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Phase 5B - Provence Orleans Subdivision
2128 Trim Road, Ottawa, Ontario

Site Servicing and Stormwater Management Design Brief

Prepared for: Provence Orleans Realty Investments Inc.

PHASE 5B
PROVENCE ORLEANS SUBDIVISION
OTTAWA, ONTARIO

SITE SERVICING AND STORMWATER MANAGEMENT DESIGN BRIEF

Prepared for:

Provence Orleans Realty Investments Inc.

Prepared by:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario
K2M 1P6

October 2025

Novatech File No. 117155
Ref: R-2025-095

NOVATECH
Engineers, Planners & Landscape Architects

October 14, 2025

Planning, Infrastructure and Economic Development
City of Ottawa
110 Laurier Ave. West, 4th Floor
Ottawa, Ontario
K1P 1J1

Attention: Kelly Livingstone, RPP, MCIP

Dear Mr. Livingstone:

Re: Phase 5B: Provence Orleans Subdivision
Site Servicing and Stormwater Management Design Brief
City File No.: D07-16-18-0021
Novatech File No.: 117155

Please find enclosed the digital copy of the report entitled, "Phase 5B: Provence Orleans Subdivision – Site Servicing and Stormwater Management Design Brief". This report outlines the detailed servicing design for the proposed development with respect to water distribution, sanitary servicing, and stormwater drainage, as well as the approach to stormwater management.

This report is submitted in support of City of Ottawa and MECP approvals and registration in accordance with the conditions of draft approval.

If you have any questions, please contact the undersigned.

Sincerely,

NOVATECH

Trevor McKay, P.Eng.
Senior Project Manager | Land Development Engineering

cc: Evan Garfinkel, Provence Orleans Realty Investments Inc.

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

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Appendix C Watermain Design
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ACCOMPANYING DIGITAL FILES

SWM Modelling Files (input and output)

1.0 INTRODUCTION

Novatech has been retained to prepare a Site Servicing and Stormwater Management Design Brief in support of final approval and registration for Phase 5B of the Provence Orleans Subdivision, located at 2128 Trim Road, in the City of Ottawa. The site is being developed by Provence Orleans Realty Investments Inc.

1.1 Report Objective

This report outlines the detailed servicing design for the proposed development with respect to water distribution, sanitary servicing, and storm drainage, as well as the approach to stormwater management. This report is submitted in support of final approval and registration in accordance with the conditions of draft approval located in **Appendix A** (D07-16-18-0021 dated July 5, 2019).

This report may be included in support of the Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA's) forms for the addition of the proposed sanitary and storm water pipes to the City of Ottawa CLI-ECA's.

1.2 Site Location and Description

Provence Orleans Subdivision is a 27.7ha residential development. The Key Plan (**Figure 1**) indicates the subdivision location. This report describes the development of Phase 5B of the subdivision, which is the final phase of development associated with the draft plan of subdivision approval received in 2019. Phases 1, 2, 3, 4A, 4B, and 5A have previously received detailed design approval.

Phase 1 is completed and has received final acceptance. Phases 2 & 3 have been serviced, and preliminary road construction and the majority of housing construction has been completed. Phases 4A and 4B have been serviced and preliminary road construction has been completed, and housing construction has started. Phase 5A has been serviced and preliminary road construction is in progress. Phase 5B is currently vacant and being used for material stockpiling.

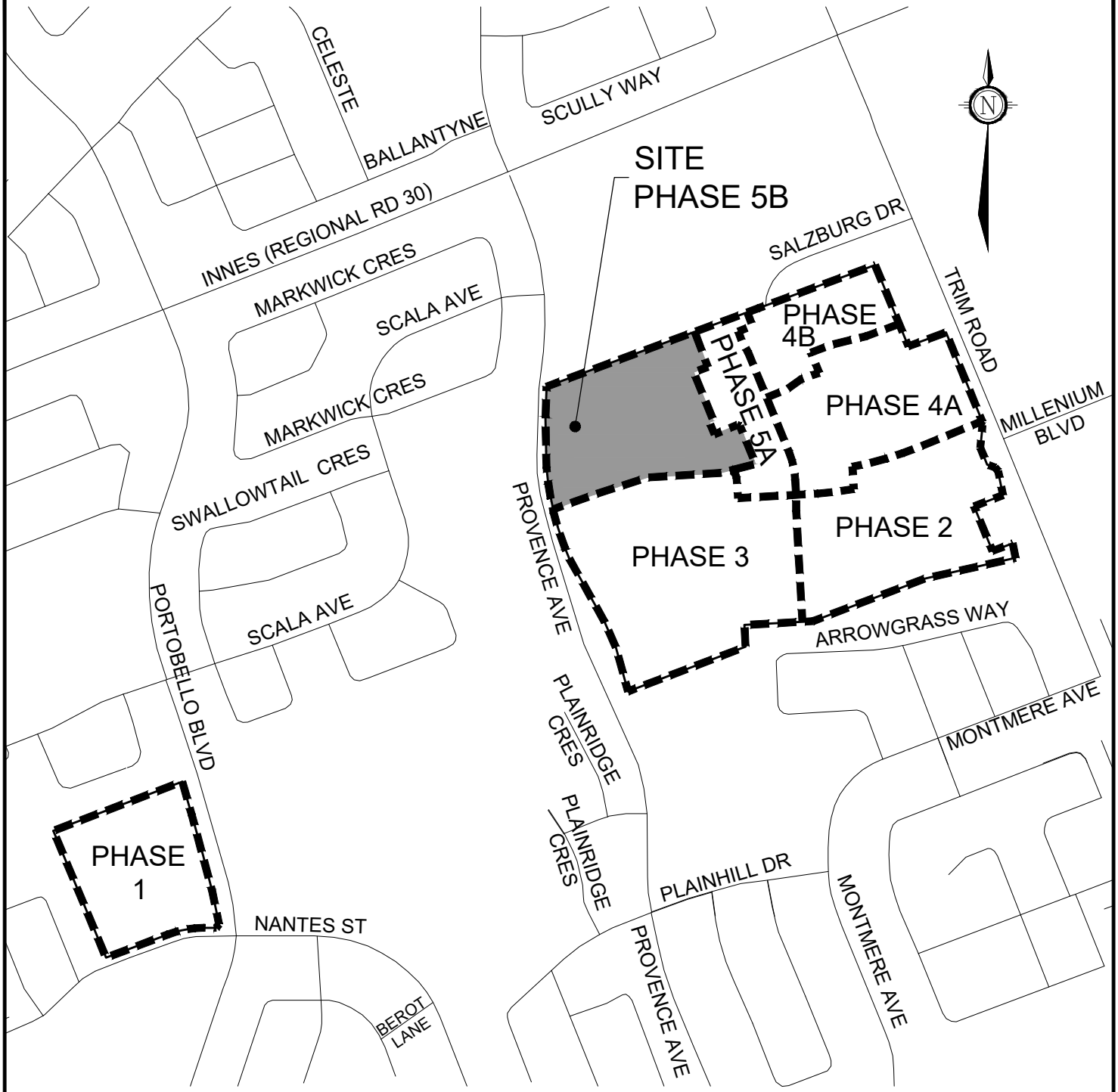
As described in the Tree Conservation Report and Environmental Impact Statement prepared by Muncaster Environmental Planning, under existing conditions, the subdivision lands were dominated by cultivated agricultural fields with scattered trees on portions of the periphery. Phase 5B is bounded by Phase 5A (currently under construction) to the east, Provence Avenue to the west, Phase 3 (currently under construction) to the south and an existing school property to the north. Refer to the Existing Conditions Plan (**Figure 2**).

1.3 Proposed Development

Montrichard Road will be extended west from two connections to Dick Brown Street, forming a crescent approximately 565m in length.

The proposed development of Phase 5B consists of the following, as shown on the Concept Plan (**Figure 3**):

- 41 Single-family dwelling units;
- 54 Townhouse dwelling units;
- 1 park block, approximately 4008m^2 in size



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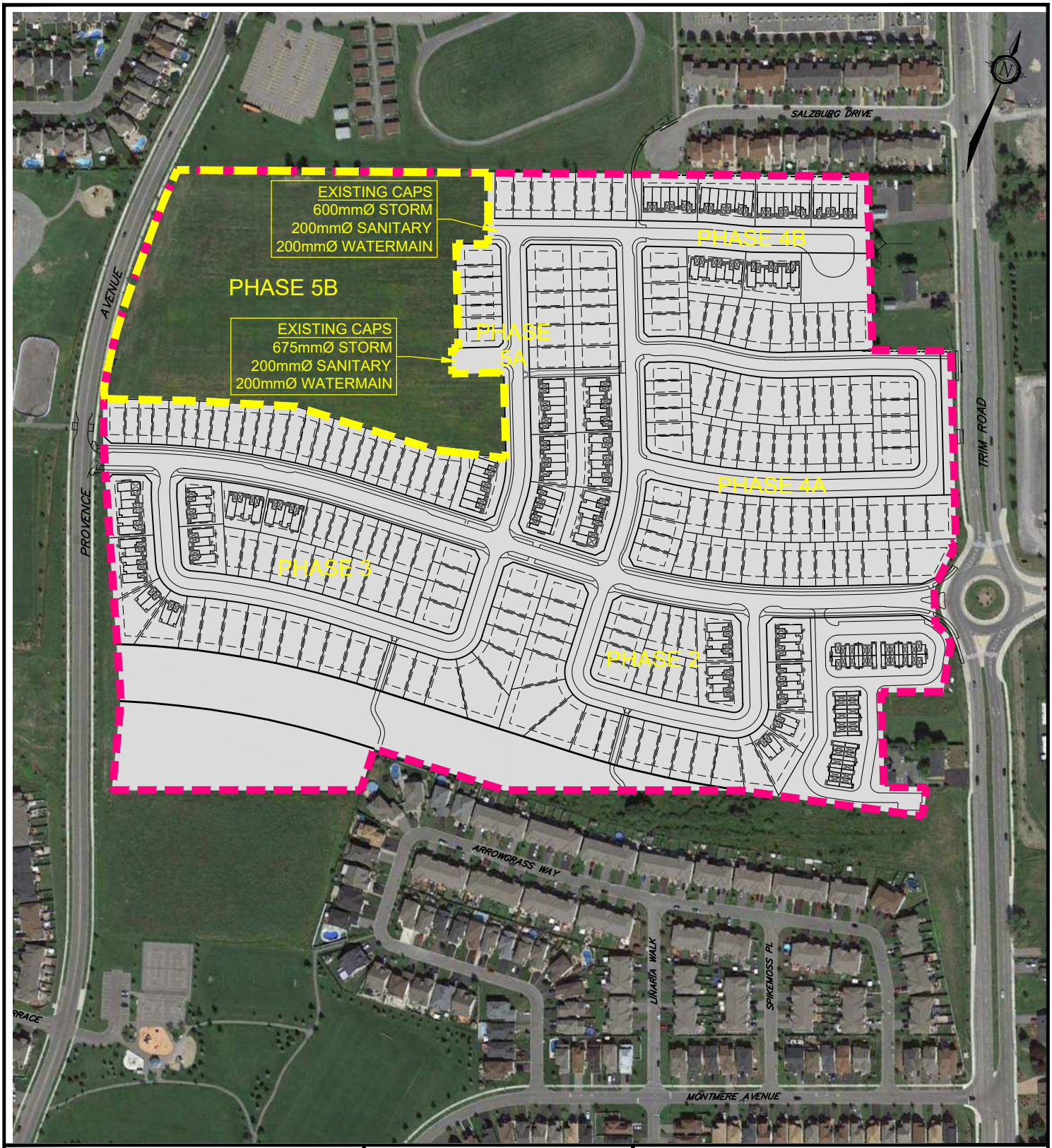
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION
(2128 TRIM ROAD)

KEY PLAN

DATE	JOB	FIGURE
OCT 2025	117155	FIGURE 1

SHT8X11.DWG - 216mmx279mm

\\novatech2018\nova2\2017\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5B-FIG1-KP.dwg, Fig1-KP, Oct 09, 2025 - 10:57am, mdouglas



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SERVICING WORKS CONSTRUCTED, HOUSING CONSTRUCTION ONGOING

CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

EXISTING CONDITIONS PLAN

SCALE 1 : 3750 (0, 30, 60, 90, 120, 150)

DATE OCT 2025 | JOB 117155 | FIGURE FIGURE 2

SHT8X11.DWG - 216mmx279mm

\\novatech2018\nova2\2017\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5B-FIG2-EC.dwg, PH5B-EC, Oct 09, 2025 - 11:02am, mdouglas

ÉCOLE SECONDAIRE CATHOLIQUE BÉATRICE-DESLOGES

SALZBURG DRIVE

ÉCOLE ÉLÉMENTAIRE CATHOLIQUE DE LA DÉCOUVERTE

RANCOURT PARK

PROVENCE AVENUE

PHASE 5B

PHASE 5A

PHASE 4B

PHASE 4A

PHASE 3

PHASE 2

MONTRICHARD ROAD

MONTRICHARD ROAD

DICK BROWN STREET

MONTJAY ROAD

MASSALIA CRESCENT

MASSALIA CRESCENT

VENTOUX AVENUE

VENTOUX AVENUE

PETANQUE CRESCENT

SOCCA CRESCENT

TRIM ROAD

2072

2088

2170

FUTURE TOWNHOME BLOCK DEVELOPMENT IF MONTRICHARD ROAD EXTENDED

MULTI UNIT TOWNHOUSE BLOCK

FUTURE TRANSIT-WAY

FUTURE SCHOOL BLOCK (O.C.D.S.B)

FUTURE SCHOOL

ARROWGRASS WAY

N

LEGEND:

27'	SINGLES
31'	SINGLES
35'	SINGLES
42'	SINGLES
50'	SINGLES
	PARK / WALKWAY BLOCK
	SCHOOL BLOCK

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CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION
(2128 TRIM ROAD)

CONCEPT PLAN

SCALE 1 : 2500 (0, 25, 50, 75, 100)

DATE OCT 2025 | JOB 117155 | FIGURE FIGURE 3

SHT11X17.DWG - 279mmX432mm

\\novatech2018\nova2\2017\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5B-FIG3-CP.dwg, PH5B-CP43, Oct 09, 2025 - 11:05am, mdouglas

The engineering design for the proposed grading, water supply, sanitary servicing, storm drainage, stormwater management, erosion & sediment control, utilities, and landscape for the development is shown on the following drawings, provided in **Appendix G**:

- Layout Plan, 117155-LP5B
- Notes, Tables and Legend Plan, 117155- N&L5B
- Cross Sections Plan, 117155-XS5B
- General Plan of Services - Phase 5B, 117155-GP5B
- Plan and Profiles, 117155-PR13, 117155-PR14, 117155-PR15
- Grading Plan - Phase 5B, 117155-GR5B
- Storm Drainage Area Plan, 117155-STM5B
- Geometric Road Design Drawing - Phase 5B, 117155-GRDD5B
- Erosion and Sediment Control & Removals Plan, 117155-ESC5B
- Composite Utility Plan – Phase 5B, 117155-U5B
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- Landscape Details Plan – Phase 5B, 117155-L5C
- Detail Sheets – Phase 5B, 117155-D20, 117155-D21, 117155-D22, 117155-D23, 117155-D24

1.4 City of Ottawa Checklist

The City of Ottawa - Servicing Study Guidelines for Development Applications require that a Development Servicing Study Checklist be completed to confirm that each applicable item is deemed complete and ready for review by the City of Ottawa's Planning Infrastructure and Economic Development Department. A completed checklist is included in **Appendix B**.

1.5 Supporting Studies

The following supporting documents were utilized in the preparation of this report:

- Site Servicing and Stormwater Management Design Brief (R-2020-018), Provence Orleans Subdivision – Phase 2 & 3, Ottawa, Ontario, prepared by Novatech, dated November 2020;
- Site Servicing and Stormwater Management Design Brief (R-2021-117, Revision 3), Provence Orleans Subdivision – Phase 4A & 4B, Ottawa, Ontario, prepared by Novatech, dated September 2022;
- Site Servicing and Stormwater Management Design Brief (R-2024-047, Revision 2), Provence Orleans Subdivision – Phase 5A, Ottawa, Ontario, prepared by Novatech, dated October 2024;
- Master Servicing Study, Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update, prepared by Stantec, dated September 2013;
- Greater Cardinal Creek Subwatershed Management Plan, prepared by AECOM, dated August 11, 2014;
- Geotechnical Investigation, Proposed Residential Development, Provence Orleans Subdivision, 2128 Trim Road – Ottawa, prepared by Paterson Group Inc., dated September 22, 2022 (PG4278-1, Revision 5);
- Site Servicing and Stormwater Management Design Brief (R-2018-095), Provence Orleans Subdivision, 2128 Trim Road, Ottawa, Ontario, prepared by Novatech in support of Draft Approval, dated March 31, 2019;
- Tree Conservation Report and Environmental Impact Statement – Revised prepared by Muncaster Environmental Planning Inc., dated September 10, 2018.

1.6 Geotechnical Investigations

Based on the proposed grading and servicing requirements, the development will be filled above the original grade. The Geotechnical Investigation (Paterson, 2022) indicates the maximum permissible grade raises of 1.1m, 1.6m and 1.9m, as depicted on the Lightweight Fill Plan (**Figure 4)**.

Portions of the site will exceed the maximum permissible grade raise and will require mitigation measures. Lots 25-26, Lots 36-41 and Blocks 42-45 will exceed the maximum permissible grade raise. In areas where proposed elevations exceed the maximum permissible grade raise, site specific mitigation measures such as preloading (surcharging), and/or lightweight fill will be used in the garage and around the houses.

Approximate limits of grade raise mitigation measures (lightweight fill and/or surcharging) are shown on the Lightweight Fill Plan (**Figure 4)**. A grading plan review and corresponding grade raise matrix for home construction will be completed by Paterson and submitted under a separate cover as required as part of the building permit process.

The proposed pavement structures for the local roads, as recommended by Paterson, are included on the engineering drawings.

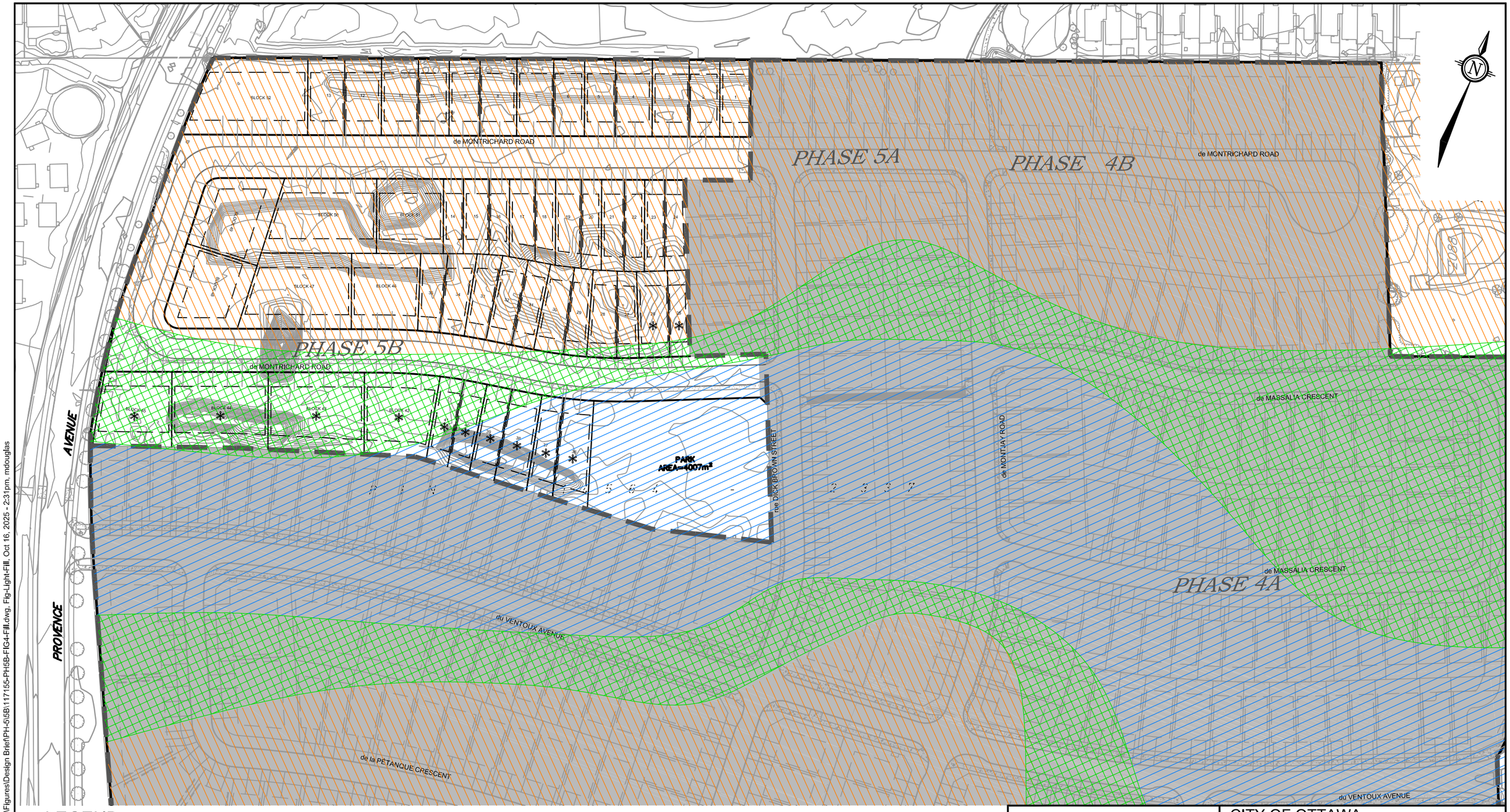
2.0 WATER SUPPLY SYSTEM

The proposed water supply system in Phase 5B has two connection points to existing watermains. The first connection is a 200mm dia. stub, approximately 17.5m west of the south Dick Brown Street/Montrichard Road intersection north of the proposed park. The second connection is a 200mm dia. stub approximately 15.2m west of the north Dick Brown Street/Montrichard Road intersection. This watermain is ultimately connected to the 400mm diameter watermains on Trim Road and Provence Avenue by 200mm diameter watermains on Montrichard Road and Salzburg Drive, 250mm diameter watermain on Dick Brown Street and the 300mm diameter watermain on Ventoux Avenue.

A 200mm dia. watermain loop will be provided on Montrichard Road through Phase 5B connecting to the existing watermains. The existing watermain on Dick Brown Street and Montrichard Road will provide looping for the proposed Phase 5B. Refer to Watermain Layout/Watermain Node Locations (**Figure 5**) for the proposed watermain layout, size, and node locations.

Hydraulic analysis was completed using EPANET 2.2 and boundary conditions provided by the City of Ottawa. Refer to **Appendix C** for boundary conditions. The watermain design is consistent with the master servicing study completed for the area (Stantec, 2013).

Water demands were estimated using the City of Ottawa's Water Distribution Design Guidelines (July 2010), as amended by subsequent technical bulletins, and the Ministry of the Environment Design Guidelines for Drinking-Water Systems (2008).



LEGEND:

* INFORMATION FROM: GEOTECHNICAL INVESTIGATION, PREPARED BY PATERSON GROUP INC, DATED SEPTEMBER 22, 2022 (PG4278-1, REV. 5) & GRADING PLAN MEMORANDUM, DATED OCTOBER 23, 2024 (PG4278-MEMO.22)

PERMISSIBLE GRADE RAISE = UP TO 1.1m

PERMISSIBLE GRADE RAISE = UP TO 1.6m

PERMISSIBLE GRADE RAISE = UP TO 1.9m

* PHASE 5B UNITS WHERE GRADE RAISE MITIGATION MEASURES ARE ANTICIPATED TO BE REQUIRED

EXISTING RESIDENTIAL (PHASES 2, 3, 4, & 5A)

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CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION
(2128 TRIM ROAD)

PHASE 5B LIGHTWEIGHT FILL PLAN

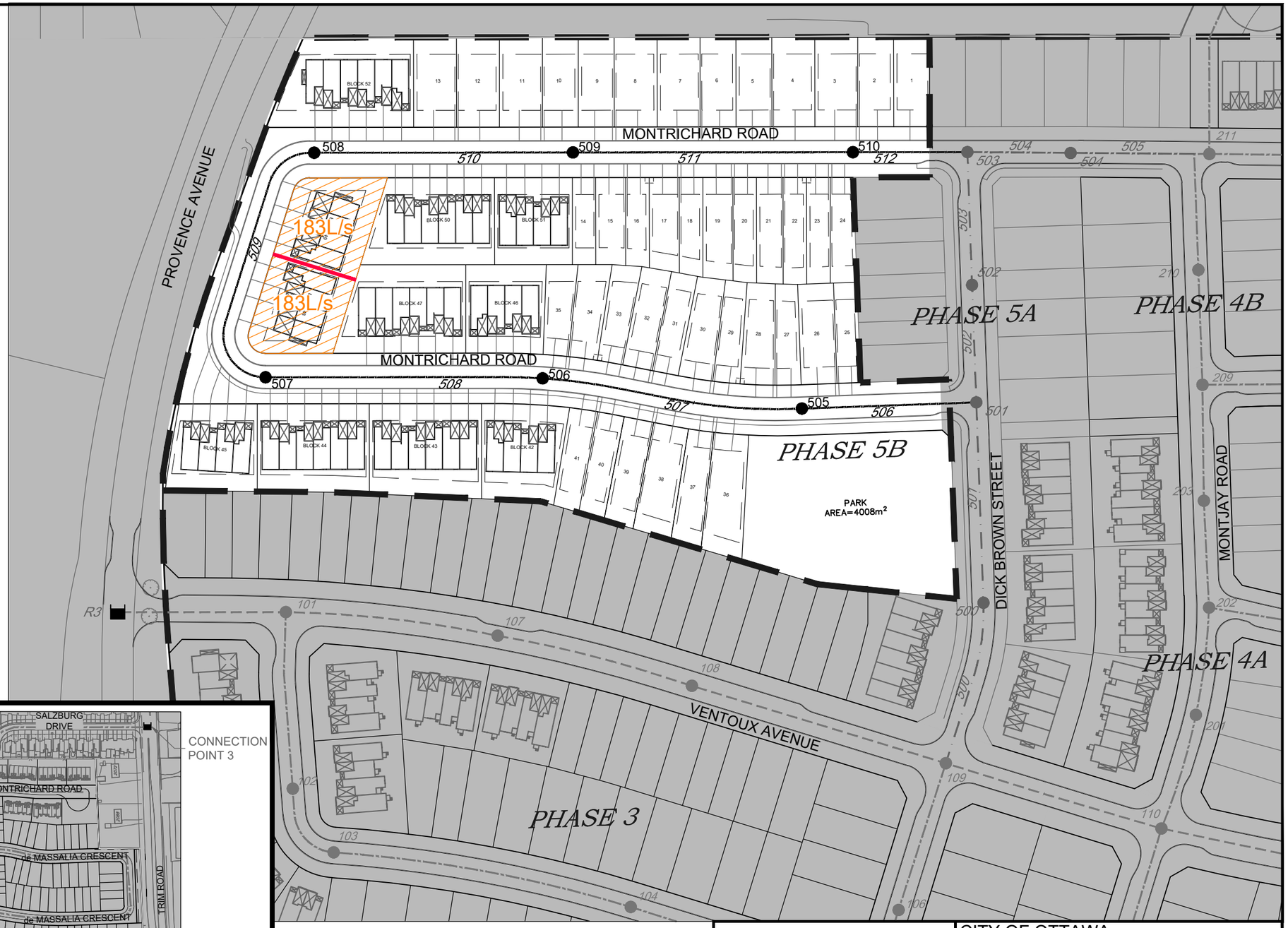
SCALE 1 : 1500 (0, 15, 30, 45, 60)

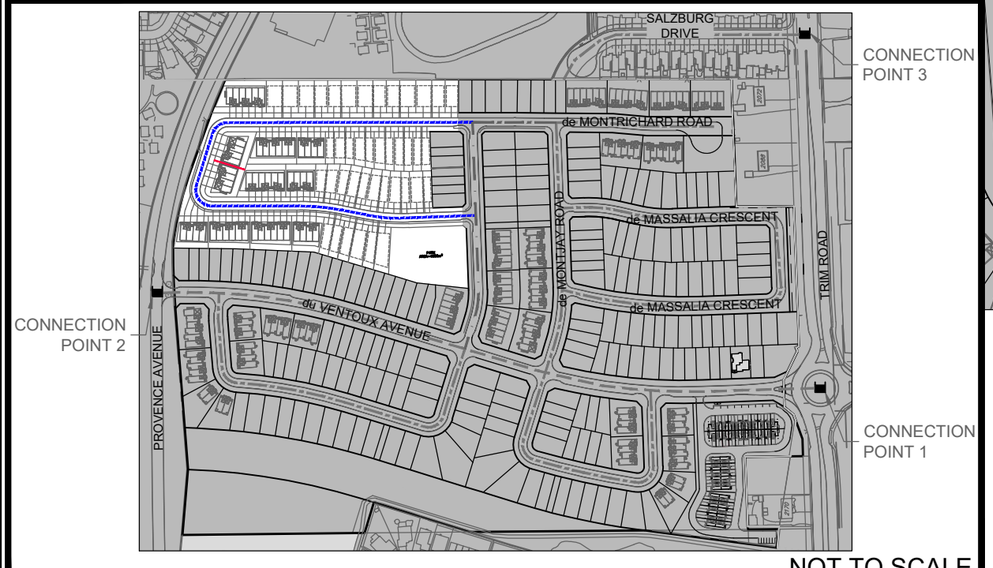
DATE OCT 2025 | JOB 117155 | FIGURE FIGURE 4

\\novatech2018\nova2\2017\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5B-FIG4-FILL.dwg, Fig-Light-Fill, Oct 16, 2025 - 2:31pm, mdouglas

LEGEND

- 504 — PROPOSED 200mmØ WATERMAIN PIPE AND NUMBER
- EXISTING 200mmØ WATERMAIN PIPE
- 500 — EXISTING 250mmØ WATERMAIN PIPE AND NUMBER
- EXISTING 300mmØ WATERMAIN PIPE
- 500 — PROPOSED WATERMAIN NODE
- 213 — EXISTING WATERMAIN NODE
- R1 — RESERVOIR
- EXISTING DEVELOPMENT
- PROPOSED PHASE 5B DEVELOPMENT
- FIREFLOWS THAT CANNOT BE CAPPED AS PER TECHNICAL BULLETIN ISDTB-2014-02
- PROPOSED WATERMAIN PIPE
- 3m BUILDING SEPARATION OR 2 HOUR FIREWALL REQUIRED





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CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION
(2128 TRIM ROAD)

PHASE 5B - WATERMAIN LAYOUT/WATERMAIN NODE LOCATIONS

SCALE 1 : 1500 (0, 15, 30, 45, 60)
DATE OCT 2025
JOB 117155
FIGURE FIGURE 5

SHT11X17.DWG 279mm X 432mm

M:\2017\11\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5-WM-FIG-5.dwg, PH5B-FIGURE-X, Oct 17, 2025 - 10:07am, mdouglas

2.1 Domestic Water Demand

The design criteria used to determine the size of the watermains required to service the subdivision are as follows:

Parameter	Design Criteria
Average Day Demand	280L/cap/day
Single-family Density	3.4 people per single
Townhouse/Semi Density	2.7 people per townhouse
Maximum Day Demand	2.5 x Average Day Demand
Peak Hour Demand	2.2 x Maximum Day Demand
200mm & 250mm Diameter C Factors	110

The design criteria used to determine the size of the watermains required to service the subdivision are based on an approach that considers four scenarios, as follows:

Maximum Allowable Pressure	552kPa (80psi)
Minimum Allowable Pressure (excluding fire flow conditions)	275kPa (40psi)
Minimum Allowable Pressure (including fire flow conditions)	140kPa (20psi)
Maximum Age	24 hours (on-site)

2.2 Fire Flow Demand

The City of Ottawa requires that proposed watermain networks meet Fire Underwriters Survey (FUS) fire flow requirements for units without adequate spacing. Adequate spacing implies a minimum separation of 10m between the back of adjacent units for typical single family and townhome units, as per the City of Ottawa's Technical Bulletin ISDTB-2014-02. The building area for the townhouses and singles without adequate spacing includes the building area of all adjacent units without adequate spacing (3m or more between units). Building areas are reduced where fire walls (2hr) are included.

The required fire flow for singles and townhouses with adequate spacing is 167 L/s (per ISDTB-2014-02). Where adequate spacing is not achieved based on minimum zoning setbacks, the fire flows have been calculated in accordance with the FUS methodology for two scenarios. The first scenario provides for a minimum building separation of 3m at critical locations (between Blocks 48 and 49). The second provides a 2-hr firewall at the same location. The maximum fire flow from the two scenarios was utilized for the watermain analysis. The fire flows for all units in Phase 5B subject to 3m minimum separation or 2-hr fire walls are listed below in **Table 2.1**. Refer to **Appendix C** for FUS fire flow calculations.

Table 2.1: Calculated Fire Flow for Phase 5B Units Without Adequate Spacing

Type	Block	Fire Flow Demand (FUS)		3m Building Separation or 2-hr Fire Walls	
		3m Spacing	2-hr Fire Wall	Required	Location
Townhome	48	183L/s*	167L/s	Yes	Between Block 48 & 49
Townhome	49	183L/s*	167L/s	Yes	Between Block 48 & 49

** Indicates the larger minimum required fire flow to be used in hydraulic analysis.*

The required fire flow demand for all units in Phase 5B are listed in **Table 2.2**.

