639	639	90.46	89.42	1.04
J640	640	90.48	89.47	1.01
N2-10_1	591	90.71	89.70	1.01

(1) MHST48704 on geoOttawa

The freeboard to USF elevations are greater than 1.0 m. It is concluded that connecting to the Phase 4 sewer is feasible and can be considered at the detailed design stage.

4.6.1 Summary of Model Files

The following PCSWMM files are included with the digital submission:

- 2 year 3 hour Chicago – MDP_002CHI_1515EarlArmstrongPlaza_AAPSR_Sub1.pcz
- 100 year 3 hour Chicago – MDP_100CHI_1515EarlArmstrongPlaza_AAPSR_Sub1.pcz
- 100 year 12 hour SCS Type II – MDP_100SCS_1515EarlArmstrongPlaza_AAPSR_Sub1.pcz

5 EROSION AND SEDIMENTATION CONTROL PLAN

During construction, existing conveyance systems and water courses can be exposed to sediment loading. In order to prevent site generated sediments from entering the environment, an Erosion and Sedimentation Control Plan (ESCD) will be implemented prior to development. Although a generic ESCP can be developed as part of this report and subsequent Design Briefs, the final plan will be developed and implemented by the Owner's general contractor.

The erosion and sedimentation control strategy for the subject site could include erection of silt fences, straw bale barriers and rock check dams. These measures will ensure protection of both adjacent developments and the natural environment adjacent to and downstream of the site.

A copy of a potential Erosion and Sedimentation Control Plan (ESCP) is shown on **Figure 6.1**, which is included in **Appendix E**.

6 APPROVALS AND PERMIT REQUIREMENTS

6.1 City of Ottawa

The City of Ottawa will review all development documents including final working drawings and related reports. Upon completion, the City will approve the local watermains, under Permit No. 008-202; submit the sewer extension MECP application to the province and eventually issue a Commence Work Notification.

6.2 Province of Ontario

The Ministry of Environment, Conservation and Parks (MECP) will approve the local sewers under Section 53 of the Ontario Water Resources Act and issue an Environmental Compliance Approval. A Permit To Take Water may also need to be issued by the MECP.

6.3 Conservation Authority

At this time it is understood that there are no required permits, authorizations or approvals needed expressly for this development from the Conservation Authority; however, this will be confirmed through a subsequent pre-consultation with the RVCA.

6.4 Federal Government

At this time it is understood that there are no required permits, authorizations or approvals needed expressly for this development from the Federal Government; however, this will be confirmed through subsequent consultation with Parks Canada as a minimum.

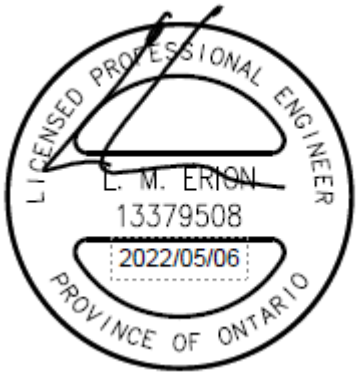
7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusion

All infrastructure which is needed to help service the subject site already exists. The development plan will include connections to the infrastructure to adequately service the site with water supply, wastewater collection and disposal and management of stormwater runoff. The extension of the existing watermains through the subject site will provide a reliable source of both drinking water and fire flows. The ultimate wastewater outlet and stormwater outlet are already in place. Therefore, there are suitable public services in place to service the subject site.

7.2 Recommendation

From an assessment of major municipal infrastructure perspective, it is recommended that the development application for the Urbandale property known as 1515 Earl Armstrong Plaza be accepted and that the development of the property move forward.



Lance Erion, P. Eng.
Associate

https://ibigroup.sharepoint.com/sites/Projects2/137404/Internal Documents/6.0_Technical/6.04_Civil/03_Reports/Assessment of Adequacy/CTR_Assessment of Adequacy_2022-05-06.docx\

APPENDIX A

Development Servicing Study Checklist

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

GENERAL CONTENT

	ITEM DESCRIPTION	LOCATION
	Executive Summary (for larger reports only)	N/A
√	Date and revision number of the report	Front Cover
√	Location Map and plan showing municipal address, boundary, and layout of proposed development.	Figure 1.1
√	Plan showing the site and location of all existing services.	Figure 1.4
√	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Figure 1.2
√	Summary of Pre-consultation Meeting with City and other approval agencies.	Section 1.6
√	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Section 1.3
√	Statement of objectives and servicing criteria	Section 1.1, 2.2, 3.3 & 4.3
√	Identification of existing and proposed infrastructure available in the immediate area.	Figure 1.3 Section 1.5
√	Identification of Environmentally Significant Areas, Watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A
√	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Figure 5.1 Detail Design
√	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
	Proposed phasing of the development, if applicable.	N/A
√	Reference to geotechnical studies and recommendations concerning servicing.	Section 1.7

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

DEVELOPMENT SERVICING REPORT: WATER

	ITEM DESCRIPTION	LOCATION
√	Confirm consistency with Master Servicing Study, if available	N/A
√	Availability of public infrastructure to service proposed development	Section 2.1
√	Identification of system constraints – external water needed	Sections 2.1
√	Identify boundary conditions	Section 2.2.4
√	Confirmation of adequate domestic supply and pressure	Section 2..4.1 & Appendix B
√	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 2.4.1
√	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Section 2.2 Appendix B
	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defining phases of the project including the ultimate design.	Section 2.4
	Address reliability requirements such as appropriate location of shut-off valves.	Detail Design
√	Check on the necessity of a pressure zone boundary modification.	N/A
√	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Section 2.3.1 Appendix B
√	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Detail Design
√	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities and timing of implementation.	N/A
√	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 2.2.1
√	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Detailed Design

DEVELOPMENT SERVICING REPORT: WASTEWATER

	ITEM DESCRIPTION	LOCATION
√	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 3.3
√	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
√	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age condition of sewers.	Detail Design
√	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 3.2, Appendix C
√	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 3.2 Appendix C
	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix "C") format.	Section 3.3 & Detail Design
√	Description of proposed sewer network including sewers, pumping stations and forcemains.	Section 3.1, 3.4 & Figure 3.1 in Appendix C
√	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
√	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
√	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
√	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
√	Special considerations such as contamination, corrosive environment etc.	Detail Design

DEVELOPMENT SERVICING REPORT: STORMWATER CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 4.1, 4.4 Appendix D
√	Analysis of available capacity in existing public infrastructure.	Section 4.1, 4.2, Appendix D
√	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Appendix D

√	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 4.6
√	Water quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 4.6
√	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 4.3, 4.4, 4.5, 4.6
√	Set-back from private sewage disposal systems.	N/A
√	Watercourse and hazard lands setbacks.	N/A
√	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Section 1.6
√	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Section 4.2
√	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 4.6 Detail Design
√	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Detail Design
√	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
√	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 4.2, 4.4, Appendix D
	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A
√	Identification of potential impacts to receiving watercourses	N/A
√	Identification of municipal drains and related approval requirements.	N/A
√	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 4.6 Detail Design
√ √	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Section 4.6 Detail Design
	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
√	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 5
√	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
√	Identification of fill constraints related to floodplain and geotechnical investigation.	Section 1.7,

APPROVAL AND PERMIT REQUIREMENTS: CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	Section 1.6
	Application for Certification of Approval (CofA) under the Ontario Water resources Act.	Section 1.6 Detail Design
√	Changes to Municipal Drains	N/A
√	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	Section 6

CONCLUSION CHECKLIST

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

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
Services de la planification, des biens immobiliers et du développement économique
Analyse géospatiale, technologie et solutions

DRAFT

Jan 24, 2022 Rev 3

LEITRIM ROAD REALIGNMENT
NOUVEAU TRACÉ DU CHEMIN LEITRIM

BOWESVILLE

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

SPRATT ROAD EXTENSION/
PROLONGEMENT DE CHEMIN SPRATT

Vimy Memorial Bridge /
Pont commémoratif Vimy

SPRATT

SHORELINE

CANYON WALK

EARL ARMSTRONG

MAIN STREET/
RUE PRINCIPALE

ruisseau Mosquito Creek

COLLECTOR/
COLLECTRICE 'F'

COLLECTOR/
COLLECTRICE 'G'

COLLECTOR/
COLLECTRICE 'H'

COLLECTOR/
COLLECTRICE 'I'

Town Centre Boundary
Limite du centre ville

RIVIÈRE RIDEAU RIVER

RIDEAU RIVER

SPRATT

COLLECTOR/
COLLECTRICE 'J'

COLLECTOR/
COLLECTRICE 'A'

COLLECTOR/
COLLECTRICE 'B'

COLLECTOR/
COLLECTRICE 'C'

LIMEBANK

COLLECTOR/
COLLECTRICE 'D'

COLLECTOR/
COLLECTRICE 'E'

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
- ESD - Employment and Special District / Emploi et District Particulier
- 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

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-1.1-Location Plan.dwg Layout Name: FIGURE 1.1 LOCATION PLAN Last Saved By: Chris.Cormier Last Saved At: May. 6, 22

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	LOCATION PLAN	FIGURE 1.1

REVISION SCHEDULE			
NO.	REVISION	DATE	BY
4	REVISIONS PER SITE PLAN	APR. 28, 2022	N
3	UPDATED ROUNDABOUT DESIGN	APRIL 25,2022	DG
2	PLAN PREPARED	2021	??
1	PLAN PREPARED	JUNE 8, 2021	N

SCHEDULE

AREA (Sq.m.)	PART	LOT	CONCESSION	PIN
25 302.4	1	PART OF LOTS 20 and 21, PART OF THE ROAD ALLOWANCE BETWEEN LOTS 20 & 21 (CLOSED BY BY-LAW 2004-361, INST. OC376539)	CONCESSION 1 (RIDEAU FRONT)	ALL OF 04331-4232
12 960.4	2	PART OF LOT 21		
16 422.5	3	PART OF LOTS 20 and 21, PART OF THE ROAD ALLOWANCE BETWEEN LOTS 20 & 21 (CLOSED BY BY-LAW 2004-361, INST. OC376539)		
6 842.0	4			

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.

DATE: ____________

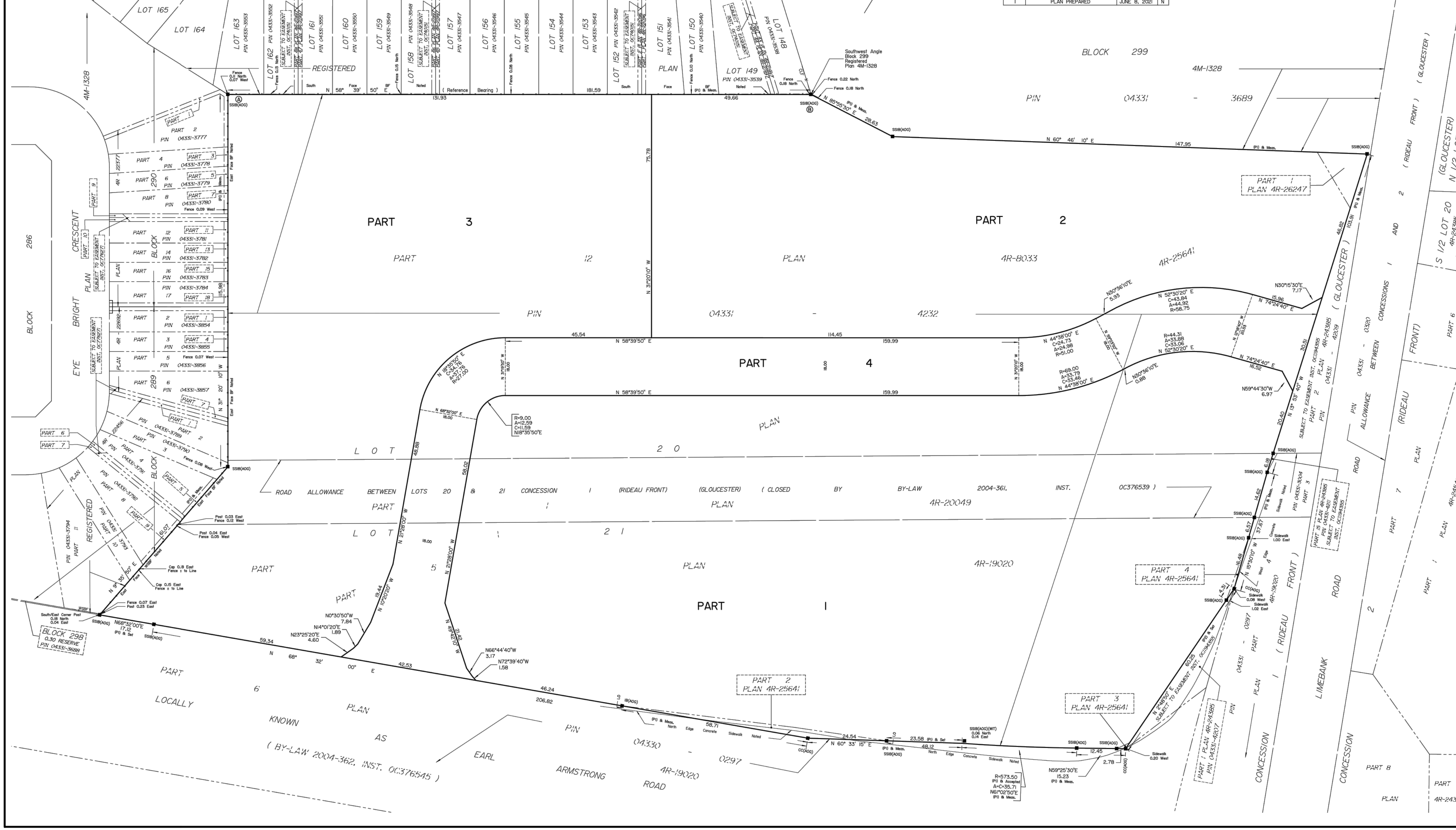
T. HARTWICK
ONTARIO LAND SURVEYOR

PLAN 4R-

RECEIVED AND DEPOSITED

DATE: ____________

REPRESENTATIVE FOR LAND REGISTRAR FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON NO. 4.



PLAN OF SURVEY OF

PART OF LOTS 20 and **21**

and

PART OF THE ROAD ALLOWANCE BETWEEN LOTS 20 and **21**

(As Closed by By-Law 2004-361, Inst. OC376539)

CONCESSION 1 (RIDEAU FRONT)

Geographic Township of Gloucester

CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 500

20 15 10 5 0 10 20 Metres

Metric

DISTANCES AND COORDINATES 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, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the __ day of _________, 2022.

Date ____________

T. Hartwick
Ontario Land Surveyor

This plan relates to AOLS Plan Submission form number: V-

Notes & Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
CC	"	Cut Cross
IB	"	Iron Bar
*	"	Survey Monument (0.3 long)
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
CLF	"	Chain Link Fence
BF	"	Board Fence
WSBF	"	Wooden Sound Barrier Fence
(P1)	"	Plan 4R-25641
(P2)	"	Plan 4R-26247

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99997.

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations on reference points A and B, shown hereon, having a bearing of N 58°39'50" E and are referenced to Specified Control Points 01919791338 and 01919871649, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinates are derived from Can-Net 2016 Real Time Network GPS observations referenced to Specified Control Points 01919791338 and 01919871649, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10.

. 01919791338	Northing	5006055.96	Easting	346140.91
. 01919871649	Northing	5007189.87	Easting	372435.05
. Point A	Northing	5015994.61	Easting	369749.71
. Point B	Northing	5016089.05	Easting	369904.81

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.

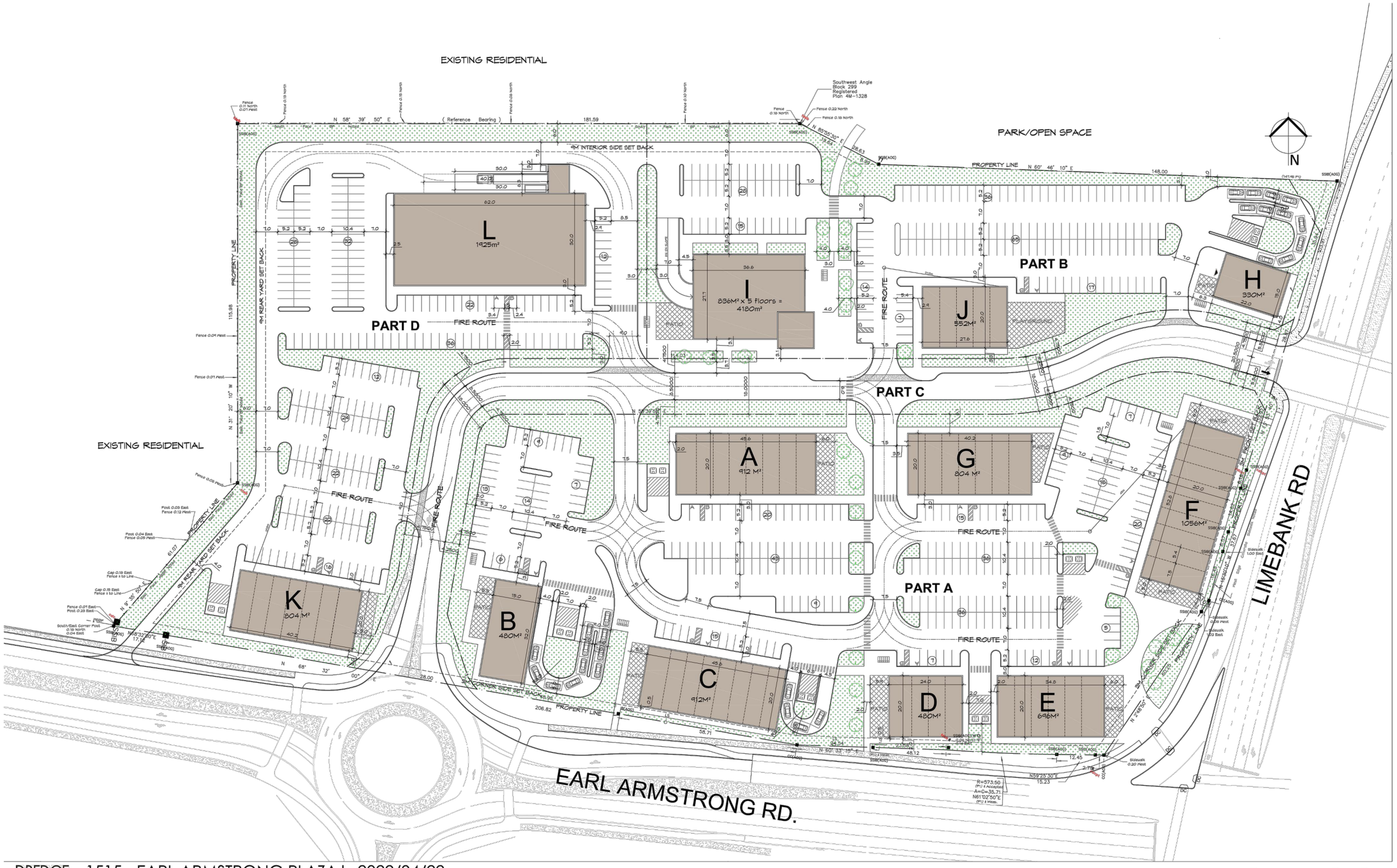
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com