Table 2.2: Required Fire Flow Demand for Phase 5B

Type	Lots	Adequate Rear Separation	Required Fire Flow Demand (L/s)	
			FUS	ISDTB-2014-02
Singles	1-41	Yes	N/A	167
Townhouse Block	42-47	Yes	N/A	167
Townhouse Block	48-49	No	183	N/A
Townhouse Block	50-52	Yes	N/A	167

Refer to **Figure 5** for node locations and **Appendix C** for boundary conditions, fire flow calculations, and supporting documents.

2.3 Watermain Analysis

The hydraulic analysis of the proposed development was completed by analyzing the average day, peak hour, and maximum day plus fire flow conditions. The results are summarized in **Table 2.3** below.

Table 2.3: Phase 5B Water Operating Conditions

Condition	Demand (L/s)	Minimum/Maximum Allowable Pressure (kPa/psi)	Critical Operating Pressure (kPa/psi)
High Pressure	0.93	552/80 (max)	403.3/58.5
Maximum Day Demand (c/w Fire Flow)	2.33	140/20 (min)	171.7/24.9
Peak Hour Demand	5.13	275/40 (min)	354.4/51.4

Based on the results of the hydraulic analysis, there is capacity to provide both the required domestic and fire flows in the proposed Phase 5B development. Additionally, the maximum age of water on-site is limited to 15.6 hours (Node 507).

Refer to the General Plan of Services (**117155-GP5B**) for watermain layout and for the proposed 2-hour firewall location (or 3m building separation. Refer to **Appendix C** for complete hydraulic analysis results.

2.4 Park Service

During the park design consultation meeting with the City of Ottawa, as the functional park design does not include any water features, it was agreed to waive the draft condition in the subdivision agreement that included a requirement for a water service and a W31.1 Water Chamber for the park. Refer to **Appendix C** for a copy of the meeting notes.

3.0 SANITARY SEWER SYSTEM

It is proposed to provide sanitary sewer service to Phase 5B of the Provence Orleans subdivision with 200mm diameter gravity sewers outletting to the existing 200mm diameter sanitary sewer on Dick Brown Street which was constructed as part of Phase 5A of the subdivision. The sanitary sewer on Dick Brown Street outlets to the 250mm diameter sanitary sewer on Ventoux Avenue, constructed as part of Phases 2 and 3, which ultimately outlets to the existing 525mm diameter sanitary sewer on Trim Road. The proposed sanitary layout within the subdivision is shown on the Sanitary Drainage Area Plan (**117155-SAN5B**). The Sanitary Drainage Area Plan and the sanitary sewer design sheet are included in **Appendix D**.

3.1 Sanitary Sewer Design Criteria

The design criteria used to determine the size of the sanitary sewers required to service the subdivision are obtained from the City of Ottawa Sewer Design Guidelines (October 2012) and Technical Bulletin ISTB-2018-01, and are summarized as follows:

Parameter	Design Criteria
Residential Average Flow	280L/cap/day
Single-family Density	3.4 people per single
Townhouse Density	2.7 people per townhouse
Residential Peaking Factor	4.0 from Harmon Equation (maximum)
Infiltration Allowance	0.33L/s/ha
Minimum Diameter	200mm
Minimum Slope (200mm Diameter)	0.32%

3.2 Sanitary Sewer Analysis

Sanitary service within Phase 5B will be provided by 200mm diameter pipes outletting to the existing 200mm diameter sanitary sewer on Dick Brown Street.

The theoretical peak flow for both Phase 5A and Phase 5B of the subdivision development is calculated to be 7.38L/s. The flow accounted for in the Phase 2 and 3 Design Brief (Novatech, 2020) from Phase 5 was 6.50L/s. A Rational Method analysis was completed for the downstream sanitary sewers within the development (Ventoux Avenue) using the as-built information for the existing sewers to ensure there is adequate capacity to convey the additional 0.88L/s of theoretical peak flow from Phase 5. An updated sanitary design sheet for the Ventoux Avenue sanitary sewers has been provided in **Appendix D**.

The total theoretical peak flow leaving the development at the Trim Road outlet from Phases 2-5 is calculated to be 24.64L/s. The approved theoretical peak flow the whole development to the outlet at Trim Road in the Draft Plan of Subdivision application is 26.16L/s (Novatech, 2019). Therefore, the increased peak flow from Phase 5 will not result in an exceedance of the approved sanitary flow from the site.

The proposed pipe sizes and slopes meet the minimum requirements set out by the City of Ottawa Sewer Design Guidelines Design. The proposed Phase 5 flows are consistent with the sanitary flows indicated in the approved master servicing report.

There is no surcharging of the sanitary sewer and all sanitary sewers are lower than the storm sewers, therefore the storm HGL governs when determining the minimum required underside of footing elevations.

Refer to the enclosed Sanitary Drainage Area Plan (**117155-SAN5B**) and the sanitary sewer design sheet provided in **Appendix D** for details. Refer to the General Plan of Services (**117155-GP5B**) for the sanitary sewer layout.

3.3 Park Service

During the park design consultation meeting with the City of Ottawa, as the functional park design does not include any water features, it was agreed to waive the draft condition in the subdivision agreement that included a requirement for a sanitary sewer service for the park. Refer to **Appendix C** for a copy of the meeting notes.

4.0 STORMWATER DRAINAGE

It is proposed to service Phase 5B of the Provence Orleans subdivision with a gravity storm sewer connecting to the existing 600mm and 675mm diameter storm sewer stubs located at the north and south intersections of Dick Brown Street and Montrichard Road, respectively, that were installed as part of the Phase 5A works. The stubs connect to the existing storm sewer on Dick Brown Street and outlet to the storm sewer on Ventoux Avenue, which was approved and constructed as part of Phase 5A and Phase 2 and 3 of the Provence Orleans Subdivision, respectively. The Phase 2 and 3 storm sewers outlet to the 2550mm diameter storm sewer on Provence Avenue, which ultimately outlets to the Cardinal Creek stormwater management facility. The proposed storm layout within the subdivision is shown on the General Plan of Services (**117155-GP5B**) and the Storm Drainage Area Plan (**117155-STM5B**). The Storm Drainage Area Plan and storm sewer design sheets are included in **Appendix E**.

Storm servicing for the subdivision will be provided using a dual drainage system; runoff from frequent events will be conveyed by storm sewers (minor system), while flows from large storm events which exceed the capacity of the minor system will be conveyed overland along defined overland flow routes (major system). The Cardinal Creek stormwater management facility is the ultimate outlet for the minor system. Major flows will be generally contained within the site limits except for a small amount of flow which leaves the site along the emergency overland flow outlet, located on Trim Road, from the northeast corner of the Massalia Crescent right-of-way (Phase 4A).

4.1 Existing Conditions

The existing site is relatively flat and is situated lower than the surrounding roadways and developed areas. There is an existing ditch located on the northern edge of the site which intercepts and conveys flows originating from the site. The majority of this ditch outlets to a ditch inlet catchbasin (DICB) located in the Salzburg Drive right-of-way. This DICB was denoted as temporary on the as-built design drawing for the Salzburg Drive development (Plan & Profile – Salzburg Drive, **Appendix E**). A small portion of the ditch outlets to a ditch inlet catchbasin (DICB) located in the northwest corner of Phase 5B (Plan & Profile I – Station 10+000 to 10+260, Provence Avenue – From Scala Avenue to 250m North of Plainhill Drive, **Appendix E**). This DICB only receives flows from the subject site and this DICB is proposed to be removed following the installation of the proposed storm sewers.

4.2 Stormwater Drainage Criteria

The stormwater drainage criteria used in the design of the subdivision were developed based on the Master Servicing Study prepared by Stantec which references the applicable portions of *Update to Master Drainage Plan East Urban Community Expansion Area* (Cumming Cockburn Ltd., September 11, 2000) and have been adapted through discussions with the City throughout the previously approved phases of this development. Relevant drawing excerpts from the report (Storm Collector Sewers and Drainage Areas, STM2, and Macro Grading Plan, GRD2) have been included in **Appendix E**.

The storm sewer system is to be designed using the Rational Method to convey peak design flows and must adhere to the following criteria:

Description	Design Criteria
Local Roads	2-year return period
Storm Sewer Design	Rational Method / Modelling
IDF Rainfall Data	City of Ottawa Sewer Design Guidelines
Initial Time of Concentration (Tc)	10 minutes
Minimum Velocity	0.8m/s
Maximum Velocity	3.0m/s
Minimum Diameter	250mm
Minimum Slope (250mm Diameter)	0.432%

In addition to the above noted criteria, the following also apply:

4.2.1 Minor System (Storm Sewers)

- Inlet control devices (ICDs) will be installed in road and rear yard catchbasins to control inflows to the storm sewers to an average of 70L/s/ha;
- Perforated pipes will be installed in the rear yard swales (between landscape catchbasins) to promote infiltration of storm runoff;
- The 100-year hydraulic grade line in the storm sewer shall be at least 0.3m below the underside of footing (USF) elevations for the proposed development.

4.2.2 Major System (Overland Flow)

The major system criteria include:

- Minimum on-site detention storage provided by the major system is 150m^3/ha. On-site storage can include:
    - Road storage (maximum depth of 0.35m);
    - Rear yard storage (maximum static depth of 0.40m);
- Maximum depth of flow (static + dynamic) on local and collector streets shall not exceed 0.35m. The depth of flow may extend adjacent to the right-of-way, provided that the water level does not touch any part of the building envelope and remains below the lowest building opening during the stress test event (100-year+20%);
    - There must be at least 0.15m of vertical clearance between the spill elevation on the street and the ground elevation at the building envelope in the proximity of a flow route or ponding area;
    - There must be at least 0.30m of vertical clearance between the spill elevation and the ground elevation at the adjacent building envelope in the rear yards;
- Storm runoff that exceeds the capacity of the minor system is to be stored within rear yard and road sags and conveyed overland along defined major system flow routes;
- The product of the 100-year flow depth (m) on street and flow velocity (m/s) shall not exceed 0.60.

4.3 Storm Sewer Design (Minor System)

Roadside curbs and catchbasins will be installed throughout the development to convey minor systems flows into the storm sewers. Phase 5B of the development will be serviced by storm sewers ranging in size from 375mm to 675mm diameter. The storm sewers will connect to the existing 600mm and 675mm diameter storm sewer stubs on Montrichard Road at Dick Brown Street.

4.4 Overland Flow Path (Major System)

The site will be graded to provide an overland flow route (major system) for large, infrequent storms or if the storm sewer system becomes obstructed. The flows which exceed the capacity of the major system (known as emergency flows) will ultimately be directed to Trim Road as shown on the Overland Flow Route and Macro Grading Plan (**Figure 6**) via the outlet at the northeast corner of Massalia Crescent. The emergency flows from Phase 5B will be directed to the outlet through Phase 4. The overland drainage on Trim Road flows north towards Innes Road from the site.

The design of the major system conforms to the design standards outlined in Section 5.5 (Major System Considerations) of the City of Ottawa Sewer Design Guidelines (October 2012) and is consistent with the Master Servicing Study. Refer to the Grading Plan (**117155-GR5B**) for details.

4.5 Storm Sewer Analysis

The overall development will be serviced by storm sewers ranging in size from 300mm to 1500mm diameter. The proposed storm sewers connect to the existing 2550mm diameter storm sewer on Provence Avenue. The theoretical allowable peak flow for the subdivision development area (Phases 2, 3, 4 and 5) was calculated to be 1,542L/s. As per the Phase 4A & 4B Design Brief (Novatech, 2022), an ultimate allowable release rate of 1,595L/s to the existing storm sewer on Provence Avenue accounts for the development of the existing lands at 2072 and 2088 Trim Road being developed and controlled to 70L/s/ha.

The proposed pipe sizes and slopes meet the minimum requirements set out by the City of Ottawa Sewer Design Guidelines Design. The proposed Phase 5B flows are consistent with the overall storm design indicated in the approved master servicing report and the Phase 2 and 3 Design Brief (Novatech, 2020).

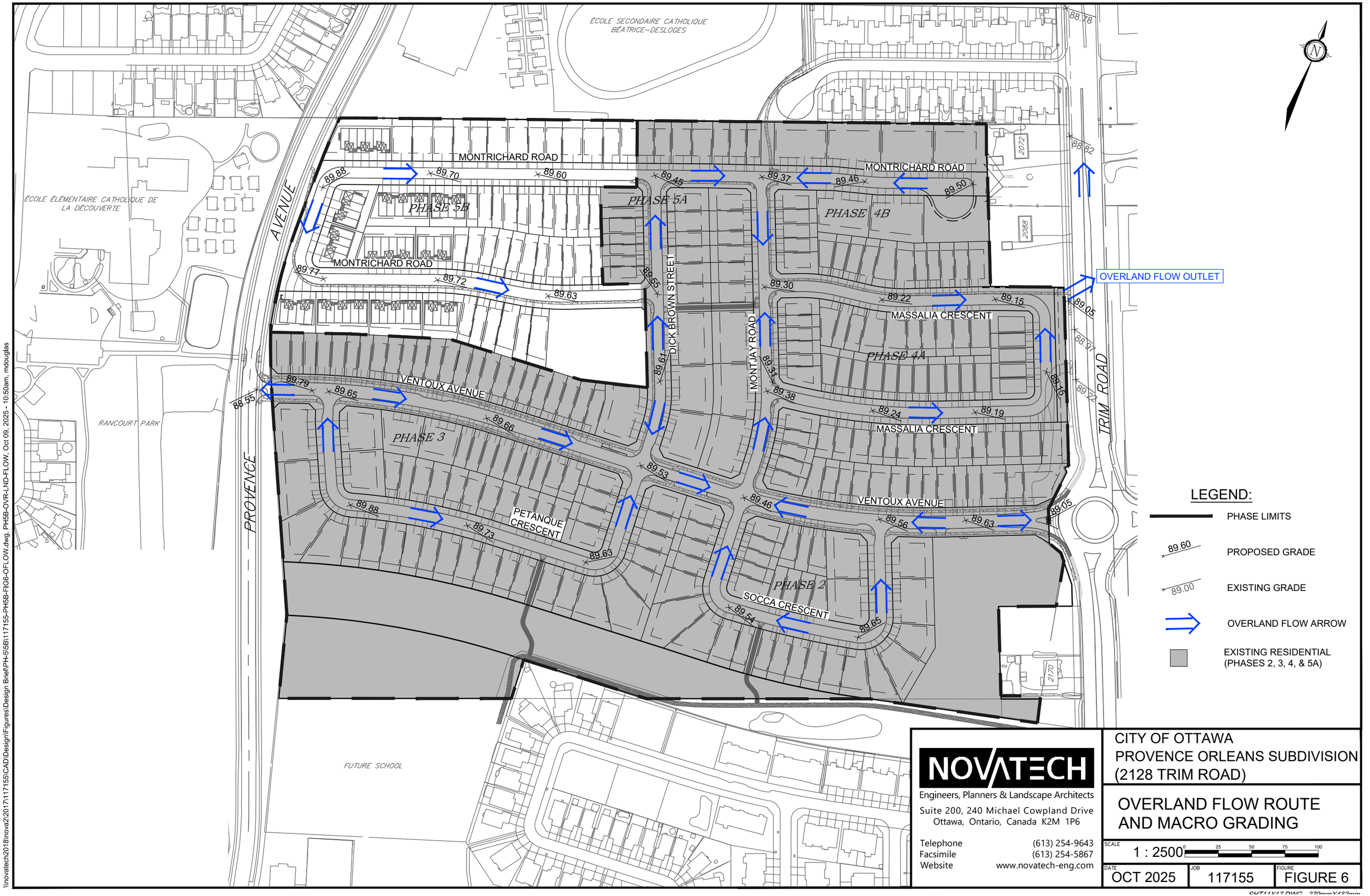
Refer to the enclosed Storm Drainage Area Plan (**117155-STM5B**) and the Storm Sewer Design Sheet provided in **Appendix E** for details. Refer to the General Plan of Services (**117155-GP5B**) for the storm sewer layout.

5.0 STORMWATER MANAGEMENT

Phase 5B of the Provence Orleans subdivision is located within the Rideau Valley Conservation Authority jurisdiction. The stormwater drainage criteria used in the design of the subdivision were developed based on the *Greater Cardinal Creek Subwatershed Management Plan* (AECOM, August 11, 2014) and the Master Servicing Study (Stantec, September 2013) which references the applicable portions of *Update to Master Drainage Plan East Urban Community Expansion Area* and have been adapted through discussions with the City of Ottawa.

The City of Ottawa Sewer Design Guidelines require hydrologic and hydraulic modelling for all dual drainage systems. The performance of the proposed storm drainage system for the subject site was evaluated using the PCSWMM hydrologic/ hydraulic model. The Cardinal Creek stormwater management facility is the ultimate outlet for the minor system. The major system flows will be contained within the site limits where grading permits the on-site capture and storage of runoff. To provide accurate modelling for the entire development, Phase 5B has been modeled with the previously approved Phases 2, 3, 4A, 4B and 5A.

The PCSWMM model schematics and 100-year model output are provided in **Appendix F**. Digital copies of the modelling files and model output for all storm events are provided with this submission package.



LEGEND:

- PHASE LIMITS
- 89.60 PROPOSED GRADE
- 89.00 EXISTING GRADE
- OVERLAND FLOW ARROW
- EXISTING RESIDENTIAL (PHASES 2, 3, 4, & 5A)

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CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

OVERLAND FLOW ROUTE AND MACRO GRADING

SCALE 1 : 2500 (0, 25, 50, 75, 100)

DATE OCT 2025 | JOB 117155 | FIGURE FIGURE 6

\\novatech\2018\nova2\2017\117155\CAD\Design\Figures\Design Brief\PH-5\5B\117155-PH5B-FIG6-OFLOW.dwg, PH5B-OVR-LND-FLOW, Oct 09, 2025 - 10:50am, mdouglas

5.1 Stormwater Management Design Criteria

The following stormwater management criteria were used in the development of the design:

Water Quality

- An '*Enhanced'* level of water quality treatment (80% long-term TSS removal) is required for the proposed phase of the development:
    - The site outlets to the Provence Avenue storm sewer and ultimately the Cardinal Creek stormwater management facility, which has been designed to provide a '*Normal*' level of water quality treatment (70% long-term TSS removal).
    - Additional on-site stormwater water quality treatment is to be provided by a water quality treatment unit.
    - The combined treatment is to provide an overall '*Enhanced'* water quality treatment (80% *total* long-term TSS removal) prior to discharging to Cardinal Creek.

Water Quantity

- On-site stormwater water quantity is to be controlled to the allowable release rate of 70L/s/ha.
    - As per the Phase 4A & 4B Design Brief (Novatech, 2022), the interim allowable release rate for Provence Orleans Subdivision is 1,591L/s to account for the uncontrolled flows from 2072 & 2088 Trim.
    - The ultimate allowable release rate to the receiving system on Provence Avenue is 1,595L/s which accounts for the future development of 2072 & 2088 Trim controlled to 70L/s/ha, as per the Phase 4A & 4B Design Brief (Novatech, 2022).
    - For the purposes of this report, the interim allowable release rate of 1,591L/s will be used.
- Lot level and Conveyance Best Management Practices should be implemented to promote infiltration and treatment of storm runoff.

5.2 Water Quality

To provide '*Enhanced*' stormwater water quality treatment for Phase 5A and 5B, a water quality treatment unit (MH 300A) was approved and constructed as part of the Phase 5A works at the outlet of the storm sewer prior to connecting to the existing Ventoux Avenue storm sewer.

A Vortechs 9000 unit was installed and sized so that when used in series with the Cardinal Creek stormwater management facility, a total suspended solids (TSS) removal of 80% is achieved. The Cardinal Creek stormwater management facility provides 70% TSS removal and the Vortechs unit was sized to provide 85% TSS removal. The Vortechs 9000 was installed inline due to restricted space within the right-of-way and has a limited treatment capacity of 400L/s. The unit was sized based on the drainage area, runoff coefficient (C value) and treatment capacity based on the approved Phase 5A layout and the Draft Plan approved street layout and preliminary grading of Phase 5B. Phase 5B has since changed to a denser lot type and now has a direct runoff area not flowing through the Vortechs 9000 unit. The revised drainage area to the unit was part of the Phase 5B design compared to the original Phase 5A design is provided in **Table 5.1**.

Table 5.1 Vortechs 9000 Contributing Drainage Area Comparison

Design Phase	Drainage Area (ha)	Runoff Coeff. (C)	A x C	Inflow (L/s)
Phase 5A	5.512	0.63	3.50	329.8
Phase 5B	5.467	0.64	3.51	329.4
Difference	-0.045	0.01	0.01	-0.4
% Difference	-0.8%	1.1%	0.2%	-0.1%

Based on design changes to Phase 5B, there is a slight decrease in contributing drainage area and an increase in impervious area (runoff coefficient) to the Vortechs 9000. The resulting A x C value and inflows are very similar to what was originally sized. The unit is providing more treatment than required since the Cardinal Creek stormwater management facility provides 70% TSS removal and the Vortechs 9000 unit is only providing additional treatment to achieve 80% TSS removal.

Based on the above, the Vortechs 9000 unit will be able to provide water quality treatment to a similar level as designed as part of Phase 5A and will be providing adequate treatment in series with the Cardinal Creek stormwater management facility. Sizing information and product details for the Vortechs 9000 are provided in **Appendix F**.

5.3 Retention of the First 5mm of Rainfall

The *Greater Cardinal Creek Subwatershed Management Plan* (AECOM, August 11, 2014) requires, to the extent possible, the on-site retention of the first 5mm of all rainfall events for infill development within the watershed. Wherever practical, measures have been implemented to retain the first 5mm of rainfall on-site, including the use of infiltration trenches in the rear yards.

Due to the perviousness of the rear yards and the depression storage and infiltration capacity within the grassed areas of the rear yards, there will be no runoff generated from the rear yards from the first 5mm of rain events. In addition, the infiltration trenches provided within the rear yards will provide some infiltration potential to retain runoff from the adjacent building roofs during the 5mm event.

The Geotechnical Investigation prepared by Paterson indicates that clay soils are present on the site. As per Condition 1 as set out in the City of Ottawa IWSTB-2024-04, the use of low impact development (LID) measures is not permitted within the City of Ottawa rights of ways in these types of soils. Therefore, it is not possible to retain the first 5mm of rainfall from the rights of ways.

5.4 Stormwater Management Model Development

The PCSWMM model has been developed to account for both minor and major system flows from the subdivision and ensure no adverse impacts on the downstream watercourses and wetland areas. The results of the analysis were used to:

- Determine the total major and minor system runoff from the site;
- Size the ICDs for each inlet to the storm sewer system;
- Calculate the storm sewer hydraulic grade line for the 100-year storm event; and
- Evaluate overland flow depths and ponding volumes during the 100-year event.

5.5 Design Storms

The hydrologic analysis was completed using the following synthetic design storm events. The IDF parameters used to generate the design storms were taken from the City of Ottawa Sewer Design Guidelines.

Chicago Storms	*12 Hour SCS Type II Storms*
25mm 4hr Chicago storm	2-year 12-hour SCS Type II Storm
2-year 3hr Chicago storm	5-year 12-hour SCS Type II Storm
5-year 3hr Chicago storm	100-year 12-hour SCS Type II Storm
100-year 3hr Chicago storm	

The 3-hour Chicago distribution generated the highest peak flows for both the minor and major systems during the Phase 2 and 3 analysis (Novatech, 2020) and was determined to be the critical storm distribution for the design of the storm drainage system.

The proposed drainage system has been stress-tested using a 3-hour Chicago design storm that has a 20% higher intensity and total volume compared to the 100-year event as per the requirements of the City of Ottawa Sewer Design Guidelines. The July 1st, 1979 historical event was also run as a stress-test scenario for the proposed development and compared to the 100-year+20% event. The 100-year+20% produced higher ponding depths and HGL elevations, and results for this scenario are reported as the worst-case scenario.

5.6 Model Parameters

Storm Drainage Areas

For modelling purposes, the site has been divided into subcatchments based on the drainage areas tributary to each inlet of the proposed storm sewer system. The catchment areas are shown on the Storm Drainage Area Plan (**117155-STM5B**). Refer to the Grading Plan (**117155-GR5B**) and the General Plan of Services (**117155-GP5B**) for the location of high points and low points, and the storm sewer layout, respectively.

The hydrologic parameters for each subcatchment were developed based on the Grading Plan (**117155-GR5B**) and the Storm Drainage Area Plan (**117155-STM5B**). An overview of the drainage area parameters for each phase is provided in **Table 5.2**.

Table 5.2 Hydrologic Model Parameters

Area ID	Catchment Area (ha)	Runoff Coeff. (C)	Percent Imperv. (%)	No Depression (%)	Flow Path Length (m)	Equivalent Width (m)	Average Slope (%)
Phases 2 & 3							
2-00	1.239	0.65	64%	50%	44.5	278.6	0.5%
2-01A	0.084	0.68	69%	30%	27.4	30.7	3.0%
2-01B	0.162	0.67	67%	30%	27.4	59.2	3.0%
2-02	0.230	0.69	70%	25%	24.8	92.7	3.0%
2-03	0.173	0.41	30%	100%	20.8	83.1	3.0%
2-04	0.464	0.64	63%	39%	23.8	195.4	3.0%
2-05	0.339	0.66	66%	26%	26.6	127.5	3.5%
2-06	0.173	0.43	33%	100%	16.8	103.3	3.3%
2-07	0.160	0.46	37%	100%	15.7	101.6	3.5%
2-08	0.265	0.36	23%	100%	30.1	88.0	2.5%
2-09	0.411	0.64	63%	39%	24.1	170.5	3.5%

Area ID	Catchment Area (ha)	Runoff Coeff. (C)	Percent Imperv. (%)	No Depression (%)	Flow Path Length (m)	Equivalent Width (m)	Average Slope (%)
2-10	0.133	0.36	23%	100%	29.9	44.5	2.5%
2-11	0.417	0.63	61%	44%	25.7	162.2	3.5%
2-12	0.280	0.55	50%	100%	22.3	125.4	3.0%
2-13	0.146	0.67	67%	0%	9.9	147.0	0.8%
3-01	0.280	0.55	50%	100%	43.0	65.1	2.5%
3-02	0.433	0.65	64%	41%	21.9	197.5	3.5%
3-03	0.508	0.65	64%	36%	25.3	200.9	3.0%
3-04	0.349	0.55	50%	100%	13.7	253.9	2.5%
3-05	0.617	0.65	64%	36%	25.7	240.3	3.5%
3-06	0.313	0.55	50%	100%	14.1	221.9	2.5%
3-07	0.425	0.65	64%	40%	23.7	179.3	3.5%
3-08	0.324	0.55	50%	100%	23.3	139.4	2.5%
3-09	0.410	0.65	64%	42%	23.2	177.0	3.5%
3-10	0.232	0.55	50%	100%	35.8	64.7	3.0%
3-11	0.440	0.65	64%	48%	24.7	177.8	3.0%
3-12	0.346	0.55	50%	100%	40.1	86.4	2.0%
3-13.1	0.157	0.55	50%	100%	23.2	67.5	2.0%
3-13.2	0.068	0.55	50%	100%	17.7	38.5	2.0%
3-13.3	0.104	0.55	50%	100%	18.8	55.3	2.0%
3-13.4	0.066	0.55	50%	100%	16.7	39.6	2.0%
3-13.6	0.043	0.55	50%	100%	15.9	27.1	2.0%
3-14	0.120	0.65	64%	28%	25.0	48.0	4.5%
Phase 4							
4A-01	0.319	0.68	69%	40%	24.8	128.8	4.0%
4A-02	0.521	0.59	56%	100%	18.0	289.9	3.0%
4A-03	0.420	0.70	71%	50%	23.9	175.9	4.0%
4A-04	0.363	0.70	71%	45%	24.4	148.5	4.0%
4A-05	0.262	0.56	51%	25%	24.6	106.4	4.0%
4A-06	0.320	0.63	61%	40%	25.3	126.7	4.0%
4A-07	0.265	0.57	53%	100%	16.9	156.9	3.5%
4A-08	0.302	0.56	51%	100%	15.4	195.8	3.0%
4A-09	0.386	0.68	69%	50%	24.6	157.1	3.5%
4A-10	0.384	0.56	51%	100%	16.4	233.5	3.5%
4A-11	0.376	0.55	50%	100%	15.3	245.5	3.5%
4A-12	0.267	0.66	66%	40%	25.6	104.2	4.0%
4A-13	0.386	0.60	57%	100%	15.1	254.8	3.0%
4A-14	0.339	0.69	70%	45%	24.4	138.7	4.0%
4B-01A	0.223	0.72	74%	55%	26.8	83.3	3.5%
4B-01B	0.213	0.69	70%	25%	22.9	93.1	4.0%
4B-02	0.264	0.63	61%	100%	17.6	149.7	4.0%
4B-03	0.311	0.70	71%	45%	23.0	135.5	3.5%
4B-04	0.353	0.68	69%	45%	25.1	140.6	4.0%

Area ID	Catchment Area (ha)	Runoff Coeff. (C)	Percent Imperv. (%)	No Depression (%)	Flow Path Length (m)	Equivalent Width (m)	Average Slope (%)
4B-05	0.279	0.56	51%	100%	15.9	175.5	3.5%
DR-1	0.025	0.34	20%	0%	24.7	10.1	3.0%
DR-2	0.039	0.20	0%	0%	4.5	86.8	12.0%
Phase 5A							
5A-01	0.262	0.70	71%	35%	39.7	66.0	4.0%
5A-02	0.310	0.58	54%	100%	16.4	189.5	5.5%
5A-03	0.382	0.71	73%	40%	24.2	157.8	4.0%
5A-04	0.395	0.56	51%	100%	24.4	161.9	2.5%
5A-05	0.219	0.68	69%	30%	37.0	59.2	3.5%
5A-06	0.136	0.61	59%	100%	19.4	70.1	5.0%
5A-07	0.269	0.71	73%	45%	23.1	116.4	4.0%
Phase 5B							
5B-01	0.344	0.69	70%	45%	21.6	159.4	3.5%
5B-02	0.203	0.60	57%	100%	16.1	126.3	4.0%
5B-03	0.403	0.71	73%	45%	25.3	159.4	3.5%
5B-04	0.381	0.70	71%	45%	23.3	163.7	3.5%
5B-05	0.284	0.71	73%	35%	38.5	73.8	3.0%
5B-06	0.386	0.72	74%	45%	22.8	169.1	4.0%
5B-07	0.417	0.58	54%	100%	20.6	202.3	3.5%
5B-08	0.460	0.72	74%	50%	27.7	166.2	3.5%
5B-09	0.215	0.67	67%	30%	28.4	75.8	3.5%
5B-10	0.401	0.30	14%	0%	55.9	71.7	2.0%
DR-5B	0.048	0.32	17%	85%	3.2	149.2	2.0%
Subtotal:	***22.04***						
Offsite Areas (Drain into Phase 4)							
OS-1	0.529	0.32	17%	40%	32.9	160.6	3.0%
Subtotal:	***0.53***						
TOTAL:	**22.57**						

Slopes

Slopes for each subcatchment area are based on the average slope along the flow path based on the grading plan (**117155-GR5B**). For front yards, this is the average slope from the front of the house towards the edge of pavement. For rear yards, this is the average slope from the back of the house towards the center of the rear yard swale.

Infiltration

Infiltration losses for all catchment areas were modeled using Horton's infiltration equation, which defines the infiltration capacity of the soil over the duration of a precipitation event using a decay function that ranges from an initial maximum infiltration rate to a minimum rate as the storm progresses. The default values for the City of Ottawa were used for all catchments.

Horton's Equation:
$f(t) = f_c + (f_o - f_c)e^{-k(t)}$

Initial infiltration rate: f_o = 76.2mm/hr
Final infiltration rate: f_c = 13.2mm/hr
Decay Coefficient: k = 4.14/hr

Depression Storage

The default values for depression storage in the City of Ottawa were used for all catchments.

- Depression Storage (pervious areas): 4.67mm
- Depression Storage (impervious areas): 1.57mm

Residential rooftops are assumed to provide no depression storage and all rainfall is converted to runoff.

Equivalent Width

Equivalent width refers to the width of the sub-catchment flow path. The width for each subcatchment was assigned as twice the gutter length (or rear yard swale length) for double loaded roads and rear yards. For single loaded rear yards the equivalent width was assumed to be the gutter or rear yard swale length. This parameter is calculated as described in Section 5.4.5.6 of the City of Ottawa Sewer Design Guidelines.

Impervious Values

The runoff coefficients for Phase 5A and 5B were determined for each of the subcatchment areas based on the minimum zoning setback requirements for the proposed lot sizes. Refer to **117155-STM5B** for layout. Sample calculations and measured areas used for runoff coefficient calculations have been included in **Appendix E**.

Runoff coefficients were converted to Percent Impervious (%IMP) values for each subcatchment area using the equation:

$$\%IMP = \frac{C-0.2}{0.7}$$

5.7 Minor System

Inflows to the minor system will be controlled using inlet control devices (ICDs) designed to control inflows to the storm sewer system to 70L/s/ha, on average, for all storm events up to and including the 100-year event. Each road catchbasin will have an individual connection to the storm sewer, catchbasin pairs will not be interconnected. Rear yard landscape catchbasins will be connected in series with an ICD at the outlet of the downstream catchbasin or catchbasin maintenance hole structure, located in the right-of-way.

ICDs will be either round orifice plates or vortex-type inlets, as approved by the City of Ottawa per Material Specification 18.4-3. The required ICD sizes will be standard City of Ottawa orifice sizes, including 83mm and 94mm in standard sizes, and the IPEX Tempest LMF vortex-type 70mm to 105mm. The proposed ICDs will control flows to approximately 7L/s to 21L/s during the 100-year storm event. Standard ICD curves and specifications for the Tempest LMF vortex-type ICD have been provided in **Appendix F**.