Ontario Land Surveyors

Job No. 22110-21 Urbandale Pt Lts 20 21 CI RF GL R D4 | N

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-1.2-DRAFT PLAN.dwg Layout Name: DRAFT PLAN Last Saved By: Chris.Cormier Last Saved At: May. 5, 22

Scale	Project Title	Drawing Title	Sheet No.
NTS	EARL ARMSTRONG/LIMEBANK PLAZA	DRAFT PLAN	FIGURE 1.2



DREDGE LEAHY ARCHITECTS

1515 - EARL ARMSTRONG PLAZA | 2022/04/22

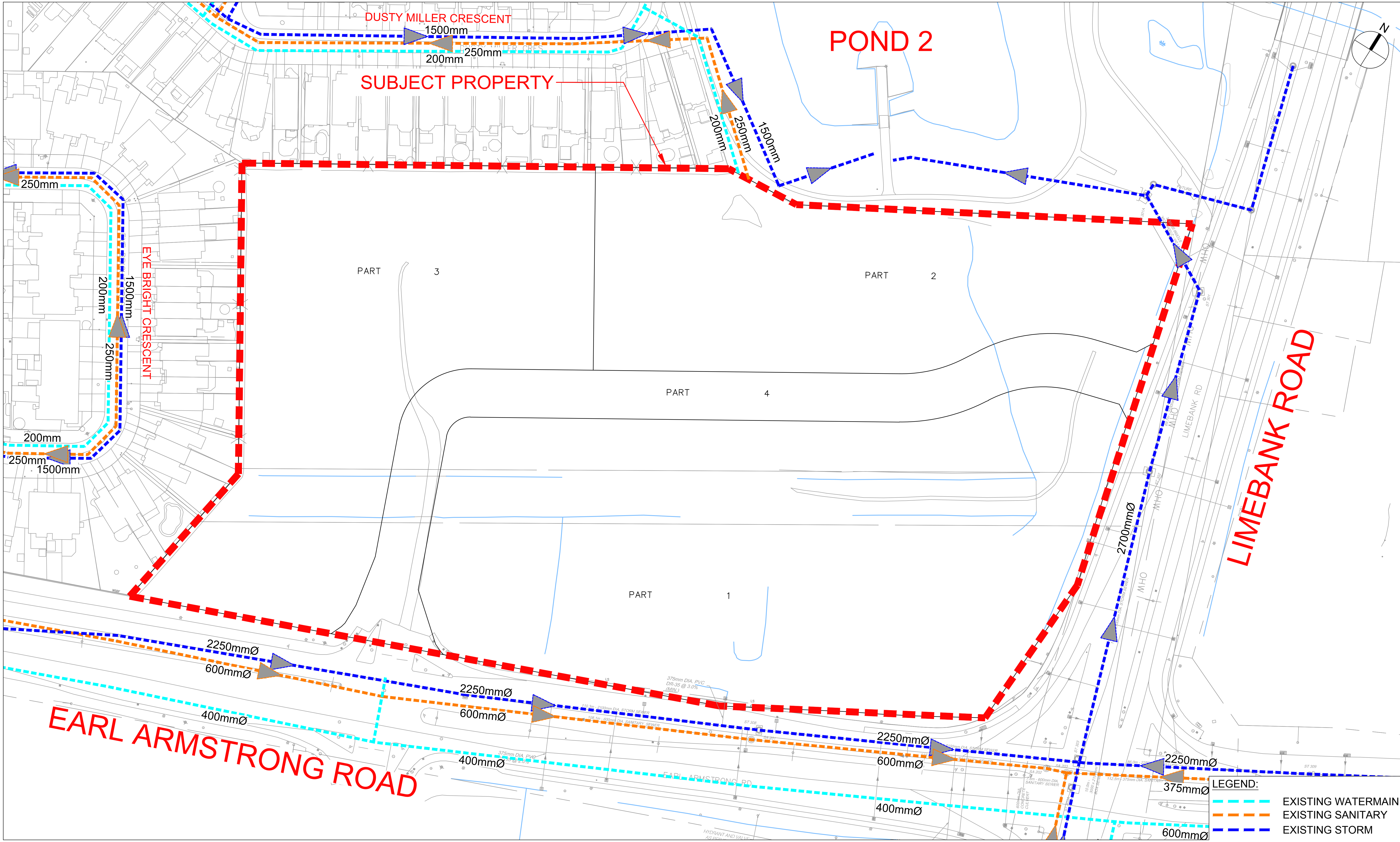
Preliminary Site Plan

Urbandale CORPORATION

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-1.3-CONCEPT PLAN.dwg Layout Name: CONCEPT PLAN Last Saved By: Chris.Cormier Last Saved At: May. 5, 22

IBI

Scale	Project Title	Drawing Title	Sheet No.
NTS	EARL ARMSTRONG/LIMEBANK PLAZA	CONCEPT PLAN	FIGURE 1.3



Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	LOCATION OF EXISTING INFRASTRUCTURE	FIGURE 1.4

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-5.1-GRADING.dwg Layout Name: FIGURE 5.1 PROPOSED MACRO GRADING PLAN Last Saved By: Chris.Cormier Last Saved At: May. 6, 22

DUSTY MILLER CRESCENT

DUSTY MILLER CRES

POND 2

SUBJECT PROPERTY

EYE BRIGHT CRES

EYE BRIGHT CRESCENT

PART 3

PART 2

PART 4

PART 1

92.50

92.75

92.50

92.65

92.35

92.50

92.40

92.65

92.45

93.20

93.00

92.60

93.40

93.20

OHW

LIMEBANK RD

LIMEBANK ROAD

EARL ARMSTRONG ROAD

EARL ARMSTRONG RD

N

LEGEND:

93.20	PROPOSED MACRO GRADES
95.00	PROPOSED GRADES (BY OTHERS)
⇨	EMERGENCY OVERLAND FLOW ROUTE
	TERRACING 3:1

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	PROPOSED MACRO GRADING PLAN	FIGURE 5.1

1515 Earl Armstrong Rd

Meeting Summary and Additional Comments
January 29, 2020 Ottawa City Hall

Attendees:

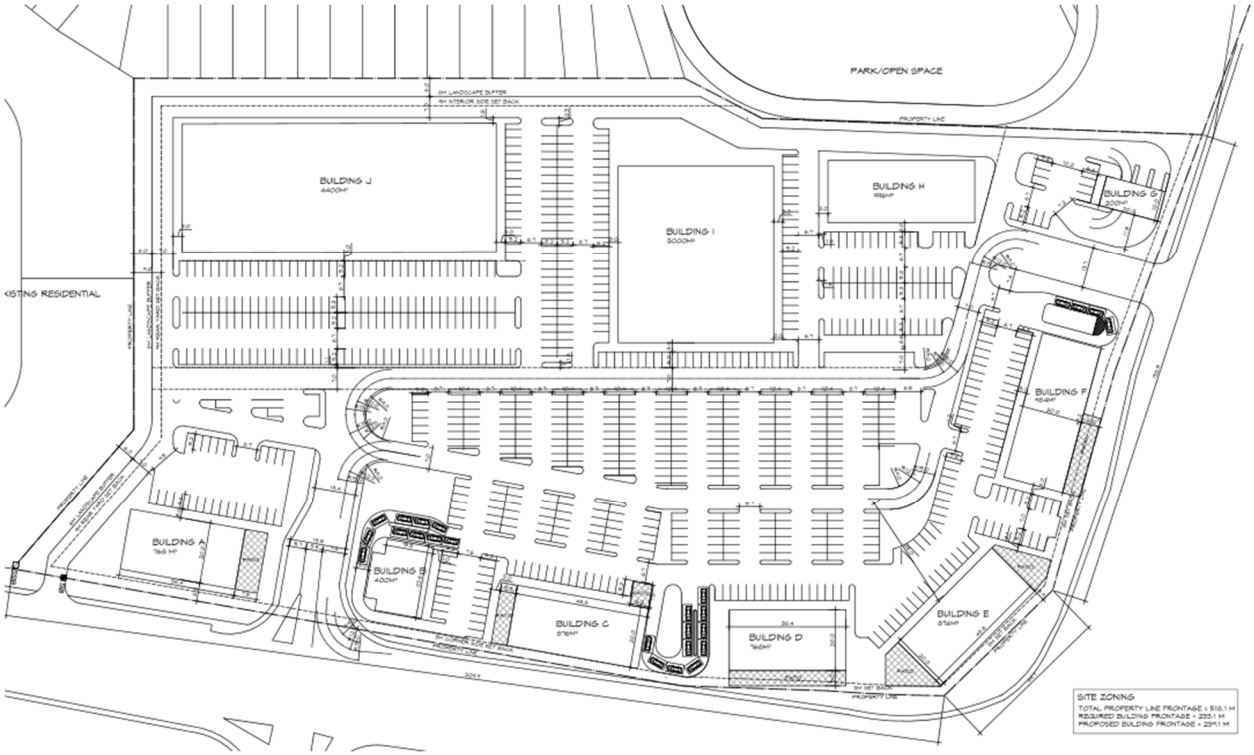
- Christa Jones, Urbandale
- Marcel Denomme, Urbandale
- Roger Tuttle, Urbandale
- Michele Dredge, Architect
- Jamie Batchelor, RVCA
- Josianne Gervais (Transportation Project Manager, City of Ottawa)
- Natasha Baird (Project Manager, City of Ottawa)
- Christopher Moise (Urban Designer, Architect, City of Ottawa)
- Burl Walker, Parks Planner, City of Ottawa
- Matthew Hayley, Environmental Planner, City of Ottawa
- Tracey Scaramozzino (File Lead, Planner, City of Ottawa)

Unable to Attend:

- Mark Richardson, Forester, City of Ottawa

Proposal:

- Currently vacant
- 140,000 square foot retail (bank, drive-through, potential 4-storey office bldg.)
- Taking advantage of street frontages for patios
- Parking rate is based on highest ratio use (restaurant) and results in 5-6 spaces/100 square metres


PARK/OPEN SPACE
PROPERTY LINE
BUILDING J
4400M²
BUILDING I
5000M²
BUILDING H
BUILDING G
BUILDING F
BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING E
SITE ZONING
TOTAL PROPERTY LINE FRONTAGE = 310.1 M
REQUIRED BUILDING FRONTAGE = 233.1 M
PROPOSED BUILDING FRONTAGE = 239.1 M

1. **Official Plan -** designated “General Urban Area.”
    a. **RSS Secondary Plan** (estimated to be in effect Summer 2020) – “community core”
    b. **RSS CDP** (to be removed and replaced by Secondary Plan) - “mixed use/community core” – with higher residential density and mixed-use to support pedestrians.

2. **Zoning Information**
    a. **Currently: GM26**
        - Permits wide variety of non-residential uses (bank, restaurant, retail store..) and residential uses (low- and mid-rise apts, stacked dwelling...)
        - GM26 also permits car wash, gas bar, automobile service station...

    b. **Spring/Summer 2020: MCxx1[xxx1]-h** (as per the new secondary plan)

> Update the preamble of the MC – Mixed Use Centre Zone (Section 191 and 192 of the Zoning Bylaw) to add the following bolded text within purpose of the MC zone, item (1): “Ensure that the areas designated Mixed-Use Centres **or referred to as a community core** in the Official Plan, or a similar designation in a Secondary Plan, accommodate a combination of transit-supportive uses such as offices, secondary and post-secondary schools, hotels, hospitals, large institutional buildings, community recreation and leisure centres, day care centres, retail uses, entertainment uses, service uses such as restaurants and personal service businesses, and high- and medium-density residential uses”

New Exception [XXX1] allows additional uses: gas bar, service station, car wash
New Exception [XXX1] specifies how the holding symbol must be removed with a ‘demonstration plan’.

3. **Infrastructure/Servicing (Natasha Baird):**

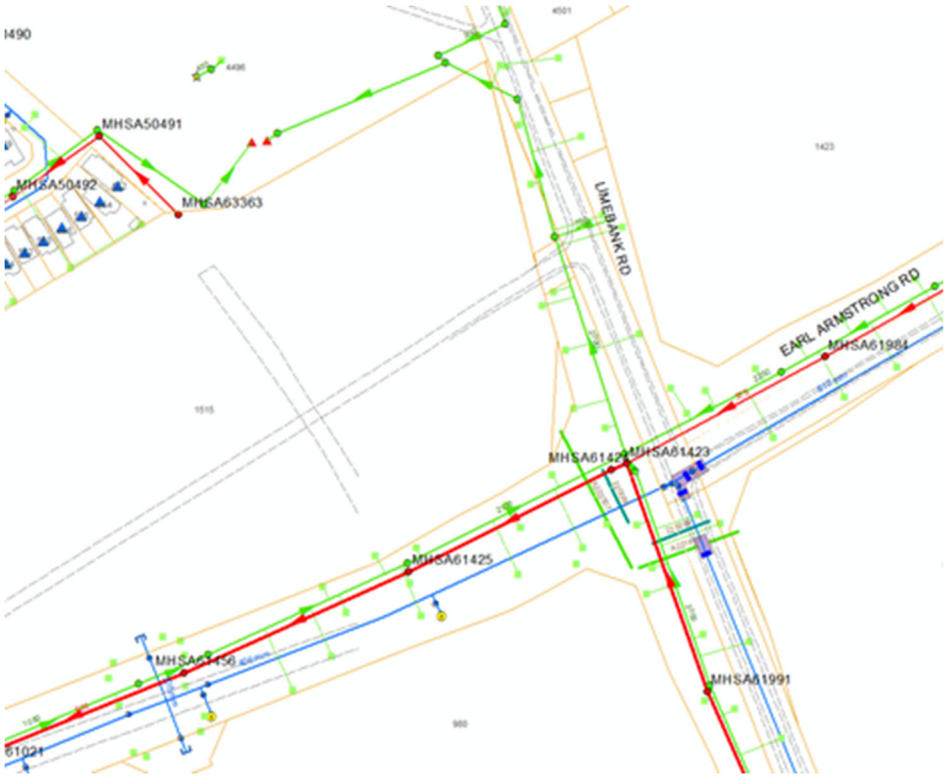
Water

Water District Plan No: Not available until the 600mm watermain is active
Existing public services:

- Earl Armstrong – 406mm PVC

Existing connection:

- 305mm PVC water service lateral from Earl Armstrong
- Existing on-site water service must be shown on the plans. If the existing on-site water service will not be reused, it is to be blanked at the watermain



Watermain Frontage Fees to be paid?: ☒ **No**

Boundary conditions:
Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission.

- Water boundary condition requests must include the location of the service(s) and the expected loads required by the proposed developments. Please provide all the following information:
  - Location of service(s)
  - Type of development and the amount of fire flow required (as per FUS, 1999).
  - Average daily demand: ___ l/s.
  - Maximum daily demand: ___l/s.
  - Maximum hourly daily demand: ___ l/s.
- Fire protection (Fire demand, Hydrant Locations)

General comments

- A water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)
- Service areas with a basic demand greater than 50 m^3/day or over 50 units shall be connected with a minimum of two water services, separated by an isolation valve, to avoid creation of vulnerable service area.

Sanitary Sewer

Existing public services:

- Dusty Miller / storm facility block – 250mm PVC
- Earl Armstrong – 600mm Concrete (South River Ridge Trunk -

Existing connection:

- Existing 250mm PVC sanitary service must be shown on the plans. If existing sanitary sewer is to be reused, provide CCTV inspection report along with consultant's assessment of the existing sewer conditions. Existing on-site sanitary sewer to be capped and abandoned to City of Ottawa standards at the property line if it will not be reused.

Is a monitoring manhole required on private property? ☒ **Yes**

General comments

- Any premise in which there is commercial or institutional food preparation shall install a grease and oil inceptor on all fixtures.
- The Environmental Site Assessment (ESA) may provide recommendations where site contamination may be present. The recommendations from the ESA need to be coordinated with the servicing report to ensure compliance with the Sewer Use By-Law.

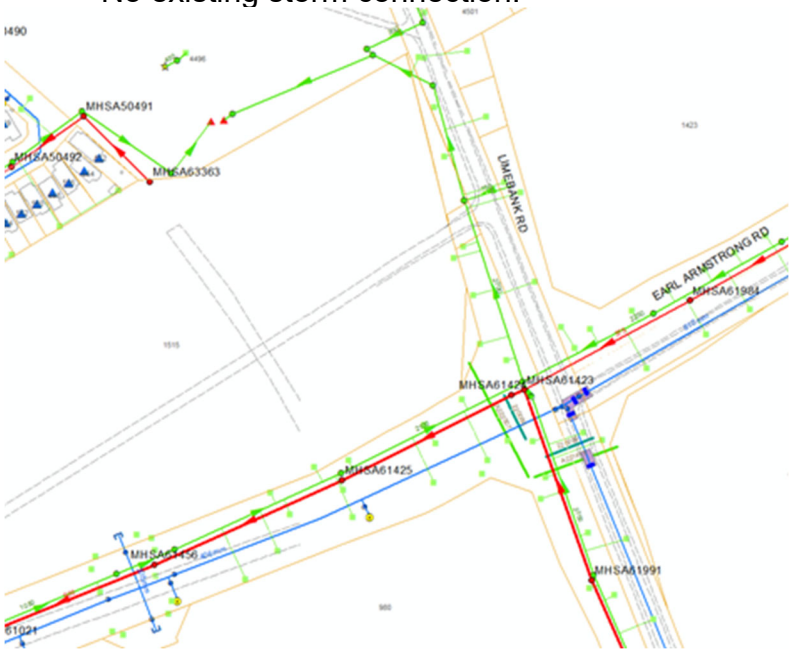
Storm Sewer

Existing public services:

- Earl Armstrong – 2100mm Concrete
- Limebank – 2700mm Concrete – proposed as per the old

Existing connection:

- No existing storm connection.



General comments

- ***This site is located in the Riverside South Master Drainage Update and the storm serviceability has not been confirmed yet. The site will most likely be tributary to the existing Pond 2 in the Riverside South Development Area but no criteria is available yet. Prior to submitting this application, the MDP and MSS Updates need to be completed.***

Stormwater Management

Quality Control:

- Rideau Valley Conservation Authority to confirm quality control requirements.

Quantity Control:

- Master Drainage and Servicing Study underway.

Ministry of Environment, Conservation and Parks (MECP)
All development applications should be considered for an Environmental Compliance Approval, under MECP regulations.

1. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If unclear or there is a difference of opinion the City Project Manager will coordinate requirements with MECP).
2. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
3. Pre-consultation is not required if applying for standard or additional works (Schedule A of the Agreement) under Transfer Review.
4. Pre-consultation with local District office of MECP is recommended for direct submission.

NOTE: Site Plan Approval is required before any Ministry of the Environment and Climate Change (MOECC) application is sent

General Service Design Comments

- The City of Ottawa requests that all new services be located within the existing service trench to minimize necessary road cuts.
- Monitoring manholes should be located within the property near the property line in an accessible location to City forces and free from obstruction (i.e. not a parking).
- Where service length is greater than 30 m between the building and the first maintenance hole / connection, a cleanout is required.
- Manholes are required for connections to sanitary or combined trunk sewers as per City of Ottawa Standards S13.
- The City of Ottawa Standard Detail Drawings should be referenced where possible for all work within the Public Right-of-Way.
- The upstream and downstream manhole top of grate and invert elevations are required for all new sewer connections.
- Services crossing the existing watermain or sewers need to clearly provide the obvert/invert elevations to demonstration minimum separation distances. A watermain crossing table may be provided.

Exterior Site Lighting:

- If exterior Site Lighting is used, provide a certification and plan by a qualified engineer confirming the design complies with the following criteria:
    - It must be designed using only fixtures that meet the criteria for Full Cut-Off (Sharp cut-off) Classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and;
    - It must result in minimal light spillage onto adjacent properties. As a guideline, 0.5 foot-candle is normally the maximum allowable spillage.
    - The location of the fixtures, fixture types as in make, model and part number and the mounting heights must be shown on one of the approved plans.

Other

Capital Works Projects within proximity to application? ☒ **No**

References and Resources

- As per section 53 of the Professional Engineers Act, O. Reg 941/40, R.S.O. 1990, all documents prepared by engineers must be signed and dated on the seal.
- All required plans are to be submitted on standard A1 size sheets (594mm x 841mm) sheets, utilizing a reasonable and appropriate metric scale as per City of Ottawa Servicing and Grading Plan Requirements: title blocks are to be placed on the right of the sheets and not along the bottom. Engineering plans may be combined, but the Site Plans must be provided separately. Plans shall include the survey monument used to confirm datum. Information shall be provided to enable a non-surveyor to locate the survey monument presented by the consultant.
- All required plans & reports are to be provided in *.pdf format (at application submission and for any, and all, re-submissions)
- Please find relevant City of Ottawa Links to Preparing Studies and Plans below:

  https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#standards-policies-and-guidelines
- To request City of Ottawa plan(s) or report information please contact the City of Ottawa Information Centre:

  InformationCentre@ottawa.ca<mailto:InformationCentre@ottawa.ca>

  (613) 580-2424 ext. 44455
- geoOttawa

  http://maps.ottawa.ca/geoOttawa/

4. **Initial Planning (Tracey Scaramozzino):**

This is a very prominent location and will create the foundation for and be a gateway to the RSS Community Core. The Core lands are being developed around the o-train corridor and are to be geared towards transit and pedestrian activity.

a. We appreciate that the bldgs are close to the street.
b. Ensure compliance with the RSS Secondary Plan, which is to be in effect in the Spring/Summer 2020 – some points of which are identified below.
c. Ensure regard is had for the current RSS CDP which provided guidance to the policies in the new Secondary Plan - some points of which are identified below.
d. Identify how the density targets in the updated Official Plan are being met (100 people/jobs per net hectare).
e. Consider developing the site in phases - develop the land on the eastern half of the site first which would allow the development to contain the same square footage as is being proposed, but in a reduced area and thereby increasing the heights of the buildings and creating the continuous street wall as per the CDP and Secondary Plan requirements.
f. Please include some higher density residential uses – possibly as part of mixed-use buildings.
g. Ensure all buildings are 2-storeys in height. This could be accomplished through comments 4e. and 4f. above.
h. Provide functional doors on the street-fronts, and not single access doors on the parking lot side. A lot of the customers to the site will likely be on foot/bike.
i. Reduce amount of parking, as this is a community core and very close to transit and eliminate parking spaces close to the street edges.
j. Show tree plantings within medians of the parking lot
k. Enhance the pedestrian connection through the site – north-south and east-west – to help travel within the development as well as providing ample connections to the neighbouring uses. This ped connection shall be in a contrasting colour and material from the asphalt parking lot.
l. Decorative fencing and/or gateway feature will be required at the intersection of Limebank and Earl Armstrong.
m. The site is subject to the UDRP to ensure a high level of architectural and urban design.
n. Typical corporate facades shall be revised to reflect a cohesive design theme.
o. Waste collection areas shall be internal to bldgs when possible and otherwise, well-designed to integrate into the site. Earth-bins are recommended.
p. Employ green options in both the architectural and urban design – such as permeable pavers, solar panels, green roofs, butterfly gardens etc.
q. Revise the drive-throughs away from the street frontages.

5. **Initial Design Comments (Christopher Moise):**
    a. How can we achieve some sense of the future of building H? It is the only building with density/height which is encouraged;
    b. How can the parking lot be further developed to accommodate more trees/green strips etc.
    c. Try to meet the intent of the UD guidelines for drive-thru's - ie. 45% of frontage to support the street (wrapping a building with a drive-thru does not meet this intent and removes this frontage from the 45% equation). The requirement of the 45% street frontage is to support and create a streetscape so we encourage you to develop an idea of what this is going to look like and how it may function as part of a street and pedestrian supportive development for the larger community to enjoy.
    d. Provide additional safe pedestrian connections through the parking zone to help support the pedestrian movement across the site.

6. **Parks (Burl Walker):**
    a. No parks are planned on the subject property.

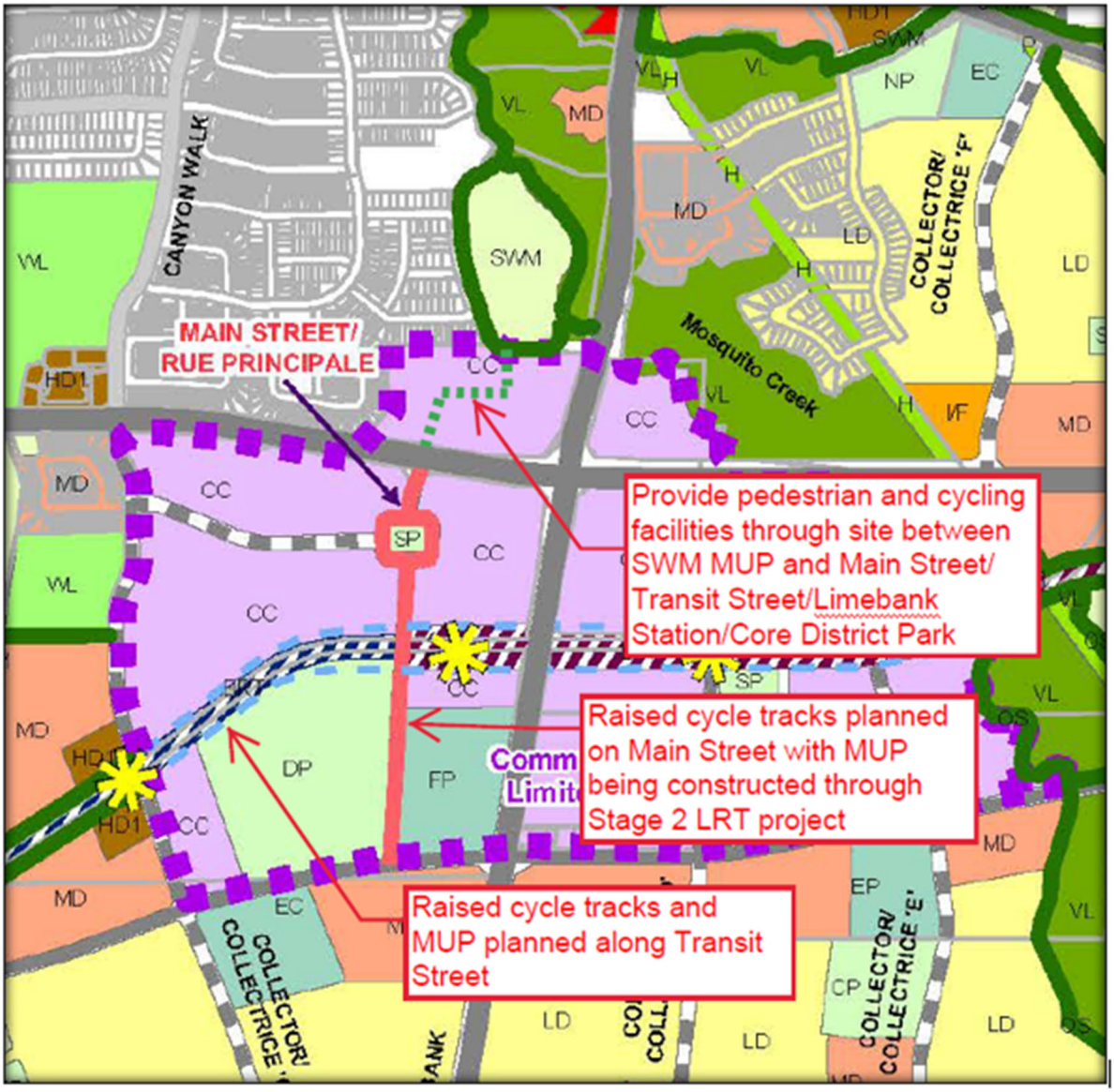
    b. The parkland dedication requirement for the proposed site plan application is approximately 0.123 ha as calculated below. In the event that the proposed land use changes or the gross land area of the site changes, the parkland dedication requirement will also change.

Proposed Use	**Gross Land Area (ha)**	**Parkland Dedication Rate**	**Parkland Dedication (ha)**
Commercial	6.152 ha	2% of Gross Land Area	0.123

    c. The Owner will be participating in the Riverside South park cost sharing agreement. The under dedication of 0.123 ha of parkland for this proposed development is intended to be offset by the over dedication of parkland elsewhere in the Riverside South CDP area. Prior to the registration of the site plan agreement, the Owner shall submit proof from the landowners' trustee or administrator that the Owner is party to the cost sharing agreement and has paid its share of any costs pursuant to the landowners' agreement, or the Owner shall submit other suitable documentation from the landowners' trustee demonstrating that the Owner is participating in the agreement.

    d. There is an existing multi-use pathway system located immediately to the north of the site including a pathway loop around the stormwater management pond. Pedestrian and cycling facilities should be provided through the site to connect the SWM MUP to the sidewalk and cycling

facilities that are planned on Main Street and Transit Street. This will improve pedestrian and cycling connectivity between the residential area north of the site and Main Street, Transit Street, Limebank Station and the Core District Park. In addition, consider requiring the Owner to design and construct a short MUP connection (+/- 2m or 3m in length) on City property from the north lot line to the SWM MUP. See sketch below:



7. Trees (Mark Richardson):

1. a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City; an approved TCR is a requirement of Site Plan or Plan of Subdivision approval

2. any removal of privately-owned trees 10cm or larger in diameter requires a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR
3. any removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
4. for this site, the TCR may be combined with the Landscape Plan provided all information is clearly displayed
    a. if possible, please submit separate plans showing 1) existing tree inventory, and 2) a plan showing to be retained and to be removed trees with tree protection details
5. the TCR must list all trees on site by species, diameter and health condition – separate stands of trees may be combined using averages
6. the TCR must address all trees with a critical root zone that extends into the developable area – all trees that could be impacted by the construction that are outside the developable area need to be addressed.
7. trees with a trunk that crosses/touches a property line are considered co-owned by both property owners; permission from the adjoining property owner must be obtained prior to the removal of co-owned trees
8. If trees are to be removed, the TCR must clearly show where they are, and document the reason they can not be retained – please provide a plan showing retained and removed treed areas
9. 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 listed on Ottawa.ca

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

    b. include distance indicators from the trunk of the retained tree to the nearest part of the tree protection fencing

    c. show the critical root zone of the retained trees

    d. if excavation will occur within the critical root zone, please show the limits of excavation and calculate the percentage of the area that will be disturbed
10. the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
11. Please ensure newly planted trees have an adequate soil volume for their size at maturity. The following is a table of recommended minimum soil volumes:

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

12. For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

8. Environment (Matthew Hayley)

a. This property is immediately south of a stormwater block that also contains Mosquito Creek. Mosquito Creek and its associated valley are part of the City of Ottawa's natural heritage system as indicated in Schedule L1. This means that any development within 30 m will trigger an Environmental Impact Statement. Accordingly, the site will trigger an EIS to address the site's impact on the natural heritage system (the Mosquito Creek Significant Valley), this will need to include the impacts from the operation of Building F.

9. Conservation Authority (Jamie Batchelor):

a. Natural Hazards
    1. The northern property boundary is adjacent to a stormwater management block. The storm pond in the stormwater management block has a slope of approximately 3-4 metres in height and the top of the slope is only approximately 9 metres from the northern boundary of subject site. Therefore, it will be imperative that a slope stability analysis be completed to ensure that any development proposed on the site will not impact the stability of the stormwater management pond.

b. Stormwater management is expected to be in conformity with the approved MDP.

10. Transportation (Josiane Gervais):

- Follow Traffic Impact Assessment Guidelines
    a. A TIA is required.
    b. Start this process asap. The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
    c. Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
- ROW protection on Limebank between Leitrim and South Urban Community Boundary is 44.5m even.
- Corner triangles as per OP Annex 1 - Road Classification and Rights-of-Way at the following locations on the final plan will be required (measure on the property

line/ROW protected line; no structure above or below this triangle), Arterial Road to Arterial Road: 5 m x 5 m

- Sight triangle as per Zoning by-law is 6 m x 6 m measure on the curb line.
- Minimum Corner Clearance to the accesses should follow TAC guidelines (Figure 8.8.2).
- Indicate clear throat lengths on the site plan and ensure suggested minimum requirements are met for arterial roadways, as per TAC guidelines (Table 8.9.3).
- On site plan:
    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. Show on-site pedestrian paths.
    f. Sidewalk is to be continuous across access as per City Specification 7.1.
    g. Access off Limebank Rd should be no more than 9.0m wide, as per the Private Approach Bylaw. It is strongly recommended that this access be limited to right-in/right-out movements.
    h. Grey out any area that will not be impacted by this application.
- AODA legislation is in effect for all organizations, please ensure that the design conforms to these standards.

- Noise Impact Studies required for the following:
    a. Stationary if there will be any exposed mechanical equipment due to the proximity to neighbouring noise sensitive land uses.
    b. Road (general offices, retail stores, outdoor patio areas)

11. General Information

a. Please ensure the zoning table on the site plan is in the following format. Ensure that <u>all</u> zoning provisions and rates are shown and differentiate those that require a re-zoning or variance.

ZONING INFORMATION: MC16		
PROPOSED 8 STOREY BUILDING (MID-RISE APARTMENT)		
	REQUIRED	PROPOSED
MINIMUM LOT WIDTH	NO MINIMUM	27.824m
MINIMUM LOT AREA	NO MINIMUM	881.37m²
MINIMUM BUILDING HEIGHT	6.7	27m
MAXIMUM BUILDING HEIGHT	27m	27m
MINIMUM FRONT YARD SETBACK	NO MINIMUM	2m
MINIMUM CORNER SIDE YARD SETBACK	N/A	N/A
MINIMUM REAR YARD SETBACK	3m & 7.5 ABOVE 3RD FLOOR	3m & 7.5 ABOVE 3RD FLOOR
MINIMUM INTERIOR SIDE YARD SETBACK	NO MINIMUM	0.6m & 2.44m
Parking Rate		
Motor Vehicle	NO	14 spaces
Bicycle Parking (0.5/unit)	26 spaces	27 spaces

b. Ensure that all plans and studies are prepared as per City guidelines – as available online…
   https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans

Key Policy Objectives for the City of Ottawa – as of December 2019

The approved preliminary policy directions address six key themes:

- **Growth management –** policies would encourage more growth through intensification than through expansion into new or undeveloped areas, promote growth around transit, encourage sustainable village expansion and consider housing and transportation affordability.

- **Energy and climate mitigation –** policies would ensure climate change and energy conservation considerations are integrated into city planning guidelines, promote local energy generation, set new energy standards for buildings and reduce emissions through transportation and infrastructure.

- **Climate resiliency –** policies would align with the Climate Change Master Plan to reduce the urban heat island effect, further reduce the risk and impact of flooding and encourage more resilient homes, buildings, communities and infrastructure.

- **Transportation and mobility –** policies would aim to see more than half of all trips made by sustainable transportation. The City would pursue related policies as part of the coming Transportation Master Plan update.

- **Neighbourhood context –** policies would establish a framework of six areas, including the downtown core, inner urban area, outer urban area, suburban area, rural area and Greenbelt, and policies would be tailored to each so that growth can better address neighbourhood context.

- **Economic development –** policies would direct major employment to established hubs and corridors, support economic development in rural and village areas and establish a new economic zone centred on the airport.