Inflows to the storm sewer were modeled based on the ICD specified for the inlet and the maximum depth of ponding. Storage volumes within the right-of-way are based on the grading design. ICD parameters are outlined as follows in **Table 5.3**. The Maximum Head and Maximum Capture rates are based on a ponding depth of 0.35m above the top of grate in the roadways and 0.40m above the top of grate in the rear yards. During the 100-year storm, ponding depths in some cases are lower than the maximum. Ponding depths and capture rates for all storm events are provided in an expanded table in **Appendix F**.

Table 5.3: Inlet Control Device Parameters

Area ID	CB/CBMH ID / ICD Location	ICD Size	Max. Head* (m)	Max. Capture Rate** (L/s)	100-yr Head (m)	100-yr Capture Rate*** (L/s)	Drainage Area (ha)	Flow Rate**** (L/s/ha)
Roadway Catchbasins								
5B-09	CB76	LMF75	1.52	7	1.52	7	0.108	61
	CB77	LMF75	1.52	7	1.52	7	0.108	61
5B-08	CB78	83mm	1.51	18	1.50	18	0.230	78
	CB79	LMF105	1.52	13	1.51	13	0.230	56
5B-06	CB80	LMF105	1.52	13	1.50	13	0.193	66
	CB81	LMF105	1.52	13	1.50	13	0.193	66
5B-05	CB82	LMF90	1.52	10	1.48	9	0.142	66
	CB83	LMF90	1.52	10	1.48	9	0.142	66
5B-01	CB84	LMF90	1.52	10	1.52	9	0.172	55
	CB85	LMF100	1.52	11	1.52	11	0.172	65
5B-03	CB86	LMF105	1.53	13	1.53	13	0.202	64
	CB87	83mm	1.52	18	1.52	18	0.202	90
5B-04	CB88	LMF105	1.52	13	1.52	13	0.191	68
	CB89	LMF105	1.52	13	1.52	13	0.191	68
Rear Yard Catchbasins								
5B-02	CBMH-5-02	LMF75	2.74	9	1.60	7	0.203	33
5B-07	CB-5-04	LMF70	2.43	7	2.00	6	0.417	15
5B-10	CBMH308	94mm	2.84	32	2.74	31	0.401	78

** Max head is calculated as the T/G elevation plus 0.35m for roadway CB and 0.40m for rear yard CBs*

*** Max capture rate is calculated using the orifice equation, based on the max head*

**** From PCSWMM 100-year 3-hour Chicago Storm event*

***** Calculated from 100-year Capture Rate*

As the allowable release rate of 70L/s/ha is less than the 2-year peak flows, there will be some ponding during the 2-year storm event. This ponding will last for an average of 39 minutes at each low point and will be clear by the end of the 2-year storm event. For a 2-year, 3-hour Chicago Storm Distribution, ponding will typically begin around 1 hour from the beginning of the storm event, ending around 1 hour and 35 minutes from the beginning of the storm event. While this is contrary to the current City of Ottawa Stormwater Criteria outlined in Technical Bulletin PIEDTB-2016-01, the allowance for 2-year ponding for the Provence Development has been discussed with the City of Ottawa and approved as part of the Phase 2 and 3 report (Novatech, 2020). Supporting correspondence has been provided in **Appendix F**.

Refer to **Table 5.4** for the ponding times for each storm event for each catchbasin pair in the right-of-way and for all rear yard catchbasins. An expanded table has been included in **Appendix F**.

Table 5.4: Ponding Duration

ICD/CB	Ponding Duration* (h:mm)		
	2-year	5-year	100-year
de Montrichard Road			
CB76-77	0:40	1:06	3:19
CB78-79	0:40	1:04	2:02
CB80-81	0:40	1:05	2:21
CB82-83	0:40	1:04	2:22
CB84-85	0:43	1:10	2:43
CB86-87	0:33	0:53	2:09
CB88-89	0:37	1:01	2:26
Rear Yard Catchbasins			
LCB-5-04	0:00	0:00	2:08
LCB-5-05	0:00	0:00	2:08
LCB-5-06	0:00	0:00	2:08
LCB-5-07	0:00	0:00	2:08
LCB-5-08	0:00	0:00	2:27
LCB-5-09	0:00	0:00	2:27
LCB-5-10	0:00	0:00	2:27
LCB-5-11**	0:00	0:00	2:27
LCB-5-12**	0:00	0:00	2:27
LCB-5-13**	0:00	0:00	2:27
LCB-5-14	0:00	0:00	1:02
LCB-5-15	0:00	0:00	1:02
LCB-5-17**	0:00	0:00	1:02
LCB-5-18**	0:00	0:00	1:02
LCB-5-19	0:00	1:03	2:27
LCB-5-20	0:00	1:03	2:27
LCB-5-21	0:00	1:03	2:27
LCB-5-23	0:00	1:03	2:27
LCB-5-24	0:00	1:03	2:27

** Ponding starts at approximately the same time as the storm peak, ending when water levels drop below the top of grate.*

*** CBs located in Phase 5A but in same rear yard system as Phase 5B CBs.*

5.8 Hydraulic Grade Line

The results of the analysis were used to demonstrate that a minimum freeboard of 0.30m is provided between the 100-year hydraulic grade line (HGL) or the maximum pipe obvert (whichever is greatest) and the designed underside of footing (USF) elevations. The 100-year HGL is indicated on the Plan and Profile Drawings (**117155-PR13, 117155-PR14** and **117155-PR15**). The HGL analysis confirms that all dwellings within the subdivision will have at least 0.30m of freeboard between the modeled hydraulic grade line and the nearest USF. The HGL elevations for a 20% increase (rainfall intensity and total precipitation) in the 100-year storm event were also reviewed to ensure the HGL is below the USF.

Table 5.5 provides a summary of the 100-year HGL elevation at each storm maintenance hole within the proposed development. The 100-year+20% HGL elevations have been provided in **Appendix F**.

Based on HGL information provided by the City and Stantec (refer to Provence Avenue Plan and Profile Sta. 4+550 to Sta. 4+850, Dwg. No. 12775-4, As-built, located in **Appendix E**), boundary conditions have been applied at the outlet to the Provence Avenue sewer (node MH098) for the 100-year storm events:

- 100-year boundary condition HGL = 84.82m

Table 5.5: 100-year Hydraulic Grade Line Elevations

Manhole ID	MH Invert Elevation (m)	D/S Pipe Dia. (mm)	D/S Obvert (m)	T/G Elevation (m)	HGL Elevation 100yr-3hr (m)	Design USF (m)	Clearance* (m)
MH700	85.98	675	86.66	89.52	86.31	87.69	1.03
MH702	86.24	610	86.85	89.62	86.45	87.73	0.88
MH704	86.58	533	87.11	89.58	86.76	87.82	0.71
MH706	86.80	381	87.18	89.59	86.90	87.78	0.60
MH708	87.03	381	87.41	89.80	87.14	87.95	0.54
MH710	87.04	381	87.42	89.62	87.16	87.72	0.30
MH712	86.68	533	87.21	89.62	86.86	87.63	0.42
MH714	86.32	610	86.93	89.41	86.58	87.41	0.48

** Clearance is the difference between the greater of the pipe obvert and HGL to the USF.*

5.9 Major System – Overland Flow

During larger storm events, the available static storage for all road sags will be fully utilized and cascading overland flow will occur within the right-of-way. Storage in rear yard sags will be used to provide additional attenuation of both minor and major system flows. Refer to **Figure 6** – Overland Flow Route and Macro Grading for details. The major system network was evaluated using the PCSWMM model to ensure that the flow depths and velocities conform to City standards.

The results of the modelling indicate that the overland flow depths on all streets will not exceed 0.35m, and the product of the 100-year flow depth (m) and flow velocity (m/s) within the right-of-way shall not exceed 0.60m/s. The flow depths and velocities at all road catchbasins and high points are summarized in **Table 5.6**.

Table 5.6: Major System Flow Depths and Velocities

Location	100-year					100-year +20%			
	Peak Flow (m^3/s)	Velocity (m/s)	Static Depth (m)	Total Depth (Static + Dynamic) (m)	Velocity x Depth (m^2/s)	Peak Flow (m^3/s)	Velocity (m/s)	Total Depth (m)	Velocity x Depth (m^2/s)
Phase 5B									
Catchbasins at Low Points									
CB76-77	0.103	0.05	0.30	0.35	0.02	0.234	0.13	0.39	0.05
CB78-79	0.214	0.09	0.29	0.34	0.03	0.263	0.14	0.37	0.05
CB80-81	0.182	0.05	0.31	0.33	0.02	0.228	0.11	0.37	0.04
CB82-83	0.128	0.00	0.34	0.31	0.00	0.158	0.02	0.36	0.01
CB84-85	0.161	0.05	0.30	0.35	0.02	0.237	0.10	0.37	0.04
CB86-87	0.187	0.08	0.30	0.35	0.03	0.232	0.12	0.38	0.05
CB88-89	0.177	0.06	0.29	0.35	0.02	0.226	0.12	0.41	0.05
High Points									
03+137	0.036	0.11	-	0.05	0.01	0.178	0.18	0.08	0.01
07+091	0.069	0.09	-	0.05	0.00	0.173	0.14	0.07	0.01
07+175	0.024	0.09	-	0.02	0.00	0.101	0.11	0.06	0.01
07+260	0.000	0.00	-	0.00	0.00	0.016	0.03	0.02	0.00
07+342	0.000	0.00	-	0.00	0.00	0.000	0.00	0.00	0.00
07+428	0.053	0.07	-	0.05	0.00	0.118	0.10	0.07	0.01
07+509	0.047	0.08	-	0.05	0.00	0.146	0.12	0.08	0.01
07+591	0.027	0.29	-	0.06	0.02	0.187	0.53	0.11	0.06

The model results indicate that during the 100-year storm event, the overland flow depths on all streets will not exceed 0.35m and during the stress-test scenario, flows will not touch any part of the building envelope.

Overland flows from Phases 2, 3 and 5 to the emergency outlet for the site in Phase 4A were accounted for previously in the detailed modelling. The model has been evaluated and there are no negative impacts to Phases 2, 3 or 4 from the overland flows from Phase 5. All the ponding depths within the Phase 2, 3 and 4 right-of-ways do not exceed the maximum ponding depth of 0.35m in the 100-year event.

The 100-year model results along the primary overland flow path are summarized in **Table 5.7**. Refer to Appendix F for the full table of results from all storm events (2-year to 100-year+20%). Note that for roadway catchbasins, the catchbasin pairs are modeled as a single node using the lowest of the two T/G elevations.

The spill elevations (maximum static ponding) are based on the ultimate spill point along the major system flow path. In the roadway this is typically the lowest of the high points that define the drainage area to catchbasin pairs in a road sag. In the rear yards, it is the highest downstream spill point in the direction of the major flow path. This is due to the rear yards having interconnected ponding areas controlled by a single downstream ICD.

Table 5.7: Overland Flow and Ponding Results

Structure	T/G*	Max. Static Ponding (Spill Depth)		100-year Event (3hr)			
		Elev.**	Depth	Elev.	Depth	Cascading	Cascade
	(m)	(m)	(m)	(m)	(m)	Flow?	Depth (m)
Roadway CB							
CB76-77	89.06	89.36	0.30	89.41	0.35	Y	0.05
CB78-79	89.22	89.51	0.29	89.56	0.34	Y	0.05
CB80-81	89.29	89.60	0.31	89.62	0.33	Y	0.02
CB82-83	89.31	89.65	0.34	89.62	0.31	N	0.00
CB84-85	89.28	89.58	0.30	89.63	0.35	Y	0.05
CB86-87	89.18	89.48	0.30	89.53	0.35	Y	0.05
CB88-89	89.01	89.30	0.29	89.36	0.35	Y	0.06
RYCB							
LCB-5-04	88.60	88.95	0.35	88.95	0.35	N	0.00
LCB-5-05	88.60	88.95	0.35	88.95	0.35	N	0.00
LCB-5-06	88.60	88.95	0.35	88.95	0.35	N	0.00
LCB-5-07	88.60	88.95	0.35	88.95	0.35	N	0.00
LCB-5-08	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-09	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-10	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-11***	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-12***	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-13***	88.50	88.85	0.35	88.82	0.32	N	0.00
LCB-5-14	89.18	89.54	0.36	89.57	0.39	Y	0.03
LCB-5-15	89.18	89.54	0.36	89.57	0.39	Y	0.03
LCB-5-17***	89.18	89.54	0.36	89.57	0.39	Y	0.03
LCB-5-18***	89.18	89.54	0.36	89.56	0.38	Y	0.02
LCB-5-19	89.31	89.69	0.38	89.71	0.40	Y	0.02
LCB-5-20	89.31	89.69	0.38	89.71	0.40	Y	0.02
LCB-5-21	89.31	89.69	0.38	89.71	0.40	Y	0.02
LCB-5-23	89.31	89.69	0.38	89.71	0.40	Y	0.02
LCB-5-24	89.31	89.69	0.38	89.71	0.40	Y	0.02

** Note that for some CB pairs, the T/G elevations differ between the two structures. The lower of the two has been used in the model.*

*** For some highpoints, one side of the road is higher than the other. The lower of the two has been used in the model. For rear yard areas, the highest downstream spill point was used since the ICD on the rear yards causes a lumped ponding area that is interconnected through the pipe system.*

**** CB located in Phase 5A but in same rear yard system as Phase 5B CBs.*

5.10 Storage Volumes

A total volume of approximately 898m^3 (or 257m^3/ha) for the 3.49 ha of tributary drainage area is provided by the low-points at all roadway catchbasins as shown in **Table 5.8** and in the rear-yard swales as shown in **Table 5.9**, within Phases 5B. This exceeds the requirement of 150m^3/ha as outlined in the MSS. While current City of Ottawa storm design criteria stipulates that rear-yard storage is not to be accounted for, the design of this subdivision follows the criteria from the City

of Cumberland Update to Master Drainage Plan and is consistent with discussions held with City staff. Refer to **Appendix E** for an excerpt of this report.

This volume of ponding is calculated based on the total (static + dynamic) ponding and flow depths in the rear yards and the right-of-ways, refer to **Table 5.6** for dynamic flow depths. While there is spill over high points during larger storm events, there is still a measurable volume of dynamic storage provided by the major system within the boundary of the proposed subdivision. Refer to figure PND-CALC in **Appendix F.**

Additional storage was required in the rear yards to meet the allowable release rate. To achieve a maximum of 40cm of rear yard ponding, the pipes upstream of the rear yard ICDs were oversized to 300mm, 450mm and 600mm diameter pipes to provide additional storage capacity. The rear yard pipes were sized as 300mm diameter pipes for pipe runs between side lots due to space constraints and all other rear yard pipes were selected as 450mm and 600mm diameter pipes. The underground / pipe storage for the rear yards is presented in **Table 5.9** and detailed storage calculations are provided in **Appendix F.**

Table 5.8: Roadway Ponding Volumes

Area ID	Catchbasin ID	Available Static Ponding Volume (m^3)	100-year Ponding Volume (m^3)
5B-09	CB76-77	62.9	99.4
5B-08	CB78-79	66.4	106.7
5B-06	CB80-81	81.4	98.7
5B-05	CB82-83	79.3	60.4
5B-01	CB84-85	67.5	107.3
5B-03	CB86-87	76.2	120.4
5B-04	CB88-89	57.3	100.5
Roadway Catchbasins Subtotal:		**491.0**	**693.4**

Table 5.9: Rear Yard Storage Volumes

Area ID	LCB	100-year Ponding Volume (m^3)	Underground Storage (m^3)
5B-02	LCB5-04, LCB5-05, LCB5-06, LCB5-07	29.2	18.2
5A-02*	LCB5-08, LCB5-09, LCB5-10, LCB5-11**, LCB5-12**, LCB5-13**	35.8	48.3
5A-04*	LCB5-14, LCB5-15, LCB5-17**, LCB5-18**	77.4	30.1
5B-07	LCB5-19, LCB5-20, LCB5-21, LCB5-23, LCB5-24	62.5	39.5
Rear Yard Catchbasins Subtotal:		**204.9**	**136.1**

** Subcatchment is partially located in Phase 5A*
*** CB located in Phase 5A but in same rear yard system as Phase 5B CBs.*

Total 100-year Ponding (Roadways and Rear Yards) = 898.3m^3

5.11 Park Block

As outlined in the MSS, the overall subdivision requires minor system flows to be controlled to 70L/s/ha with an anticipated required storage of 150m^3/ha. This required storage was based on residential land use with a runoff coefficient between 0.50 and 0.70. The 0.401 ha park block has an equivalent allowable release rate of 28L/s. Within the PCSWMM model, the park block was assumed be able to pond up to 0.30m over CBMH 308. Based on this maximum head over the ICD, a 94mm diameter ICD was modelled to control to 31L/s, which was done conservatively to not overcontrol the release rate. Peak flows and required storage volumes are outlined in **Table 5.10**.

Table 5.10: Park Storage Requirements (Chicago 3-hour Storm Distribution)

Drainage Area ID	Area (ha)	100-year Peak Flow (L/s)			Anticipated Storage Required	
		Uncontrolled	70L/s/ha Target	Controlled with 94mm dia. ICD	Total Volume (m^3)	Per Hectare Volume (m^3/ha)
5B-10	0.401	70	28	31	31	77

Park storage was modelled to provide enough storage for the 100-year event, without overflow or flooding. Less storage is anticipated that the 150m^3/ha as required in the MSS due to the lower runoff coefficient of the park block (0.30). The onsite ponding depths, ICD size and volume provided will be subject to detailed park grading and design.

5.12 Peak Flows

For all storm events, the allowable release rate is 1,591L/s as per the Phase 4A & 4B Design Brief (Novatech, 2022). Peak flows for each storm event are outlined in the following tables.

Table 5.11: Minor System Peak Flows (L/s)

Storm Distribution->	3hr Chicago					12hr SCS		
Return Period->	25mm	2yr	5yr	100-year	100yr+ 20%	2yr	5yr	100yr
MH98 (Provence)	1,035	1,193	1,396	1,610	1,653	1,138	1,358	1,595

Table 5.12: Major System Peak Flows (L/s)

Storm Distribution->	3hr Chicago					12hr SCS		
Return Period->	25mm	2yr	5yr	100-year	100yr+ 20%	2yr	5yr	100yr
Provence (from Ph 2&3)	2	4	18	126	215	1	2	68
Trim (from Ph 2&3)	<1	<1	2	34	67	<1	<1	1
Trim (from Ph 4)	0	0	0	31	290	0	0	0
Salzburg (from Ph 4)	0	0	0	<1	13	0	0	0
Provence (from Ph 5)	0	0	0	0	0	0	0	0
Salzburg (from Ph 5)	0	0	0	0	16	0	0	0
Salzburg (Direct Runoff)	0	<1	2	9	12	<1	2	5
Trim (Direct Runoff)	0	<1	7	17	21	<1	3	7
Provence (Direct Runoff)	0	4	10	21	26	2.81	5	9

During large, infrequent storm events (≥100-year), peak flows from the proposed development will exceed the allowable release rate to the minor system by 19L/s or 1.2%, with the overall release rate at 70.8L/s/ha. This increase is not expected to have an adverse impact on the downstream infrastructure during these infrequent events. During more frequent events, the release rate will be below the allowable 70L/s/ha.

As determined in the Phase 4A & 4B Design Brief (Novatech, 2022), during nearly all storm events, there will be some overland flow directed from Phase 2 and 3 of the subdivision to Provence Avenue and Trim Road, as the catchbasins at the intersections are on-grade and will not capture all storm runoff. Similarly, there will be a direct runoff area along the west property line where Phase 5B meets Provence Avenue where grading constraints do not allow on-site capture of the flows. Storm water flows from this small area will be directed to the Provence Avenue right of way.

In larger storm events, overland flow from the majority of Phase 5B will be directed through Phases 5A, 4A and 4B to Trim Road via the overland flow route outlet on Massalia Crescent (Phase 4A) when flows exceed the available on-site storage capacity. The major flows from the rear-yard areas of Lots 8-14 in Phase 5A, and Lots 1-13 and Block 52 in Phase 5B will be directed to the Salzburg Drive right-of-way. There are no major system flows to the Salzburg Drive right-of-way during storms up to and including the 100-year storm. As the site is at the upstream end of the catchment area for the end-of-pipe SWM facility, there should be minimal impact on the downstream major system due to the slight increase in overland flow directed to Provence Avenue or Trim Road. During the 100-year storm event, the major system flow depth to both Trim Road and Provence Avenue at Ventoux Avenue from Phase 2 and 3 is approximately 0.05m. The approximate depth of flow to Trim Road from the overland flow swale on Massalia Crescent during the 100-year storm event is 0.02m.

5.13 Stormwater Management Conclusions

The Cardinal Creek stormwater management facility is the ultimate outlet for the minor system from Phase 5B. The major system flows will be contained within the site except flows which exceed the on-site storage capacity in large events which are directed to the overland spill location to Trim Road. The performance of the proposed storm drainage system for the subject site was evaluated using the PCSWMM hydrologic/hydraulic model. The PCSWMM model schematics and 100-year model output are provided in **Appendix F**. Digital copies of the modelling files and model output for all storm events are provided with this submission. The stormwater management flows will be controlled through a combination of inlet control devices and above grade storage to limit the rate of stormwater discharge to the existing storm sewers to slightly above the allowable release rate of 70L/s/ha.

An '*Enhanced*' level of water quality treatment (80% long-term TSS removal) will be provided for the Phase 5B development. A Vortechs 9000 will provide roughly 85% long-term TSS removal and the downstream Cardinal Creek stormwater management facility will provide 70% long-term TSS removal. The level of treatment provided by the treatment train of the Vortechs 9000 and stormwater management facility will provide at least 80% long-term TSS removal for Phase 5A and Phase 5B.

6.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control measures will be implemented during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987). Typical erosion and sediment control measures recommended include, but are not limited to, the use of silt fences around perimeter of site, filter fabric or inserts under catchbasin/maintenance hole lids, heavy duty silt fence barrier, straw bale check dams, rock check dams, turbidity curtain, dewatering trap, temporary water passage system, riprap, mud mats, silt bags for dewatering operations, topsoil and sod to disturbed areas and natural grassed waterways. Dewatering and sediment control techniques will be developed for the individual situations based on the above guidelines and utilizing typical measures to ensure erosion and sediment control is controlled in an acceptable manner and there is no negative impact to adjacent lands, water bodies or water treatment/conveyance facilities.

It will be the responsibility of the contractor to submit a detailed construction schedule and appropriate staging, dewatering and erosion and sediment control plans to the Contract Administrator for review and approval prior to the commencement of work. City of Ottawa Special Provision F-1005 will become part of any contract and which outlines the contractual requirements which includes preparation of a detailed erosion and sediment control plan.

- All erosion and sediment control measures are to be installed to the satisfaction of the engineer, the municipality and the conservation authority prior to undertaking any site alterations (filling, grading, removal of vegetation, etc.) and remain present during all phases of site preparation and construction.
- A qualified inspector should conduct daily visits during construction to ensure that the contractor is working in accordance with the design drawings and that mitigation measures are being implemented as specified.
    - A light duty silt fence barrier is to be installed in the locations shown on the Erosion and Sediment Control & Removals Plan (**117155-ESC5B**).
    - Straw bale barriers or rock flow check dams are to be installed in drainage ditches that will remain open as part of initial development.
    - Catchbasin inlet protection measures are to be established for all proposed and existing catchbasins and structures.
    - After complete build-out, all sewers are to be inspected and cleaned and all sediment and construction fencing is to be removed.
- The contractor shall ensure that proper dust control is provided with the application of water (and if required, calcium chloride) during dry periods.
- The contractor shall immediately report to the engineer or inspector any accidental discharges of sediment material into any ditch or sewer system. Appropriate response measures shall be carried out by the contractor without delay.
- The contractor acknowledges that failure to implement erosion and sediment control measures may result in penalties imposed by any applicable regulatory agency.

Temporary erosion and sediment control measures would be implemented both prior to commencement and during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites", (Government of Ontario, May 1987).

7.0 UTILITIES

The development will be serviced by hydro, phone, gas, and cable by extending the existing service stubs on Montrichard Road from Dick Brown Street (Phase 5A). A preliminary composite utility plan and streetlight design have been completed. The preliminary composite utility plans have been included with this submission (**117155-U5B** and **117155-U5BD**). The preliminary composite utility plans are pending final Hydro One design approval and will be re-submitted under a separate cover when finalized. The streetlighting design will be submitted under a separate cover directly to the City of Ottawa Street Light Department.

8.0 PROPOSED GEOMETRIC ROAD DESIGN

Novatech prepared a *Proposed Geometric Road Design Memorandum* (July 23, 2024) for Phase 5A of the Provence Orleans subdivision, which included a Geometric Road Design Drawing (**117155-GRDD5A)** for the phase which detailed the locations for road signage, traffic calming/road layout and pedestrian crossings for the intersections of Dick Brown Street and Montrichard Road. As such, no additional road signage or pedestrian crossings are required as part of the Phase 5B works. Refer to **117155-GRDD5B** for additional information regarding the locations of road signage, pedestrian crossings and traffic calming measures relative to the limits of Phase 5B (included as part of **117155-GRDD5A**).

A sidewalk connection to Provence Avenue is proposed at the west side of the site. Due to grading constraints (vertical elevation difference of >1m), an alternative sidewalk alignment is proposed between the existing sidewalk on Provence Avenue and the sidewalk along the south side of the south leg of Montrichard Road. This alternative is required to be able to meet accessibility requirements and allow the development to also contain overland stormwater flows. Refer to **117155-XS5B** and **117155-GR5B** for additional details.

The local roadways for this phase of the development have been designed with an asphalt width of 8.0m (refer to **117155-XS5B**). The proposed cross sections are consistent with the previously approved subdivision phases (Phases 2, 3, 4 and 5A). The reduced asphalt width from the City standard of 8.5m for local roadways was developed in response to City of Ottawa requests to provide additional clearance from roadways and sidewalks to tree planting locations. The reduced asphalt width is also anticipated to provide additional traffic calming benefits.

9.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the detailed analysis, it is proposed that the Phase 5B Provence Orleans Subdivision development be serviced as follows:

Water Supply System

- The proposed 200mm diameter watermain will form a loop along Montrichard Road between the existing watermain stubs from Dick Brown Street (Phase 5A).
- Based on the findings of the hydraulic analysis, there is capacity to provide both the required domestic and fire flows. A 3m building separation or a 2-hour fire wall will be required between Block 48 and Block 49, as indicated on **117155-GP5B**.

Sanitary Sewer System

- Sanitary service within Phase 5B will be provided by 200mm diameter pipes connecting to the existing 200mm diameter sanitary sewer on Dick Brown Street and ultimately outletting to the existing 525mm diameter sanitary sewer on Trim Road. The theoretical peak flow for this phase is calculated to be 5.40L/s.

Stormwater Drainage

- Phase 5B will be serviced by storm sewers ranging in size from 375mm to 675mm diameter. The storm sewers will connect to the existing 600mm and 675mm diameter storm sewer stubs on Montrichard Road at Dick Brown Street. The peak flow from the overall subdivision development (Phases 2, 3, 4A, 4B, 5A and 5B) during the 100-year event to the existing Provence Avenue storm sewer was calculated to be 1,610L/s.

Stormwater Management

- The Cardinal Creek stormwater management facility is the ultimate outlet for the minor system.
- Water quality will be provided by an on-site Vortechs unit in Phase 5A and the downstream Cardinal Creek stormwater management facility.
- The first 5mm of rainfall will be retained on-site where feasible through infiltration and depression storage in the rear yards.
- The major system flows will be accommodated on-site, while emergency flows will be directed to Trim Road.
- The stormwater management flows will be controlled through a combination of inlet control devices and above grade storage to limit the rate of stormwater discharge to the existing storm sewers to acceptable levels.
- The 100-year hydraulic grade line in the storm sewer will be at least 0.3m below the underside of footing elevations for the proposed development.

Erosion and Sediment Control

- Temporary erosion and sediment control measures would be implemented both prior to commencement and during construction in accordance with the “Guidelines on Erosion and Sediment Control for Urban Construction Sites”, (Government of Ontario, May 1987).

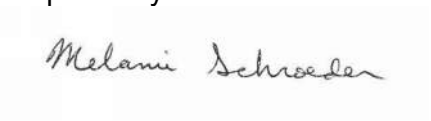
The subdivision design is generally consistent with the Site Servicing and Stormwater Management Design Brief (R-2020-018), Provence Orleans Subdivision – Phase 2 & 3, prepared by Novatech, dated November 2020, the Site Servicing and Stormwater Management Design Brief (R-2024-047), Provence Orleans Subdivision – Phase 5A, prepared by Novatech, dated October 2024, and the Master Servicing Study prepared by Stantec, dated September 2013 except as noted in this report. This report has been prepared in support of final approval and registration of Phase 5B of the Provence Orleans Subdivision in accordance with the conditions of draft approval.

NOVATECH

Prepared By:

Samantha Bennett, P.Eng.
Project Coordinator | Land Development Engineering

Prepared By:



Melanie Schroeder, P.Eng.
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Reviewed by:

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Senior Project Manager | Land Development Engineering

Appendix A

Draft Conditions

File: D07-16-18-0021

CONDITIONS
FOR DRAFT APPROVAL
PROVENCE ORLEANS REALTY INVESTMENTS INC.
2128 TRIM ROAD AND 705 AQUAVIEW DRIVE

DRAFT APPROVED 05 JULY 2019

The City of Ottawa's conditions applying to the draft approval of Provence Orleans Realty Investments Inc. Subdivision (File No. D07-16-18-0021), 2128 Trim Road and 705 Aquaview Drive, are as follows:

		This approval applies to the draft plan certified by Annis, O'Sullivan, Vollebekk Ltd, Ontario Land Surveyor, dated February 1st, 2019, showing 295 Residential Lots, 17 Residential Blocks, 10 streets, # residential blocks, 3 pathway blocks, 1 park blocks, 2 Transit corridor blocks, and 1 school block. This approval applies to the approved conceptual plans and reports in support of the draft plan as follows: 1) Planning Rationale, Design Brief & Integrated Environmental Review Statement (IERS) in Support of Applications for Subdivision & Zoning By-law Amendment, Notting Hill Subdivision, 2128 Trim Road, prepared by Novatech, Revision 3, dated November 9, 2018 2) Transportation Impact Assessment, prepared by Novatech, Revision 2, dated November 13, 2018. 3) Geotechnical Investigation, prepared by Paterson Group, dated July 5, 2018. 4) Phase 1 Environmental Site Assessment, prepared by Paterson Group, dated January 20, 2018. 5) Tree Conservation Report and Environmental Impact Statement, prepared by Muncaster Environmental Planning Inc., Revision 2, dated September 10, 2018. 6) Site Servicing and Stormwater Management Design Brief, prepared by Novatech, Revision 4, dated March 31, 2019. 7) Stage 1 Archaeological Assessment, prepared by Paterson Group, dated March 15, 2018. 8) Stage 2 Archaeological Assessment, prepared by Paterson Group, dated June 20, 2018. 9) Noise Impact Feasibility Report, prepared by Novatech, dated June 29, 2018.	