APPENDIX B

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-2.1-WATER.dwg Layout Name: CONCEPTUAL WATER PLAN Last Saved By: Chris.Cormier Last Saved At: May. 6, 22

DUSTY MILLER CRESCENT

DUSTY MILLER CRES

200mm

SUBJECT PROPERTY

200mm

POND 2

CONNECT TO EXISTING
200mm WATERMAIN

POTENTIAL FUTURE
WATERMAIN LOOP

EYE BRIGHT CRES

EYE BRIGHT CRESCENT

200mm

200mm

PART 2

PART 4

POTENTIAL FUTURE
WATERMAIN LOOP

PART 1

MHO

MHO

MHO

MHO

LIMEBANK RD

LIMEBANK ROAD

EARL ARMSTRONG ROAD

400mmØ

400mmØ

EARL ARMSTRONG RD

400mmØ

600mmØ

CONNECT TO EXISTING
300mm WATERMAIN

LEGEND:

EXISTING WATERMAIN

PROPOSED WATERMAIN

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	CONCEPTUAL WATER PLAN	FIGURE 2.1

Boundary Conditions
1515 Earl Armstrong Plaza

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	22	0.36
Maximum Daily Demand	53	0.89
Peak Hour	96	1.60
Fire Flow Demand #1	9,000	150.00

Location

Results – Existing Conditions

Connection 1 – Earl Armstrong Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	132.3	55.3
Peak Hour	125.0	45.0
Max Day plus Fire 1	125.9	46.4

Ground Elevation = 93.3 m

Connection 2 – Dusty Miller Cres.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	132.2	57.0
Peak Hour	125.0	46.7
Max Day plus Fire 1	116.2	34.2

Ground Elevation = 92.1 m

Results – SUC Zone Reconfiguration

Connection 1 – Earl Armstrong Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.7	78.8
Peak Hour	145.7	74.4
Max Day plus Fire 1	144.7	73.0

Ground Elevation = 93.3 m

Connection 2 – Dusty Miller Cres.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.7	80.5
Peak Hour	145.7	76.1
Max Day plus Fire 1	134.9	60.8

Ground Elevation = 92.1 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 DEMAND CALCULATION SHEET

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT : 1515 Earl Armstrong Plaza
LOCATION : City of Ottawa

FILE: 137404.6.04
DATE PRINTED: 2022-05-06
DESIGN: LME
PAGE : 1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND
	Single	Town	Apt	POP'N	INDTRL (ha.)	COMM. (ha.)	RETAIL (m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/min)
J2 (Bldg B&K)							1,284	0.00	0.04	**0.04**	0.00	0.09	**0.09**	0.00	0.17	**0.17**	**9,000**
J3 (Bldg A&I)							5,092	0.00	0.15	**0.15**	0.00	0.37	**0.37**	0.00	0.66	**0.66**	**9,000**
J4 (Bldg G&J)							1,356	0.00	0.04	**0.04**	0.00	0.10	**0.10**	0.00	0.18	**0.18**	**9,000**
J5 (Bldg F&H)							1,386	0.00	0.04	**0.04**	0.00	0.10	**0.10**	0.00	0.18	**0.18**	**9,000**
J9 (Bldg L)							1,925	0.00	0.06	**0.06**	0.00	0.14	**0.14**	0.00	0.25	**0.25**	**9,000**
J10 (Bldg C,D&E)							2,088	0.00	0.06	**0.06**	0.00	0.15	**0.15**	0.00	0.27	**0.27**	**9,000**
TOTALS										**0.39**			**0.95**			**1.71**	

ASSUMPTIONS

RESIDENTIAL DENSITIES
Apartment (ave) 1.8 p / p / u

** Residential Daily Demand reduced to coincide with current waste water guidelines

AVG. DAILY DEMAND
Residential:** 280 l / cap / day
Industrial: l / ha / day
Commercial: l / ha / day
Retail: 2,500 l / 1000m^2 / day

MAX. DAILY DEMAND
Residential: 700 l / cap / day
Industrial: l / ha / day
Commercial: l / ha / day
Retail: 6,250 l / 1000m^2 / day

MAX. HOURLY DEMAND
Residential: 1,540 l / cap / day
Industrial: l / ha / day
Commercial: l / ha / day
Retail: 11,250 l / 1000m^2 / day

FIRE FLOW
From FUS Calculation 9,000 l / min

Fire Flow Requirement from Fire Underwriters Survey

1515 Earl Armstong Plaza - Building I

Building Floor Area

area	836	m^2
stories	4	
Area	3,344	m^2

$F = 220C\sqrt{A}$

C	0.8		C =	1.5 wood frame
A	3,344	m^2		1.0 ordinary
				0.8 non-combustile
F	10,178	l/min		0.6 fire-resistive
use	10,000	l/min		

Occupancy Adjustment

Use	0%	
Adjustment	0	l/min
Fire flow	10,000	l/min

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

Sprinkler Adjustment

Use	-30%	
Adjustment	-3,000	l/min

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>45				0%
east	37.0	20.0	1	20	5%
south	30.5	45.0	1	45	5%
west	35.0	30.0	1	30	5%
Total					15%

Adjustment	1,500	l/min
Total adjustments	-1,500	l/min
Fire flow	8,500	l/min
Use	**9,000**	**l/min**
	150.0	**l/s**

* Exposure charges from Techinical Bulletin ISTB 2018-02 Appendix H (ISO Method)

Fire Flow Requirement from Fire Underwriters Survey

1515 Earl Armstong Plaza - Building F

Building Floor Area

area	1,056	m^2
stories	1	
Area	1,056	m^2

$F = 220C\sqrt{A}$

C	0.8		C =	1.5 wood frame
A	1,056	m^2		1.0 ordinary
				0.8 non-combustile
F	5,719	l/min		0.6 fire-resistive
use	6,000	l/min		

Occupancy Adjustment

	-25%	non-combustile
	-15%	limited combustile
Use 0%	0%	combustile
	+15%	free burning
Adjustment 0 l/min	+25%	rapid burning
Fire flow 6,000 l/min		

Sprinkler Adjustment

Use	-30%
Adjustment	-1,800 l/min

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	40.5	22.0	1	22	5%
east	>45				0%
south	33.0	20.0	1	20	5%
west	41.0	20.0	1	20	5%
Total					15%

Adjustment	900	l/min
Total adjustments	-900	l/min
Fire flow	5,100	l/min
Use	**5,000**	**l/min**
	83.3	**l/s**

* Exposure charges from Techinical Bulletin ISTB 2018-02 Appendix H (ISO Method)

Fire Flow Requirement from Fire Underwriters Survey

1515 Earl Armstong Plaza - Building L

Building Floor Area

area	1,925	m^2
stories	1	
Area	1,925	m^2

$F = 220C\sqrt{A}$

C	0.8		C =	1.5 wood frame
A	1,925	m^2		1.0 ordinary
				0.8 non-combustile
F	7,722	l/min		0.6 fire-resistive
use	8,000	l/min		

Occupancy Adjustment

	-25%	non-combustile
	-15%	limited combustile
Use 0%	0%	combustile
	+15%	free burning
Adjustment 0 l/min	+25%	rapid burning
Fire flow 8,000 l/min		

Sprinkler Adjustment

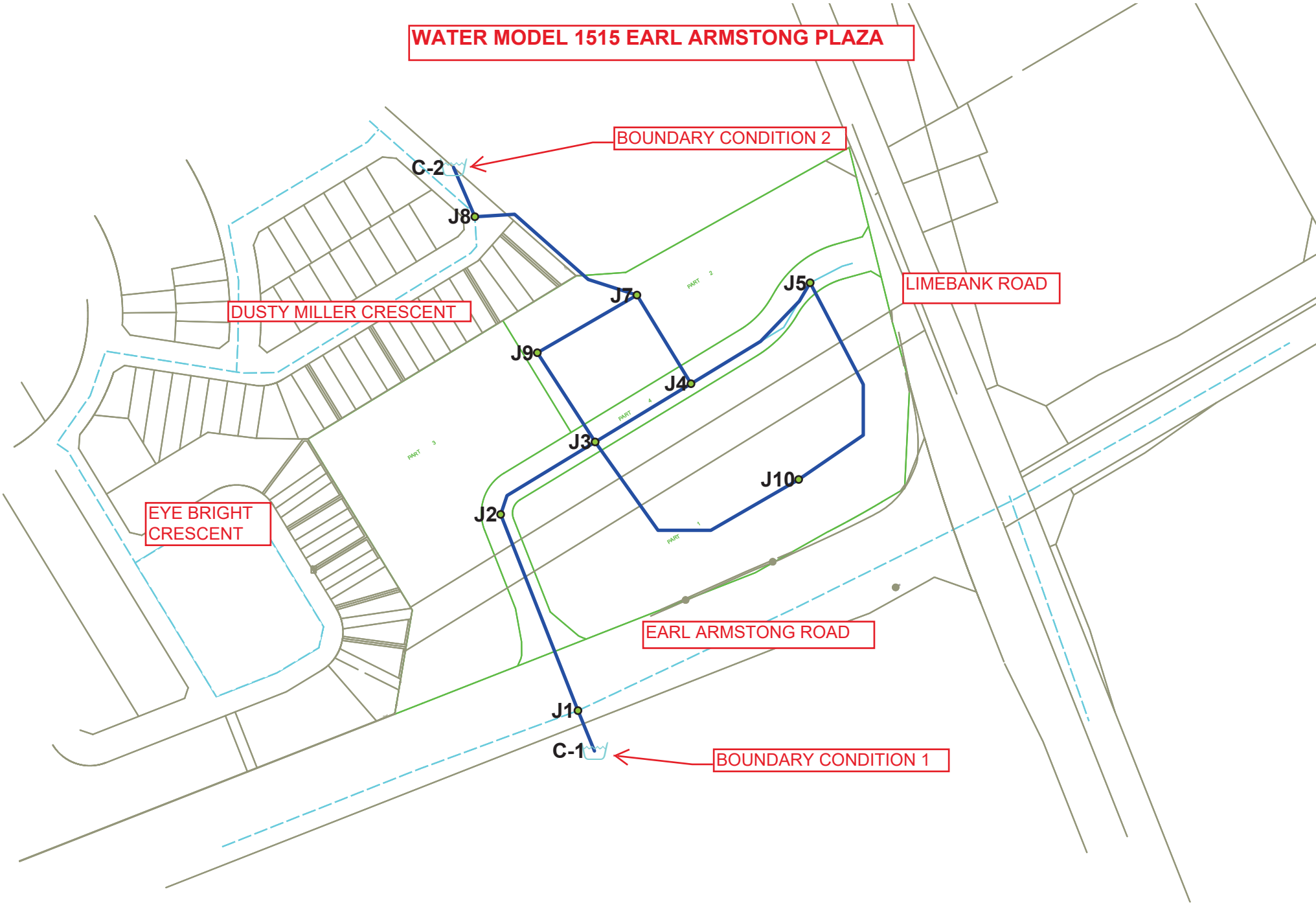
Use	-30%
Adjustment	-2,400 l/min

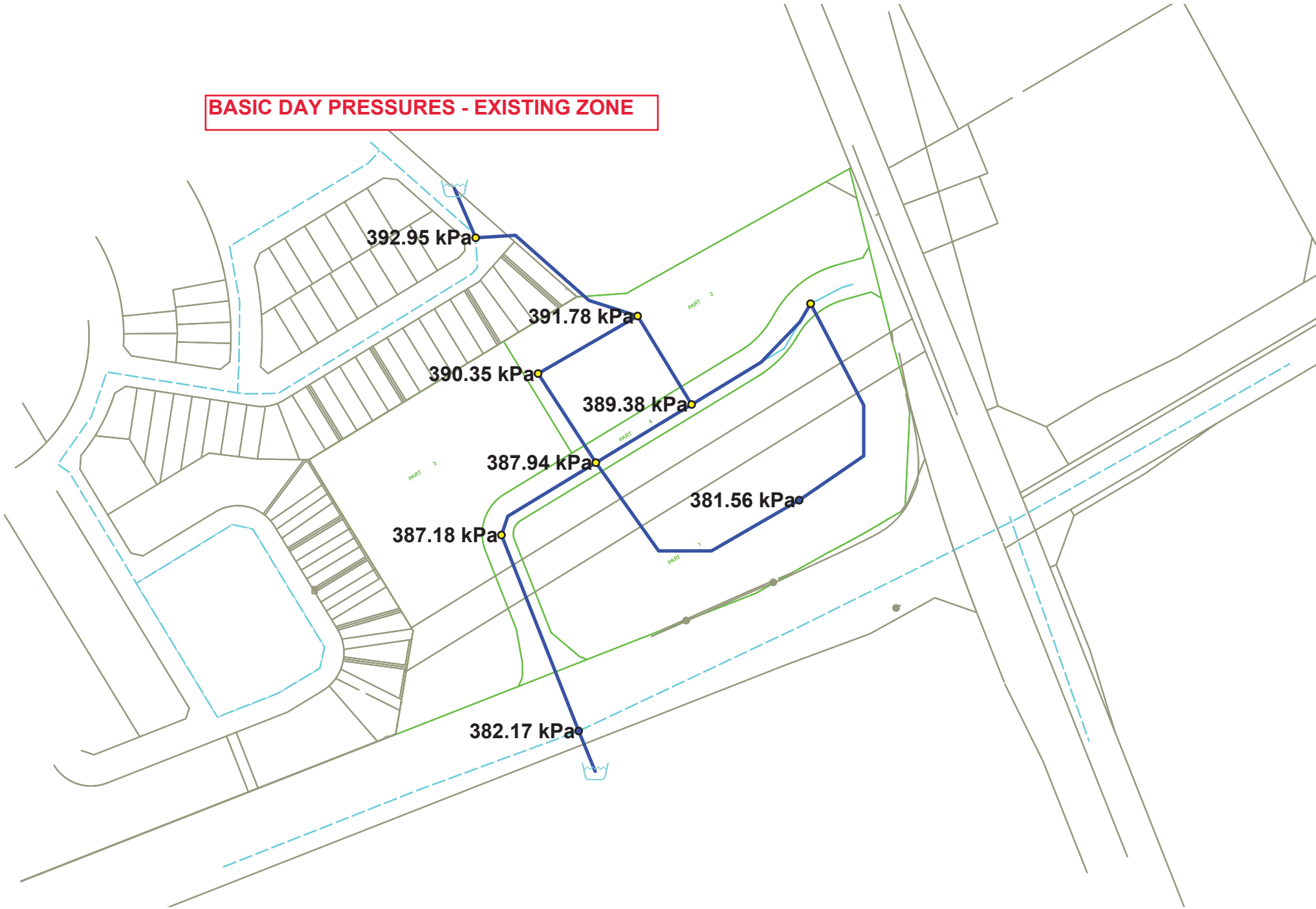
Exposure Adjustment

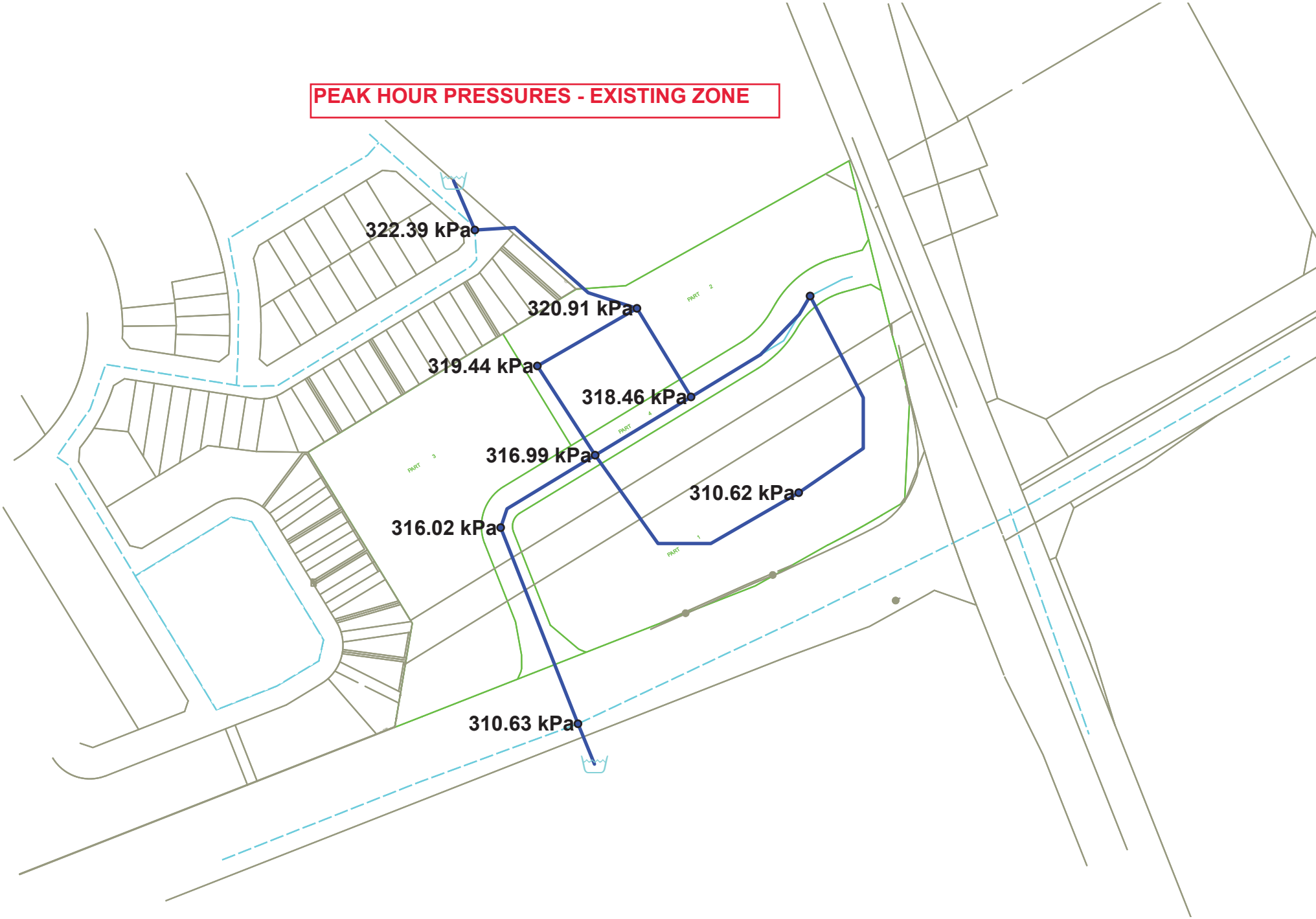
Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>45				0%
east	35.0	24.0	4	96	5%
south	>45				0%
west	>45				0%
Total					5%

Adjustment	400	l/min
Total adjustments	-2,000	l/min
Fire flow	6,000	l/min
Use	**6,000**	**l/min**
	100.0	**l/s**

* Exposure charges from Techinical Bulletin ISTB 2018-02 Appendix H (ISO Method)

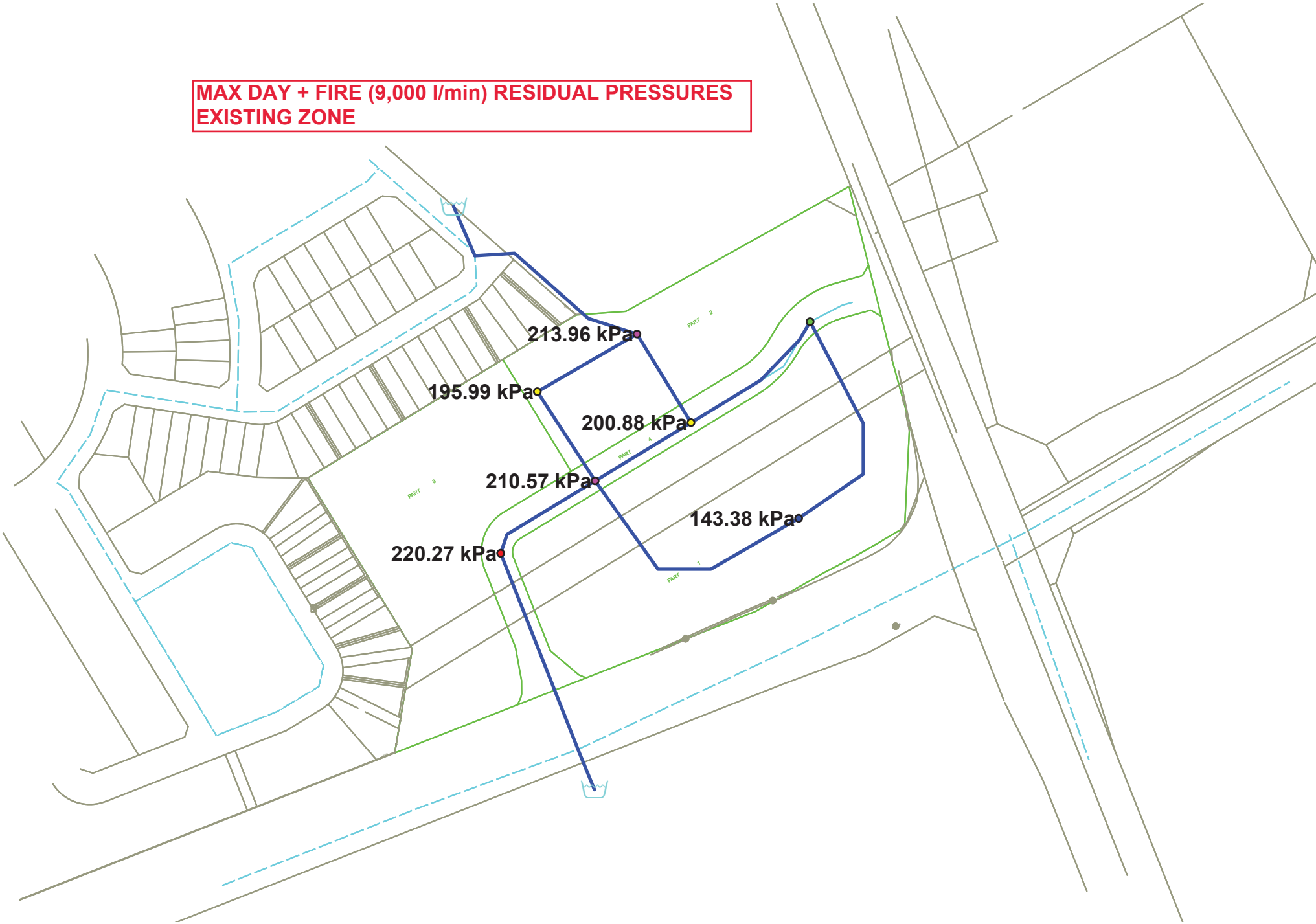

WATER MODEL 1515 EARL ARMSTONG PLAZA
BOUNDARY CONDITION 2
C-2
J8
J7
J5
LIMEBANK ROAD
DUSTY MILLER CRESCENT
J9
J4
J3
J10
J2
EYE BRIGHT CRESCENT
EARL ARMSTONG ROAD
J1
C-1
BOUNDARY CONDITION 1


BASIC DAY PRESSURES - EXISTING ZONE
392.95 kPa
391.78 kPa
390.35 kPa
389.38 kPa
387.94 kPa
381.56 kPa
387.18 kPa
382.17 kPa

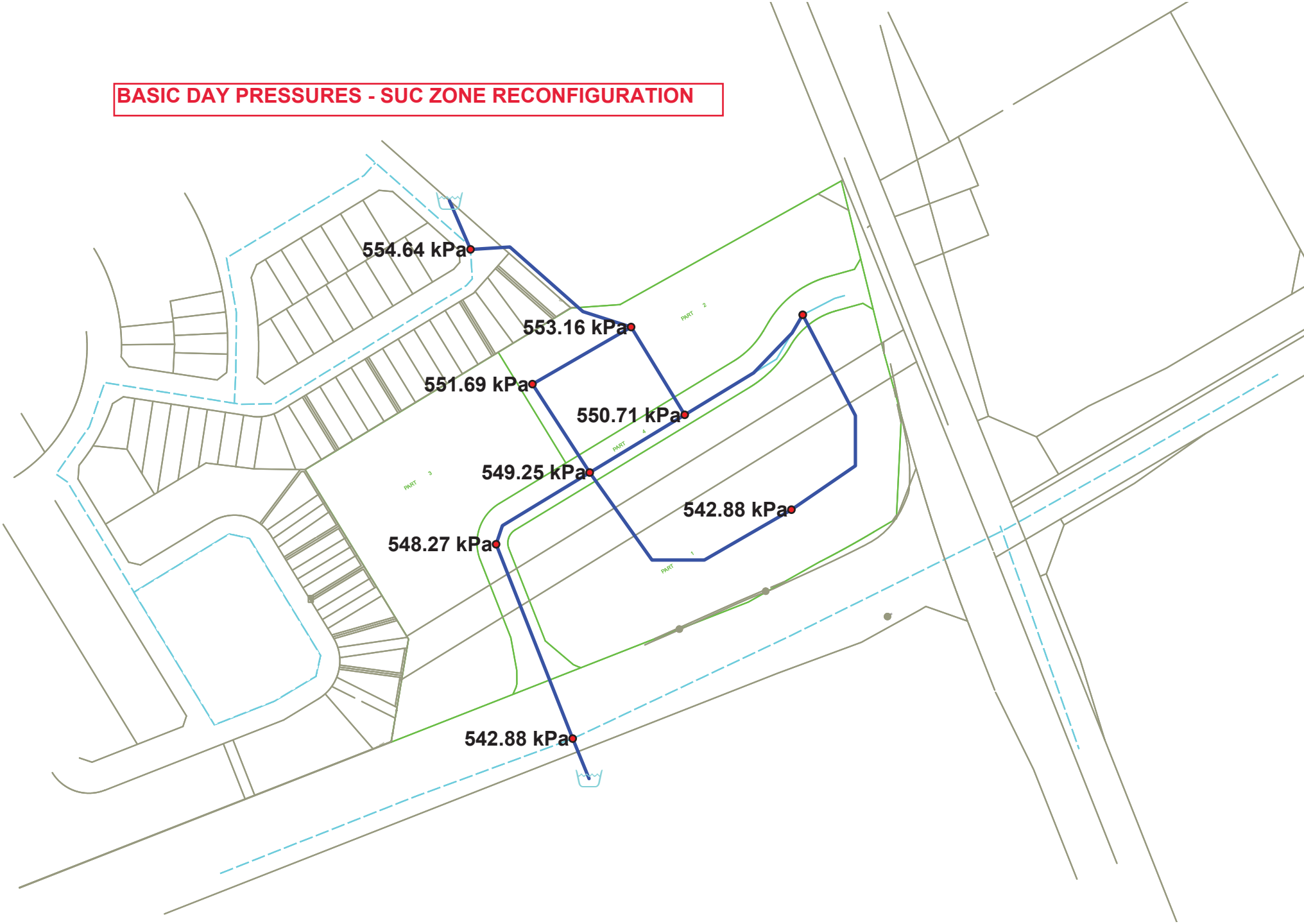

PEAK HOUR PRESSURES - EXISTING ZONE
322.39 kPa
320.91 kPa
319.44 kPa
318.46 kPa
316.99 kPa
310.62 kPa
316.02 kPa
310.63 kPa

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J1	0.00	93.30	125.00	310.63
2	☐	J10	0.27	93.30	125.00	310.62
3	☐	J2	0.17	92.75	125.00	316.02
4	☐	J3	0.66	92.65	125.00	316.99
5	☐	J4	0.18	92.50	125.00	318.46
6	☐	J5	0.18	92.45	125.00	318.95
7	☐	J7	0.00	92.25	125.00	320.91
8	☐	J8	0.00	92.10	125.00	322.39
9	☐	J9	0.25	92.40	125.00	319.44

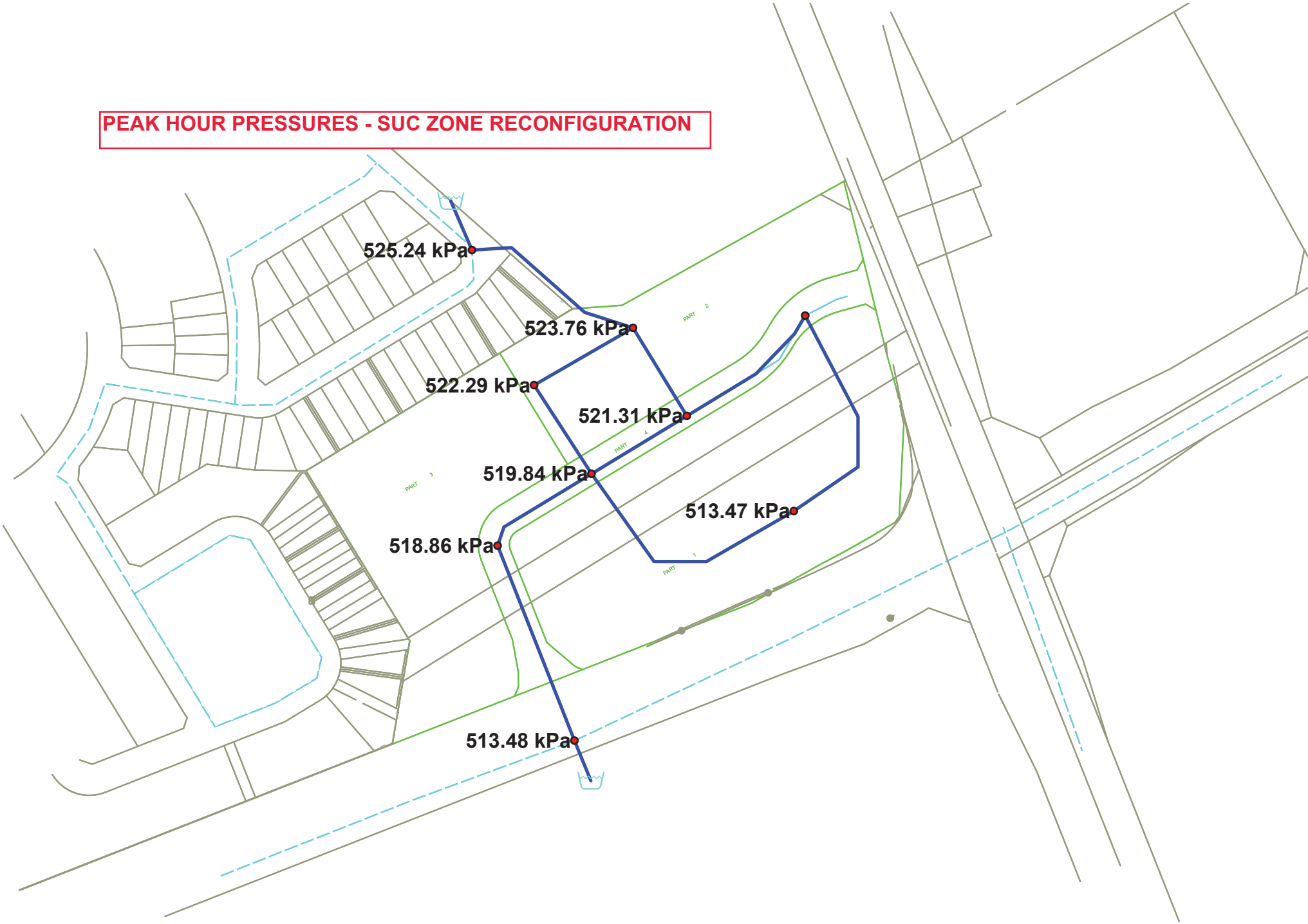
		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P11	J3	J2	71.15	204.00	110.00	-0.62	0.02	0.00	0.00	Open	0
2	☐	P13	J1	J2	122.04	204.00	110.00	0.79	0.02	0.00	0.01	Open	0
3	☐	P15	J3	J9	61.51	204.00	110.00	-0.18	0.01	0.00	0.00	Open	0
4	☐	P17	J4	J3	64.81	204.00	110.00	0.06	0.00	0.00	0.00	Open	0
5	☐	P19	J4	J7	60.07	204.00	110.00	-0.49	0.01	0.00	0.00	Open	0
6	☐	P21	J7	J8	109.43	204.00	110.00	-0.92	0.03	0.00	0.01	Open	0
7	☐	P23	J5	J4	91.76	204.00	110.00	-0.25	0.01	0.00	0.00	Open	0
8	☐	P25	J10	J5	141.01	204.00	110.00	-0.07	0.00	0.00	0.00	Open	0
9	☐	P27	J10	J3	151.89	204.00	110.00	-0.20	0.01	0.00	0.00	Open	0
10	☐	P29	J9	J7	66.52	204.00	110.00	-0.43	0.01	0.00	0.00	Open	0
11	☐	P31	C-1	J1	1.00	204.00	110.00	0.79	0.02	0.00	0.01	Open	0
12	☐	P33	C-2	J8	1.00	204.00	110.00	0.92	0.03	0.00	0.01	Open	0


MAX DAY + FIRE (9,000 l/min) RESIDUAL PRESSURES
EXISTING ZONE
213.96 kPa
195.99 kPa
200.88 kPa
210.57 kPa
143.38 kPa
220.27 kPa

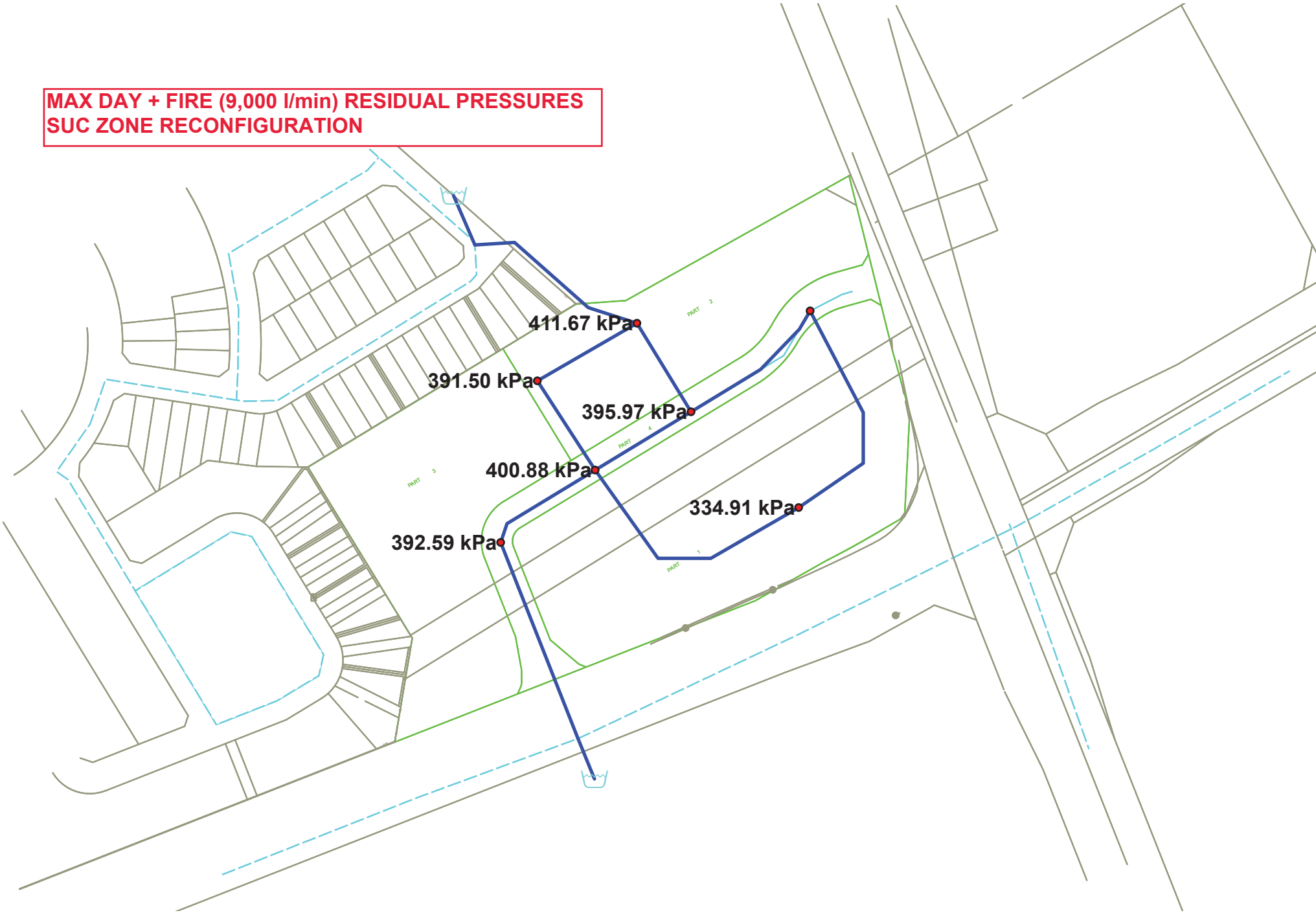
BASIC DAY PRESSURES - SUC ZONE RECONFIGURATION



PEAK HOUR PRESSURES - SUC ZONE RECONFIGURATION



MAX DAY + FIRE (9,000 l/min) RESIDUAL PRESSURES
SUC ZONE RECONFIGURATION



APPENDIX C

LEGEND

- CATCH BASIN
- HYDRANT
- (23) SANITARY SEWER & MANHOLE
- 113 LOT NUMBER
- DRAINAGE BOUNDARY
- (0.35) / 7 AREA IN HECTARES / NUMBER OF UNITS
- PHASING LIMIT

AREA (ha)	# OF PEOPLE	P.F.	Q (l/s)
COMMERCIAL –	–	–	–
INDUSTRIAL –	–	–	–
RESIDENTIAL 1.55	744	3.88	11.69
PEAK EXTRANEOUS FLOW (l/s)			0.43
TOTAL FLOW (l/s)			12.12

NO.	REVISION	DATE
5	W/M SYSTEM REVISED FOR FUTURE CONVERSION TO HIGH PRESSURE	16/01/07
4	REVISED PER CITY COMMENTS FOR MOE APPROVAL	14/12/06
3	REVISED TO SUIT PHASING AND MINOR LAYOUT MODIFICATIONS	22/09/06
2	REVISED LAYOUT– RESUBMISSION TO CITY FOR REVIEW	23/06/06
1	ISSUED FOR CITY REVIEW	28/02/06

LICENSED PROFESSIONAL ENGINEER
J.S.C. BOUGIE
100010090
JAN 16, 2007
PROVINCE OF ONTARIO

URBANDALE CORPORATION

J.L.Richards
ENGINEERS ARCHITECTS PLANNERS

J.L. Richards & Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

PROJECT:
RIVERSIDE SOUTH
PHASE 4
URBANDALE CORPORATION
CITY OF OTTAWA

DRAWING: W:\18418-04.LD\1841804 C D-SAN.dwg

SANITARY DRAINAGE PLAN

DESIGN: D.L.	REVISION NO.:
DRAWN: T.S.	DRAWING NO.: D2-SAN
CHECKED: L.D.	
DATE: AUDUST 2005	
SCALE: 1:1500	JOB NO.: 18418-04

Printed on 12/21/2006 at 7:34 AM

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

RIVERSIDE SOUTH PHASES 3 & 4
URBANDALE CORPORATION
JLR PROJECT NO.: 18418-04

Commercial Flow = 50000 L/s/ha
q = 350 l/cap/d
i = 0.28 l/s/ha
SING. HOUSING 3.4 pers/hse
MULT. HOUSING 2.7 pers/hse

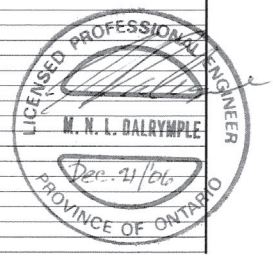
SANITARY SEWER DESIGN SHEET
Designed: D.L.
Checked By: G.F.