		Subject to the conditions below, these plans and reports may require updating and/or additional details prior to final approval.	
		The Owner agrees, by entering into a Subdivision Agreement, to satisfy all terms, conditions and obligations, financial and otherwise, of the City of Ottawa, at the Owner's sole expense, all to the satisfaction of the City.	**Clearing Agency**[i]
		General	
1.	**G1**	Prior to the issuance of a Commence Work Notification, the Owner shall obtain such permits as may be required from Municipal or Provincial authorities and shall file copies thereof with the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
2.	**G2**	Prior to commencing construction, the Owner shall enter into a subdivision agreement with the City. The subdivision agreement shall, among other matters, require that the Owner post securities in a format approved by the City Solicitor, in an amount of 100% of the estimated cost of all works, save and except non-municipal buildings. The aforementioned security for site works shall be for works on both private and public property and shall include, but not be limited to, lot grading and drainage, landscaping and driveways, roads and road works, road drainage, underground infrastructure and services (storm, sanitary, watermains), streetlights, stormwater management works and park works. The amount secured by the City shall be determined by the General Manager, Planning, Infrastructure and Economic Development Department, based on current City tender costs, which costs shall be reviewed and adjusted annually. Securities for on-site works may be at a reduced rate subject to the approval of the General Manager, Planning, Infrastructure and Economic Development Department. Engineering, Inspection and Review fees will be collected based on the estimated cost of the works (+HST) and a park review and inspection fee will be based on 4% (+HST) of the total value of the park works as noted herein and in accordance with the City's Fees By-law for planning applications (By-law No. 2018-24 or as amended).	**OTTAWA Planning**
3.	**G3**	The Owner acknowledges and agrees that any residential blocks for street-oriented dwelling units on the final Plan shall be configured to ensure that there will be no more than 25 units per block.	**OTTAWA Planning**
4.	**G4**	The Owner acknowledges and agrees that any person who, prior to the draft plan approval, entered into a purchase and sale agreement with respect to lots or blocks created by this Subdivision, shall be permitted to	**OTTAWA Legal**

		withdraw from such agreement without penalty and with full refund of any deposit paid, up until the acknowledgement noted above has been executed. The Owner agrees to provide to the General Manager, Planning, Infrastructure and Economic Development Department an acknowledgement from those purchasers who signed a purchase and sale agreement before this Subdivision was draft approved, that the Subdivision had not received draft approval by the City. The Owner agrees that the purchase and sale agreements signed prior to draft approval shall be amended to contain a clause to notify purchasers of this fact, and to include any special warning clauses, such as but not limited to Noise Warnings and easements.	
5.	**G5**	All prospective purchasers shall be informed through a clause in the agreements of purchase and sale of the presence of lightweight fill on the lands, and that the presence of such lightweight fill may result in specific restrictions on landscaping, pools, additions, decks and fencing	**OTTAWA Legal**
6.	**G6**	The Owner, or his agents, shall not commence or permit the commencement of any site related works until such time as a pre-construction meeting has been held with Planning, Infrastructure and Economic Development Department staff and until the City issues a Commence Work Notification.	**OTTAWA Planning**
7.		**Shop Drawings** The Owner acknowledges and agrees that their contractor is required to provide Shop Drawings for any special structures typically not available as per the City detail standards and product listing to the satisfaction of the General Manager, Planning, Infrastructure & Economic Development Department prior to installations of those works. Shop drawings shall be stamped and signed by a professional Engineer licensed in the Province of Ontario. All costs for Shop Drawings shall be borne by the Owner or his contractors.	**OTTAWA Planning**
8.		The Owner acknowledges and agrees that their contractor is required to provide Shop Drawings for TWSI's as per the City S.P. No. F-3512 to the City to the satisfaction of the General Manager, Planning, Infrastructure & Economic Development Department.	**OTTAWA Planning**
		Zoning	
9.	**Z1**	The Owner agrees that prior to registration of the Plan of Subdivision, the Owner shall ensure that the proposed Plan of Subdivision shall conform	**OTTAWA Planning**

		with a Zoning By-law approved under the requirements of the *Planning Act*, with all possibility of appeal to the Local Planning Appeal Tribunal exhausted.	
10.	**Z2**	The Owner undertakes and agrees that prior to the registration of the Plan of Subdivision, the Owner shall deliver to the City a certificate executed by an Ontario Land Surveyor showing that the area and frontage of all lots and blocks within the Subdivision are in accordance with the applicable Zoning By-law.	**OTTAWA Planning**
		Roadway Modifications	
11.	**RM1**	The Owner shall pay all expenses associated with all works related to roadway modifications, and shall provide financial security in the amount of 100% of the cost of implementing the required works.	**OTTAWA Planning**
12.	**RM2**	The Owner agrees to provide a Development Information Form and Geometric Plan indicating: a) Road Signage and Pavement Marking for the subdivision; b) Intersection control measure at new internal intersections; and c) location of depressed curbs and TWSIs; prior to the earlier of registration of the Agreement or early servicing. Such form and plan shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning Transpo Plg**
13.	**RM7**	Where traffic calming is identified, the Owner acknowledges and agrees to implement traffic calming measures on roads within the limits of their subdivision to limit vehicular speed and improve pedestrian safety. The Owner further acknowledges and agrees that the detailed design for new roads will include the recommendation(s) from the required supporting transportation studies. The Owner agrees that traffic calming measures shall reference best management practices from the Canadian Guide to Neighbourhood Traffic Calming, published by the Transportation Association of Canada, and/or Ontario Traffic Manual. These measures may include either vertical or horizontal features (such measures shall not interfere with stormwater management and overland flow routing), including but not limited to: • intersection or mid block narrowings, chicanes, medians; • speed humps, speed tables, raised intersections, raised pedestrian crossings; • road surface alterations; • pavement markings/signage; and	**OTTAWA Planning**

		• temporary/seasonal installations such as flexi posts or removable bollards. These measures will be installed at the following locations as well as the approaches to these locations to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development. (i) Easterly intersection of Street No. 1 and Street No. 4; (ii) Intersection of Street No. 3, Street No. 1 and Street No. 5; (iii) Street No. 3 and the southern leg of Street No. 7 (Park Block) (iv) Provence Avenue	
14.		The Owner acknowledges and agrees to install a pedestrian crossing (PXO) Type B, C or D and may provide a raised crossing at the intersection of Street No. 1 and Provence Avenue and at the north leg of Street No. 7 at Provence Avenue to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development.	**OTTAWA Planning**
		Highways/Roads	
15.	**HR1**	The Owner acknowledges and agrees that all supporting transportation studies and design of all roads and intersections shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
16.	**HR2**	The Owner shall retain a licensed or registered professional with expertise in the field of transportation planning and/or traffic operations to prepare a Transportation Impact Assessment. The study shall comply with the City of Ottawa's Transportation Impact Assessment Guidelines. The Owner agrees to revise the Draft Plan in accordance with the recommendations of the study.	**OTTAWA Planning**
17.	**HR3**	The Owner shall provide for temporary turnarounds for all streets terminating at the edge of any phase of development, prior to registration of the Plan. The Owner agrees that it will convey to the City at no cost any temporary easements that may be required in order to establish the temporary turnarounds. For any portion of the temporary turn-around easements that do not form part of the permanent road allowance, the easements shall be released at the expense of the Owner when the easements are no longer required by the City. Furthermore, 30cm reserves shall be provided and any lots impacted by these turn-arounds shall have an inhibiting order and be frozen from development until such time as the new phase is registered and adjacent lands are developed.	**OTTAWA Planning**
18.	**HR4**	If required, the Owner shall convey to the City, at no cost to the City, an unencumbered road widening along Trim Road, adjacent to the subdivision	**OTTAWA Planning**

		lands, in accordance with the Official Plan. The required widening shall be illustrated on the Draft M-Plan and Final Plan of Subdivision as a dimension from the existing centerline of the public highway to the required widened limit. If it is determined that a widening is not required, the Owner's Surveyor shall illustrate the distance from the existing centerline of the Public Highway to the existing road limit on the Draft M-Plan and the Final Plan of Subdivision. All of which will be to the satisfaction of the City Surveyor.	**Surveys**
19.	**HR5**	Any dead ends and/or open spaces of road allowances created by this plan of subdivision may be terminated in 0.3 metre reserves.	**OTTAWA Planning Legal**
20.	**HR6**	The Owner shall provide site triangles at the following locations on the final plan: • Streets No. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10	**OTTAWA Planning Legal**
21.	**HR7**	A 0.3 m reserve shall be indicated on the plan submitted for registration and conveyed at no cost to the City at the following locations: • along streets, lots and blocks adjacent to Trim road, Provence Avenue, Portobello Boulevard and the Transit Corridor lands	**OTTAWA Planning Legal**
22.	**HR9**	The Owner agrees to provide a construction traffic management plan for the subdivision prior to the earlier of registration of the Agreement or early servicing. Such plan shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
24.	**HR11**	All streets shall be named to the satisfaction of the Director of Building Code Services and in accordance with the Municipal Addressing By-law or the Private Roadways By-law as applicable.	**OTTAWA Planning BCS**
25.	**HR12**	Where land has been dedicated for road widening purposes as part of the planning process, where the Owner receives no financial compensation or in-kind consideration in exchange for the widening, and where the City deems that the land is no longer required for that purpose, the lands may be conveyed back to the original Owner, or its successor in title, for $1.00. The Owner shall be responsible for all costs to complete said conveyance, including administrative fees, unless otherwise determined by the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**

27.	**HR14**	Development on Private Streets - Block 310 The Owner covenants and agrees to: a) obtain approval for a condominium, or other agreement as deemed appropriate, which condominium or other agreement once registered on title, will set out the obligations between the co-Owners of the common elements for the operation and maintenance of the private streets, private watermains, private hydrants and private water services, such agreement to be to the satisfaction of the City Solicitor. b) design all private watermains within the subdivision to the satisfaction of the City, and it will pay all related costs, including the cost of connection, inspection, and disinfection by City personnel. c) install the private infrastructure services in accordance with the staging schedule approved by the City.	**OTTAWA Planning Legal**
28.	**HR15**	The Owner acknowledges that the construction of buildings may be restricted on certain lots and/or blocks until such time as road connections are made so that snow plow turning and garbage collection can be implemented.	**OTTAWA Planning**
30.		**Pavement Markings** The Owner shall be responsible for 100% of the cost of temporary and final pavement markings. The City will apply the final pavement markings on the top lift of asphalt where applications are scheduled between 15 May and 15 November. Before 15 May or after 15 November the contractor is responsible for applying the final makings. The contractor, at all times, is responsible for applying and removing any temporary pavement markings required during construction, as well as installing all markings (including final markings) applied on base course asphalt.	**OTTAWA Planning**
31.		**Signage** The Owner shall be responsible for 100% of the cost of all temporary and permanent street name signs and traffic signs that may be required in accordance with City specifications. All temporary signs shall be installed and located by the Owner to the satisfaction of the City and installed prior to the City's acceptance of the roads within the subdivision. All permanent signs shall be installed and located by City forces.	**OTTAWA Planning**

		Public Transit	
33.	**PT1**	The Owner shall design and construct, at its expense, Street No. 1, which has/have been identified as a transit service route, to Transportation Association of Canada standards, including right-of-way width, horizontal and vertical geometry. The Owner shall design and construct, at its expense, the determined locations for transit passenger standing areas and shelter pads, to the specifications of the General Manager, Planning, Infrastructure and Economic Development Department. The locations for transit passenger standing areas and shelter pads are: • On the north side of Street No. 1 between Streets No. 2 and 3 • On the south side of Street No. 1 between Streets No. 4 and 5	**OTTAWA Planning Transit**
34.	**PT2**	The Owner shall ensure that the staging of the Subdivision, including the construction of dwellings, roadways, walkways, and paved passenger standing areas, or shelter pads, shall occur in a sequence that permits the operation of an efficient, high quality transit service at all stages of development.	**OTTAWA Transit**
35.	**PT3**	The Owner shall orient dwellings and vehicular accesses in the vicinity of bus stops in such a manner as to avoid traffic conflicts and visual intrusion. Prior to the earlier of early servicing or registration, the Owner shall submit plans to Planning, Infrastructure and Economic Development Department for approval indicating the orientation of all dwellings and private accesses in the vicinity of all bus stop locations.	**OTTAWA Planning Transit**
36.	**PT4**	The Owner shall inform all prospective purchasers, through a clause in all agreements of Purchase and Sale and indicate on all plans used for marketing purposes, those streets identified for potential transit services, the location of the bus stops, paved passenger standing areas, or shelters pads and shelters, any of which may be located in front of or adjacent to the purchaser's lot at any time. The Owner will also ensure all prospective purchasers are advised of the location of the corridor within this development reserved for future transit.	**OTTAWA Transit**
37.	**PT5**	If deemed necessary, the Owner agrees to implement a Transit Service Strategy in accordance with the Official Plan. The Owner, together with the City, will determine the method and means by which the developments, as well as adjacent areas, can be efficiently and effectively serviced by transit. The Owner shall enter into an agreement with the Transit Services Branch, prior to the registration of the subdivision, to outline the provision of interim bus service. Said agreement shall include, but not be limited to, the following: establishment of routes and stops and levels of service and	**OTTAWA Transit**

		provision and maintenance of stops and turnarounds. The agreement may include: funding and cost-sharing arrangements and timing and triggers for the transfer of responsibility to City.	
38.	**PT6**	In accordance with the City's Official Plan, the Owner covenants and agrees to convey Blocks 315, 316 and 320 to the City at no cost for the transit right-of-way and grade separation at Trim Road. The alignment of the transit corridor on the final plan shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department and the General Manager, Transportation Services.	**OTTAWA Planning Transit**
		Geotechnical	
39.		The Owner acknowledges and agrees that it shall retain the services of a geotechnical engineer, licensed in the Province of Ontario, to ensure that the recommendations of the Geotechnical Investigation Report, referenced in the list of approved reports herein, are fully implemented. The Owner further acknowledges and agrees that it shall provide the General Manager, Planning, Infrastructure and Economic Development Department with confirmation issued by the geotechnical engineer that the Owner has complied with all recommendations and provisions of the Report, prior to construction of the foundation and at the completion of the Works, which confirmation shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
40.	**GT1**	Where special soils conditions exist, the Owner covenants and agrees that the following clause shall be incorporated into all agreements of purchase and sale for all lots and blocks, and included in the municipal covenant agreement against the title: "The Owner acknowledges that special soils conditions exist on this lot which will require: (a) a geotechnical engineer licensed in the Province of Ontario to approve any proposal or design for a swimming pool installation or other proposal requiring an additional building permit on this lot prior to applying for a pool enclosure permit or installing the pool; and (b) the Owner to submit a copy of the geotechnical engineer's or geoscientists report to the General Manager, Planning, Infrastructure and Economic Development Department at the time of the application for the pool enclosure or additional building permit. The Owner also acknowledges that said engineer or geoscientist will be required to certify that the construction has been completed in accordance with his/her recommendation and that a copy of the certification or report will be submitted to the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**

41.	**GT2**	The Owner shall submit a geotechnical report prepared in accordance with the City's Geotechnical Investigation and Reporting Guidelines and/or Slope Stability Guidelines for Development Applications by a geotechnical engineer or geoscientist, licensed in the Province of Ontario, containing detailed information on applicable geotechnical matters and recommendations to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development which include, but are not limited to: a) existing sub-surface soils, groundwater conditions; b) slope stability (including an assessment during seismic loading) and erosion protection, in addition to any building construction requirements adjacent to unstable slope; c) clearly indicate orientation of any cross-sections used in slope stability analysis and location of center of the slip circle; d) grade raise restrictions on the site and, if appropriate, the impacts this will have on the slope stability; e) design and construction of underground services to the building, including differential settlement near any buildings or structures; f) design and construction of roadway, fire routes and parking lots; g) design and construction of retaining walls and/or slope protection; h) design and construction of engineered fill; i) design and construction of building foundations; j) site dewatering; k) design and construction of swimming pools; l) design and construction of park blocks for its intended uses; and m) in areas of sensitive marine clay soils:	**OTTAWA Planning**
42.	**GT3**	Sensitive marine clay soils a) The Owner agrees to any restrictions to landscaping, in particular the type and size of trees and the proximity of these to structures/buildings due to the presence of sensitive marine clay soils, as per the City's Tree Planting in Sensitive Marine Clay Soils – 2017 Guidelines. b) If trees are to be planted at less than 7.5 m from a building foundation, the Owner agrees to provide the following tests, data, and information prior to zoning approval, in order to determine the sensitivity of the clay soils and how it will impact street tree planting and potentially front yard setbacks: i. Shear Vane analysis including remolded values per ASTM D2573. ii. Atterberg Limit testing per ASTM D4318; With the following data clearly identified, Natural water content (W), Plastic Limit (PL), Plasticity Index (PI), Liquidity Index (LI), and Activity (A).	**OTTAWA Planning**

		iii. Shrinkage Limit testing per ASTM D4943 with Shrinkage Limit (SL). iv. A separate section within the geotechnical report on sensitive marine clay soils, which will include a signed letter and corresponding map that confirms the locations of low, medium sensitivity (generally <40% plasticity) or high sensitivity clay soils (generally >40% plasticity), as determined by the above tests and data. v. The report identifies that foundation walls are to be reinforced at least nominally, with a minimum of two upper and two lower 15M (rebar size) bars in the foundation wall. c) In locations where all six conditions in the Tree Planting in Sensitive Marine Clay Soils – 2017 Guidelines cannot be met (e.g. if soils are generally >40% plasticity) the 2005 Clay Soils Policy will apply, meaning only small, low-water demand trees can be planted at a minimum separation distance of 7.5m from a building foundation. In these cases, the Zoning By-law will be used to ensure sufficient front yard setbacks to accommodate street trees in the right-of-way. For example, if street trees are planted in the right-of-way at a distance of 2m from the front lot line, then the minimum front yard setback would be 5.5m (7.5m – 2m).	
43.	**GT4**	The Owner agrees to provide a clause in the Purchase and Sale Agreement advising that this area contains sensitive marine clay soils where trees must be planted at least 7.5 metres from the building foundation in accordance with the approved Geotechnical Report.	**OTTAWA Forestry**
		Pathways, Sidewalks, Walkways, Fencing, and Noise Barriers	
44.	**S1**	The Owner acknowledges and agrees that all pathways, sidewalks, walkways, fencing, and noise barriers are to be designed and constructed in accordance with City specifications and Accessibility Design Standards, at no cost to the City, and to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	
45.	**S2**	The Owner shall construct a 3.0 metre wide multi-use pathway as well as fencing along the perimeter of the walkway block(s) and plantings in accordance with SC19 at the following locations: • within Blocks 317 and 318 Both multi-use pathways will be constructed and extended to connect to the existing Trans-Orléans pathway along the Transit corridor.	**OTTAWA Planning**

46.	**S3**	The Owner agrees to design and construct 1.8 metre wide sidewalks (unless otherwise noted) at the following locations: • On the east side of Street No. 2 • On the west side of Street No. 3 • On the north side of Street No. 6 (north leg) • Along the south leg and on the south side of Streets No. 7 and Street No. 8 between Streets No. 2 and 3 • On both sides of Street No. 1 (2.0 metre wide sidewalks)	**OTTAWA Planning**
47.	**S4**	The Owner agrees to design and construct, fully accessible, a 10.0 metre wide servicing block, a 2.0 metre walkway connecting to the existing sidewalk on Salzburg Drive and related works through the length of the public lands, as identified on the Draft Plan in the following locations: • Block 319	**OTTAWA Planning**
48.	**S5**	The Owner agrees to connect all new pathways, sidewalks, walkways to the existing pathways, sidewalks, walkways located at the following locations: • Salzburg Drive • Provence Avenue • Trim Road	**OTTAWA Planning**
49.	**S6**	**<u>Chain Link Fencing</u>** a) The Owner agrees to design and construct 1.5 metre black vinyl-coated chain link fences in accordance with the Fence By-law to be determined at the time of registration at the following locations: - At the rear of Lots 11 to 21, Lots 42 to 53 and Lots 273 to 282, Blocks 297, 298 and 310 abutting the Transitway Corridor (Blocks 315 and 316). All chain link fencing that separate public lands and residential lots and blocks shall have a maximum opening (the diamond shape area) of no greater than 37 mm in order to comply with the applicable part of the "Pool Enclosure By-Law". b) The Owner agrees that any vinyl-coated chain link fence required to be installed with the exception of parks fencing shall be located a minimum of 0.15 metres inside the property line of the private property.	**OTTAWA Planning**

50.		**Other Fencing** The Owner agrees to design and construct a 1.5 metre black vinyl-coated chain link or a 1.8 metre wood privacy fences or similar in a location to be determined at the time of registration with the adjacent landowner to the north (Conseil des écoles catholiques du Centre-Est) in accordance with the Fence By-law at the following locations: - At the rear of Lots 153 to 172 and Block 303. All chain link fencing that separate public lands and residential lots and blocks shall have a maximum opening (the diamond shape area) of no greater than 37 mm in order to comply with the applicable part of the "Pool Enclosure By-Law".	**OTTAWA Planning**
51.	**S7**	**Park Fencing** a) The Owner agrees to design and construct 1.5 metre black vinyl-coated chain link fences in accordance with the Fence By-law at the following locations: • All lots abutting Park Block 313 All chain link fencing that separate public lands and residential lots and blocks shall have a maximum opening (the diamond shape area) of no greater than 37 mm in order to comply with the applicable part of the "Pool Enclosure By-Law". b) The Owner agrees that any vinyl-coated chain link fence required to be installed shall be located a minimum of 0.15 metres inside the property line of the park. Refer to Parks condition P13 for details.	**OTTAWA Planning Parks**
52.	**S8**	**Wood Privacy Fencing** a) The Owner agrees to design and construct a 1.8 metre wood privacy fences, to be determined at registration of each phase, in accordance with the Fence By-law at the following locations: • All of Block 310 abutting residential uses • Lots 173 to 176 and Blocks 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311 and 312 abutting single detached residential uses or abutting existing residential uses.	**OTTAWA Planning**

		b) The Owner agrees that any wood privacy fence required to be installed shall be located a minimum of 0.15 metres inside the property line of the private property.	
53.	**S9**	**<u>Noise attenuation barriers</u>** a) The Owner agrees to design and erect at no cost to the City, noise attenuation barriers in accordance with City specifications and the Noise Control Study at the following locations: • Lots 1, 2 and 35 and Blocks 311 and 312 abutting Aquaview Drive; • Lots 21 and 22 and Block 311 abutting Portobello Boulevard; • Lots 36 to 42 and Blocks 300, 301 and 303 abutting Provence Avenue; • Lots 84, 190, 191, 251, 266 and 292 and Blocks 296, 297, 298 and 299 abutting Street No. 1; • Lot 265 and Blocks 304, 305, 306 and 309 abutting Trim Road or residential lots along Trim Road. b) The Owner agrees that any noise attenuation barrier required to be installed under this Agreement, shall be located a minimum of 0.30 metres inside the property line of the private property, and the location of the fence shall be verified by an Ontario Land Surveyor, prior to the release of securities for the noise attenuation barrier.	**OTTAWA Planning**
54.	**S10**	The Owner shall insert a clause in each agreement of purchase and sale and shall be registered as a notice on title in respect of all lands which fences have been constructed stating that: “Purchasers are advised that they must maintain all fences in good repair, including those as constructed by the Owner along the boundary of this land, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department. The Purchaser agrees to include this clause in any future purchase and sale agreements”.	**OTTAWA Planning**
		<u>Landscaping/Streetscaping</u>	
55.	**LS1**	The Owner agrees, prior to registration or early servicing to have a landscape plan(s) for the draft plan of subdivision prepared by a Landscape Architect, in accordance with the recommendations contained in the geotechnical report(s), the Tree Conservation Report, and/or the Environmental Impact Statement (if appropriate).	**OTTAWA Planning Forestry**

		The landscape plan(s) shall include detailed planting locations, plant lists which include species, plant form and sizes, details of planting methods, pathway widths and materials, access points, fencing requirements and fencing materials, other landscape features and gateway features where required. The Owner agrees to implement the approved landscape plan(s) and bear all costs and responsibility for the preparation and implementation of the plan(s). The Owner agrees that where marine clay soils are present, and the geotechnical report has satisfied the applicable conditions of the Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines, confirmation of adequate soil volumes in accordance with the subject guidelines shall be provided by a Landscape Architect prior to zoning approval. All of the aforementioned are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department and	
56.	**LS2**	The Owner agrees that for all single detached and semi-detached lots, a minimum of 1 tree per interior lot and 2 trees per exterior side yard lots (i.e. corner lots) shall be provided on the landscape plan(s). Along park frontages, the Landscape Plan shall locate trees at a 6-8 metre on-centre separation distance along the full extent of the road right-of-way abutting any park block(s). Should specific site constraints prevent the required allocation of trees, the remaining number of required trees shall be provided within any proposed park(s), open space or environmental blocks, non-residential road right-of-way frontages, stormwater management facility(s), or other suitable alternative locations, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning Forestry**
57.	**LS3**	In areas of sensitive marine clay soils where the six conditions of the Tree Planting in Sensitive Marine Clay Soils – 2017 Guidelines have been met, the following shall be provided: a) The landscape plan shall include a note indicating that is has been developed as per the listed approved Geotechnical Report(s), to the satisfaction of the General Manager, Planning Infrastructure and Economic Development. b) At the time of tree planting, in addition to providing an F1 inspection form, the Landscape Architect will provide a signed letter indicating that trees have been planted with appropriate soil volume in accordance	**OTTAWA Planning**

		with the approved Landscape Plan, to the satisfaction of the General Manager, Planning Infrastructure and Economic Development.	
		Tree Conservation	
58.	**TC1**	The Owner acknowledges and agrees to abide by the Urban Tree Conservation By-law, 2009-200, and that any trees to be removed from the site shall be in accordance with an approved Tree Permit. The Owner agrees to implement the measures recommended in the supporting tree conservation report to ensure preservation of the trees identified for protection, in accordance with the City's tree protection requirements listed within the Urban Tree Conservation By-law, 2009-200. All of which are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
59.	**TC3**	The Owner agrees to maintain the tree protection measures until construction is complete and/or the City has provided written permission to remove them.	**OTTAWA Planning**
		Gateway Features	
60.	**GF1**	Community or Primary Neighbourhood Gateway Features on public land The Owner acknowledges and agrees that any proposed Community Gateway Features and Primary Neighbourhood Gateway Features shall be designed, constructed and certified by a qualified professional and shall be in accordance with the City's Design Guidelines for Development Application Gateway Features, applicable by-laws and policies. Prior to the earlier of registration or installation, the Owner shall deposit security to meet the on-going maintenance obligations of the Feature(s) by the Owner for a one-year period after the construction of the Feature. The security will not be reduced or released until the expiration of the one-year period and until the time a certification by a qualified professional confirming that the Feature is constructed in accordance with the Guidelines and approved plans and is in a good state of repair is provided. During the warranty period, the Owner shall be solely responsible for the on-going upkeep and maintenance of the Gateway Feature(s). The Owner shall, prior to registration, make a financial contribution (+HST) to the "Maintenance Fund" in accordance with the City's Design Guidelines for Development Application Gateway Features. All of the aforementioned are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**

61.	**GF2**	Secondary Neighbourhood Gateway Features on public land The Owner acknowledges and agrees that any proposed Secondary Neighbourhood Gateway Feature(s) is **temporary only**, and shall be designed, constructed and certified by a qualified professional and shall be in accordance with the City's Design Guidelines for Development Application Gateway Features, applicable by-laws and policies. Prior to the earlier of registration or installation, the Owner shall deposit security to guarantee on-going maintenance and removal of the Secondary Neighbourhood Gateway Feature(s). The Owner shall be solely responsible for the on-going upkeep and maintenance of the Secondary Neighbourhood Gateway Feature until it is removed, upon which time the security may be released. All of the aforementioned are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
62.	**GF3**	Private/Condo Gateway Features The Owner acknowledges and agrees that any proposed Private/Condo Gateway Feature(s) shall be designed, constructed and certified by a qualified professional and shall be in accordance with the City's Design Guidelines for Development Application Gateway Features, applicable by-laws and policies. The Private/Condo Gateway Feature shall be subject to the approval of the Chief Building Official. Prior to the earlier of registration or installation, the Owner shall deposit security to meet the on-going maintenance obligations of the Feature by the Owner for a one-year period after the construction of the Feature. The security will not be reduced or released until the expiration of the one-year period and until the time a certification by a qualified professional confirming that the Feature is constructed in accordance with the Guidelines and approved plans and is in a good state of repair is provided. The Owner shall be required to maintain the Private/Condo Gateway Feature in a state of good repair at all times and in perpetuity, at no cost to the City. A maintenance clause will be required in the Condo or Common Elements agreement(s) to reflect the foregoing. All of the aforementioned are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**

		Parks	
63.	**P1**	In accordance with the *Planning Act* and the City of Ottawa Parkland Dedication By-law, the Owner shall convey Block 313 to the City for parkland purposes all to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Parks**
64.	**P2**	The Owner covenants and agrees that Block 313 will be conveyed to the City, at no cost, as dedicated parkland. The size and configuration of the Park Block 313 on the Final Plan shall be to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department. The Owner covenants and agrees that the parkland dedication requirement has been calculated at a rate of one hectare per 300 units (residential >18units/ha), but for apartments, as defined by the zoning by-law this parkland conveyance will not exceed a maximum of 10% of the land area of the site being developed. Based on the estimated number of 535 units for this subdivision, there is a parkland dedication requirement of 1.78 hectares, as shown in the calculation below: **Parkland Dedication Required:** Residential Units: 535 **Total:** / Calculation / Parkland Required Unit Sub-Totals: 535 — **535** — 1 / 300 — 1.783 **Parkland REQUIRED Total *(ha)* : 1.783** **Parkland Dedicated:** Block 313: 0.400 Previously dedicated parkland Part 2 on 4R-16710: 1.210 **Parkland DEDICATED Total *(ha)* : 1.610** **Parkland Over-Dedication *(ha)* : -0.173** The Owner acknowledges and agrees that there is a parkland under-dedication of 0.173 hectares. The under dedication in the amount of 0.173 hectares will be transferred to any future draft plan of subdivision on the property municipally known as 2065 Portobello Blvd (PIN #145640003). In the event that the number of units change, the required parkland dedication will also change. The Owner acknowledges and agrees that based on the final unit count and the area parkland calculations, should the parkland conveyed be in	**OTTAWA Parks**

		excess of the requirements under s.51 of the *Planning Act*, the City shall not compensate the Owner.	
65.	**P3**	The Owner acknowledges and agrees to design and construct the parkland, identified as Block 313, in accordance with City specifications and standards. The Owner further agrees to provide design plans and documents as detailed in the Park Development Manual 2nd edition 2017 (and as amended) for the park(s). The plans and documents will detail the designs, costs and amenities to be provided in each park. The expected cost of the design, construction, review and inspection of these parks will be in accordance with the rate per hectare and indexing rate utilized for park development by the City at the time of registration of each phase of development. The design plans and documents as well as the final budget for design, construction, review and inspection shall be subject to approval by the City, all to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Parks**
66.	**P4**	All Owner obligations associated with the Park Block(s) must be completed to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department within two years of registration. If the Park Block(s) is not tendered and under construction within two years of registration, the Owner agrees that the park development budget shall be based on the park development rate per hectare in effect at the time of the commencement of the park construction and that the Owner is required to pay the applicable Park Development rate for the current year that the park is to be built and those funds will be added to the park budget for construction.	**OTTAWA Parks**
67.	**P5**	The Owner acknowledges and agrees that no stormwater management facilities, encumbrances such as retaining walls, utility lines or easements of any kind shall be located on, or in front of, dedicated park blocks without the written approval of the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Parks**
68.	**P6**	The Owner acknowledges and agrees that any encumbrances which are not solely for the benefit of the park, such as retaining walls, utility lines or easements of any kind on lands, or portion thereof encumbering the design and function of future Park Block 313, will not form part of the *Planning Act* parkland dedication requirements without the written approval of the General Manager the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Parks**

69.	**P7**	The Owner agrees the park block(s) must be fully developable for its intended use based on a geotechnical report. If any constraints to development of the park block(s) are found the measures necessary to mitigate the constraints and to provide a subgrade suitable for the intended park(s) uses as identified in the Facility Fit Plan, or if a Facility Fit Plan has not yet been prepared for intended park uses as identified by Parks planning staff, will be undertaken by the Owner. The Owner is solely responsible for the costs of any necessary mitigation measures in addition to the Park Budget. All of the aforementioned are to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Parks**
70.	**P8**	Once a Facility Fit Plan is submitted and after tree protection fencing has been installed accordingly, both as approved by the General Manager, Recreation, Cultural and Facility Services Department, the Owner may remove vegetation, trees and topsoil from the park(s) to facilitate rough grading of the area. The Owner agrees that they may stockpile the topsoil either on or off the park(s). If the removal of the native topsoil is required, the Owner agrees to provide replacement topsoil at a sufficient depth and quality for the park(s) as per City Standards for park topsoil. All work shall proceed in accordance with the applicable By-laws.	**OTTAWA Parks**
71.	**P9**	The City acknowledges and agrees that the Owner may use the Park(s) outside of the protected park areas for the stockpiling of materials or staging as needed. The Owner agrees to conduct the stockpiling of soils in accordance with the future excess soils regulation, as amended. The Owner agrees contaminated soils shall not be stockpiled on future park areas. The Owner agrees to provide to the City documentation of the source and quality of the soils temporarily stored on the future park areas. The Owner acknowledges and agrees that in the event that the Owner chooses to use the parkland for stockpiling or staging, once this use of the parkland is completed, all materials will be removed from the parkland and a geotechnical report by a qualified and licensed engineer or geoscientist will be submitted. The geotechnical report shall confirm that the subgrade is suitable for its intended use and that no contaminants have been deposited on the parkland. The geotechnical report must indicate the level of soil compaction on the site and conform to City Standards, to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department. The Owner agrees that any remediation required to the parkland as result of the owners use of the parkland will be at the Owner's expense and will	**OTTAWA Parks**

		be in addition to the estimated park budget calculated at the per hectare rate as indexed and such remediation work shall be completed to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department.	
72.	**P10**	The Owner further agrees to prepare and submit upon registration, for approval all park plans and documents required as noted in the Park Development Manual 2017 based on the approved Facility Fit Plan, all to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department	**OTTAWA Parks**
73.	**P11**	Filling and rough grade the park block(s) a) Any fill imported to the future park block must be conducted in accordance with the future excess soils regulation, as amended. Documentation of the source and quality of the fill to be imported must be approved by a Qualified Person. Soils must be tested to the minimum parameter list as specified in the excess soils regulation. Importation of soils with no chemical testing will not be permitted. Additional testing may be required by the Qualified Persons as defined in the regulation. b) Copies of all records related to all soils imported to the future park areas must be provided to the City. It is the responsibility of the Owner to fill and rough grade the park where necessary, with clean earth borrow, compacted and leveled within the park block accordingly, to provide for positive surface drainage as per the City Standards for Park Fill and rough grading as per the approved subdivision grading plan. All at the expense of the Owner. All works and fill materials are to be approved by the General Manager, Planning, Infrastructure and Economic Development Department prior to being placed on site.	**OTTAWA Planning Parks**
74.	**P12**	Servicing and final grading of park blocks It is the responsibility of the Owner to undertake final grading of the park block as per the park working drawings /grading and drainage plan. This final grading will be covered by the park budget to a maximum of 10% of the park construction cost. Additional grading beyond 10% of park construction cost will be at the Owner's expense. All works and design drawings are subject to the approval of the General Manager, Recreation, Cultural and Facility Services Department and the General Manager, Planning, Infrastructure and Economic Development Department. Unless otherwise specified the Owner shall provide the following services and utilities to all Park Blocks:	**OTTAWA Planning Parks**

		Serviced park a) A 300mm diameter storm sewer and CB/MH at 2m inside the park property line. b) A 50mm diameter water line complete with standpost at 2m inside the park property line. A city standard park water vault chamber, standard detail W31.1 latest version, must also be installed as part of parks water works. The park water vault will be funded from the park budget. Co-ordination of all park water works including water vault and meter installation is an Owner responsibility. c) 150mm diameter sanitary sewer and MH at 2m inside the park property line. d) A 120/240 volt, 200 amperes single phase hydro service at 2m inside the park property line. The Owner is responsible for making all arrangements and coordinating the connection of the new hydro (electrical) service, including costs and inspections, with the respective hydro (electricity) agencies. The Owner is also responsible to ensure the park electricity service(s) is included on the approved CUP drawings.	
75.	**P13**	The Owner shall install fencing of uniform appearance and quality, with a minimum height of five feet (5') (1.5m) along the common boundary of all residential lots and other lots which abut Park Blocks. Fences shall be installed 0.15m on the park property side of the common property line, and the location of the fence shall be verified by an Ontario Land Surveyor. All fences must adhere to the City's fence By-law 2003-462. Fence materials will be of commercial grade and consist of 6-gauge black vinyl coated chain link material and black powder coated schedule 40 pipe rails and posts or an approved alternative.	**OTTAWA Parks**
76.	**P15**	Gates Permitted No access from private property to active public property will be allowed without the prior written approval of the General Manager, Planning, Infrastructure and Economic Development Department. The Owner shall place the following clause in each Agreement of Purchase and Sale and shall be registered as a notice on title in respect of all Lots and Blocks: "The Transferee for himself/herself, his/her heirs, executors, administers, successors and assigns acknowledges being advised that gates accessing public property are not permitted in the fences without the express written permission of the General Manager, Recreation, Cultural and Facility Services Department."	**OTTAWA Parks**

77.	**P16**	The Owner shall include a clause in each Agreement of Purchase and Sale and shall be registered as a notice on title in respect of all Lots and Blocks which shall provide notification to all purchasers of lands within the Subdivision that parkland within this subdivision and/or already existing in the vicinity of the subdivision may have: a) active hard surface and soft surface recreational facilities b) active lighted sports fields c) recreation and leisure facilities d) potential community centre e) library f) day care g) other potential public buildings/facilities.	**OTTAWA Parks**
78.	**P17**	The Owner acknowledges and agrees that, if the approved park concept design contains amenities proposed by the Owner that exceed the standard park design and construction budget, and if securities are not retained by the City for these items, the City shall not be responsible for these items in the event that the City must complete the park.	**OTTAWA Parks**
79.	**P18**	The Owner acknowledges and agrees that, following registration of this agreement, all park blocks will be transferred to the City. Notwithstanding said transfer, the Owner acknowledges and agrees that, prior to the assumption of the park by the City, the Owner will retain all liability for the transferred blocks and that said transfer will in no way exonerate the Owner from its responsibility to design and construct the park pursuant to the terms of this agreement.	**OTTAWA Parks**
82.	**P21**	The Owner acknowledges and agrees to erect at its expense on the park block(s) at a location selected by the General Manager, Recreation, Cultural and Facility Services a professionally painted sign indicating: Future Parkland No Dumping No Removal of soils or Vegetation	**OTTAWA Parks**
83.	**P22**	Upon registration of the subdivision and transfer of ownership of the park block to the city, the Owner agrees to provide: • a certificate of insurance that names the City of Ottawa as Additional Insured, and • a letter of credit which covers the full amount of the park construction cost to ensure the work is completed,	**OTTAWA Parks**

		the Owner will hereby be granted consent to enter at no cost to complete the work. All is to the satisfaction of the General Manager of Recreation Culture and Facility Services,	
84.	**P23**	The Owner acknowledges and agrees that no work within the ROW in front of, or around, any boundary of the park will be a park cost. All ROW work including, tree planting, topsoil and sod, and all hard surface work will be at the Owners' expense. Where a park plaza or landscape feature extends into the ROW as a continual element of the park development, this work may be considered park work at the discretion of the General Manager, Recreation, Cultural and Facility Services.	**OTTAWA Parks**
85.	**P24**	The Owner acknowledges and agrees that the total consulting costs including all prime consulting, sub-consulting and testing fees, for the design and development of the Park Blocks shall not exceed the percentage of the Park Construction Budget as recommended, by type of project, by the *Ontario Association of Landscape Architects Fee Guide for Landscape Architectural Services*, current (at time of Work) version, and shall be to the satisfaction of the General Manager, Recreation, Cultural & Facility Services.	**OTTAWA Parks**
86.	**P25**	The Owner and the General Manager of Recreation, Culture and Facility Services may, if it is mutually beneficial to both parties, enter into an agreement whereby the Owner will provide funding (+HST) to the City for the design and the construction of the park block(s). The City will proceed to design and construction of the park as per the typical city-build park process as described in the Parks Development Manual. The timing of the park construction will be at the discretion of the City. The expected cost of the park(s) works to be paid to the City will be based on the rate per hectare and indexing rate utilized for the park development by the City at the time of registration of the phase of development, which includes the park block(s) plus a 5% administrative fee for City forces to execute the project. The funding for park works will be paid to the city at the time of registration for the phase of development, which includes the park block. All standard subdivision conditions associated with the park, including, but not limited to: fencing, fill and rough grading, tree removal and services stubbed to within 2.0 m inside the park block(s) will remain a subdivision cost to be covered by the Owner separate from the park funding.	**OTTAWA Parks**
		<u>Environmental Constraints</u>	
87.	**EC1**	The Owner shall prepare and implement an Integrated Environmental Review and/or an Environmental Impact Statement, in accordance with the policies of the Official Plan, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning CA**

88.	**EC2**	The Owner agrees that prior to registration, early servicing, or other works that would alter the vegetative characteristics of the site, the Owner shall have the environmental impact statement updated as necessary to reflect the final plan as approved, and to address any changes to the anticipated impacts and recommended mitigation measures that may be required as a result of changes to the draft plan, changes in the regulatory context with respect to species at risk, or changes in the known environmental context of the site. This update shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
89.	**EC3**	The Owner acknowledges and agrees that the construction of the subdivision shall be in accordance with the recommendations of the approved Tree Conservation Report and Environmental Impact Statement.	**OTTAWA Planning CA**
90.	**EC4**	The Owner agrees to abide by all appropriate regulations associated with Provincial and Federal statutes for the protection of wildlife, including migratory birds and species at risk.	**OTTAWA Planning**
91.	**EC12**	Where required, the Owner shall prepare, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department, an Owner Awareness Package (OAP) highlighting the advantages and responsibilities of a homeowner living in or adjacent to a natural area. The OAP shall describe the natural attributes of the community and the importance of good stewardship practices to ensure the long-term health and sustainability of the Natural Heritage System. Topics to be discussed include, but are not limited to, reducing environmental impacts from common household activities (e.g., water conservation, yard waste disposal, chemical use and storage, etc.), avoiding human-wildlife conflicts, and recommendations of locally appropriate native species for landscaping. The OAP shall be distributed to all purchasers with the Agreement of Purchase and Sale.	**OTTAWA Planning CA**
92.		**Contaminants** The Owner agrees and acknowledges that should buried materials such as refuse, concrete and asphalt or undesirable cobbles and materials be excavated on site they shall be removed from the excavations and be removed off site as per the direction of the on-site geotechnical engineer.	**OTTAWA Planning**
		Schools	
93.	**SC1**	The Owner acknowledges and agrees to reserve Block 314 on the draft plan of subdivision as an elementary school site for the Ottawa-Carleton	**OCDSB**

		District School Board. The final size, configuration and servicing for the school site shall be to the satisfaction of the Ottawa-Carleton District School Board and the General Manager, Planning, Infrastructure and Economic Development Department.	
94.	**SC2**	The Owner agrees to reserve the designated school site for a period of up to seven years from the date of registration of the plan that contains the school site. The school board may apply for a two-year extension of the seven year terms by notifying the developer at least six months prior to the end of the seven years.	**OCDSB**
95.	**SC3**	The Owner agrees to enter into a legal agreement with the Ottawa-Carleton District School Board for the reservation of the designated elementary school site known as Block 314 on the draft plan of subdivision for a period of up to seven years from the date of registration of the plan which contains the subject school site.	**OCDSB**
96.		The Owner agrees that no uses, such as, but not limited to stormwater ponds or utility lines or easements, or any kind shall be located on designated school site blocks without the express written concurrence of the Ottawa-Carleton District School Board.	**OCDSB**
97.	**SC4**	That the Owner be required to erect an uninterrupted, 1.5 metre high chain link, (no gates) between the Ottawa-Carleton District School Board's future school site and any future residential or non-residential properties. The fence should be placed approximately 0.15m on the inside of the Ottawa-Carleton District School Board's property line.	**OCDSB**
98.	**SC5**	That the Owner shall neither deposit nor permit to be deposited fill, debris, building materials or equipment, nor allow vehicle access for any purpose on the designated school block lands of the subdivision, and furthermore, the owner shall neither remove nor permit to be removed, any fill, top soil, trees or shrubs from the said lands without the express written concurrence of the Ottawa-Carleton District School Board.	**OCDSB**
99.	**SC6**	That the Owner agrees to rough grade the Ottawa-Carleton District School Board future elementary school site to match the proposed surrounding grades and drainage pattern as noted on the subdivision grade plan. If fill is required to achieve these grades, it is the responsibility of the owner to fill, compact and level the school block accordingly, providing for positive surface drainage.	**OCDSB**
		Archaeology	
100.	**ARC1**	Where the Owner is required to undertake an archaeological assessment:	**OTTAWA Planning**

		i. The Owner acknowledges having been required to retain a licensed consultant archaeologist to undertake an archaeological assessment of the entire property, including 1:10,000 scale mapping, "Archaeological Site Record" and report(s); ii. The Owner agrees to implement the recommendations of the approved assessment, including mitigation, through preservation or removal and documentation of archaeological resources; and iii. The Owner agrees that no site works shall take place until any archaeological resource conservation concerns have been addressed. All of the above noted conditions shall be to the satisfaction of the Ministry of Tourism and Culture and the General Manager, Planning, Infrastructure and Economic Development Department.	**MTCS** (Ministry provides written clearance to the City prior to registration, usually at the request of the applicant.)
101.	**ARC2**	The Owner acknowledges and agrees that should deeply buried deposits be found on this property during any construction activities, the Ministry of Tourism and Culture will be notified immediately.	**OTTAWA Planning**
102.	**ARC3**	The Owner acknowledges and agrees that in the event human remains are encountered during the construction activities, both the Ministry of Tourism and Culture and the Registrar of the Cemeteries Regulations Unit of the Ministry of Small Business and Consumer Relations will be notified immediately.	**OTTAWA Planning**
		<u>Stormwater Management</u>	
103.	**SW1**	The Owner shall provide any and all stormwater reports that may be required by the City for approval prior to the commencement of any works in any phase of the Plan of Subdivision. Such reports shall be in accordance with any watershed or subwatershed studies, conceptual stormwater reports, City or Provincial standards, specifications and guidelines. The reports shall include, but not be limited to, the provision of erosion and sedimentation control measures, implementation or phasing requirements of interim or permanent measures, and all stormwater monitoring and testing requirements. All reports and plans shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning CA**
104.	**SW2**	(a) Prior to the commencement of construction of any phase of this Subdivision (roads, utilities, any off site work, etc.) the Owner shall:	**OTTAWA Planning CA**

		i. have a Stormwater Management Plan and an Erosion and Sediment Control Plan prepared by a Professional Engineer in accordance with current best management practices; ii. (if appropriate) provide all digital models and modelling analysis in an acceptable format; iii. have said plans approved by the General Manager, Planning, Infrastructure and Economic Development Department, and iv. provide certification through a Professional Engineer licensed in the province of Ontario that the plans have been implemented. (b) All submissions and any changes made to the Plan shall be submitted to the satisfaction to the City and the Rideau Valley Conservation Authority. (c) The Owner shall implement an inspection and monitoring plan to maintain erosion control measures.	
105.	**SW3**	On completion of all stormwater works, the Owner agrees to provide certification to the General Manager, Planning, Infrastructure and Economic Development Department through a Professional Engineer, licensed in the province of Ontario, that all measures have been implemented in conformity with the approved Stormwater Site Management Plan.	**OTTAWA Planning**
107.	**SW6**	The Owner agrees that the development of the Subdivision shall be undertaken in such a manner as to prevent any adverse effects, and to protect, enhance or restore any of the existing or natural environment, through the preparation of any storm water management reports, as required by the City.	**OTTAWA Planning**
108.	**SW7**	The Owner covenants and agrees that the following clause shall be incorporated into all agreements of purchase and sale for the whole, or any part, of a lot or block on the Plan of Subdivision, and registered separately against the title: “The Owner acknowledges that some of the rear yards within this subdivision are used for on-site storage of infrequent storm events. Pool installation and/or grading alterations and/or coach houses on some of the lots may not be permitted and/or revisions to the approved Subdivision Stormwater Management Plan Report may be required to study the possibility of modification on any individual lot. The Owner must obtain approval of the General Manager, Planning, Infrastructure and Economic Development Department of the City of Ottawa prior to undertaking any grading alterations.”	**OTTAWA Legal**

		Sanitary Services	
110.	**SS1**	The Owner agrees to submit detailed municipal servicing plans, prepared by a Professional Civil Engineer licensed in the Province of Ontario, to the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
111.	**SS3**	As the Owner proposes a road allowance(s) of less than 20 metres, and if the Owner also proposed boulevards between 4.0 and 5.0 metres wide, the Owner shall meet the following requirements: a) extend water, sanitary, and storm services a minimum of 2.0 metres onto private property during installation before being capped; b) install high voltage electrical cable through the transformer foundations to maintain adequate clearance from the gas main; c) provide and install conduits as required by each utility; d) provide and install transformer security walls when a 3.0 metres clearance, as required by the Electrical Code, cannot be maintained. The design and location of the security wall must be approved by the local hydro utility; and e) install all road-crossing ducts at a depth not to exceed 1.2 metres from top of duct to final grade.	**OTTAWA Planning**
112.		**Sewer Flow Management Plan** The Owner agrees and acknowledges that their contractor is required to provide a Sewer Flow Management Plan (SFMP) as per City Standard S.P. No: F1007 for any bypass sewage pumping and discharge.	**OTTAWA Planning**
113.		**Abandonment of existing Sewer Infrastructure** The Owner acknowledges and agrees that their contractor is required to remove or abandon existing sewer infrastructure as per the City S.P. No. F-4104 to the City to the satisfaction of the General Manager, Planning, Infrastructure & Economic Development Department.	**OTTAWA Planning**
		Water Services	
114.	**W1**	The Owner agrees to design and construct all necessary watermains and the details of water servicing and metering for the lots abutting the watermains within the subject lands. The Owner shall pay all related costs, including the cost of connection, inspection and sterilization by City personnel, as well as the supply and installation of water meters by the City.	**OTTAWA Planning**

115.	**W2**	The Owner shall prepare, at its cost, a hydraulic network analysis of the proposed water plant within the Plan of Subdivision and as it relates to the existing infrastructure. This analysis shall be submitted for review and approval as part of the water plant design submission.	**OTTAWA Planning**
116.	**W3**	The Owner acknowledges and agrees not to permit any occupancy of buildings on the individual Lots and Blocks on the Draft Plan of Subdivision until the water plant has been installed, sterilized and placed in service to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
117.	**W4**	The Owner further acknowledges and agrees that the service post, which is the fitting located near the property line that allows access to the shutoff valve, must be visible, raised to finished grade and in working condition in order for the City to turn on the service.	**OTTAWA Planning**
118.	**W5**	The Owner acknowledges and agrees to provide a Water Age Analysis prior to registration which reflects their proposed phasing and scheduling. Where required, through this analysis or through testing, the Owner acknowledges and agrees that flushing infrastructure will be installed at no cost to the City, and that the Owner will be responsible for all costs associated with the consumption and disposal of water, as required, to ensure that adequate chlorine residual is maintained throughout the water system, all to the satisfaction of the General Manager, Public Works and Environmental Services	**OTTAWA Planning**
119.	**W6**	The Owner acknowledges and agrees not to apply for, nor shall the City issue, building permits for more than 50 dwelling units (or the equivalent) where the watermain for such units is not looped. Any unit serviced by an looped watermain that is not looped shall be required to have sufficient fire protection, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
		Serviced Lands	
121.	**SL1**	The Owner shall be responsible for the provisions of the following works, including oversizing and over depth (where appropriate), at its cost, in accordance with plans approved by the General Manager, Planning, Infrastructure and Economic Development Department, and/or the Province: a. Watermains; b. Sanitary Sewers; c. Storm Sewers; d. Roads and traffic plant(s);	**OTTAWA Planning**

		e. Street Lights; f. Sidewalks; g. Landscaping; h. Street name, municipal numbering, and traffic signs; i. Stormwater management facilities; and j. Grade Control and Drainage.	
122.	**SL2**	The Owner shall not commence construction of any Works or cause or permit the commencement of any Works until the City issues a Commence Work Notification, and only then in accordance with the conditions contained therein.	**OTTAWA Planning**
123.	**SL4**	The Owner shall not be entitled to a building permit, early servicing, or commencement of work construction until they can demonstrate that there is adequate road, sanitary, storm, and watermain capacity and any Environmental Compliance Approvals (ECA) necessary are approved. All are to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
124.		The Owner acknowledges and agrees to service each residential development lot within the subdivision to the property line to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development.	**OTTAWA Planning**
125.		The Owner acknowledges and agrees that the plan will be registered in phases. Phase 1 contains Street No. 10 connecting to Aquaview Drive. All other phases are situated between Provence Avenue and Trim Road. Street No. 1 will be constructed with sewers and watermain with the servicing of Phase 2 of this development for watermain redundancy and to provide construction access. Such works shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development.	**OTTAWA Planning**
126.		**Existing Well(s) Monitoring** (a) The Owner acknowledges and agrees to submit to the City prior to commencement of on-site works of the Phase 2 and 4 of this subdivision a hydrogeology risk brief, completed and reviewed by a qualified hydrogeologist. The Owner agrees that the brief shall assess the risk to the groundwater on adjacent lands that may result from the migration of contaminated materials and from the lowering of the piezometric surface of the groundwater. The brief shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**

		(b) If permission is granted, the Owner further acknowledges and agrees to sample and test the existing wells of 2072, 2088 and 2170 Trim Road and any other wells on abutting properties. (c) The Owner further agrees to supply potable water to any residence described in paragraph 9(b) equivalent in quantity and quality in the event that it has been determined that the groundwater supply has been negatively disturbed by the development of the subdivision. (d) The Owner shall provide a temporary water supply immediately following a validated complaint from a resident described in paragraph 9(b) if directed by the City. The Owner shall retain a professional hydrogeologist to investigate the cause of the problem and shall submit a report to the City for review. Should the General Manager, Planning, Infrastructure and Economic Development Department, determine that the cause of the problem is the subdivision, the Owner shall provide the residence with a new water supply, consisting of either: i. a new well, complete with a pump, pipe and all appurtenances required to provide potable water to the house, including the abandonment of the existing well; ii. if possible, connection to municipal water, including all associate cost to bring the service to the house. The temporary water supply shall remain in place until the permanent water supply has been provided or the City has determined that the Owner is not responsible. (e) The Owner acknowledges and agrees that the City shall retain or hold back securities in the amount of 100% of the value of construction of the three wells, to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development Department. The securities shall be released and the Owner relieved of the obligations in paragraph (c) and (d) upon final acceptance of the subdivision works.	
127.		**<u>Future development</u>** The Owner further acknowledges and agrees 2072, 2088 and 2170 Trim Road and the lot described as Part of Part 1 on Plan 50R5323 (Part Lot 2, Concession 9) on Trim Road will be serviced internally to the subdivision and not Trim Road if acquired by the Owner for development.	**OTTAWA Planning**

128.		**Approvals** The Owner acknowledges and agrees that if temporary dewatering is required in excess of 50,000 litres per day on site for approved works that they shall apply to the MECP for a permit to take water. Furthermore, all cost shall be borne by the Owner.	**OTTAWA Planning**
		Utilities	
129.	**U1**	The Owner is hereby advised that prior to commencing any work within the subdivision, the Owner must confirm that sufficient wire-line communication /telecommunication infrastructure is currently available to the proposed development to provide communication/telecommunication service to the proposed development. In the event that such infrastructure is not available, the Owner is hereby advised that the Owner shall ensure, at no cost to the City, the connection to and/or extension of the existing communication / telecommunication infrastructure. The Owner shall be required to demonstrate to the municipality that sufficient communication /telecommunication infrastructure facilities are available within the proposed development to enable, at a minimum, the effective delivery of communication /telecommunication for emergency management services (i.e. 911 Emergency Services).	**OTTAWA Planning**
130.		The Owner acknowledges and agrees that Canada Post will provide mail delivery service to the subdivision through centralized Community Mail Boxes (CMB's). The CMB's location will be determined at the time of the preliminary Composite Utility Plan. If the development includes plans for (a) multi-unit building(s) with a common indoor entrance, the Owner must supply, install and maintain the mail delivery equipment with parcels compartments within these buildings to Canada Post's specifications (Lock Box Assembly's).	**Canada Post**
131.		**Hydro One** The Owner acknowledges and agrees that Hydro One has infrastructure in the area around the Phase 1 proposed development at Portobello Boulevard and Aquaview Drive. However, there is limited servicing capacity for Phases 2 to 5 between Provence Avenue and Trim Road. Hydro One infrastructure was not installed along Provence Avenue at the time it was extended north/south, west of this plan of subdivision. This major Hydro link is required to be completed by the Owner for those connections to service these lands. The Owner agrees to contact Hydro One to begin the infrastructure design at subdivision@hydroone.com	**Hydro One**

132.	**H8**	The Owner shall ensure that any landscaping or surface finishing does not encroach into existing or proposed Hydro One's overhead or underground assets or easement. When proposing to place plantings in proximity of existing power lines, the Owner shall refer to Hydro One's guidelines "Planting Under or Around Powerlines & Electrical Equipment". The shrub or tree location and expected growth must be considered. If any Hydro One related activity requires the trimming, cutting or removal of vegetation, or removal of other landscaping or surface finishing, the activity and the re-instatement shall be at the Owner's expense.	**Hydro One**
133.	**H9**	The Owner is advised that there are high voltage overhead lines along the Trim Road side of the property. The Owner shall ensure that the minimum building setback from the Trim Road property limit will be 4.8 metres on Lot 265, Blocks 309 and 310 in accordance with Electrical Safety Authority (ESA) and Hydro One regulations.	**Hydro One**
134.	**H10**	The Owner acknowledges and agrees that prior to commencing Works identified within the Draft Plan; it shall confirm the proposed development is sufficiently serviced by all necessary utilities. The Owner further agrees to comply with all relevant and existing utility Conditions of Service, construction processes and guidelines. The Owner further agrees it shall be responsible for engaging the providers of any necessary utilities to determine servicing for the proposed development and that it shall be responsible for all costs relating to the relocation, placement and/or upgrade of existing or future utility infrastructure for the proposed development. The Owner shall be required to demonstrate to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development that sufficient utility servicing and infrastructure exist to service the proposed development and that communication / telecommunication infrastructure facilities are available, at a minimum, for the delivery of emergency management services. The Owner acknowledges and agrees to convey, at their cost, any easements as may be required by the necessary utilities and agrees to abide by all conditions of the City's inhibiting order. The Owner further acknowledges and agrees that such easements shall not be granted on any lands being conveyed to the City, or those proposed to be conveyed to the City. Should any lands owned or proposed to be owned by the City be encumbered as a result of these conditions, the Owner shall bear the sole responsibility and costs associated with correcting such actions, including but not limited to the conveyance of additional lands, the relocation of any such easements or infrastructure as may be deemed appropriate by the General Manager, Planning, Infrastructure and Economic Development Department.	**Utilities**

135.		The Owner acknowledges and agrees that it will grant to Bell Canada any easements that may be required, which may include a blanket easement, for communication/telecommunication infrastructure. In the event of any conflict with existing Bell Canada facilities or easements, the Owner shall be responsible for the relocation of such facilities or easements.	**Bell**
136.		That the Owner shall transfer such new easements and maintenance agreements as are deemed necessary by Rogers Communications Canada Inc. to service this subdivision, to our satisfaction and that of the appropriate authority and at no cost to us. The owner is also to ensure that these easement documents are registered on title immediately following registration of the final plan, and the affected agencies duly notified.	**Rogers**
137.		That the Owner be required, in the Subdivision Agreement, to coordinate the preparation of an overall utility distribution plan. This plan would be showing the locations (shared or otherwise) and the installation timing and phasing of all required utilities (on-ground, below ground) through liaison with the appropriate electrical, gas, water, telephone and cablevision authority. Such location plan being to the satisfaction of all affected authorities.	**Rogers**
138.		That the Owner agrees with Rogers Communications Canada Inc. to arrange for and pay the cost of the relocation of any existing services which is made necessary because of this subdivision, to the satisfaction of the authority having jurisdiction.	**Rogers**
139.		The Owner acknowledges and agrees that any relocation of existing Enbridge Gas Distribution infrastructure as a result of changes in the alignment or grade of future road allowances or for temporary gas pipe installations pertaining to phase construction, will be at their cost.	**Enbridge**
140.		The Owner acknowledges and agrees to provide Enbridge Gas Distribution any easement(s) required to service this development and any future adjacent developments. The Owner will provide such easements at no cost to Enbridge Gas Distribution. The inhibiting order will not be lifted until such time as the Owner has met all of Enbridge Gas Distribution's requirements.	**Enbridge**
141.		The Owner agrees to contact Enbridge Gas Distribution for service and meter installation details and to ensure all gas piping is installed prior to the commencement of site landscaping (including, but not limited to, tree planting, silva cells, and/or soil trenches) and/or asphalt paving.	**Enbridge**

142.		The Owner agrees that in the event that a pressure reducing regulator is required, they shall provide a 3 metre by 3 metre exclusive use location that cannot project into the municipal road allowance. The final size and location of the regulator station will be confirmed by Enbridge Gas Distribution.	**Enbridge**
143.		The Owner acknowledges and agrees to grade all road allowances to as close to final elevation as possible, provide necessary field survey information and all approved municipal road cross sections, identifying all utility locations prior to the installation of the gas piping.	**Enbridge**
		Fire Services	
144.	**FUS1**	The Owner acknowledges and agrees that if two-hour firewalls, active fire protection measures such as sprinkler systems, and/or minimum building separations are required to comply with the FUS calculation as per the City Design Guidelines for water distribution systems, the Owner shall note any such requirements on the grading plan. The Owner shall, prior to registration, provide certified plans demonstrating the locations of such oversized services and/or oversized plumbing to compensate for low peak hour pressures in the local water distribution system. All are to the satisfaction of the General Manager of Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
145.	**FUS2**	The Owner acknowledges and agrees that measures which include, but are not limited to, active fire protection measures such as sprinkler systems, two-hour firewalls that compartmentalize the structure into separate fire areas, and oversized services and/or oversized plumbing shall require the posting of securities to guarantee their installation, prior to registration. The securities will be released upon receiving a letter signed and sealed by a Professional Engineer licensed in the Province of Ontario certifying that construction was carried out in accordance with the approved drawing(s)/plan(s). All are to the satisfaction of the General Manager of Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
146.	**FUS3**	The Owner shall insert a clause in each agreement of purchase and sale and Deed for lands wherein the dwelling contains, or intends to contain, a sprinkler system as follows: “Purchasers are advised that they must maintain the sprinkler system in working order to the satisfaction of the City’s Fire Department. The Purchaser agrees to include this clause in any future purchase and sale agreements.”	**OTTAWA Planning**

147.	**FUS4**	The Owner acknowledges and agrees that it shall, in the case of insufficient fire flow availability or excessive water age and loss of water disinfectant residual, provide active fire protection options such as sprinkler systems, two-hour firewalls or fire breaks that compartmentalize the structures into separate fire areas, as may be required, to limit the sizing of crescent, dead-end, and other distribution mains to a nominal size of no more that 200mm. All are to be determined by and to the satisfaction of the General Manager of Planning, Infrastructure and Economic Development Department.	**OTTAWA Planning**
		Noise Attenuation	
148.	**N1**	The Owner shall have a Noise Study undertaken related to noise assessment and land use planning with respect to noises generated by moving and stationary sources prepared by a Professional Engineer, licensed in the province of Ontario to the satisfaction and approval of the General Manager, Planning, Infrastructure and Economic Development Department. The Study shall comply with: i. the City of Ottawa's Environmental Noise Control Guidelines, as amended; and ii. address, and be in accordance with, the current version of the Association of Professional Engineers of Ontario Guidelines for Professional Engineers providing Acoustical Engineering Services in Land Use Planning. The study shall provide all specific details on the methods and measures required to attenuate any noise that exceeds the allowable noise limits in locations as determined by the recommendations of the Noise Assessment Study.	**OTTAWA Planning**
149.	**N2**	Where structural mitigation measures are required as a result of the Noise Assessment Study, the Owner shall provide, prior to final building inspection, certification to the General Manager, Planning, Infrastructure and Economic Development Department, through a Professional Engineer, that the noise control measures have been implemented in accordance with the approved study.	**OTTAWA Planning**
151.	**N4**	The Owner agrees that all purchase and sale agreements, and the Deed(s) for the whole or any part of the lot/block on the Plan of Subdivision deemed to be affected by noise shall contain the following clauses that shall be incorporated in all Transfers/Deeds from the Owner so that the clauses shall be covenants running with the lands in the Subdivision and registered separately against the title:	**OTTAWA Planning Legal**

		"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City of Ottawa. To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within City of Ottawa guidelines. The measures for sound attenuation utilized an acoustic barrier to be owned and maintained by the private homeowner."	
		Land Transfers	
152.	**LT1**	The Owner shall convey, at no cost to the City, all lands required for public purposes, including but not limited to, reserves, road widenings, daylighting triangles, walkway blocks, open space blocks, and lands required for parks (or cash-in-lieu thereof), transit and for stormwater management. In particular, the Owner agrees to convey the following lands: i. Pathway, Walkway or Servicing Blocks – Blocks 317, 318 and 319 ii. Open Space Blocks – n/a iii. Watercourses (buffer strips/riparian corridors) – n/a iv. Park Blocks – Block 313 v. Storm Water Management Blocks – n/a vi. Road Widening Blocks – Trim Road (if required) vii. 0.3 m Reserve Blocks – to be shown on 4M-Plan viii. Daylighting Triangles – Streets 1 to 10 ix. Transit Corridors – Blocks 315 and 316 x. Trim Road future transitway grade separation – Block 320 xi. Wetlands – n/a	**OTTAWA Planning Legal**
153.	**LT2**	The Owner agrees to convey, at no cost to the City, any easements that may be required for the provision of water and wastewater systems, in addition to underground or overland stormwater drainage systems.	**OTTAWA Planning Legal**
		Blasting	
154.	**B1**	The Owner agree that all blasting activities will conform to the City of Ottawa's standard S.P. No: F-1201 Use of Explosives. Prior to any blasting activities, a pre-blast survey shall be prepared as per F-1201, at the Owner expense for all buildings, utilities, structures, water wells, and facilities likely to be affected by the blast and those within 75 m of the location where explosives are to be used. The standard inspection procedure shall include the provision of an explanatory letter to the owner or occupant and owner with a formal request for permission to carry out an inspection.	**OTTAWA Planning**

		The Owner agree to provide a Notification Letter in compliance with City specification F-1201. Specification indicates that a minimum of 15 Business days prior to blasting the Contractor shall provide written notice to all owner(s) and tenants of buildings or facilities within a minimum of 150m of the blasting location. The Owner agrees to submit a copy of the Notification Letter to the City.	
		Street Townhouses	
155.		The Owner acknowledges and agrees to install at its expense, between all townhouse blocks, a barrier in the form of a 1.8 meter high wood privacy fence.	**OTTAWA Planning**
156.		The Owner acknowledges and agrees to install at its expense, between townhouse units within a block, a barrier in the form of a 1.8 meter high wood privacy fence for a distance of 3.0m from the rear wall of the unit.	**OTTAWA Planning**
157.		The Owner acknowledges and agrees to install, at its expense, where the side of an end unit of a townhouse abuts a street, a barrier in the form of a 1.8 meter high wood privacy fence from the rear property line extending along the side lot line and wrapped around to the front wall of the house.	**OTTAWA Planning**
158.		The Owner acknowledges and agrees that double fencing will not be permitted on the whole or any part of townhouse blocks inclusive within this development. Double fencing is defined as providing fencing on both sides of an access right-of-way which has the effect of providing a walkway between two fences. The Owner covenants and agrees that it will advise all prospective lot purchasers in the agreement of purchase and sale and all Transfers/Deeds of this requirement.	**OTTAWA Planning**
159.		The Owner acknowledges and agrees that prior to the issuance of a building permit for all townhouse blocks on the Plan, the Owner shall ensure that the noise wall design will not obstruct the access to the rear yards for the units adjacent to Trim Road, Provence Avenue, Aquaview Drive, Portobello Boulevard and Street No. 1, all to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development.	**OTTAWA Planning**
160.		The Owner covenants and agrees that it shall provide at the time of on-street townhouse lot creation (part lot control or severance), an unobstructed rear yard access easement having a minimum width of 1.2 metres for all interior on-street townhouse lots (multiple and attached dwellings). This easement shall have regard for and be set back from either the chain link fence, noise attenuation fence or berm whichever is applicable. The creation of this access easement shall be to the satisfaction of the General Manager, Planning, Infrastructure and Economic Development.	**OTTAWA Planning**