LEGEND
DENOTES EXISTING SEWERS

Date: December 14, 2006

Manning's Coefficient (n) = 0.013

STREET	Phase	M.H. #		RESIDENTIAL									COMMERCIAL			R+C		SEWER DATA					UPSTREAM					DOWNSTREAM				REMARKS
				NUMBER OF UNITS					CUMMULATIVE		PEAKING	POPUL.																			
		FROM	TO	SING.	Stacks	Towns	POPUL. people	AREA ha	POPUL. people	AREA ha	FACTOR	FLOW l/s	AREA ha	CUMM. AREA l/s	COMM. FLOW l/s	PEAK EXTR. FLOW l/s	PEAK DES. FLOW l/s	DIA. mm	SLOPE %	CAPAC. l/s	VEL. m/s (full)	LENGTH m	Center Line	Obvert Drop	Obvert	Invert	Cover	Center Line	Obvert	Invert	Cover	
EASEMENT		146	145								4.00		6.49	6.49	5.63	1.82	7.45	250	0.40	39.24	0.77	54.90	92.20		88.968	88.718	3.23	91.40	88.748	88.498	2.65	
EASEMENT	4	145	138	5			17	0.38	17	0.38	4.00	0.28		6.49	5.63	1.92	7.83	250	0.40	39.24	0.77	50.00	91.40	0.06	88.688	88.438	2.71	92.03	88.488	88.238	3.54	
DUSTY MILLER CRESCENT	4	138	139	20			68	1.04	85	1.42	4.00	1.38		6.49	5.63	2.21	9.23	250	0.40	39.26	0.77	119.20	92.03		88.488	88.238	3.54	92.16	88.011	87.761	4.15	
DUSTY MILLER CRESCENT	4	139	140	2			7	0.11	92	1.53	4.00	1.49		6.49	5.63	2.25	9.37	250	0.40	39.24	0.77	14.90	92.16	0.03	87.981	87.731	4.18	92.25	87.921	87.671	4.33	
WOODY POINT DRIVE	4	130 (south)	141	7			24	0.41	24	0.41	4.00	0.39				0.11	0.50	250	0.40	39.24	0.77	74.00	92.35		89.760	89.510	2.59	92.23	89.464	89.214	2.77	
WOODY POINT DRIVE	4	141	142	3			10	0.18	34	0.59	4.00	0.55				0.17	0.72	250	0.40	39.24	0.77	34.55	92.23		89.464	89.214	2.77	92.45	89.326	89.076	3.12	
DUSTY MILLER CRESCENT	4	134	135	2			7	0.25	7	0.25	4.00	0.11				0.07	0.18	250	0.40	39.24	0.77	66.90	92.04		90.019	89.769	2.02	92.27	89.751	89.501	2.52	
COYOTE BRUSH LANE	4	135	142	12			41	0.82	48	1.07	4.00	0.77				0.30	1.07	250	0.40	39.24	0.77	106.30	92.27		89.751	89.501	2.52	92.45	89.326	89.076	3.12	
WOODY POINT DRIVE	4	142	143	2			7	0.11	88	1.77	4.00	1.43				0.50	1.93	250	0.40	39.24	0.77	30.20	92.45		89.326	89.076	3.12	92.20	89.205	88.955	3.00	
WOODY POINT DRIVE	4	143	140	3			10	0.21	99	1.98	4.00	1.60				0.55	2.15	250	0.40	39.24	0.77	51.10	92.20		89.205	88.955	3.00	92.25	89.001	88.751	3.25	
DUSTY MILLER CRESCENT	4	140	91 (south)	7			24	0.44	214	3.95	4.00	3.47		6.49	5.63	2.92	12.03	250	0.40	39.24	0.77	84.90	92.25	0.06	87.861	87.611	4.39	92.35	87.522	87.272	4.83	
NORTH BLUFF DRIVE	4	91 (south)	92	1			3	0.12	218	4.07	4.00	3.53		6.49	5.63	2.96	12.12	250	0.40	39.24	0.77	29.70	92.35	0.06	87.462	87.212	4.89	92.15	87.343	87.093	4.81	
NORTH BLUFF DRIVE	4	92	93	1			3	0.09	221	4.16	4.00	3.58		6.49	5.63	2.98	12.20	250	0.40	39.24	0.77	35.60	92.15	0.01	87.333	87.083	4.82	92.40	87.191	86.941	5.21	
EYEBRIGHT CRESCENT	4	176	175			5	14	0.25	14	0.25	4.00	0.22				0.07	0.29	200	0.65	27.59	0.85	29.60	92.65		89.200	89.000	3.45	92.35	89.008	88.808	3.34	
EYEBRIGHT CRESCENT	4	175	174			6	16	0.23	30	0.48	4.00	0.48				0.13	0.62	200	0.65	27.59	0.85	41.20	92.35	0.01	88.998	88.798	3.35	92.65	88.730	88.530	3.92	
EYEBRIGHT CRESCENT	4	173	174			12	32	0.43	32	0.43	4.00	0.53				0.12	0.65	200	0.65	27.59	0.85	75.80	92.70		89.250	89.050	3.45	92.65	88.757	88.557	3.89	
ROYAL FERN WAY	4	174	161		22	11	89	0.70	151	1.61	4.00	2.45				0.45	2.90	200	0.65	27.59	0.85	95.80	92.65	0.06	88.670	88.470	3.98	92.55	88.047	87.847	4.50	
EYEBRIGHT CRESCENT	4	178	177			3	8	0.14	8	0.14	4.00	0.13				0.04	0.17	200	0.65	27.59	0.85	14.60	92.65		89.200	89.000	3.45	92.70	89.105	88.905	3.59	
EYEBRIGHT CRESCENT	4	177	178			26	70	0.80	78	0.94	4.00	1.27				0.26	1.53	200	0.65	27.59	0.85	82.80	92.70	0.03	89.075	88.875	3.62	92.62	88.537	88.337	4.08	
EYEBRIGHT CRESCENT	4	178	179			3	8	0.11	86	1.05	4.00	1.40				0.29	1.69	200	0.65	27.59	0.85	13.80	92.62	0.03	88.507	88.307	4.11	92.60	88.417	88.217	4.18	
EYEBRIGHT CRESCENT	4	179	161			10	27	0.34	113	1.39	4.00	1.84				0.39	2.23	200	0.65	27.59	0.85	69.30	92.60	0.03	88.387	88.187	4.21	92.55	87.937	87.737	4.61	
ROYAL FERN WAY	4	161	160		18	5	62	0.47	327	3.47	4.00	5.29				0.97	6.27	250	0.40	39.24	0.77	71.00	92.55		87.937	87.687	4.61	92.26	87.653	87.403	4.61	
ROYAL FERN WAY	4	160	93					0.02	327	3.49	4.00	5.29				0.98	6.27	250	0.40	39.24	0.77	11.10	92.26	0.01	87.643	87.393	4.62	92.40	87.598	87.348	4.80	
NORTH BLUFF DRIVE	4	93	94			3	8	0.24	556	7.89	3.95	8.89		6.49	5.63	4.03	18.55	250	0.40	39.24	0.77	79.70	92.40		87.191	86.941	5.21	92.55	86.872	86.622	5.68	
DUSTY MILLER CRESCENT	4	131	130	11			37	0.69	37	0.69	4.00	0.61				0.19	0.80	250	0.40	39.24	0.77	94.60	92.25		89.699	89.449	2.55	92.35	89.321	89.071	3.03	
DUSTY MILLER CRESCENT	4	130	88	5			17	0.40	54	1.09	4.00	0.88				0.31	1.19	250	0.40	39.24	0.77	81.00	92.35	0.12	89.203	88.953	3.15	92.45	88.879	88.629	3.57	
NORTH BLUFF DRIVE	4	91	90	2			7	0.14	7	0.14	4.00	0.11				0.04	0.15	200	0.65	27.59	0.85	26.60	92.35		89.609	89.409	2.74	92.17	89.436	89.236	2.73	
NORTH BLUFF DRIVE	4	90	223	2			7	0.10	14	0.24	4.00	0.22				0.07	0.29	200	0.65	27.59	0.85	18.00	92.17	0.02	89.416	89.216	2.75	92.05	89.299	89.099	2.75	
FIREWEED TRAIL	4	221	222	17			58	0.75	58	0.75	4.00	0.94				0.21	1.15	200	0.65	27.59	0.85	88.50	92.19		89.965	89.765	2.22	92.19	89.390	89.190	2.80	
FIREWEED TRAIL	4	222	223	1			3	0.10	61	0.85	4.00	0.99				0.24	1.23	200	0.65	27.59	0.85	24.60	92.19		89.390	89.190	2.80	92.05	89.230	89.030	2.82	
NORTH BLUFF DRIVE	4	223	89	2			7	0.11	82	1.20	4.00	1.32				0.34	1.66	250	0.40	39.24	0.77	20.70	92.05		89.230	88.980	2.82	92.05	89.147	88.897	2.90	
NORTH BLUFF DRIVE	4	89	88	5			17	0.32	99	1.52	4.00	1.60				0.43	2.02	250	0.40	39.24	0.77	67.00	92.05		89.147	88.897	2.90	92.45	88.879	88.629	3.57	
BARBERRY CRESCENT	4	88	200	14			48	0.63	201	3.24	4.00	3.25				0.91	4.16	250	0.40	39.24	0.77	80.50	92.45	0.05	88.829	88.579	3.62	92.42	88.507	88.257	3.91	
BARBERRY CRESCENT	4	200	201	10			34	0.41	235	3.65	4.00	3.80				1.02	4.82	250	0.40	39.24	0.77	83.20	92.42		88.507	88.257	3.91	92.25	88.174	87.924	4.08	
BARBERRY CRESCENT	4	204	203			17	46	0.45	46	0.45	4.00	0.74				0.13	0.87	200	0.65	27.59	0.85	72.80	92.37		89.014	88.814	3.36	92.26	88.541	88.341	3.72	
BARBERRY CRESCENT	4	203	201			20	54	0.57	100	1.02	4.00	1.62				0.29	1.90	250	0.40	39.24	0.77	89.30	92.26	0.01	88.531	88.281	3.73	92.25	88.174	87.924	4.08	



DUSTY MILLER CRESCENT

250mm

SUBJECT PROPERTY

POND 2

250mm

250mm

EYE BRIGHT CRESCENT

250mm

CONNECT TO EXISTING
SANITARY MH
OBVERT = 88.95

PART 2

PART 4

PART 1

MHO

LIMEBANK RD

LIMEBANK ROAD

600mmØ

600mmØ

600mmØ

375mmØ

EARL ARMSTRONG ROAD

EARL ARMSTRONG RD

LEGEND:

EXISTING SANITARY

PROPOSED SANITARY

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-3.1-SANITARY.dwg Layout Name: FIGURE 3.1 CONCEPTUAL SANITARY PLAN Last Saved By: Chris.Cormier Last Saved At: May. 6, 22

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	CONCEPTUAL SANITARY PLAN	FIGURE 3.1

APPENDIX D

LEGEND

- CATCH BASIN
- INTERCONNECTED ROADWAY CB C/W ONE 19.8L/S IPEX TYPE 'A' ICD OR CITY APPROVED EQUIVALENT
- CATCH BASIN WITH INDIVIDUAL 74.0 L/S CUSTOM MADE ICD
- CATCH BASIN WITH INDIVIDUAL 37.0 L/S IPEX TYPE 'C' ICD OR CITY APPROVED EQUIVALENT
- CATCH BASIN WITH INDIVIDUAL 19.8 L/S IPEX TYPE 'A' ICD OR CITY APPROVED EQUIVALENT
- CATCH BASIN C/W CUSTOM MADE 13.4 L/S ICD
- HYDRANT
- STORM SEWER & MANHOLE
- LOT NUMBER
- DRAINAGE BOUNDARY
- AREA IN HECTARES
- 0.31 | 0.45 — RUNOFF COEFFICIENT
- 586–585 — PIPE REACH, UPSTREAM MANHOLE TO DOWNSTREAM MANHOLE

7 ICD'S @ 20L/S EACH

2700mmø STORM SEWER EAST OF POND #2

COMMERCIAL 27 ICD'S @ 20L/S EACH TO 2700mmø STORM SEWER EAST OF POND #2

NO.	REVISION	DATE
5	W/M SYSTEM REVISED FOR FUTURE CONVERSION TO HIGH PRESSURE	16/01/07
4	REVISED PER CITY COMMENTS FOR MOE APPROVAL	14/12/06
3	REVISED TO SUIT PHASING AND MINOR LAYOUT MODIFICATIONS	22/09/06
2	REVISED LAYOUT– RESUBMISSION TO CITY FOR REVIEW	23/06/06
1	ISSUED FOR CITY REVIEW	28/02/06

LICENSED PROFESSIONAL ENGINEER J.S.C. BOUGIE 100010090 16/1/2007 PROVINCE OF ONTARIO

URBANDALE CORPORATION

J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS

J.L. Richards & Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

PROJECT:

RIVERSIDE SOUTH
PHASE 4
URBANDALE CORPORATION
CITY OF OTTAWA

DRAWING: W:\18418-04\LD\18418D4 C D-ST.dwg

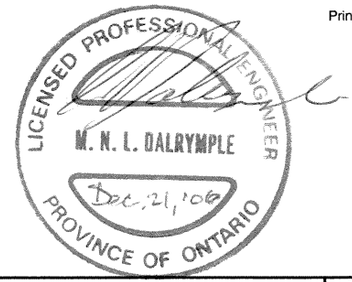
STORM DRAINAGE PLAN

DESIGN: D.L.	REVISION NO.:
DRAWN: T.S.	DRAWING NO.: D2–ST
CHECKED: L.D.	
DATE: AUG. 2005	JOB NO.: 18418–04
SCALE: 1:1500	

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

RIVERSIDE SOUTH PHASES 3 & 4
URBANDALE CORPORATION
JLR PROJECT NO.: 18418



Printed on 12/21/2006 at 10:27 AM

STORM SEWER DESIGN SHEET
1:5 YEAR IDF CURVE

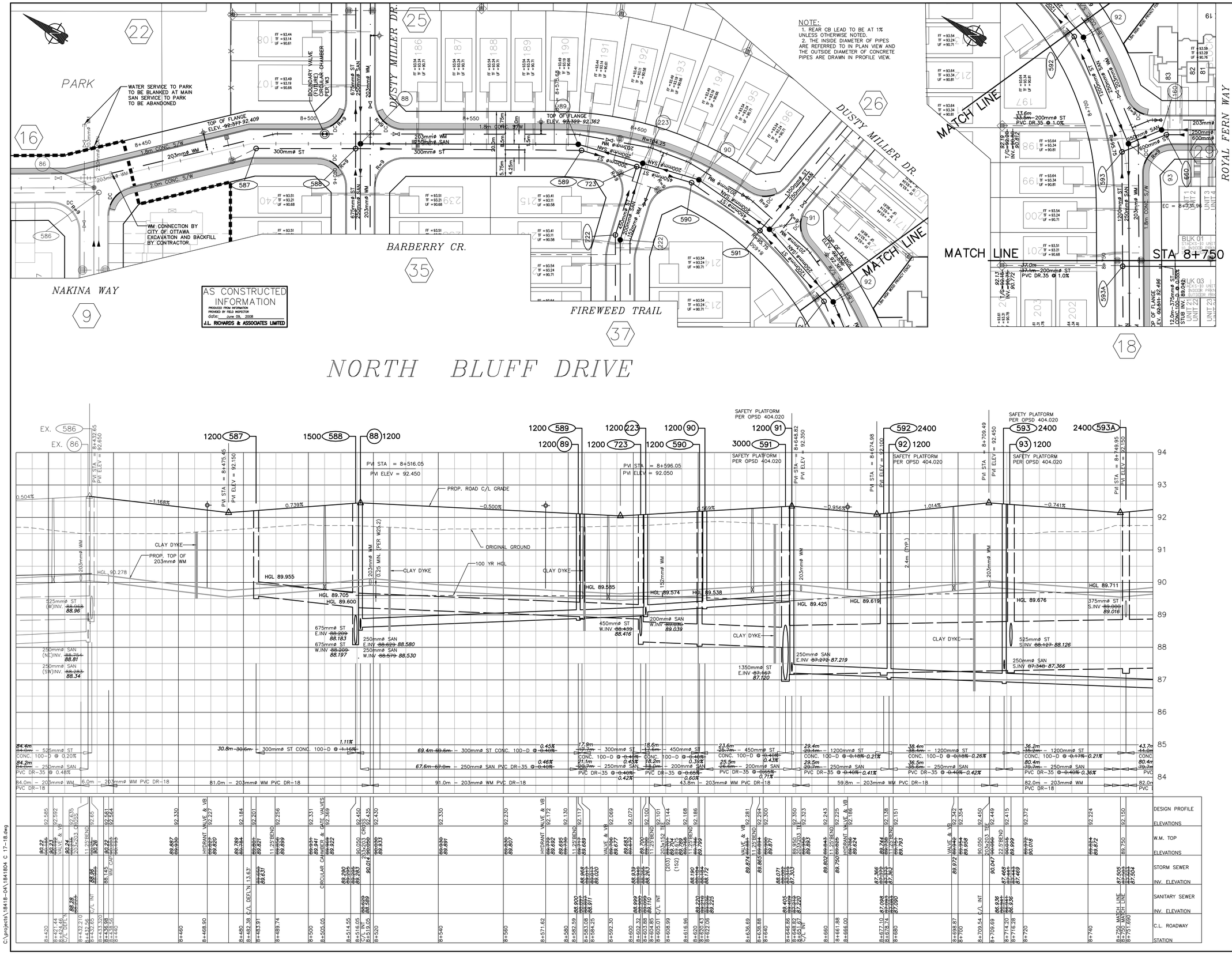
Designed: D.L.
Checked By: G.F.