		Development Charges By-law	
161.	**DC1**	The Owner acknowledges that some of the works of the Subdivision are eligible for development charges revenues pursuant to the City's applicable Development Charges By-law and background study, as well as budget approval by City Council where required. Such contributions are to be determined and agreed to by the City, prior to the commencement of the associated Works or as agreed to by the City. The Owner agrees to enter into any agreements that may be required pursuant to the applicable Development Charges By-law.	**OTTAWA Planning Legal**
162.	**DC2**	The Owner shall inform the purchaser after registration of each lot or block of the development charges that have been paid or which are still applicable to the lot or block. The applicable development charges shall be as stated as of the time of the conveyance of the relevant lot or block and the statement shall be provided at the time of the conveyance. The statement of the Owner of the applicable development charges shall also contain the statement that the development charges are subject to changes in accordance with the *Development Charges Act, 1997* and the *Education Development Charges Act.*	**OTTAWA Planning Legal**
163.	**DC4**	The Owner acknowledges that for building permits issued after January 15, 2010, payment of non-residential development charges, excluding development charges for institutional developments, may be calculated in two installments at the option of the Owner, such option to be exercised by the Owner at the time of the application for the building permit. The non-discounted portion of the development charge shall be paid at the time of issuance of the building permit and the discounted portion of the development charge shall be payable a maximum of two years from the date of issuance of the initial building permit subject to the following conditions: a) a written acknowledgement from the Owner of the obligation to pay the discounted portion of the development charges; b) no reduction in the Letter of Credit below the amount of the outstanding discounted development charges; and c) indexing of the development charges in accordance with the provisions of the Development Charges By-law. The Owner further acknowledges that Council may terminate the eligibility for this two-stage payment at any time without notice, including for the lands subject to this agreement and including for a building permit for which an application has been filed but not yet issued.	**OTTAWA Planning Legal**

		For the purposes of this provision, “discounted portion” means the costs of eligible services, except fire, police and engineered services that are subject to 90% cost recovery of growth-related net capital costs for purposes of funding from development charges. The 10% discounted portion, for applicable services, must be financed from non-development charge revenue sources. “Non-discounted portion” means the costs of eligible services, fire, police and engineered services, that are subject to 100% cost recovery of growth-related net capital costs for purposes of funding from development charges.	
164.		The Owner acknowledges and agrees to pay all applicable development charges and stormwater charges, including but not limited to Provence Avenue, Millenium Park, Cardinal Creek charges, for their development upon the issuance of all building permits.	**OTTAWA Planning**
166.		The Owner agrees to pay the City a $170.00 per dwelling unit benefiting area charge for the Rock Knoll Area land purchase. The Owner agrees to include a clause in all agreements of purchase and sale for the subdivision lands which notifies that the $170.00 per dwelling unit Rock Knoll Area purchase charge is payable at the time of registration of each phase.The total amount owing for this subdivision at full development is estimated at $90,950.00 based on the development of 535 units (535 units x $170.00/unit). This amount will be adjusted at the time of registration based on the final number of units. The Owner acknowledges and agrees that the above area charge will be held as securities, in the form of a Letter of Credit or Cash, until such time as the Owner dedicates a minimum 2.02 hectare parcel of Rock Knoll (Nantes Woods) as parkland dedication through future draft plan of subdivision on the property municipally known as 2065 Portobello Blvd (PIN #145640003). The size and configuration of the Rock Knoll park block on the final plan shall be to the satisfaction of the General Manager, Recreation, Cultural and Facility Services Department.	**OTTAWA Planning**
		Survey Requirements	
167.	**Surv1**	The Owner shall provide the final plan intended for registration in a digital format that is compatible with the City’s computerized system.	**OTTAWA Planning**
168.	**Surv2**	The Plan of Subdivision shall be referenced to the Horizontal Control Network in accordance with the City requirements and guidelines for referencing legal surveys.	**OTTAWA Surveys**

169.	**Surv3**	The distance from the travelled Centreline of all existing adjacent roads to the subdivision boundary should be set out in the Plan of Subdivision.	**OTTAWA Surveys**
		Closing Conditions	
170.	**C1**	The City Subdivision Agreement shall state that the conditions run with the land and are binding on the Owner's, heirs, successors and assigns.	**OTTAWA Legal**
171.	**C2**	At any time prior to final approval of this plan for registration, the City may, in accordance with Section 51 (44) of the *Planning Act*, amend, delete or add to the conditions and this may include the need for amended or new studies.	**OTTAWA Legal**
172.	**C3**	The owner shall pay any outstanding taxes owing to the City of Ottawa prior to registration.	**OTTAWA Planning Revenue**
173.	**C4**	Prior to registration of the Plan of Subdivision, the City is to be satisfied that conditions 1 to 172 have been fulfilled.	**OTTAWA Planning**
174.	**C5**	The Owner covenants and agrees that should damage be caused to any of the Works in this Subdivision by any action or lack of any action whatsoever on its part, the General Manager, Planning, Infrastructure and Economic Development Department may serve notice to the Owner to have the damage repaired and if such notification is without effect for a period of two full days after such notice, the General Manager, Planning, Infrastructure and Economic Development Department may cause the damage to be repaired and shall recover the costs of the repair plus the Management Fees under Section 427, of the *Municipal Act*, *2001*, like manner as municipal taxes.	**OTTAWA Planning**
175.	**C6**	If the Plan(s) of Subdivision, including all phases within the draft approved plan of subdivision, has not been registered by 5 July 2022, the draft approval shall lapse pursuant to Section 51 (32) of the *Planning Act*. Extensions may only be granted under the provisions of Section 51 (33) of said *Planning Act* prior to the lapsing date.	**OTTAWA Planning**

[i] For Clearing Agencies:
"Planning" refers to Planning Services.
"LG" refers to applicable landowners group, such as Kanata North (KNLG), Kanata West (KWLG), Fernbank (FLG), East Urban (EULG), Manotick SDA (MLG), and Barrhaven South (BSLG).
"CA" refers to applicable conservation authorities, including RVCA, MVCA, and SNCA.
"Legal" refers to Legal Services.
"Parks" refers to Parks and Facilities Planning Services.
"BCS" refers to Building Code Services.
"Transit" refers to Transit Planning.

"Transpo Plg" refers to Transportation Planning.
"Forestry" refers to Forest Management.
"MTCS" refers to the Ministry of Tourism, Culture and Sport.
"Revenue" refers to Revenue Services.
"Surveys" refers to Surveys & Mapping/City Surveyor.

Appendix B

Development Servicing Study Checklist

NOVATECH

Development Servicing Study Checklist

4.1 General Content	Addressed (Y/N/NA)	Section	Comments
Executive Summary (for larger reports only).	N		
Date and revision number of the report.	Y	N/A	Site Servicing and Stormwater Management Design Brief (Design Brief) - Cover Page
Location map and plan showing municipal address, boundary, and layout of proposed development.	Y	1.2	Design Brief - Figure 1
Plan showing the site and location of all existing services.	Y	1.2 Appendix G	Design Brief - Figure 2 Engineering Drawings
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.	Y	N/A	Information included as part of the Zoning Application.
Summary of Pre-consultation Meetings with City and other approval agencies.	Y	N/A	Design Brief follows report approved as part of the Draft Approval and is consistent with the approved detailed design for Phases 2 & 3, Phases 4A & 4B and Phase 5A.
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.	Y	1.5	The Design Brief generally conforms with all previously approved reports and design criteria. All relative reports are referenced.
Statement of objectives and servicing criteria.	Y	1.1, 2.1, 3.1, 4.2, 5.1	Objectives and servicing criteria stated in each section of the Design Brief
Identification of existing and proposed infrastructure available in the immediate area.	Y	1.2 Appendix G	Design Brief - Figure 2 Engineering Drawings
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	N/A	There are none
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 neighboring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Y	Figure 6 Appendix G	Overland Flow Route and Macro Grading Engineering Drawings
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		All adjacent properties are serviced by municipal services which are not anticipated to be impacted by this development.
Proposed phasing of the development, if applicable.	Y	Appendix G	Engineering Drawings - Layout Plan (117155-LP5B)
Reference to geotechnical studies and recommendations concerning servicing.	Y	1.6	
All preliminary and formal site plan submissions should have the following information:		Appendix G	Engineering Drawings
Metric scale	Y		
North arrow (including construction North)	Y		
Key plan	Y		

Development Servicing Study Checklist

Name and contact information of applicant and property owner	Y		
Property limits including bearings and dimensions	Y		
Existing and proposed structures and parking areas	Y		
Easements, road widening and rights-of-way	Y		
Adjacent street names	Y		

4.2 Water	**Addressed (Y/N/NA)**	**Section**	**Comments**
Confirm consistency with Master Servicing Study, if available.	Y	Appendix C	
Availability of public infrastructure to service proposed development.	Y	2	
Identification of system constraints.	Y	2	
Identify boundary conditions.	Y	2, Appendix C	
Confirmation of adequate domestic supply and pressure.	Y	2	
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.	Y	2, Appendix C	
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.	Y	2, Appendix C	All operating pressures remain below the requirement for pressure reducing valves.
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design.	Y	2	
Address reliability requirements such as appropriate location of shut-off valves.	Y	2, Appendix G	Engineering Drawings - General Plan of Services (117155-GP5B)
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.	Y	2	
Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Y	2 Appendix G	Figure 5 Engineering Drawings - General Plan of Services (117155-GP5B)
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.	Y	2	
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Y	2 Appendix C	Figure 5

Development Servicing Study Checklist

4.3 Wastewater	Addressed (Y/N/NA)	Section	Comments
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).	Y	3	
Confirm consistency with Master Servicing Study and/or justifications for deviations.	Y	3	
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 and condition of sewers.	N/A		
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Y	3	
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).	Y	1.5, 3	See the Master Servicing Study, Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update, prepared by Stantec (2013)
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Y	3 Appendix D	Design Sheet
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Y	3 Appendix G	Engineering Drawings - General Plan of Services (117155-GP5B)
Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A		
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A		
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A		
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A		
Special considerations such as contamination, corrosive environment etc.	N/A		

Development Servicing Study Checklist

4.4 Stormwater	Addressed (Y/N/NA)	Section	Comments
Description of drainage outlets and downstream constraints including legality of outlet (i.e. municipal drain, right-of-way, watercourse, or private property).	Y	1, 4	
Analysis of the available capacity in existing public infrastructure.	Y	4	
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns and proposed drainage patterns.	Y	Appendix G	Engineering Drawings
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.	Y	5	
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Y	5	
Description of stormwater management concept with facility locations and descriptions with references and supporting information.	Y	5	
Set-back from private sewage disposal systems.	N/A		
Watercourse and hazard lands setbacks.	N/A		
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N		Pre-consultation as part of Draft Approval
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Y	1.5, 5	
Storage requirements (complete with calcs) and conveyance capacity for 5 yr and 100 yr events.	Y	5	
Identification of watercourse within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Y	4.1	
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.	Y	5	Site Servicing and Stormwater Management Design Brief - Appendix F
Any proposed diversion of drainage catchment areas from one outlet to another.	Y	5.1	
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and SWM facilities.	Y	4, 5 Appendix G	
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		

Development Servicing Study Checklist

4.5 Approval and Permit Requirements	Addressed (Y/N/NA)	Section	Comments
Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A		
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	Y	1.1	An application for a ECA will be submitted
Changes to Municipal Drains.	N/A		No changes to a municipal drain
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A		

4.6 Conclusion	Addressed (Y/N/NA)	Section	Comments
Clearly stated conclusions and recommendations.	Y	9	
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.	N/A		
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	9	

Appendix C

Watermain Design

Provence Orleans Subdivision Phase 5B
Watermain Demand Calculations

Phase	Node		Units		Population	Pop.	Demand (L/s)			Designed Fire Flows (L/S)	
	No.	Elev (m)	Single	Town / Semis			High Pres.	Max Daily	Peak Hour	Required Fire Flow (RFF)	Max Daily+RFF
Phase 2	110	88.8	0	0	0.0	0	0.00	0.00	0.00	N/A	N/A
	111	88.9	14	0	47.6	48	0.16	0.39	0.86	N/A	N/A
	112	89.0	11	0	37.4	38	0.12	0.31	0.68	N/A	N/A
	113	88.9	0	4	10.8	11	0.04	0.09	0.20	N/A	N/A
	114	89.0	0	17	45.9	46	0.15	0.37	0.82	N/A	N/A
	115	89.1	6	0	20.4	21	0.07	0.17	0.37	N/A	N/A
	116	89.2	6	0	20.4	21	0.07	0.17	0.37	N/A	N/A
	117	89.1	0	0	0.0	0	0.00	0.00	0.00	N/A	N/A
	118	88.9	5	0	17.0	17	0.06	0.14	0.30	N/A	N/A
	119	89.0	0	39	105.3	106	0.34	0.86	1.89	N/A	N/A
						Phase 2	**1.00**	**2.50**	**5.49**		
Phase 3	101	89.9	8	0	27.2	28	0.09	0.23	0.50	N/A	N/A
	102	89.5	0	19	51.3	52	0.17	0.42	0.93	N/A	N/A
	103	89.2	2	4	17.6	18	0.06	0.15	0.32	N/A	N/A
	104	89.1	20	0	68.0	68	0.22	0.55	1.21	N/A	N/A
	105	89.0	5	0	17.0	17	0.06	0.14	0.30	N/A	N/A
	106	89.1	8	0	27.2	28	0.09	0.23	0.50	N/A	N/A
	107	89.2	7	8	45.4	46	0.15	0.37	0.82	N/A	N/A
	108	89.3	18	0	61.2	62	0.20	0.50	1.11	N/A	N/A
	109	89.2	0	0	0.0	0	0.00	0.00	0.00	N/A	N/A
						Phase 3	**1.03**	**2.58**	**5.69**		

Provence Orleans Subdivision Phase 5B
Watermain Demand Calculations

Phase	Node		Units		Population	Pop.	Demand (L/s)			Designed Fire Flows (L/S)	
	No.	Elev (m)	Single	Town / Semis			High Pres.	Max Daily	Peak Hour	Required Fire Flow (RFF)	Max Daily+RFF
Phase 4	201	89.1	5	6	33.2	34	0.11	0.28	0.61	N/A	N/A
	202	89.4	0	6	16.2	17	0.06	0.14	0.30	N/A	N/A
	203	89.1	6	6	36.6	37	0.12	0.30	0.66	N/A	N/A
	204	89.2	14	0	47.6	48	0.16	0.39	0.86	N/A	N/A
	205	88.9	12	0	40.8	41	0.13	0.33	0.73	N/A	N/A
	206	89.1	5	0	17.0	17	0.06	0.14	0.30	N/A	N/A
	207	89.0	12	0	40.8	41	0.13	0.33	0.73	N/A	N/A
	208	89.2	9	0	30.6	31	0.10	0.25	0.55	N/A	N/A
	209	89.3	1	0	3.4	4	0.01	0.03	0.07	N/A	N/A
	210	89.0	10	0	34.0	34	0.11	0.28	0.61	N/A	N/A
	211	89.4	0	0	0.0	0	0.00	0.00	0.00	N/A	N/A
	212	89.4	0	18	48.6	49	0.16	0.40	0.87	N/A	N/A
	213	89.2	0	12	32.4	33	0.11	0.27	0.59	N/A	N/A
	214	89.2	0	5	13.5	14	0.05	0.11	0.25	N/A	N/A
						Phase 4	**1.30**	**3.24**	**7.13**		
Salzburg Drive	21	88.1	0	30	81.0	81	0.26	0.66	1.44	N/A	N/A
	22	88.2	0	21	56.7	57	0.18	0.46	1.02	N/A	N/A
						Salzburg	**0.45**	**1.12**	**2.46**		
Existing Phase 5A	500			16	43.2	44	0.14	0.36	0.78	183	183.69
	501		1	6	19.6	20	0.06	0.16	0.36	N/A	N/A
	502		12		40.8	41	0.13	0.33	0.73	217	217.00
	503		2		6.8	7	0.02	0.06	0.12	N/A	N/A
	504		5		17.0	17	0.06	0.14	0.30	167	2.92
						Phase 5A	**0.41**	**1.05**	**2.29**		
Proposed Phase 5B	505		7		23.8	24	0.08	0.19	0.43	167	167.19
	506		10	8	55.6	56	0.18	0.45	1.00	167	167.45
	507			26	70.2	71	0.23	0.58	1.27	183	183.58
	508		2	16	50.0	50	0.16	0.41	0.89	183	183.41
	509		9	4	41.4	42	0.14	0.34	0.75	167	167.34
	510		13		44.2	45	0.15	0.36	0.80	167	167.36
						Phase 5B	**0.93**	**2.33**	**5.13**		

1. Population density: 3.4 people/single, 2.7 people/town, & 1.8 people/apartment
2. High Pressure demand = 280L/p/d
3. Maximum Daily demand = 2.5 x High Pressure Demand
4. Peak Hour Demand = 2.2 x Maximum Daily Demand
5. Existing watermain

Provence Orleans Subdivision Phase 5B
High Pressure Condition

Phase	Node		Demand	Head	Pressure		Age
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)	(hrs)
5B	505	89.5	0.08	130.2	40.7	58.2	6.4
	506	89.7	0.18	130.2	40.6	57.9	8.4
	507	89.7	0.23	130.2	40.5	57.8	15.6
	508	89.6	0.16	130.2	40.6	57.9	15.3
	509	89.3	0.14	130.2	40.9	58.4	10.7
	510	89.2	0.15	130.2	41.0	58.5	8.0
Boundary Conditions	R1	-	-	130.2	-	-	-
	R2	-	-	130.2	-	-	-
	R3	-	-	130.2	-	-	-

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 505

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	95.19	116.2	26.8	38.3
	506	89.7	72.45	115.7	26.0	37.2
	507	89.7	0.58	117.1	27.3	39.0
	508	89.6	0.41	118.4	28.8	41.1
	509	89.3	0.34	119.7	30.4	43.5
	510	89.2	0.36	121.2	32.0	45.7
Boundary Conditions	R1	-	-	126.4	-	-
	R2	-	-	125.9	-	-
	R3	-	-	126.6	-	-

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Engineers, Planners & Landscape Architects

PROVENCE ORLEANS PHASE 5B
Project Number 117155

Prepared By:
NOVATECH
Created: Aug 27, 2025

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 506

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.19	117.9	28.5	40.7
	506	89.7	95.45	111.9	22.3	31.8
	507	89.7	72.58	111.9	22.2	31.6
	508	89.6	0.41	114.7	25.1	35.8
	509	89.3	0.34	117.5	28.2	40.3
	510	89.2	0.36	120.6	31.3	44.7
Boundary Conditions	R1	-	-	126.4	-	-
	R2	-	-	125.9	-	-
	R3	-	-	126.6	-	-

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PROVENCE ORLEANS PHASE 5B
Project Number 117155

Prepared By:
NOVATECH
Created: Aug 27, 2025

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 507

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.19	117.2	27.8	39.6
	506	89.7	0.45	112.3	22.7	32.4
	507	89.7	95.58	107.2	17.4	24.9
	508	89.6	88.41	107.2	17.6	25.1
	509	89.3	0.34	112.3	23.1	32.9
	510	89.2	0.36	118.0	28.8	41.1
Boundary Conditions	R1	-	-	125.8	-	-
	R2	-	-	125.1	-	-
	R3	-	-	126.1	-	-

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PROVENCE ORLEANS PHASE 5B
Project Number 117155

Prepared By:
NOVATECH
Created: Aug 27, 2025

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 508

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.19	118.4	28.9	41.3
	506	89.7	0.45	115.2	25.5	36.4
	507	89.7	0.58	111.8	22.1	31.5
	508	89.6	95.41	108.7	19.0	27.2
	509	89.3	88.34	109.1	19.8	28.3
	510	89.2	0.36	117.0	27.7	39.6
Boundary Conditions	R1	-	-	125.8	-	-
	R2	-	-	125.1	-	-
	R3	-	-	126.1	-	-

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PROVENCE ORLEANS PHASE 5B
Project Number 117155

Prepared By:
NOVATECH
Created: Aug 27, 2025

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 509

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.19	121.1	31.7	45.2
	506	89.7	0.45	119.8	30.1	43.0
	507	89.7	0.58	118.4	28.6	40.9
	508	89.6	0.41	117.1	27.4	39.2
	509	89.3	95.34	115.8	26.5	37.9
	510	89.2	72.36	117.7	28.5	40.6
Boundary Conditions	R1	-	-	126.4	-	-
	R2	-	-	125.9	-	-
	R3	-	-	126.6	-	-

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PROVENCE ORLEANS PHASE 5B
Project Number 117155

Prepared By:
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Created: Aug 27, 2025

Provence Orleans Subdivision Phase 5B
Max Daily Demand & Fire Flow at Node 510

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.19	121.3	31.8	45.4
	506	89.7	0.45	120.1	30.5	43.5
	507	89.7	0.58	118.9	29.1	41.6
	508	89.6	0.41	117.8	28.1	40.2
	509	89.3	72.34	116.7	27.4	39.1
	510	89.2	95.36	117.5	28.2	40.3
Boundary Conditions	R1	-	-	126.4	-	-
	R2	-	-	125.9	-	-
	R3	-	-	126.6	-	-

Provence Orleans Subdivision Phase 5B
Peak Hour Condition

Phase	Node		Demand	Head	Pressure	
	No.	Elev (m)	(LPS)	(m)	(m)	(psi)
5B	505	89.5	0.43	125.8	36.3	51.8
	506	89.7	1.00	125.7	36.1	51.6
	507	89.7	1.27	125.7	36.0	51.4
	508	89.6	0.89	125.7	36.1	51.6
	509	89.3	0.75	125.7	36.4	52.1
	510	89.2	0.80	125.7	36.5	52.1
Boundary Conditions	R1	-	-	125.8	-	-
	R2	-	-	125.8	-	-
	R3	-	-	125.8	-	-

Provence Orleans Subdivision Phase 5B Pipe Data			
Number	**Length (m)**	**Size (mm)**	**Roughness**
506	59	200	110
507	94	200	110
508	99	200	110
509	93	200	110
510	92	200	110
511	100	200	110
512	38	200	110

Boundary Conditions
Provence Orleans - Phase 4

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	298	4.96
Maximum Daily Demand	745	12.41
Peak Hour	1,639	27.31
Fire Flow Demand #1	10,000	166.67
Fire Flow Demand #2	13,000	216.67
Fire Flow Demand #3	16,000	266.67
Fire Flow Demand #4	18,000	300.00

Location

Results

Connection 1 – Trim Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.2	57.6
Peak Hour	125.8	51.3
Max Day plus Fire 1	126.4	52.1
Max Day plus Fire 2	125.0	50.2
Max Day plus Fire 3	124.1	48.8
Max Day plus Fire 4	123.3	47.7

Ground Elevation = 89.7 m

Connection 2 – Provence Ave.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.2	58.9
Peak Hour	125.8	52.7
Max Day plus Fire 1	125.9	52.8
Max Day plus Fire 2	124.3	50.5
Max Day plus Fire 3	122.9	48.6
Max Day plus Fire 4	121.9	47.1

Ground Elevation = 88.8 m

Connection 3 – Trim Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.2	58.5
Peak Hour	125.8	52.3
Max Day plus Fire 1	126.6	53.5
Max Day plus Fire 2	125.5	51.8
Max Day plus Fire 3	124.7	50.7
Max Day plus Fire 4	124.0	49.8

Ground Elevation = 89.0 m

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.

FUS - Fire Flow Calculations

Engineers, Planners & Landscape Architects

Novatech Project #: 117155
Project Name: Provence Orleans Phase 5B
Date: 14/10/2025
Input By: Mo Abdul
Reviewed By: Mark Bowen
Drawing Reference: 117155-GP5B

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Block 48 w/ less than 10m rear separation and 2-hr firewall seperating Blocks 48 & 49
Type V - Wood frame

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame	Yes	1.5	1.5	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	372			
		Number of Floors/Storeys	2			
		Protected Openings (1 hr) if C<1.0	No			
		Area of structure considered (m^2)			**744**	
	F	**Base fire flow without reductions**				**9,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**7,650**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	No	-30%		**0**
		Standard Water Supply	No	-10%		
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**0%**	
		Area of Sprinklered Coverage (m^2)	0	0%		
				Cumulative Total	**0%**	
5	**Exposure Surcharge**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	2Hr Firewall		0%	**2,295**
		East Side	3.1 - 10 m		20%	
		South Side	20.1 - 30 m		10%	
		West Side	>30m		0%	
				Cumulative Total	**30%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**10,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**167**
				or	USGPM	2,642

FUS - Fire Flow Calculations

Engineers, Planners & Landscape Architects

Novatech Project #: 117155
Project Name: Provence Orleans Phase 5B
Date: 14/10/2025
Input By: Mo Abdul
Reviewed By: Mark Bowen
Drawing Reference: 117155-GP5B

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Block 48 w/ less than 10m rear separation and > 3m side seperation between Blocks 48 & 49
Type V - Wood frame

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame	Yes	1.5	1.5	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	372			
		Number of Floors/Storeys	2			
		Protected Openings (1 hr) if C<1.0	No			
		Area of structure considered (m^2)			**744**	
	F	**Base fire flow without reductions**				**9,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**7,650**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	No	-30%		**0**
		Standard Water Supply	No	-10%		
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**0%**	
		Area of Sprinklered Coverage (m^2)	0	0%		
				Cumulative Total	**0%**	
5	**Exposure Surcharge**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	3.1 - 10 m		20%	**3,825**
		East Side	3.1 - 10 m		20%	
		South Side	20.1 - 30 m		10%	
		West Side	>30m		0%	
				Cumulative Total	**50%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**11,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**183**
				or	USGPM	2,906

FUS - Fire Flow Calculations

Engineers, Planners & Landscape Architects

Novatech Project #: 117155
Project Name: Provence Orleans Phase 5B
Date: 14/10/2025
Input By: Mo Abdul
Reviewed By: Mark Bowen
Drawing Reference: 117155-GP5B

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Block 49 w/ less than 10m rear separation and 2-hr firewall seperating Blocks 48 & 49
Type V - Wood frame

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame	Yes	1.5	1.5	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	372			
		Number of Floors/Storeys	2			
		Protected Openings (1 hr) if C<1.0	No			
		Area of structure considered (m^2)			**744**	
	F	**Base fire flow without reductions**				**9,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**7,650**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	No	-30%		**0**
		Standard Water Supply	No	-10%		
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**0%**	
		Area of Sprinklered Coverage (m^2)	0	0%		
				Cumulative Total	**0%**	
5	**Exposure Surcharge**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**2,295**
		East Side	3.1 - 10 m		20%	
		South Side	2Hr Firewall		0%	
		West Side	>30m		0%	
				Cumulative Total	**30%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**10,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**167**
				or	USGPM	2,642

FUS - Fire Flow Calculations

Engineers, Planners & Landscape Architects

Novatech Project #: 117155
Project Name: Provence Orleans Phase 5B
Date: 14/10/2025
Input By: Mo Abdul
Reviewed By: Mark Bowen
Drawing Reference: 117155-GP5B

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Block 49 w/ less than 10m rear separation and > 3m side seperation between Blocks 48 & 49
Type V - Wood frame

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame	Yes	1.5	1.5	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	372			
		Number of Floors/Storeys	2			
		Protected Openings (1 hr) if C<1.0	No			
		Area of structure considered (m^2)			744	
	F	**Base fire flow without reductions**				9,000
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	7,650
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	No	-30%		0
		Standard Water Supply	No	-10%		
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**0%**	
		Area of Sprinklered Coverage (m^2)	0	0%		
				Cumulative Total	**0%**	
5	**Exposure Surcharge**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	3,825
		East Side	3.1 - 10 m		20%	
		South Side	3.1 - 10 m		20%	
		West Side	>30m		0%	
				Cumulative Total	**50%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**11,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**183**
				or	USGPM	2,906

From: Scott Covell
Sent: Wednesday, July 30, 2025 4:08 PM
To: Button, Jessica
Cc: Trevor McKay; Matthew Van Bakel; Livingstone, Kelly; Evan Garfinkel; Donnelly, Allison
Subject: RE: Provence subdivision, Orleans - Ph5 park (117155)

Meeting Date: 7/30/2025 2:30 PM
Location: Microsoft Teams Meeting
Meeting Minutes
Participants

- Scott Covell (Meeting Organizer) - Novatech
- Button, Jessica - City of Ottawa
- Trevor McKay - Novatech
- Matthew Van Bakel - Regional
- Livingstone, Kelly - City of Ottawa (did not attend)
- Evan Garfinkel - Regional
- Donnelly, Allison - City of Ottawa

Notes

- Introductions
- Evan presented an overview of the context for the whole Provence subdivision including phase breakdown and status of park dedication which led to the 0.4Ha park being developed as park of latest ph5b
- Scott reviewed the previous 2018 Fit Plan and costing that were submitted to Mary-Ellen with suggestion that the park planning process would virtually start from scratch given revised budget according to current park funding rates
- Scott requested that certain draft conditions in the Subdivision agreement be waived such as requirements for sanitary servicing and installation of the W31.1 Water Chamber. Jessica was in agreement and suggested that this could be formalized with registration. Storm and hydro servicing still required per draft conditions.
- Fit Plan and costing to be revised and re-submitted - Jessica suggested incorporation of more inclusive, accessible park elements such as musical instruments or sand diggers that could be accessed by wheelchair users outside of the wood chip playground area
- Additional shaded seating to be considered
- Deletion of naturalized meadow requested per operations concerns
- Discussion relating to boulevard trees being shifted into park to allow for larger tree species - correspondence to be reviewed to confirm the status of these trees.
- Evan outlined the schedule for Civil works and anticipated park construction likely 2027
- Jessica indicated that the park funding rate that will be applicable may increase for 2026-2027 and park budget will need to be adjusted accordingly at the time.
- Evan expressed concern regarding timely review of park plans by City Operations department to ensure they have no concerns. Jessica confirmed the process will involve Operations review at each drawing submission.
- Soils evaluation - park was not used for staging as was anticipated but standard soils evaluations for imported soils will still be required.

- Park planning process will continue with submission of a revised park Fit Plan and costing that incorporates new park funding rate and addresses preliminary comments provided by Jessica. A Park Charter will be developed by the City as submissions progress.
- Meeting concluded.

Please let me know if any errors/omissions.

Thank you,

Scott Covell, OALA, CSLA, ISA, Senior Project Manager | Landscape Architecture
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 303
The information contained in this email message is confidential and is for exclusive use of the addressee.

-----Original Appointment-----
From: Scott Covell
Sent: Thursday, July 24, 2025 2:22 PM
To: Scott Covell; Button, Jessica
Cc: Trevor McKay; Matthew Van Bakel; Livingstone, Kelly; Evan Garfinkel; Donnelly, Allison
Subject: Provence subdivision, Orleans - Ph5 park (117155)
When: Wednesday, July 30, 2025 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 219 621 398 150 8

Passcode: gc2Pg93n

For organizers: Meeting options

From: Button, Jessica <jessica.button@ottawa.ca>
Sent: Thursday, July 24, 2025 1:44 PM

To: Scott Covell <s.covell@novatech-eng.com>
Cc: Trevor McKay <t.mcKay@novatech-eng.com>; Matthew Van Bakel <mvanbakel@regionalgroup.com>; Livingstone, Kelly <kelly.livingstone@ottawa.ca>
Subject: RE: Provence subdivision, Orleans - Ph5 park (117155)

HI Scott – Wednesday afternoon or Thursday morning would work well for me.

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

---

From: Scott Covell <s.covell@novatech-eng.com>
Sent: July 24, 2025 1:39 PM
To: Button, Jessica <jessica.button@ottawa.ca>
Cc: Trevor McKay <tmcKay@novatech-eng.com>; Matthew Van Bakel <mvanbakel@regionalgroup.com>; Livingstone, Kelly <kelly.livingstone@ottawa.ca>
Subject: Provence subdivision, Orleans - Ph5 park (117155)

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Jessica. I have another park in your jurisdiction that was introduced a few years ago as part of the Regional/eQ Homes project in Orleans – Provence. We are starting into the phase in which the small park is located but previously, a fit plan was produced and reviewed by Mary Ellen Wood, the planner at the time (see attached). There was no follow up to her comments at the time and I expect we will need to make adjustments to the budget and address other clauses in the subdivision agreement to move forward. Would you have time next week for a quick meeting to review status and discuss the path forward for the development of this park? Let me know what days/times work for you.

Thank you,

Scott Covell, OALA, CSLA, ISA, Senior Project Manager | Landscape Architecture
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 303
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Appendix D

Sanitary Sewer Design

SANITARY SEWER DESIGN SHEET
Provence Orleans Subdivision - 2128 Trim Road
Phase 5B
Developer: Provence Orleans Realty Investment Inc. c/o Regional Group of Companies

NOVATECH
Engineers, Planners & Landscape Architects

PROJECT # : 117155
DESIGNED BY : SAB/MA
CHECKED BY : TJM
DATE PREPARED : 2025/09/18

LOCATION				RESIDENTIAL						INFILTRATION			FLOW	PROPOSED SEWER							
STREET	FROM MH	TO MH	Area	Single Units	Townhouse Units	Population (in 1000's)	Accu. Population (in 1000's)	PEAK FACTOR M	POPULATION FLOW Q(p) (L/s)	Total AREA (ha.)	Accu. Total AREA (ha.)	PEAK EXTRAN. FLOW Q(i) (L/s)	PEAK DESIGN FLOW Q(d) (L/s)	LENGTH (m)	PIPE SIZE (mm)	PIPE ID (mm)	TYPE OF PIPE	GRADE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	Qpeak/ Qcap
Montrichard Rd.	*207*	*305*	*501*	*6*		*0.0204*	*0.020*	*4.0*	*0.26*	*0.39*	*0.39*	*0.13*	*0.39*	*80.0*	*200*	*203.20*	*DR 35*	*1.00*	*34.2*	*1.06*	*1%*
Montrichard Rd.	711	713	502	7	17	0.0697	0.070	4.0	0.90	0.94	0.94	0.31	1.21	117.9	200	203.20	DR 35	0.35	20.2	0.62	6%
Montrichard Rd.	713	305	503	18		0.0612	0.131	4.0	1.70	0.91	1.85	0.61	2.31	118.9	200	203.20	DR 35	0.35	20.2	0.62	11%
Dick Brown St.	*305*	*303*	*504*	*13*		*0.0442*	*0.196*	*4.0*	*2.53*	*0.66*	*2.90*	*0.96*	*3.49*	*89.3*	*200*	*203.20*	*DR 35*	*0.35*	*20.2*	*0.62*	*17%*
Montrichard Rd.	709	707	505		6	0.0162	0.016	4.0	0.21	0.23	0.23	0.08	0.29	54.9	200	203.20	DR 35	0.65	27.6	0.85	1%
Montrichard Rd.	707	705	506		3	0.0081	0.024	4.0	0.32	0.12	0.35	0.12	0.43	14.7	200	203.20	DR 35	0.40	21.6	0.67	2%
Montrichard Rd.	705	703	507		27	0.0729	0.097	4.0	1.26	0.80	1.15	0.38	1.64	106.0	200	203.20	DR 35	0.35	20.2	0.62	8%
Montrichard Rd.	703	701	508	13	1	0.0469	0.144	4.0	1.87	0.67	1.82	0.60	2.47	72.4	200	203.20	DR 35	0.35	20.2	0.62	12%
Montrichard Rd.	701	303	509	4		0.0136	0.158	4.0	2.04	0.69	2.51	0.83	2.87	82.9	200	203.20	DR 35	0.35	20.2	0.62	14%
Dick Brown St.	*303*	*301*	*510*		*12*	*0.0324*	*0.386*	*4.0*	*5.00*	*0.43*	*5.84*	*1.93*	*6.93*	*83.1*	*200*	*203.20*	*DR 35*	*0.35*	*20.2*	*0.62*	*34%*
Dick Brown St.	*301*	*109*	*511*		*10*	*0.0270*	*0.413*	*4.0*	*5.35*	*0.31*	*6.15*	*2.03*	*7.38*	*30.5*	*200*	*203.20*	*DR 35*	*0.33*	*19.7*	*0.61*	*38%*

Notes:
1. Q(d) = Q(p) + Q(i)
2. Q(i) = 0.33 L/sec/ha
3. Q(p) = (PxqxM/86,400)

Definitions:
Q(d) = Design Flow (L/sec)
Q(p) = Population Flow (L/sec)
Q(i) = Extraneous Flow (L/sec)

Phase 5A - *Previously Approved Development Area*

P = Population (3.4 persons/single unit, 2.7 persons/townhouse, 1.8 persons/apartment)
q = Average per capita flow = 280 L/cap/day - Residential
M = Harmon Formula (maximum of 4.0)
Qc(p) = Park flow = Average per gross ha. flow = 20L/day/cap x 185 cap/ha = 3700L/gross ha./day - per City of Ottawa Sewer Design Guidelines Appendix 4-A
Min pipe size 200mm @ min. slope 0.32%
Note: Park design does not require water or sanitary sewer services. Population flows from the park have been excluded.

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

ÉCOLE SECONDAIRE CATHOLIQUE
BÉATRICE-DESLOGES

SALZBURG DRIVE

NORTH

KEY PLAN
N.T.S.

SITE
PHASE 5
PHASE 4B
PHASE 4A
PHASE 3
PHASE 2
INNES (REGIONAL RD 30)
TRIM ROAD
PROVENCE AVE
PORTOBELLO BLVD
SCALA AVE
AQUAVIEW DR
NANTES ST
BRIAN COBURN BLVD

SITE BENCHMARK
REFERENCED TO LOCAL GEODETIC DATUM:
E: 387158.xxx
N: 5035761.xxx
V: 90.139 (CGVD28 : 78)
STN_0011985U511 MTM_ZONE 9

SOURCE REFERENCE:
LEGAL INFORMATION:
1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

AREA 401 / 721-719 / 0.73 / 62 — AREA ID, MAINTENANCE HOLE TO MAINTENANCE HOLE, POPULATION, AREA (IN HECTARES)
PHASE BOUNDARY
SANITARY DRAINAGE AREA BOUNDARY - PHASE 5B
SANITARY DRAINAGE AREA BOUNDARY - PHASE 5A (PREVIOUSLY APPROVED)
PROPOSED SANITARY SEWER AND MAINTENANCE HOLE
EXISTING SANITARY SEWER AND MAINTENANCE HOLE
PREVIOUSLY APPROVED SANITARY SEWER AND MAINTENANCE HOLE

PHASE 5A
PHASE 5B
PHASE 4B
PHASE 4A
PHASE 3

AREA 501 / 207-305 / 0.39 / 20
AREA 502 / 711-713 / 0.94 / 70
AREA 503 / 713-305 / 0.91 / 61
AREA 504 / 305-303 / 0.66 / 44
AREA 505 / 709-707 / 0.23 / 16
AREA 506 / 707-705 / 0.12 / 8
AREA 507 / 705-703 / 0.80 / 73
AREA 508 / 703-701 / 0.67 / 47
AREA 509 / 701-303 / 0.69 / 14
AREA 510 / 303-301 / 0.43 / 32
AREA 511 / 301-109 / 0.31 / 27

PARK
AREA=4007m²

de MONTRICHARD ROAD
du VENTOUX AVENUE
de la PÉTANQUE CRESCENT
rue DICK BROWN STREET
de MONTJAY ROAD

200mmØ SAN
250mmØ SAN
SAN CAP

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE
ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE
1:750
1:750
0 10 20 30

DESIGN SAB
CHECKED TJM
DRAWN MA
CHECKED SAB
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
SANITARY DRAINAGE
AREA PLAN

PROJECT No. 117155-00
REV 1 — REV # 1
DRAWING No. 117155-SAN5B

D07-16-18-0021

M:\2017\117155\CAD\Design\PH5\117155-SAN5.dwg SAN-PH5B Sep 03, 2025 - 2:30pm sbennett

PLEASE LOAD LATEST VERSION
PLEASE PRINT ONLY IF NECESSARY

#18004

SANITARY SEWER DESIGN SHEET
Provence Orleans Subdivision - 2128 Trim Road
Phase 5A - Existing Sewer Analysis
Developer: Provence Orleans Realty Investment Inc. c/o Regional Group of Companies

NOVATECH
Engineers, Planners & Landscape Architects

PROJECT # : 117155
DESIGNED BY : SAB/BM
CHECKED BY : TJM
DATE PREPARED : 23/07/2024
DATE REVISED : 18/09/2025

LOCATION				RESIDENTIAL						PARK			INFILTRATION			FLOW	*EXISTING SEWER*							
STREET	FROM MH	TO MH	Area	Single Units	Townhouse Units	Population (in 1000's)	Accu. Population (in 1000's)	PEAK FACTOR M	POPULATION FLOW Q(p) (L/s)	AREA (ha.)	Accu. AREA (ha.)	PARK FLOW Qc(p) (L/s)	Total AREA (ha.)	Accu. Total AREA (ha.)	PEAK EXTRAN. FLOW Q(i) (L/s)	PEAK DESIGN FLOW Q(d) (L/s)	LENGTH (m)	PIPE SIZE (mm)	PIPE ID (mm)	TYPE OF PIPE	GRADE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	Qpeak/ Qcap
Phase 5	-	109	-			0.4126	0.413	4.0	5.35	0.00	0.00	0.00	6.15	6.15	2.03	7.38	-	-	-	-	-	-	-	-
Phase 4	-	*111*	-			*0.0298*	*0.395*	*4.0*	*5.12*	*0.00*	*0.00*	*0.00*	*0.39*	*6.090*	*2.01*	*7.13*	-	-	-	-	-	-	-	-
Petanque Cres.	-	*101*	-			*0.0081*	*0.059*	*4.0*	*0.77*	*0.00*	*0.00*	*0.00*	*0.13*	*0.76*	*0.25*	*1.02*	-	-	-	-	-	-	-	-
Petanque Cres.	-	*109*	-			*0.0272*	*0.118*	*4.0*	*1.53*	*0.00*	*0.00*	*0.00*	*0.50*	*2.27*	*0.75*	*2.28*	-	-	-	-	-	-	-	-
Socca Cres.	-	*111*	-			*0.0340*	*0.061*	*4.0*	*0.79*	*0.00*	*0.00*	*0.00*	*0.56*	*1.16*	*0.38*	*1.18*	-	-	-	-	-	-	-	-
Socca Cres.	-	*115*	-			*0.0513*	*0.081*	*4.0*	*1.04*	*0.00*	*0.00*	*0.00*	*0.63*	*1.19*	*0.39*	*1.44*	-	-	-	-	-	-	-	-
Ventoux Ave.	*99*	*101*	*1*	*4*		*0.0136*	*0.014*	*4.0*	*0.18*	*0.00*	*0.00*	*0.00*	*0.23*	*0.23*	*0.08*	*0.25*	*35.7*	*200*	*203.20*	*DR 35*	*0.70*	*28.6*	*0.88*	*1%*
Ventoux Ave.	*101*	*103*	*5*	*3*		*0.0102*	*0.083*	*4.0*	*1.08*	*0.00*	*0.00*	*0.00*	*0.16*	*1.15*	*0.38*	*1.46*	*30.9*	*200*	*203.20*	*DR 35*	*0.55*	*25.4*	*0.78*	*6%*
Ventoux Ave.	*103*	*105*	*6*	*7*	*7*	*0.0427*	*0.126*	*4.0*	*1.63*	*0.00*	*0.00*	*0.00*	*0.56*	*1.71*	*0.56*	*2.20*	*66.9*	*200*	*203.20*	*DR 35*	*0.31*	*19.1*	*0.59*	*12%*
Ventoux Ave.	*105*	*107*	*7*	*13*	*1*	*0.0469*	*0.173*	*4.0*	*2.24*	*0.00*	*0.00*	*0.00*	*0.63*	*2.34*	*0.77*	*3.01*	*71.0*	*200*	*203.20*	*DR 35*	*0.32*	*19.4*	*0.60*	*16%*
Ventoux Ave.	*107*	*109*	*8*	*6*		*0.0204*	*0.193*	*4.0*	*2.50*	*0.00*	*0.00*	*0.00*	*0.38*	*2.72*	*0.90*	*3.40*	*72.6*	*200*	*203.20*	*DR 35*	*0.33*	*19.7*	*0.61*	*17%*
Ventoux Ave.	*109*	*111*	*26*			*0.0000*	*0.724*	*3.9*	*9.12*	*0.00*	*0.00*	*0.00*	0.15	*11.29*	*3.73*	*12.84*	*79.5*	*250*	*254.00*	*DR 35*	*0.32*	*35.1*	*0.69*	*37%*
Ventoux Ave.	*111*	*113*	*44*	*1*		*0.0034*	*1.183*	*3.8*	*14.39*	*0.00*	*0.00*	*0.00*	0.13	*18.67*	*6.16*	*20.55*	*52.5*	*250*	*254.00*	*DR 35*	*0.35*	*36.7*	*0.72*	*56%*
Ventoux Ave.	*113*	*115*	*45*	*7*		*0.0238*	*1.207*	*3.7*	*14.65*	*0.00*	*0.00*	*0.00*	0.38	*19.05*	*6.29*	*20.94*	*52.1*	*250*	*254.00*	*DR 35*	*0.29*	*33.4*	*0.66*	*63%*
Ventoux Ave.	*115*	*117*	*49*	*3*		*0.0102*	*1.298*	*3.7*	*15.66*	*0.00*	*0.00*	*0.00*	*0.20*	*20.44*	*6.75*	*22.41*	*46.0*	*250*	*254.00*	*DR 35*	*0.35*	*36.7*	*0.72*	*61%*
Multi-Unit Block	*1*	*117*	*50*		*48*	*0.1296*	*0.130*	*4.0*	*1.68*	*0.00*	*0.00*	*0.00*	*1.23*	*1.23*	*0.41*	*2.09*	*17.2*	*200*	*203.20*	*DR 35*	*1.00*	*34.2*	*1.06*	*6%*
Ventoux Ave.	*117*	*119*	*51*	*6*		*0.0204*	*1.448*	*3.7*	*17.32*	*0.00*	*0.00*	*0.00*	*0.47*	*22.14*	*7.31*	*24.62*	*77.7*	*250*	*254.00*	*DR 35*	*0.40*	*39.2*	*0.77*	*63%*
Ventoux Ave.	*119*	*121*	*52*			*0.0000*	*1.448*	*3.7*	*17.32*	*0.00*	*0.00*	*0.00*	*0.06*	*22.20*	*7.33*	*24.64*	*29.5*	*250*	*254.00*	*DR 35*	*0.88*	*58.2*	*1.15*	*42%*

Notes:
1. **Q(d) = Q(p) + Q(i)**
2. **Q(i) = 0.33 L/sec/ha**
3. **Q(p) = (PxqxM/86,400)**

Definitions:
Q(d) = Design Flow (L/sec)
Q(p) = Population Flow (L/sec)
Q(i) = Extraneous Flow (L/sec)

P = Population (3.4 persons/single unit, 2.7 persons/townhouse, 1.8 persons/apartment)
q = Average per capita flow = 280 L/cap/day - Residential
M = Harmon Formula (maximum of 4.0)
Qc(p) = Park flow = Average per gross ha. flow = 20L/day/cap x 185 cap/ha = 3700L/gross ha./day - per City of Ottawa Sewer Design Guidelines Appendix 4-A
Min pipe size 200mm @ min. slope 0.32%

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

Appendix E

Storm Sewer Design

Provence Orleans Subdivision - 2128 Trim Road
Phase 5A and 5B
Storm Sewer Design Sheet

NOVATECH
Engineers, Planners & Landscape Architects

LOCATION			AREA			FLOW						PROPOSED SEWER							
Location	From Node	To Node	Catchment Area ID	Area (A)	Runoff Coefficient (R)	Indivi 2.78 AR	Accum 2.78 AR	Time of Concentration	Rain Intensity (mm/hr) 2yr	Peak Flow	Total Uncontrolled Peak Flow (Q)	Pipe	Size	Grade	Length	Capacity	Full Flow Velocity	Time of Flow	Q/Qfull
Montrichard Road	*206*	*304*	*5A-1*	*0.26*	*0.70*	*0.51*	*0.51*	*10.00*	*76.81*	*38.9*	***38.9***	*PVC*	*300*	*0.45*	*77.0*	*67.7*	*0.93*	*1.38*	*57.4%*
Montrichard Road	710	712	5B-1	0.34	0.69	0.65	0.65	10.00	76.81	50.1	**50.1**	PVC	375	0.30	69.1	100.2	0.88	1.31	50.0%
Montrichard Road	712	714	5B-2	0.20	0.60	0.33	0.99	11.31	72.11	71.1	**128.0**	CONC	525	0.30	96.1	245.7	1.10	1.46	52.1%
			5B-3	0.40	0.71	0.79	1.78	11.31	72.11	128.0									
Montrichard Road	714	*304*	5B-4	0.38	0.70	0.74	2.51	12.77	67.59	170.0	**203.8**	CONC	600	0.20	71.5	286.5	0.98	1.21	71.1%
			5A-2	*0.31*	*0.58*	*0.50*	*3.01*	*12.77*	*67.59*	*203.8*									
Dick Brown Street	*304*	*302*	*5A-3*	*0.38*	*0.71*	*0.75*	*4.27*	*13.98*	*64.28*	*274.5*	***274.5***	*CONC*	*600*	*0.40*	*92.2*	*405.1*	*1.39*	*1.11*	*67.8%*
Montrichard Road	708	706	5B-5	0.28	0.71	0.55	0.55	10.00	76.81	42.4	**42.4**	PVC	375	0.35	58.8	108.2	0.95	1.03	39.2%
Montrichard Road	706	704	-	-	-	-	0.55	11.03	73.06	40.4	**40.4**	PVC	375	0.45	16.0	122.7	1.08	0.25	32.9%
Montrichard Road	704	702	5B-6	0.39	0.72	0.78	1.33	11.28	72.22	96.3	**145.2**	CONC	525	0.25	104.6	224.3	1.00	1.74	64.7%
			5B-7	0.42	0.58	0.68	2.01	11.28	72.22	145.2									
Montrichard Road	702	700	5B-8	0.46	0.72	0.92	2.93	13.02	66.88	196.0	**196.0**	CONC	600	0.25	73.3	320.3	1.10	1.11	61.2%
Montrichard Road	700	*302*	5B-9	0.22	0.67	0.41	3.34	14.13	63.90	213.5	**274.6**	CONC	675	0.20	85.7	392.2	1.06	1.35	70.0%
			5B-10	0.40	0.30	0.33	3.67	14.13	63.90	234.8									
			5A-4	*0.40*	*0.56*	*0.62*	*4.30*	*14.13*	*63.90*	*274.6*									
Dick Brown Street	*302*	*300*	*5A-5*	*0.22*	*0.68*	*0.42*	*8.98*	*15.48*	*60.67*	*545.0*	***559.4***	*CONC*	*750*	*0.40*	*83.4*	*734.5*	*1.61*	*0.86*	*76.2%*
			5A-6	*0.14*	*0.61*	*0.24*	*9.22*	*15.48*	*60.67*	*559.4*									
Dick Brown Street	*300*	*300A*	*5A-7*	*0.27*	*0.71*	*0.53*	*9.75*	*16.34*	*58.78*	*573.3*	***573.3***	*CONC*	*900*	*1.41*	*28.4*	*2242.6*	*3.41*	*0.14*	*25.6%*
Dick Brown Street	*300A*	*108*	*-*	*-*	*-*	*-*	*9.75*	*16.48*	*58.49*	*570.5*	***570.5***	*CONC*	*900*	*0.14*	*10.6*	*706.6*	*1.08*	*0.16*	*80.7%*

Q = 2.78 AIR

WHERE : Q = PEAK FLOW IN LITRES PER SECOND (L/s)
A = AREA IN HECTARES (ha)
R = RUNOFF COEFFICIENT
I = RAINFALL INTENSITY IN MILLIMETERS PER HOUR (mm/hr)
Rainfall Intensity (I) is based on City of Ottawa IDF data presented in the City of Ottawa Sewer Design Guidelines (Oct. 2012)

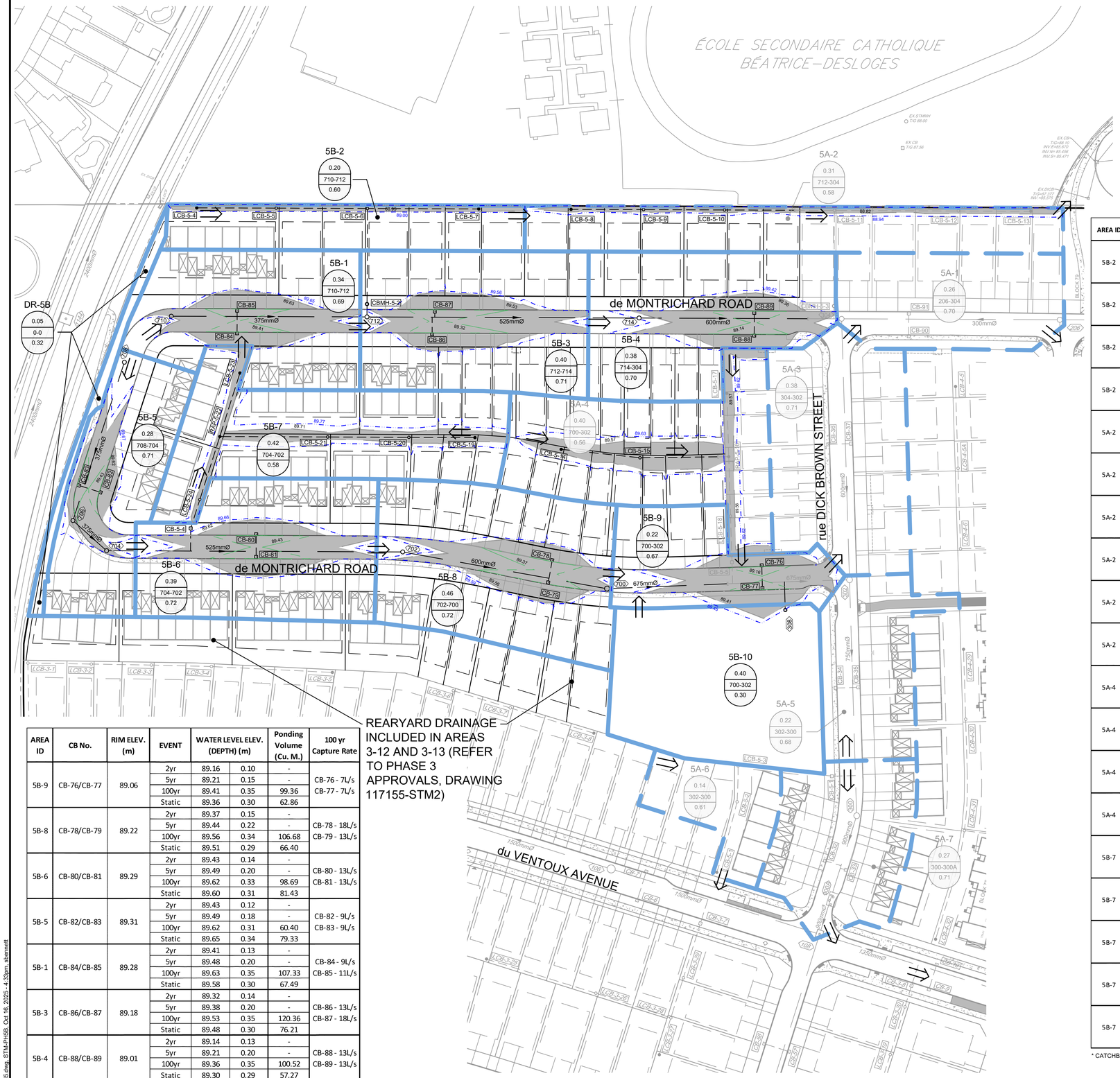
Q full= (1/n) A R^(2/3)So^(1/2)

WHERE : Q full = CAPACITY (L/s)
n = MANNING COEFFICIENT OF ROUGHNESS (0.013)
A = FLOW AREA (m^2)

Designed: SAB
Checked: TJM
Date: 26-Sep-25

Phase 5A - Previously Approved Development Area

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

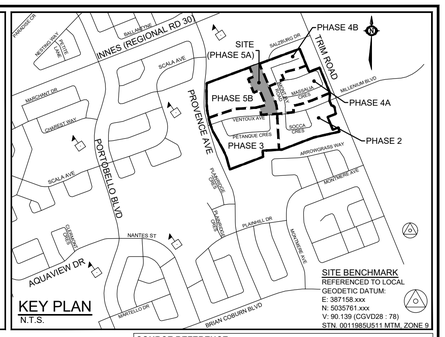


AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		Ponding Volume (Cu. M.)	100 yr Capture Rate
5B-9	CB-76/CB-77	89.06	2yr	89.16	0.10	-	
			5yr	89.21	0.15	-	CB-76 - 7L/s
			100yr	89.41	0.35	99.36	CB-77 - 7L/s
			Static	89.36	0.30	62.86	
5B-8	CB-78/CB-79	89.22	2yr	89.37	0.15	-	
			5yr	89.44	0.22	-	CB-78 - 18L/s
			100yr	89.56	0.34	106.68	CB-79 - 13L/s
			Static	89.51	0.29	66.40	
5B-6	CB-80/CB-81	89.29	2yr	89.43	0.14	-	
			5yr	89.49	0.20	-	CB-80 - 13L/s
			100yr	89.62	0.33	98.69	CB-81 - 13L/s
			Static	89.60	0.31	81.43	
5B-5	CB-82/CB-83	89.31	2yr	89.43	0.12	-	
			5yr	89.49	0.18	-	CB-82 - 9L/s
			100yr	89.62	0.31	60.40	CB-83 - 9L/s
			Static	89.65	0.34	79.33	
5B-1	CB-84/CB-85	89.28	2yr	89.41	0.13	-	
			5yr	89.48	0.20	-	CB-84 - 9L/s
			100yr	89.63	0.35	107.33	CB-85 - 11L/s
			Static	89.58	0.30	67.49	
5B-3	CB-86/CB-87	89.18	2yr	89.32	0.14	-	
			5yr	89.38	0.20	-	CB-86 - 13L/s
			100yr	89.53	0.35	120.36	CB-87 - 18L/s
			Static	89.48	0.30	76.21	
5B-4	CB-88/CB-89	89.01	2yr	89.14	0.13	-	
			5yr	89.21	0.20	-	CB-88 - 13L/s
			100yr	89.36	0.35	100.52	CB-89 - 13L/s
			Static	89.30	0.29	57.27	

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

NORTH



KEY PLAN
N.T.S.

SITE BENCHMARK
REFERENCED TO LOCAL GEODETIC DATUM:
E: 387158.xxx
N: 5035761.xxx
V: 90.139 (CGVD28 : 78)
STN_0011985U511 MTM_ZONE 9

SOURCE REFERENCE:
LEGAL INFORMATION:
1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		Ponding Volume (Cu. M.)
5B-2	LCB-5-4	88.60	2yr	87.96	-	Includes 5-4, 5-5, 5-6, 5-7
			5yr	88.48	-	
			100yr	88.95	0.35	29.20
			Static	88.95	0.35	-
5B-2	LCB-5-5	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5B-2	LCB-5-6	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5B-2	LCB-5-7	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5A-2	LCB-5-8	88.50	2yr	87.60	-	Includes 5-8, 5-9, 5-10, 5-11*, 5-12*, 5-13*
			5yr	87.84	-	
			100yr	88.82	0.32	35.76
			Static	88.85	0.35	-
5A-2	LCB-5-9	88.50	2yr	87.60	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-10	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-11	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-12	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-13	88.50	2yr	87.60	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-4	LCB-5-14	89.18	2yr	88.23	-	Includes 5-14, 5-15, 5-17*, 5-18*
			5yr	88.97	-	
			100yr	89.57	0.39	77.36
			Static	88.54	0.36	-
5A-4	LCB-5-15	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.57	0.39	-
			Static	88.54	0.36	-
5A-4	LCB-5-17	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.57	0.39	-
			Static	88.54	0.36	-
5A-4	LCB-5-18	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.56	0.38	-
			Static	88.54	0.36	-
5B-7	LCB-5-19	89.31	2yr	88.56	-	Includes 5-19, 5-20, 5-21, 5-23, 5-24
			5yr	89.48	-	
			100yr	89.71	0.40	62.54
			Static	86.69	0.38	-
5B-7	LCB-5-20	89.31	2yr	88.55	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-21	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-23	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-24	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-

* CATCHBASIN LOCATED IN PHASE 5A

LEGEND

- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED VORTECHS (9000)
- PROPOSED CATCHBASIN & LEAD
- PROPOSED CATCHBASIN MAINTENANCE HOLE & LEAD
- PROPOSED REAR YARD ACCESS POINT & PERFORATED PIPE
- PROPOSED REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- PROPOSED REAR YARD TEE & 450mmØ PERFORATED PIPE
- EXISTING STORM SEWER AND MAINTENANCE HOLE
- EXISTING VORTECHS (11000)
- EXISTING CATCHBASIN & LEAD
- EXISTING CATCHBASIN MAINTENANCE HOLE & LEAD
- EXISTING REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- EXISTING REAR YARD TEE & 450mmØ PERFORATED PIPE
- PREVIOUSLY APPROVED STORM SEWER AND MAINTENANCE HOLE
- PREVIOUSLY APPROVED CATCHBASIN & LEAD
- PREVIOUSLY APPROVED CATCHBASIN MAINTENANCE HOLE & LEAD
- PREVIOUSLY APPROVED REAR YARD ACCESS POINT & PERFORATED PIPE
- PREVIOUSLY APPROVED REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- PREVIOUSLY APPROVED REAR YARD TEE & 450mmØ PERFORATED PIPE
- DRAINAGE AREA BOUNDARY - PHASE 5B
- DRAINAGE AREA BOUNDARY - PHASE 5A (PREVIOUSLY APPROVED)
- 5B-2 — AREA ID
- 0.31 / 712-304 / 0.58 — CATCHMENT AREA / MAINTENANCE HOLE TO MAINTENANCE HOLE / RUNOFF COEFFICIENT
- 5A-1 — AREA ID - PHASE 5A (PREVIOUSLY APPROVED)
- 0.31 / 712-304 / 0.58 — CATCHMENT AREA / MAINTENANCE HOLE TO MAINTENANCE HOLE / RUNOFF COEFFICIENT
- MAJOR OVERLAND FLOW DIRECTION
- 96.72 — 1:2yr PONDING AREA AND ELEVATION
- 96.96 — 1:100yr PONDING AREA AND ELEVATION
- 96.96 — 1:100yr + 20% PONDING AREA AND ELEVATION

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE
1:750
1:750
0 10 20 30

DESIGN SAB
CHECKED TJM
DRAWN BM
CHECKED SAB
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

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Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
STORM DRAINAGE AREA PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-STM5B

D07-16-18-0021

#18004

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PLAN&T.DWG - PA Version/Version

Provence Orleans Subdivision - 2128 Trim Road
Phase 5
Runoff Coefficient Calculations

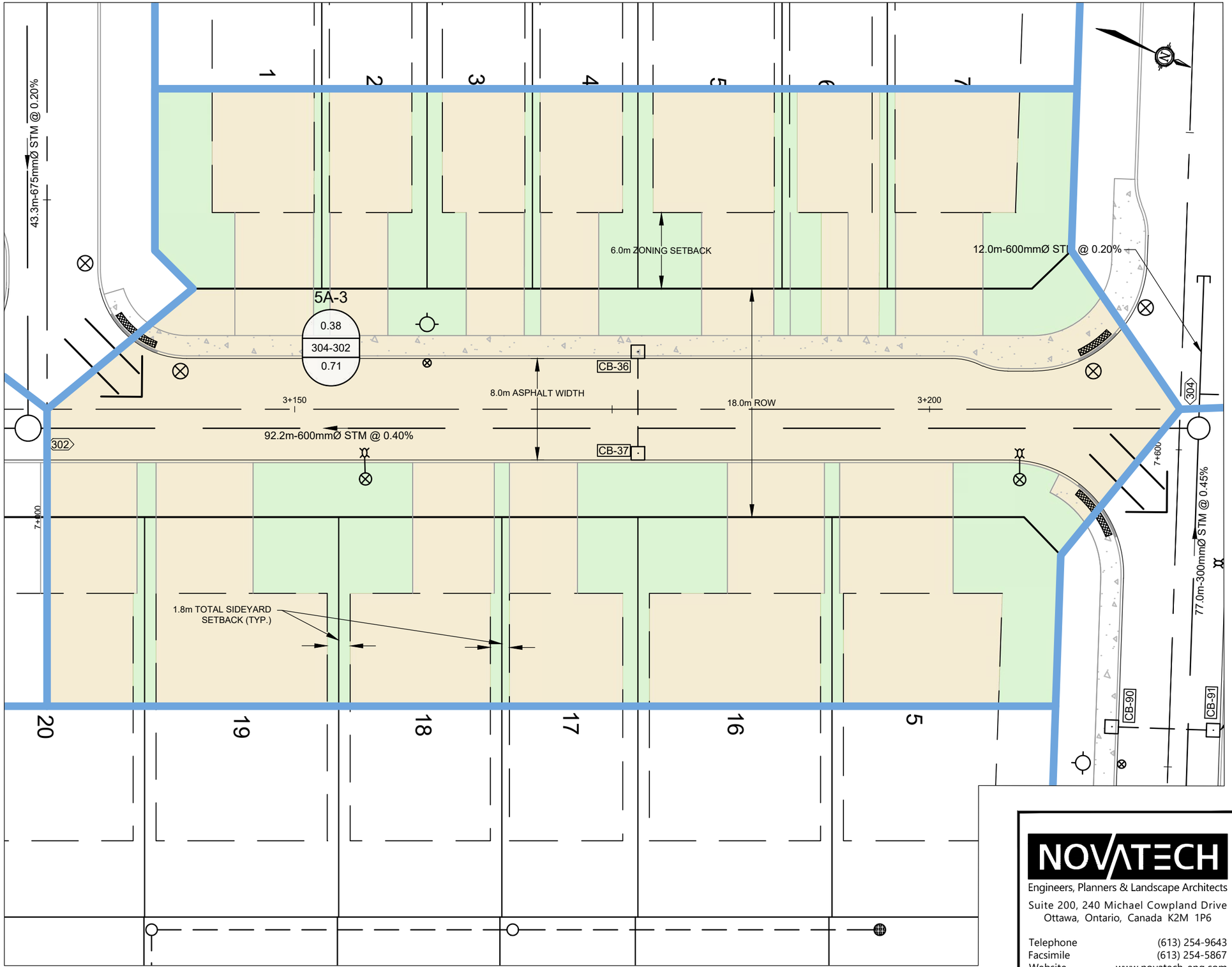
NOVATECH
Engineers, Planners & Landscape Architects

Location	Area ID	Total Area (A_{TOTAL}) (m^2)	Pervious Area (A_{PER}) (m^2)	Impervious Area (A_{IMP}) (m^2)	Runoff Coefficient (C)
Montrichard Road	5A-1	2625	740.45	1884.17	0.70
Montrichard Road	5B-1	3437	1016.31	2420.78	0.69
Rearyard	5B-2	2033	879.03	1153.56	0.60
Montrichard Road	5B-3	4027	1106.57	2920.57	0.71
Montrichard Road	5B-4	3808	1097.82	2710.64	0.70
Rearyard	5A-2	3061	1396.02	1665.34	0.58
Dick Brown Street	5A-3	3820	1028.58	2791.77	0.71
Montrichard Road	5B-5	2845	777.93	2066.80	0.71
Montrichard Road	5B-6	3860	988.03	2871.56	0.72
Rearyard	5B-7	4168	1898.77	2269.18	0.58
Montrichard Road	5B-8	4599	1205.59	3393.55	0.72
Montrichard Road	5B-9	2151	698.56	1452.52	0.67
Park	5B-10	4008	-	-	0.30
Rearyard	5A-4	3952	1914.42	2037.90	0.56
Dick Brown Street	5A-5	2193	684.77	1507.89	0.68
Rearyard	5A-6	1364	564.55	799.62	0.61
Dick Brown Street	5A-7	2694	719.87	1973.96	0.71
Direct Runoff	DR-5B	485	401.29	83.41	0.32

NOTES:

C_{IMP} = 0.9
C_{PER} = 0.2
C_{PARK} = 0.30
$C = (C_{IMP}*A_{IMP} + C_{PER}*A_{PER})/A_{TOTAL}$
Areas calculated using CAD
Area calculations based on zoning (6m front and rear yard setbacks, 4.5m exterior sideyard setbacks, and 1.8m total interior sideyard setback).