Date: December 14, 2006

5 YEAR IDF CURVE
Manning's Coefficient (n) = 0.013

LEGEND
DENOTES EXISTING SEWERS

STREET	PHASE	MANHOLE NUMBER		AREAS (ha)								1:5 YR PEAK FLOW GENERATION					SEWER DATA						UPSTREAM					DOWNSTREAM			
		From	To	0.20	0.30	0.45	0.50	0.55	0.60	0.70	0.80	2.78AR	2.78AR CUMM	Time min	Intens. mm/hr	Peak Flow (l/s)	Dia (mm)	Slope %	Q full (l/s)	V full (m/s)	Length (m)	Flow Time (min)	Pr. Center Line	Obvert Drop	Obvert	Invert	Cover	Pr. Center Line	Obvert	Invert	Cover
ROYAL FERN WAY	4	674	661						0.62			1.03	2.84	16.58	78.78	223.39	525	0.40	283.76	1.27	98.50	1.29	92.56		89.63	89.10	2.93	92.50	89.24	88.71	3.26
EYEBRIGHT CRESCENT	4	676 (north)	677						0.08			0.13	0.13	15.00	83.56	11.15	375	0.25	91.46	0.80	15.00	0.31	92.61		89.81	89.43	2.80	92.66	89.77	89.39	2.89
EYEBRIGHT CRESCENT	4	677	678				0.12		0.62			1.20	1.33	15.31	82.56	110.17	450	0.25	148.72	0.91	85.80	1.58	92.66		89.77	89.32	2.89	92.58	89.56	89.10	3.02
EYEBRIGHT CRESCENT	4	678	679										1.33	16.89	77.91	103.96	450	0.25	148.72	0.91	13.80	0.25	92.58		89.56	89.10	3.02	92.55	89.52	89.07	3.03
EYEBRIGHT CRESCENT	4	679	661						0.26			0.43	1.77	17.14	77.21	136.52	525	0.25	224.33	1.00	72.20	1.20	92.55		89.52	88.99	3.03	92.50	89.34	88.81	3.16
ROYAL FERN WAY	4	661	660						0.32			0.53	5.14	18.34	74.11	380.74	600	0.70	535.93	1.84	68.00	0.62	92.50		89.24	88.63	3.26	92.24	88.76	88.15	3.48
ROYAL FERN WAY	4	660	593										5.14	18.96	72.62	373.08	600	0.70	535.93	1.84	14.70	0.13	92.24		88.76	88.15	3.48	92.38	88.66	88.05	3.72
NORTH BLUFF DRIVE	4	593	592				0.10					0.14	27.41	24.60	61.54	1686.73	1200	0.18	1725.61	1.48	38.40	0.43	92.38		88.66	87.44	3.72	92.06	88.59	87.37	3.47
NORTH BLUFF DRIVE	4	592	591				0.19					0.26	27.67	25.03	60.84	1683.65	1200	0.18	1725.61	1.48	29.40	0.33	92.06		88.59	87.37	3.47	92.29	88.54	87.32	3.75
NORTH BLUFF DRIVE	4	588 (south)	589											15.00	83.56		300	0.40	63.80	0.87	69.60	1.33	92.40		89.60	89.30	2.80	92.40	89.32	89.02	3.08
NORTH BLUFF DRIVE	4	589	723				0.29					0.40	0.40	16.33	79.50	32.05	300	0.40	63.80	0.87	17.70	0.34	92.40		89.32	89.02	3.08	92.01	89.25	88.95	2.76
FIREWEED TRAIL	4	721	722				0.65					0.90	0.90	15.00	83.56	75.49	375	0.40	115.68	1.01	91.50	1.50	92.15		89.35	88.97	2.80	92.15	88.98	88.60	3.17
FIREWEED TRAIL	4	722	723				0.43					0.60	1.50	16.50	79.00	118.59	450	0.40	188.11	1.15	22.00	0.32	92.15		88.98	88.53	3.17	92.01	88.90	88.44	3.11
NORTH BLUFF DRIVE	4	723	590										1.90	16.82	78.10	148.72	450	0.40	188.11	1.15	17.60	0.26	92.01	0.18	88.71	88.25	3.30	92.13	88.64	88.18	3.49
NORTH BLUFF DRIVE	4	590	591										1.90	17.08	77.39	147.38	450	0.40	188.11	1.15	25.70	0.37	92.13		88.64	88.18	3.49	92.29	88.54	88.08	3.75
DUSTY MILLER CRESCENT	4	591	640				0.59					0.82	30.40	25.36	60.32	1833.51	1350	0.18	2362.38	1.60	88.80	0.93	92.29		88.54	87.17	3.75	92.18	88.38	87.01	3.80
WOODY POINT DRIVE	4	630	641				0.83					1.15	12.07	24.70	61.38	740.84	975	0.17	963.96	1.25	77.00	1.03	92.31		88.74	87.75	3.57	92.17	88.61	87.62	3.56
WOODY POINT DRIVE	4	641	642				0.16					0.22	12.29	25.73	59.76	734.60	975	0.17	963.96	1.25	34.60	0.46	92.17	0.01	88.60	87.61	3.57	92.41	88.54	87.55	3.87
DUSTY MILLER CRESCENT	4	634	635				0.29					0.40	0.40	15.00	83.56	33.68	375	0.30	100.18	0.88	67.20	1.27	92.00		89.20	88.82	2.80	92.25	89.00	88.62	3.25
COYOTE BRUSH LANE	4	635	642				0.37					0.51	0.92	16.27	79.65	73.07	375	0.25	91.46	0.80	107.05	2.22	92.25	0.01	88.99	88.61	3.26	92.41	88.72	88.34	3.69
WOODY POINT DRIVE	4	642	643										13.21	26.19	59.06	780.23	975	0.18	991.91	1.29	28.00	0.36	92.41		88.54	87.55	3.87	92.17	88.49	87.50	3.68
WOODY POINT DRIVE	4	643	640				0.41					0.57	13.78	26.55	58.53	806.51	975	0.17	963.96	1.25	50.65	0.67	92.17	0.01	88.48	87.49	3.69	92.18	88.40	87.41	3.78
DUSTY MILLER CRESCENT	4	640	639				0.12					0.17	44.34	27.23	57.56	2552.32	1500	0.18	3128.74	1.72	13.70	0.13	92.18		88.38	86.85	3.80	92.12	88.35	86.83	3.77
DUSTY MILLER CRESCENT	4	639	638				1.27					1.77	46.11	27.36	57.37	2645.32	1500	0.18	3128.74	1.72	119.20	1.16	92.12		88.35	86.83	3.77	92.00	88.14	86.62	3.86
DUSTY MILLER CRESCENT	4	638	645				0.44					0.61	46.72	28.52	55.80	2607.07	1500	0.18	3128.74	1.72	48.90	0.48	92.00		88.14	86.62	3.86	91.40	88.05	86.53	3.35
BLOCK 288	4	645	646										46.72	28.99	55.18	2578.26	1500	0.18	3128.74	1.72	62.90	0.61	91.40		88.05	86.53	3.35	91.40	87.94	86.41	3.46
BLOCK 288	4	646	Stub										46.72	29.60	54.41	2542.23	1500	0.18	3128.74	1.72	17.40	0.17	91.40		87.94	86.41	3.46	91.00	87.91	86.38	3.09
	4	Stub	POND										46.72	29.77	54.20	2532.46	1500	0.18	3128.74	1.72	22.60	0.22	91.00		87.91	86.38	3.09	88.60	87.87	86.34	0.73



LEGEND

- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- INTERCONNECTED ROADWAY CB C/W ONE 19.8L/S IPEX TYPE "A" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN MANHOLE WITH INDIVIDUAL 74.0 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 37.0 L/S IPEX TYPE "C" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 19.8 L/S IPEX TYPE "A" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 13.4 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
- PROPOSED WATERMAIN, VALVE & HYDRANT
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED SANITARY SEWER & MANHOLE
- PROPOSED STORM SEWER & MANHOLE
- PROPOSED CATCH BASIN & LEAD
- ACCESS EASEMENT
- LOT NUMBER
- 2.0m CONC. SIDEWALK
- PHASING LIMIT
- DRAWING NUMBER
- FF = FINISHED FLOOR ELEVATION; TF = TOP OF FOUNDATION ELEVATION; UF = UNDERSIDE OF FOOTING ELEVATION

SEDIMENT CONTROL MEASURES

- REFER TO DETAIL ON DWG DT2 SILT FENCE BARRIER TO OPSD 219.110
- EXISTING OFF-SITE CATCH BASIN TO HAVE FILTER FABRIC

1. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF RECEIVING STORM SEWER OR DRAINAGE DURING CONSTRUCTION ACTIVITIES.
2. ANY STOCK PILE MATERIAL TO BE KEPT ON FLAT AREAS DURING CONSTRUCTION AWAY FROM DRAINAGE PATHS. IF STOCK PILE MATERIAL IS PLACED ON SLOPE AREA, SILT FENCE TO BE INSTALLED.
3. FILTER CLOTH TO BE PLACED UNDER ALL CATCH BASIN AND MANHOLE COVERS ON SITE, FOR TEMPORARY SEDIMENT CONTROL DURING CONSTRUCTION.

NO.	REVISION	DATE
9	AS CONSTRUCTED INFORMATION ADDED	09/06/08
8	SIDEWALK ADDED ON ROYAL FERN WAY	15/06/07
7	RE-ISSUED FOR TENDER	23/03/07
6	ISSUED FOR TENDER / ISSUED FOR CONSTRUCTION PART A & B	28/02/07
5	W/M SYSTEM REVISED FOR FUTURE CONVERSION TO HIGH PRESSURE	16/01/07
4	REVISED PER CITY COMMENTS FOR MOE APPROVAL	14/12/06
3	REVISED TO SUIT PHASING AND MINOR LAYOUT MODIFICATIONS	22/09/06
2	REVISED LAYOUT- RESUBMISSION TO CITY FOR REVIEW	23/06/06
1	ISSUED FOR CITY REVIEW	28/02/06

URBANDALE CORPORATION

J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS
J.L. Richards & Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

PROJECT:

RIVERSIDE SOUTH PHASE 3 URBANDALE CORPORATION CITY OF OTTAWA

PLAN & PROFILE NORTH BLUFF DRIVE FROM NAKINA WAY TO STA. 8+750

DESIGN: D.L.	REVISION NO.:
DRAWN: T.S.	DRAWING NO.: 17
CHECKED: L.D.	
PLOTTED: Sep 17, 2019	
SCALE: 1:500	JOB NO.: 18418-04

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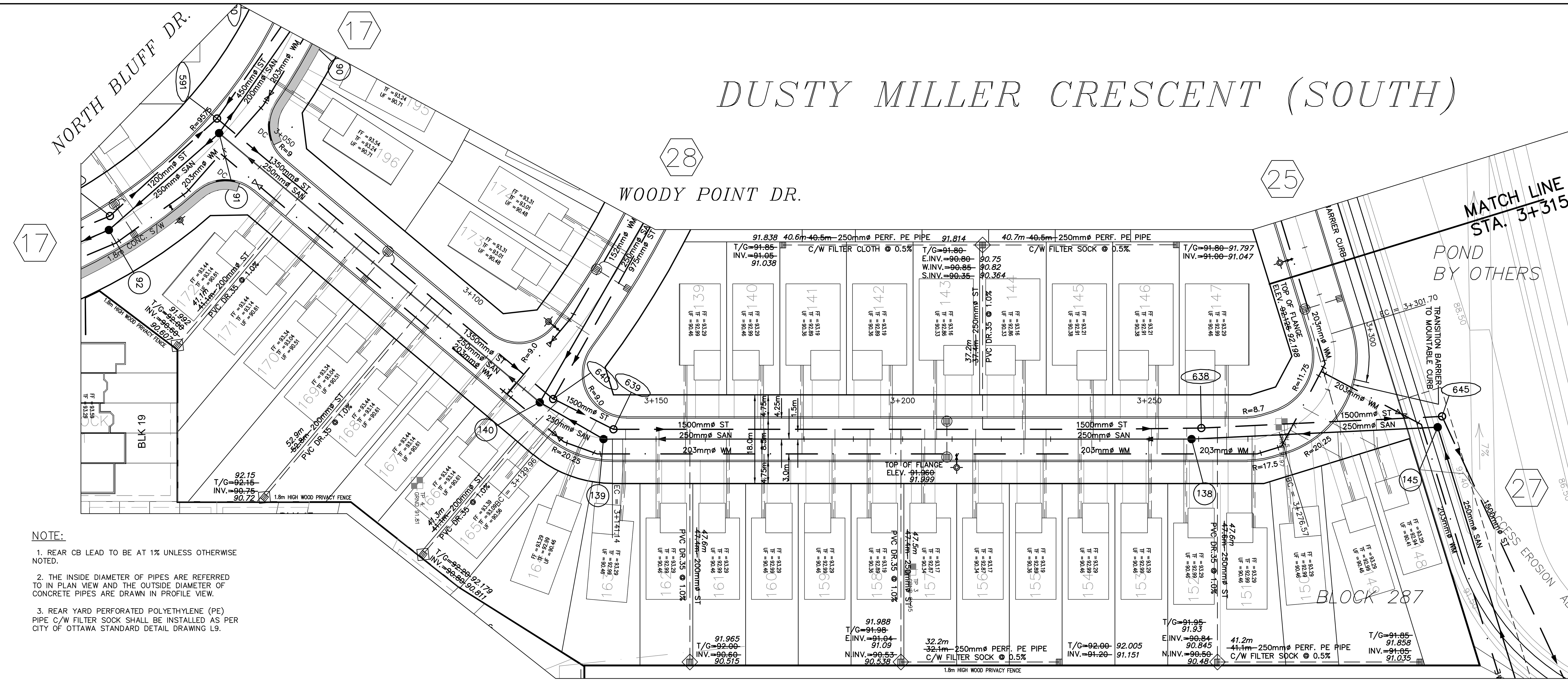
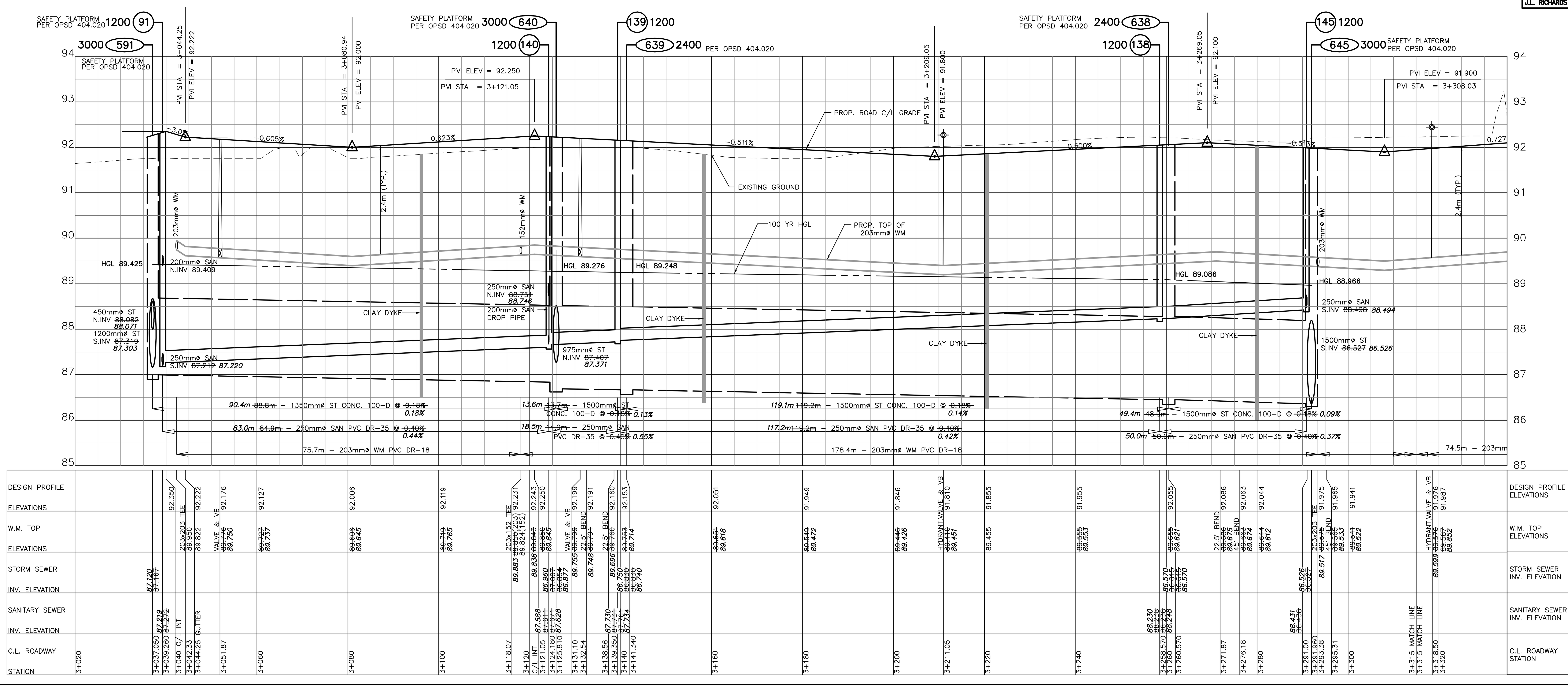


NOTE:

1. REAR CB LEAD TO BE AT 1% UNLESS OTHERWISE NOTED.
2. THE INSIDE DIAMETER OF PIPES ARE REFERRED TO IN PLAN VIEW AND THE OUTSIDE DIAMETER OF CONCRETE PIPES ARE DRAWN IN PROFILE VIEW.
3. REAR YARD PERFORATED POLYETHYLENE (PE) PIPE C/W FILTER SOCK SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING L9.

AS CONSTRUCTED INFORMATION
PRODUCED FROM INFORMATION PROVIDED BY FIELD INSPECTOR
date: June 09, 2008
J.L. RICHARDS & ASSOCIATES LIMITED



LEGEND

- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- INTERCONNECTED ROADWAY CB C/W ONE 19.8L/S IPEX TYPE "A" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN MANHOLE WITH INDIVIDUAL 74.0 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 37.0 L/S IPEX TYPE "C" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 19.8 L/S IPEX TYPE "A" ICD (OR CITY APPROVED EQUIVALENT)
- CATCH BASIN WITH INDIVIDUAL 13.4 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
- PROPOSED WATERMAIN, VALVE & HYDRANT
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED SANITARY SEWER & MANHOLE
- PROPOSED STORM SEWER & MANHOLE
- PROPOSED CATCH BASIN & LEAD
- ACCESS EASEMENT
- LOT NUMBER
- 2.0m CONC. SIDEWALK
- PHASING LIMIT
- DRAWING NUMBER
- FF = 93.50 FINISHED FLOOR ELEVATION
- TF = 93.20 TOP OF FOUNDATION ELEVATION
- UF = 90.65 UNDERSIDE OF FOOTING ELEVATION

SEDIMENT CONTROL MEASURES

- REFER TO DETAIL ON DWG DT2 SILT FENCE BARRIER TO OPSD 219.110
- EXISTING OFF-SITE CATCH BASIN TO HAVE FILTER FABRIC

1. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF RECEIVING STORM SEWER OR DRAINAGE DURING CONSTRUCTION ACTIVITIES.
2. ANY STOCK PILE MATERIAL TO BE KEPT ON FLAT AREAS DURING CONSTRUCTION AWAY FROM DRAINAGE PATHS. IF STOCK PILE MATERIAL IS PLACED ON SLOPE AREA, SILT FENCE TO BE INSTALLED.
3. FILTER CLOTH TO BE PLACED UNDER ALL CATCH BASIN AND MANHOLE COVERS ON SITE, FOR TEMPORARY SEDIMENT CONTROL DURING CONSTRUCTION.

NO.	REVISION	DATE
9	AS CONSTRUCTED INFORMATION ADDED	09/06/08
8	REVISED GRADING LOTS 148 TO 152	15/06/07
7	RE-ISSUED FOR TENDER	23/03/07
6	ISSUED FOR TENDER / ISSUED FOR CONSTRUCTION PART A & B	28/02/07
5	W/M SYSTEM REVISED FOR FUTURE CONVERSION TO HIGH PRESSURE	16/01/07
4	REVISED PER CITY COMMENTS FOR MOE APPROVAL	14/12/06
3	REVISED TO SUIT PHASING AND MINOR LAYOUT MODIFICATIONS	22/09/06
2	REVISED LAYOUT- RESUBMISSION TO CITY FOR REVIEW	23/06/06
1	ISSUED FOR CITY REVIEW	28/02/06

URBANDALE CORPORATION

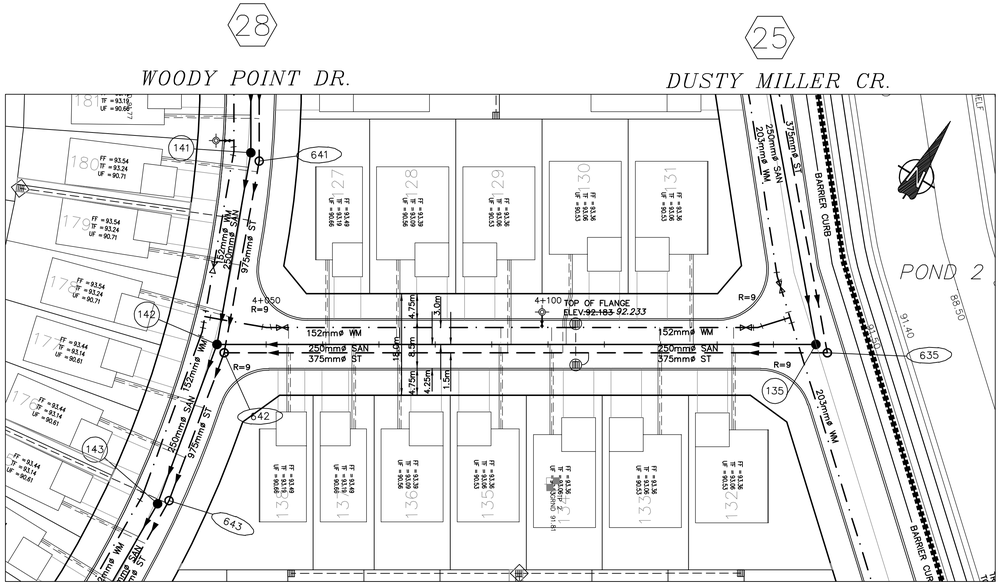
J.L. Richards
ENGINEERS·ARCHITECTS·PLANNERS
J.L. Richards & Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

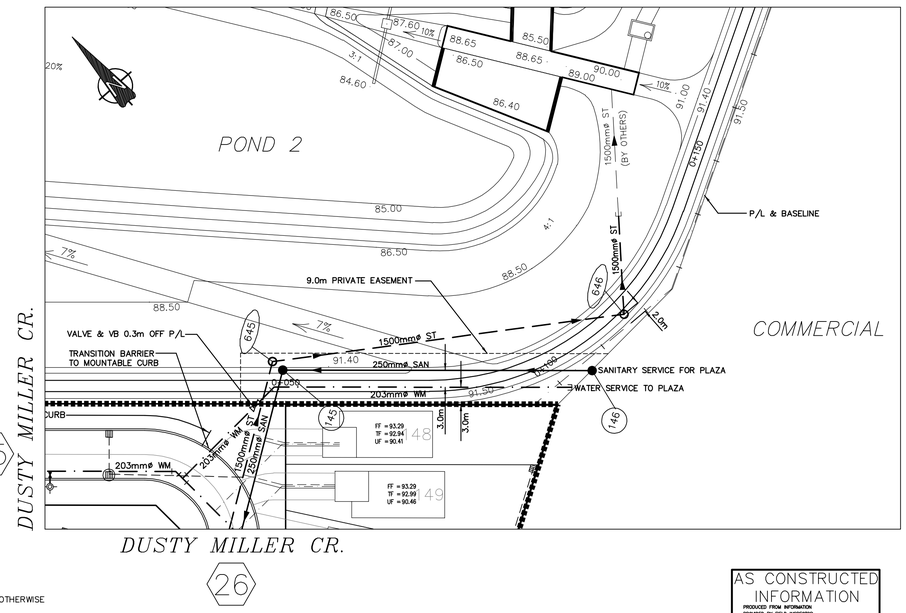
PROJECT:
RIVERSIDE SOUTH
PHASE 4
URBANDALE CORPORATION
CITY OF OTTAWA

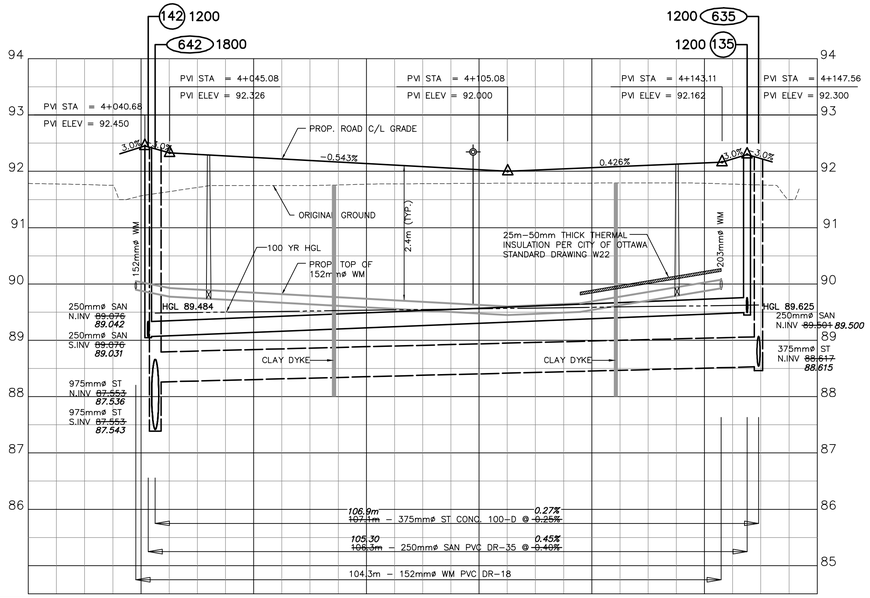
DRAWING: V:\18418-04.LD\18418O4 C 24-25-26.dwg

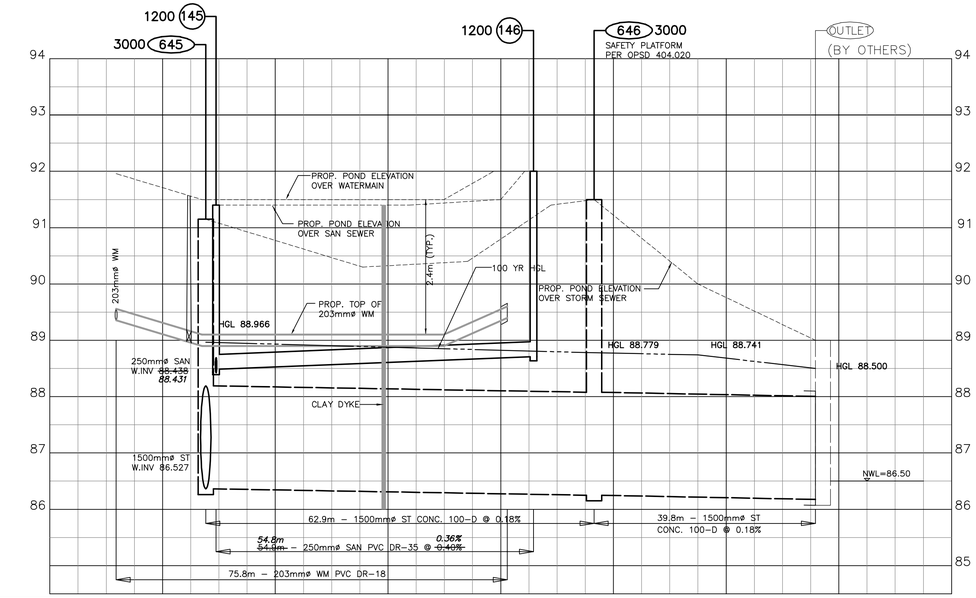
PLAN & PROFILE DUSTY MILLER CRESCENT FROM NORTH BLUFF DR. TO STA. 3+315

DESIGN: D.L.	REVISION NO.:
DRAWN: A.R.M./T.S.	DRAWING NO.:
CHECKED: L.D.	26
PLOTTED: Sep 17, 2019	
SCALE: 1:500	JOB NO.: 18418-04









NOTE:

1. REAR CB LEAD TO BE AT 1% UNLESS OTHERWISE NOTED.

2. THE INSIDE DIAMETER OF PIPES ARE REFERRED TO IN PLAN VIEW AND THE OUTSIDE DIAMETER OF CONCRETE PIPES ARE DRAWN IN PROFILE VIEW.

3. REAR YARD PERFORATED POLYETHYLENE (PE) PIPE C/W FILTER SOCK SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING L9.

AS CONSTRUCTED INFORMATION
PRODUCED FROM INFORMATION
PROVIDED BY FIELD INSPECTOR
date: June 10, 2008
J.L. RICHARDS & ASSOCIATES LIMITED

COYOTE BRUSH LANE

POND AREA

LEGEND

▥	EXISTING CATCH BASIN
▥	PROPOSED CATCH BASIN
	INTERCONNECTED ROADWAY CB C/W ONE 19.8L/S IPEX TYPE 'A' ICD (OR CITY APPROVED EQUIVALENT)
	CATCH BASIN MANHOLE WITH INDIVIDUAL 74.0 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
	CATCH BASIN WITH INDIVIDUAL 37.0 L/S IPEX TYPE 'C' ICD (OR CITY APPROVED EQUIVALENT)
	CATCH BASIN WITH INDIVIDUAL 19.8 L/S IPEX TYPE 'A' ICD (OR CITY APPROVED EQUIVALENT)
	CATCH BASIN WITH INDIVIDUAL 13.4 L/S IPEX CUSTOM MADE ICD (OR CITY APPROVED EQUIVALENT)
	PROPOSED WATERMAIN, VALVE & HYDRANT
	EXISTING WATERMAIN, VALVE & HYDRANT
21	EXISTING SANITARY SEWER & MANHOLE
121	EXISTING STORM SEWER & MANHOLE
21	PROPOSED SANITARY SEWER & MANHOLE
121	PROPOSED STORM SEWER & MANHOLE
	PROPOSED CATCH BASIN & LEAD
	ACCESS EASEMENT
8	LOT NUMBER
	2.0m CONC. SIDEWALK
■ ■ ■ ■ ■ ■	PHASING LIMIT
2	DRAWING NUMBER
FF = 93.50	FINISHED FLOOR ELEVATION
TF = 93.20	TOP OF FOUNDATION ELEVATION
UF = 90.65	UNDERSIDE OF FOOTING ELEVATION

SEDIMENT CONTROL MEASURES

■ ‖ ■ ‖ ■ ‖ ■	REFER TO DETAIL ON DWG DT2 SILT FENCE BARRIER TO OPSD 219.110
△	EXISTING OFF-SITE CATCH BASIN TO HAVE FILTER FABRIC

1. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF RECEIVING STORM SEWER OR DRAINAGE DURING CONSTRUCTION ACTIVITIES.

2. ANY STOCK PILE MATERIAL TO BE KEPT ON FLAT AREAS DURING CONSTRUCTION AWAY FROM DRAINAGE PATHS. IF STOCK PILE MATERIAL IS PLACED ON SLOPE AREA, SILT FENCE TO BE INSTALLED.

3. FILTER CLOTH TO BE PLACED UNDER ALL CATCH BASIN AND MANHOLE COVERS ON SITE, FOR TEMPORARY SEDIMENT CONTROL DURING CONSTRUCTION.

NO.	REVISION	DATE
9	AS CONSTRUCTED INFORMATION ADDED	10/06/08
8	REVISED GRADING LOTS 148 TO 152	15/06/07
7	RE-ISSUED FOR TENDER	23/03/07
6	ISSUED FOR TENDER / ISSUED FOR CONSTRUCTION PART A & B	28/02/07
5	W/M SYSTEM REVISED FOR FUTURE CONVERSION TO HIGH PRESSURE	16/01/07
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2	REVISED LAYOUT- RESUBMISSION TO CITY FOR REVIEW	23/06/06
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URBANDALE
CORPORATION

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J.L. Richards
& Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

PROJECT:
RIVERSIDE SOUTH
PHASE 4
URBANDALE CORPORATION
CITY OF OTTAWA

DRAWING:
PLAN & PROFILE
COYOTE BRUSH LANE
& POND AREA

DESIGN: D.L.	REVISION NO.:
DRAWN: T.S.	DRAWING NO.: 27
CHECKED: L.D.	
DATE: Sep 17, 2019	
SCALE: 1:500	JOB NO.: 18418-04

DUSTY MILLER CRESCENT

1500mm

DUSTY MILLER CRES

SUBJECT PROPERTY

POND 2

EXISTING STORM MH
OBVERT = 88.28

1500mm

EYE BRIGHT CRESCENT

1500mm

PART 3

CONNECT TO EXISTING
STORM MH
OBVERT = 87.91

PART

ALTERNATE
STORM SEWER
OUTLET

PART 4

1500mm

MHO

LIMEBANK RD

LIMEBANK ROAD

2700mmØ

PART 1

2250mmØ

2250mmØ

2250mmØ

2250mmØ

EARL ARMSTRONG ROAD

EARL ARMSTRONG RD

LEGEND:

EXISTING STORM

PROPOSED STORM

N

J:\137404_Earl_Armstro\7.0_Production\7.03_Design\04_Civil_LAND_Adequacy Report\137404-Fig-4.1-STORM.dwg Layout Name: FIGURE 4.1 CONCEPTUAL STORM PLAN Last Saved By: Chris.Cormier Last Saved At: May. 6, 22

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	CONCEPTUAL STORM PLAN	FIGURE 4.1

APPENDIX E

DUSTY MILLER CRESCENT

DUSTY MILLER CRES

SUBJECT PROPERTY

POND 2

EYE BRIGHT CRES

EYE BRIGHT CRESCENT

PART 3

PART 2

PART 4

PART 1

MHO

LIMEBANK RD

LIMEBANK ROAD

EARL ARMSTRONG ROAD

EARL ARMSTRONG RD

LEGEND:

LIGHT DUTY SILT FENCE

TEMPORARY MUD MAT

STRAW BALE CHECK DAM

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	EARL ARMSTRONG/LIMEBANK PLAZA	EROSION & SEDIMENTATION CONTROL PLAN	FIGURE 6.1