DATE: July 23, 2024
REVISED: September 26, 2025



LEGEND

- PROPOSED STORM SEWER
- DRAINAGE AREA BOUNDARY
- IMPERVIOUS AREA
- PERVIOUS AREA

5A-3 — AREA ID

0.38 — CATCHMENT AREA

304-302 — MH TO MH

0.71 — RUNOFF COEFFICIENT

AREA 5A-3

$$C = \frac{(A_{IMP} \times C_{IMP}) + (A_{PERV} \times C_{PERV})}{A_{TOTAL}}$$

$A_{IMP} = 2811.5m^2$

$A_{PERV} = 1008.8m^2$

$A_{TOTAL} = 3820.3m^2$

$C_{IMP} = 0.9$

$C_{PERV} = 0.2$

$$C = \frac{(2811.5 \times 0.9) + (1008.8 \times 0.2)}{3820.3}$$

$C = 0.71$

NOTES:

1. AREAS CALCULATED IN CAD.
2. IMPERVIOUS LOT AREAS BASED ON MINIMUM ZONING SETBACKS.

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Website www.novatech-eng.com

CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION
(2128 TRIM ROAD)

PHASE 5
TYPICAL DRAINAGE AREA RUNOFF COEFFICIENT CALCULATION

SCALE 1 : 300 (0 3 6 9 12)

DATE OCT 2025 | JOB 117155 | FIGURE 117155-RC-DA

SHT11X17.DWG - 279mmX432mm

M:\2017\117155\CAD\Design\Figures\Design Brief\PH-5\117155-PH5-STM-C-zoning-DA.dwg, PH5-RC-DA, Oct 23, 2024 - 3:09pm, sbennett

Provence Orleans Subdivision - 2128 Trim Road
Phase 5B
Storm Sewer Design Sheet - Rear Yard CB Leads

NOVATECH
Engineers, Planners & Landscape Architects

LOCATION			AREA			FLOW					PROPOSED SEWER							
Location	From Node	To Node	Catchment Area ID	Area (A)	Runoff Coefficient (R)	Indivi 2.78 AR	Time of Concentration	Rain Intensity (mm/hr) 2yr	Peak Flow	Total Uncontrolled Peak Flow (Q)	Pipe	Size	Grade	Length	Capacity	Full Flow Velocity	Time of Flow	Q/Qfull
				(ha)			(min.)		(L/s)	(L/s)	Type	(mm)	(%)	(m)	(l/s)	(m/s)	(min.)	(%)
Montrichard Road	*LCB-5-11*	*CBMH-5-3*	*5A-2*	*0.31*	*0.58*	*0.50*	*10.00*	*76.81*	*38.4*	***38.4***	*PVC*	*300*	*0.50*	*33.8*	*71.3*	*0.98*	*0.58*	*53.8%*
Montrichard Road	LCB-5-18	CB-5-5	5A-4	0.40	0.56	0.62	10.00	76.81	47.8	**47.8**	PVC	300	0.50	15.7	71.3	0.98	0.27	67.0%
Dick Brown Street	*LCB-5-3*	*CB-5-1*	*5A-6*	*0.14*	*0.61*	*0.24*	*10.00*	*76.81*	*18.2*	***18.2***	*PVC*	*300*	*0.50*	*33.9*	*71.3*	*0.98*	*0.58*	*25.6%*
Montrichard Road	LCB-5-6	CBMH-5-2	5B-2	0.20	0.60	0.33	10.00	76.81	25.6	**25.6**	PVC	300	0.50	33.8	71.3	0.98	0.58	35.9%
Montrichard Road	LCB-5-24	CB-5-4	5B-7	0.42	0.58	0.68	10.00	76.81	52.0	**52.0**	PVC	300	0.50	10.7	71.3	0.98	0.18	72.9%

Q = 2.78 AIR

WHERE : Q = PEAK FLOW IN LITRES PER SECOND (L/s)
A = AREA IN HECTARES (ha)
R = RUNOFF COEFFICIENT
I = RAINFALL INTENSITY IN MILLIMETERS PER HOUR (mm/hr)
Rainfall Intensity (I) is based on City of Ottawa IDF data presented in the City of Ottawa Sewer Design Guidelines (Oct. 2012)

Q full= (1/n) A R^(2/3)So^(1/2)

WHERE : Q full = CAPACITY (L/s)
n = MANNING COEFFICIENT OF ROUGHNESS (0.013)
A = FLOW AREA (m^2)

Designed: SAB
Checked: TJM
Date: 26-Sep-25

Phase 5A - Previously Approved Development Area

Excerpt from Report 2018-095, Rev. 3, by Novatech, dated March 31, 2019

5.2 Stormwater Management Criteria

The stormwater management criteria used in the design of the Provence Orleans Subdivision were developed based on the Master Servicing Study (*Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update* by Stantec dated September 2013) which references the applicable portions of *Update to Master Drainage Plan East Urban Community Expansion Area* (Cumming Cockburn Ltd., September 11, 2000) and have been adapted through discussions with the City.

Minor System (Storm Sewers)

- Storm sewers are to be designed using the Rational Method for the 1:5-year return period;
- On an average basis, inflows to the storm sewer system are to be limited to 70 L/s/ha;

Note, as discussed with Planning, Infrastructure and Economic Development staff these two criteria may need to be reviewed at detailed design and increased to account for any reduction of surface storage required for the major system. Changes may potentially include an increase in inflows to the storm sewer system and/or a change in the storm return period to a 1:2 year storm for the design in sewers.

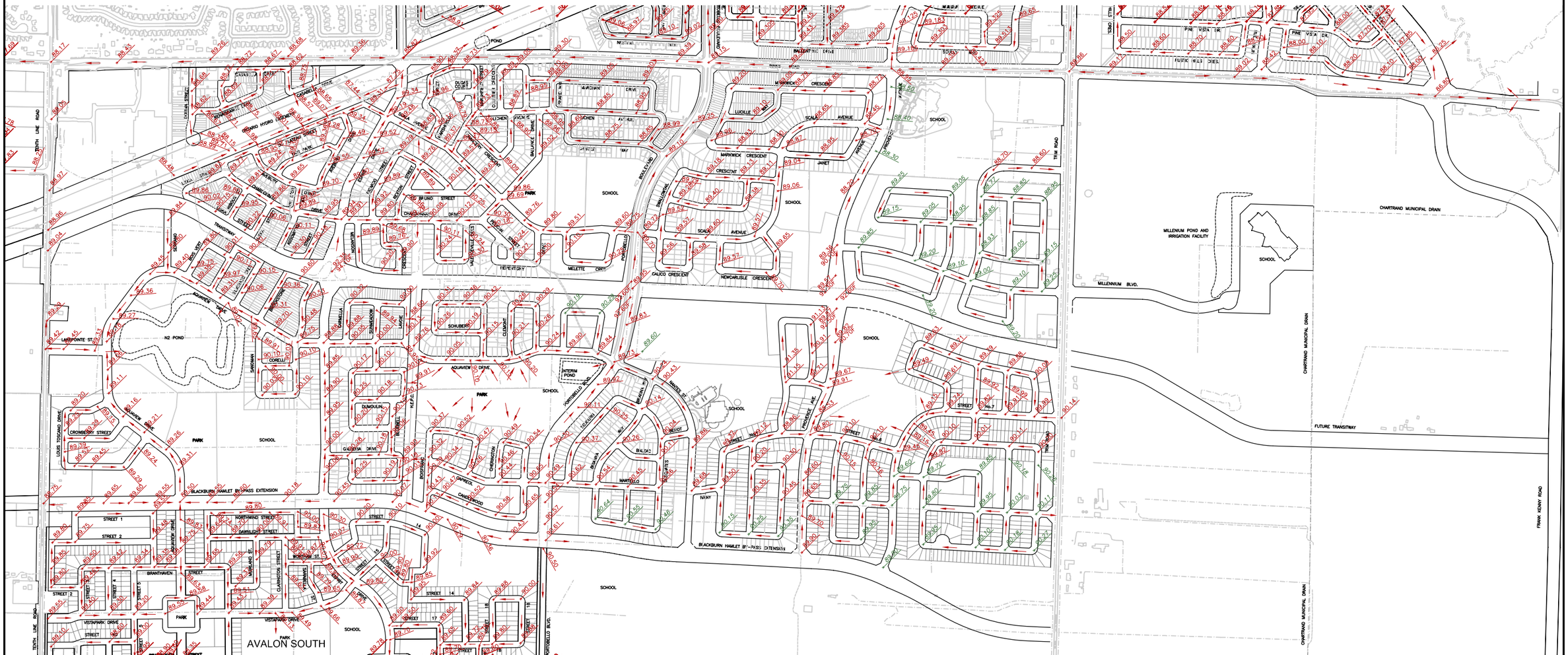
- Inlet control devices (ICDs) will be installed in road and rearyard catchbasins to control inflows to the storm sewers;
    - Catchbasins are not to be interconnected;
- The 100-year hydraulic grade line in the storm sewer shall be at least 0.3 m below the underside of footing (USF) elevations for the proposed development;
    - The HGL will be analyzed at the detailed design stage, when detailed grading and USF elevations have been determined.

Major System (Overland Flow)

- Minimum on-site detention storage provided by the major system is to be approximately 150 m^3/ha;

Note, as discussed with Planning, Infrastructure and Economic Development staff these criteria has historically been difficult to achieve and increase in flow into the minor system may be required at detailed design and increased to account for any reduction of surface storage.

- Maximum depth of flow (static + dynamic) on local and collector streets shall not exceed 0.35 m. The depth of flow may extend adjacent to the right-of-way, provided that the water level does not touch any part of the building envelope and remains below the lowest building opening during the stress test event (100-year+20%);
    - There must be at least 0.15m of vertical clearance between the spill elevation on the street and the ground elevation at the building envelope in the proximity of a flow route or ponding area;
- Storm runoff that exceeds the capacity of the minor system is to be stored within road sags and conveyed overland along defined major system flow routes;
- As per the Master Servicing Study (Stantec, 2013), major system storage in backyards at a depth of 0.4m will be included/accounted for in design computations;
- The product of the 100-year flow depth (m) on street and flow velocity (m/s) shall not exceed 0.60;



MACRO GRADING PLAN

FIRST SUBMISSION:		FEB., 2004	GRD2
REVISION No.:	5	JUNE, 2006	

NO.	REVISIONS	BY	DATE
	AS RECORDED	G.C.	09.05.11

NO.	REVISIONS	BY	DATE
	ISSUED FOR REVIEW	G.C.	04.10.27
	ISSUED FOR UTILITY CIRCULATION	G.C.	04.12.01
	ISSUED FOR TENDER	G.C.	05.02.04
	RE-ISSUED FOR TENDER	G.C.	05.11.25
	ISSUED FOR CONSTRUCTION	G.C.	06.02.13

NOTE:
The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.
The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage

PROVENCE / VALIN TRUNK STORM SEWER PHASE II

PROVENCE AVENUE PLAN AND PROFILE Sta.4+550 to Sta.4+850

W. NEWELL, P.ENG. — Acting Director Infrastructure Services
W. CLOUTHIER, P.ENG. — Manager Construction Services-Development

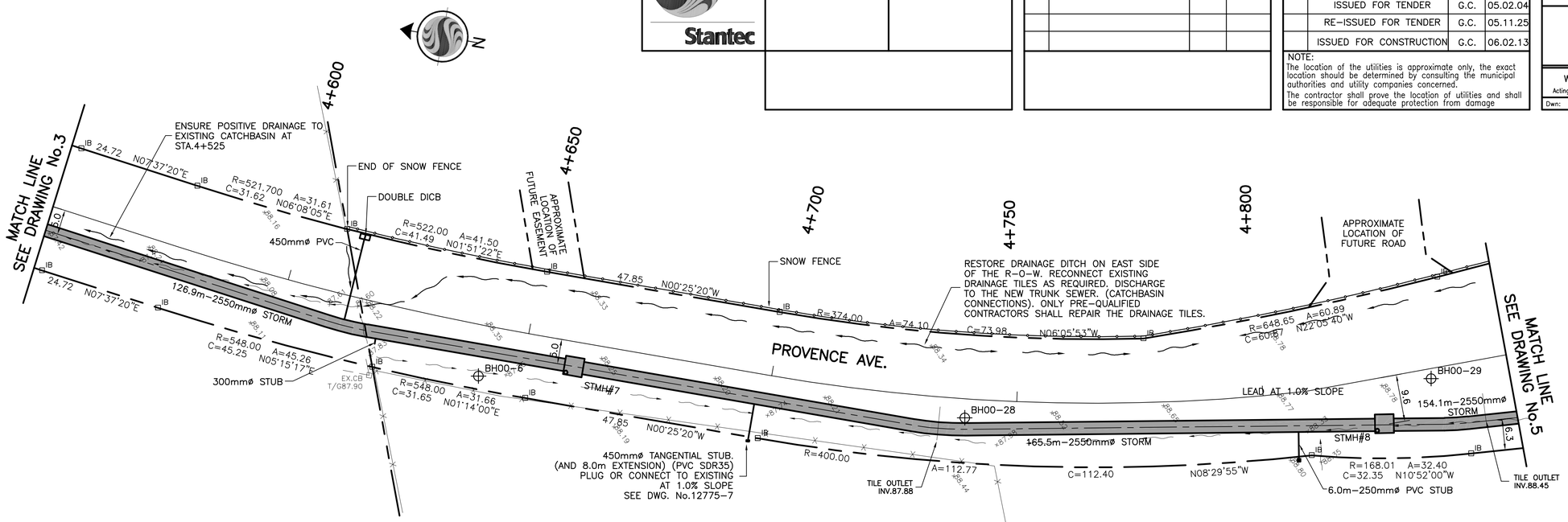
Dwn: E.C. | Chkd: G.C. | Des: G.C. | Chkd: J.V.G.

Ottawa

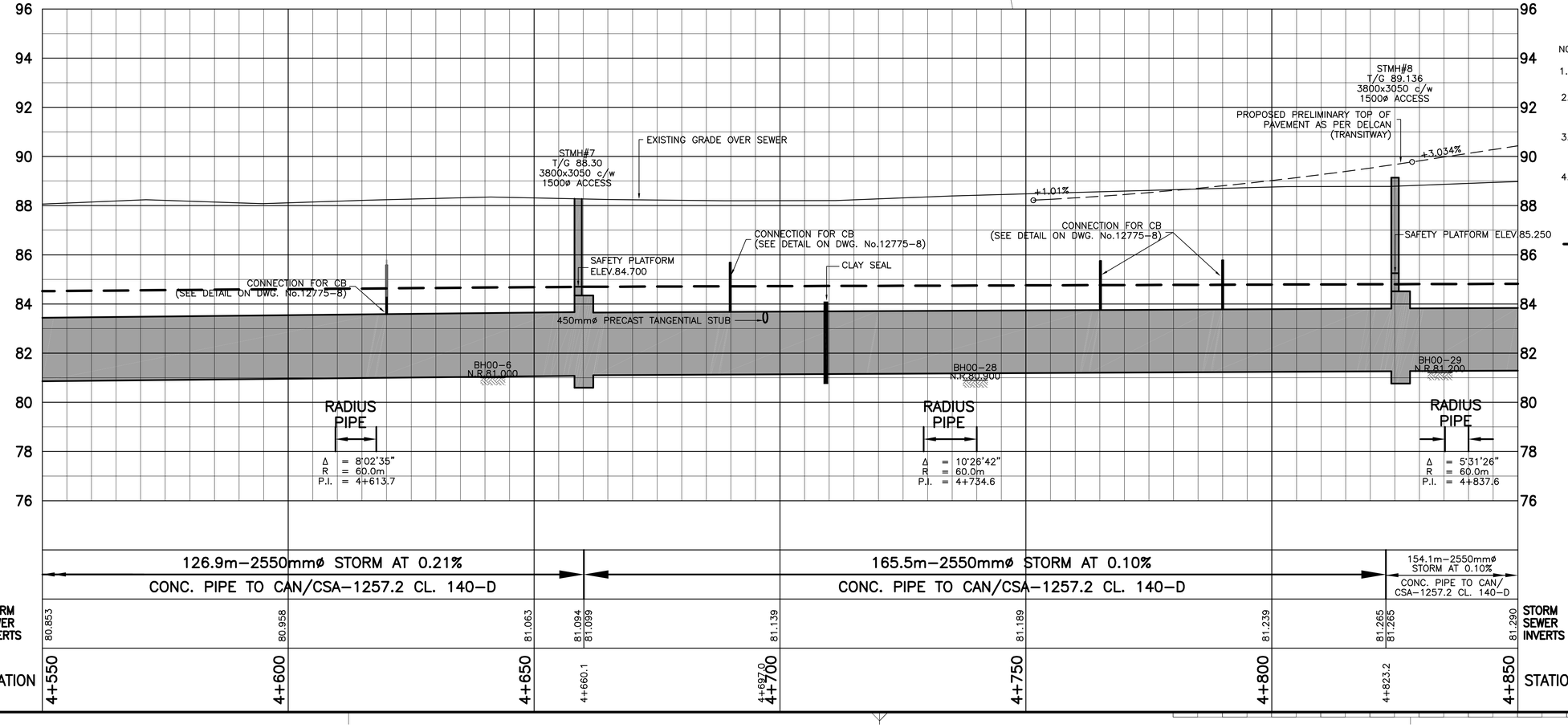
CONTRACT NO. ISBN04-2045
DWG. NO. 12775-4
SHEET 4 OF 8
Date: 05.11.25
Scale: 1:500H 0 5 10; 1:100V 0 1 2

Record Drawing

These drawings have been prepared based on information provided by others. Stantec Consulting Ltd. has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.



MANHOLE CO-ORDINATES		
NO.	CO-ORDINATES	
	NORTHING	EASTING
STMH#7	5036513.123	386119.979
STMH#8	5036349.149	386136.861



NOTE:

1. THE CONTRACTOR IS TO PROVIDE UNINTERRUPTED ACCESS TO SCHOOLS AND RESIDENCES AT ALL TIMES.
2. REINSTATE ALL DISTURBED CATCHBASINS, STORM PIPES AND SWALES TO ORIGINAL CONDITIONS. ENSURE POSITIVE DRAINAGE OF ADJACENT AREAS DURING CONSTRUCTION.
3. ALL DISTURBED AREAS OUTSIDE PROVENCE R-O-W ARE TO BE RESTORED WITH 100mm TOPSOIL, SEED AND MULCH UNLESS DIRECTED OTHERWISE.
4. PROVIDE CONCRETE BENCHING IN ALL STORM MANHOLES (NO SUMPS).

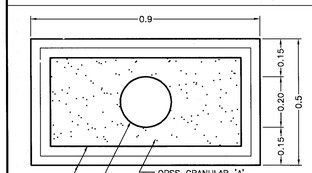
HYDRAULIC GRADE LINE FOR JULY 1st, 1979 STORM EVENT

C:\active\134_49240_design_provence_stm.sw\design\drawing\Contract_2\As Recorded\C2-D-04.dwg
2009-05-13 01:04PM By: ecoberry

GEOTECHNICAL REPORT DATED FEBRUARY 4, 2005

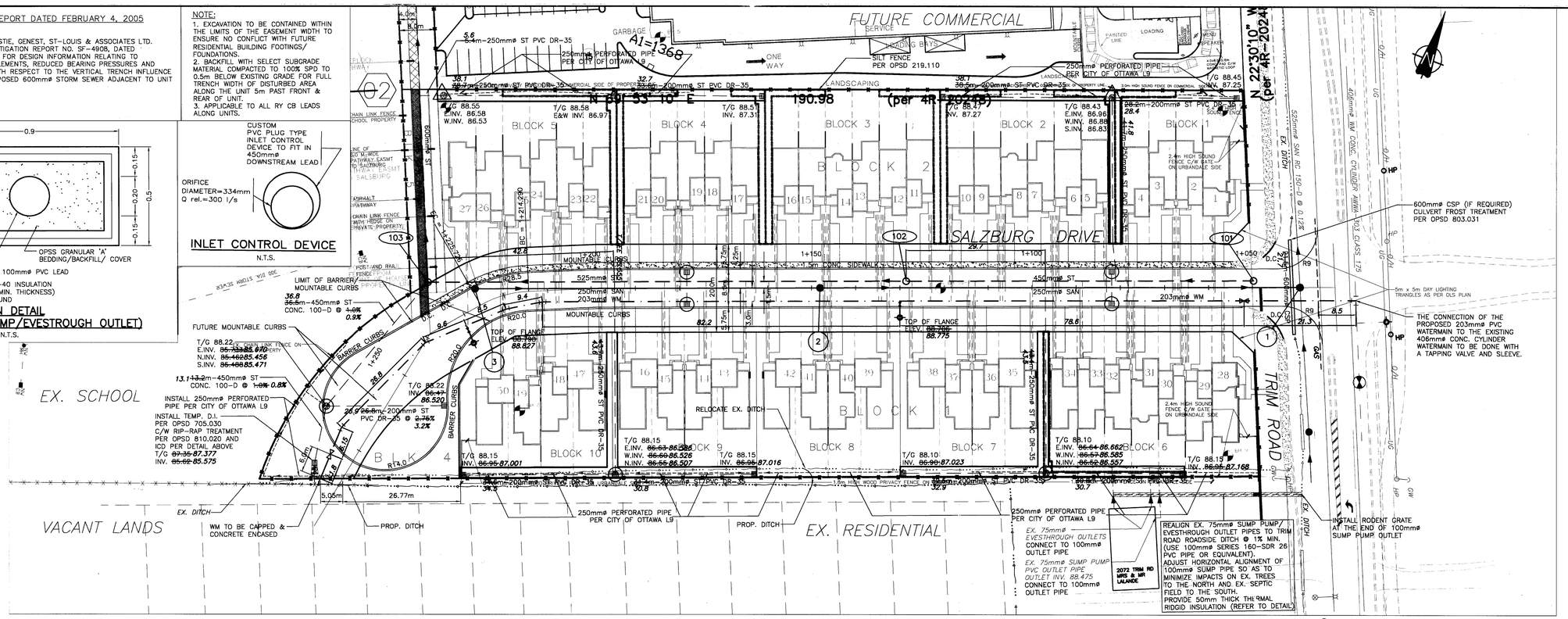
1. REFER TO MCROSTIE, GENEST, ST-LOUIS & ASSOCIATES LTD. SUBSURFACE INVESTIGATION REPORT NO. SF-4908, DATED FEBRUARY 4, 2005 FOR DESIGN INFORMATION RELATING TO DIFFERENTIAL SETTLEMENTS, REDUCED BEARING PRESSURES AND DESIGN DETAILS WITH RESPECT TO THE VERTICAL TRENCH INFLUENCE ZONE OF THE PROPOSED 600mmø STORM SEWER ADJACENT TO UNIT NUMBER 27.

NOTE:
1. EXCAVATION TO BE CONTAINED WITHIN THE LIMITS OF THE EASEMENT WIDTH TO ENSURE NO CONFLICT WITH FUTURE RESIDENTIAL BUILDING FOOTINGS/ FOUNDATIONS.
2. BACKFILL WITH SELECT SUBGRADE MATERIAL COMPACTED TO 100% SPD TO 0.5m BELOW EXISTING GRADE FOR FULL TRENCH WIDTH OF DISTURBED AREA ALONG THE UNIT 5m PAST FRONT & REAR OF UNIT.
3. APPLICABLE TO ALL RY CB LEADS ALONG UNITS.

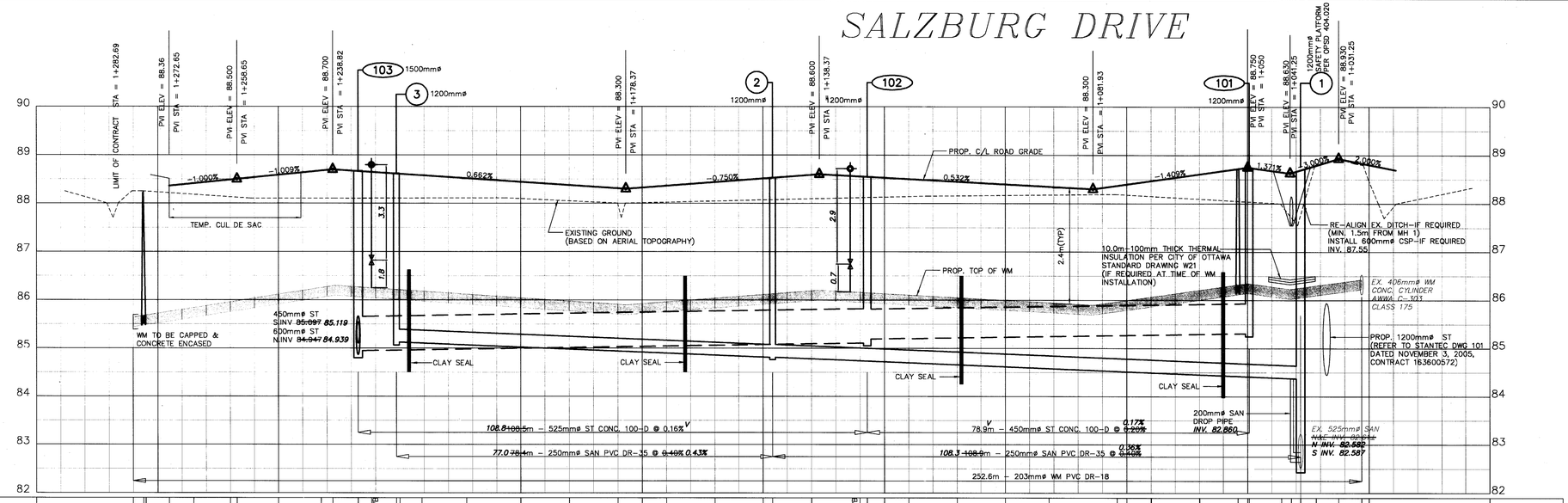


INSULATION DETAIL (SUMP PUMP/EVESTROUGH OUTLET)
N.T.S.

INLET CONTROL DEVICE
N.T.S.



SALZBURG DRIVE



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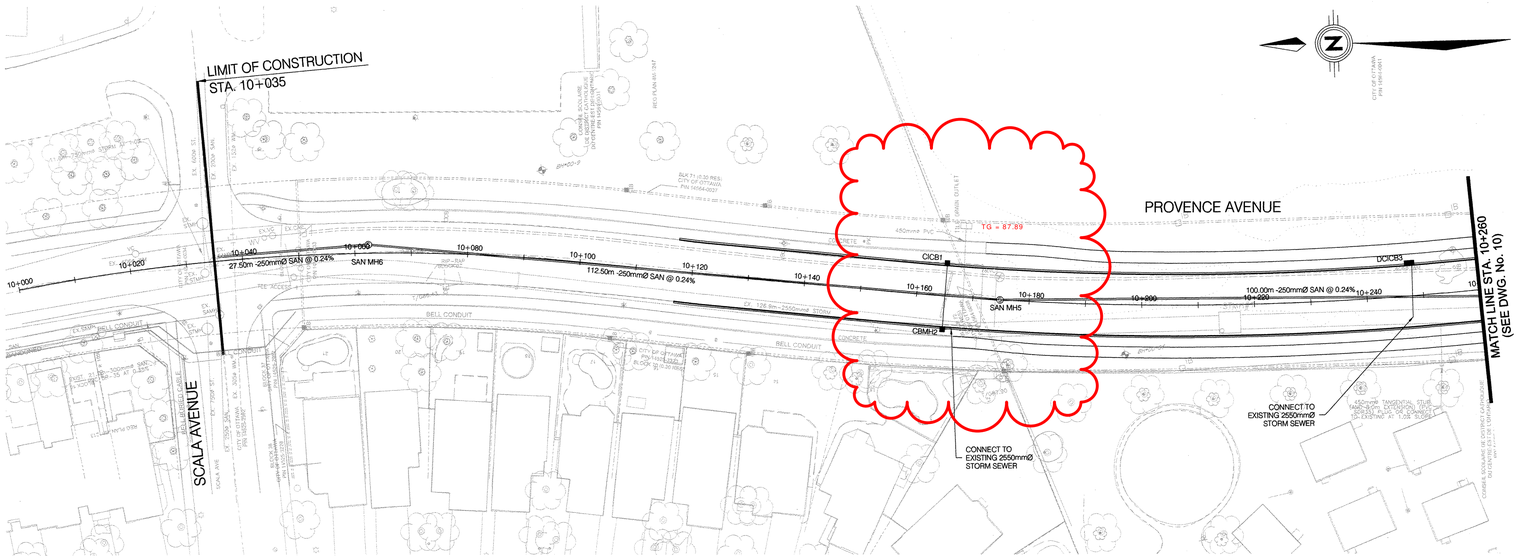
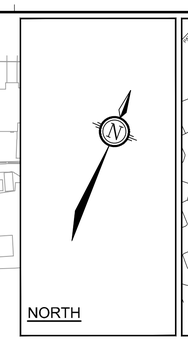

LIMIT OF CONSTRUCTION
STA. 10+035
SCALA AVENUE
PROVENCE AVENUE
TG = 87.89
CICB1
DCICB3
SAN MH6
SAN MH5
CBMH2
10+000
10+020
10+040
10+060
10+080
10+100
10+120
10+140
10+160
10+180
10+200
10+220
10+240
10+260
27.50m -250mmØ SAN @ 0.24%
112.50m -250mmØ SAN @ 0.24%
100.00m -250mmØ SAN @ 0.24%
MATCH LINE STA. 10+260
(SEE DWG. No. 10)
CONNECT TO
EXISTING 2550mmØ
STORM SEWER
CONNECT TO
EXISTING 2550mmØ
STORM SEWER
BELL CONDUIT
EX. 750mm STORM
EX. 300mm WM
EX. 250mm SAN
EX. 1050mm STORM
EX. 2550mm STORM
EX. 1200mm STORM
EX. 450mm STORM
EX. 1350mm STORM
EX. 1500mm STORM
EX. 1800mm STORM
EX. 2100mm STORM
EX. 2400mm STORM
EX. 2700mm STORM
EX. 3000mm STORM
EX. 3300mm STORM
EX. 3600mm STORM
EX. 3900mm STORM
EX. 4200mm STORM
EX. 4500mm STORM
EX. 4800mm STORM
EX. 5100mm STORM
EX.

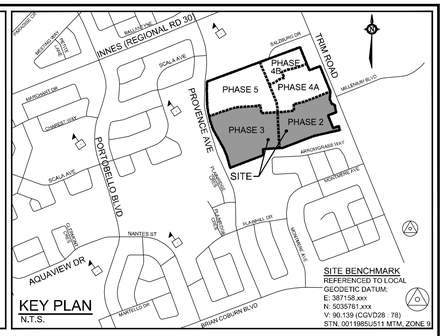
AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		100 yr Ponding Volume (Cu. M.)
2-10	LCB-2-1	89.05	2yr	88.10	0.00	
			5yr	88.22	0.00	
			100yr	89.25	0.20	0.69
			Static	89.40	0.35	
2-10	LCB-2-2	89.05	2yr	87.99	0.00	
			5yr	88.22	0.00	
			100yr	89.25	0.20	0.76
			Static	89.40	0.35	
2-08	LCB-2-3	89.06	2yr	88.15	0.00	
			5yr	88.65	0.00	
			100yr	89.46	0.40	
			Static	89.40	0.34	
2-08	LCB-2-5	89.06	2yr	88.07	0.00	
			5yr	88.65	0.00	
			100yr	89.46	0.40	
			Static	89.40	0.34	
2-08	LCB-2-6	89.06	2yr	88.07	0.00	Includes LCB 2-3, 2-5, 2-6
			5yr	88.43	0.00	
			100yr	89.46	0.40	27.31
			Static	89.40	0.34	
2-03	LCB-2-7	89.10	2yr	88.19	0.00	
			5yr	88.42	0.00	
			100yr	89.38	0.28	2.83
			Static	89.40	0.30	
2-03	LCB-2-8	89.15	2yr	88.12	0.00	
			5yr	88.42	0.00	
			100yr	89.38	0.23	2.12
			Static	89.45	0.30	
2-03	LCB-2-9A	89.15	2yr	88.12	0.00	
			5yr	88.42	0.00	
			100yr	89.38	0.23	1.95
			Static	89.45	0.30	
2-03	LCB-2-9	89.15	2yr	88.20	0.00	
			5yr	88.43	0.00	
			100yr	89.38	0.23	2.32
			Static	89.45	0.30	
2-07	LCB-2-10	89.18	2yr	88.23	0.00	
			5yr	89.22	0.04	
			100yr	89.52	0.34	5.91
			Static	89.48	0.30	
2-07	LCB-2-11	89.20	2yr	88.23	0.00	
			5yr	89.22	0.02	
			100yr	89.52	0.32	3.25
			Static	89.50	0.30	
2-07	LCB-2-12	89.22	2yr	88.23	0.00	
			5yr	89.21	0.00	
			100yr	89.43	0.21	1.09
			Static	89.52	0.30	
2-06	LCB-2-13	89.25	2yr	88.19	0.00	
			5yr	89.19	0.00	
			100yr	89.63	0.36	
			Static	89.55	0.30	
2-06	LCB-2-14	89.28	2yr	88.19	0.00	Includes LCB 2-13, 2-14
			5yr	89.19	0.00	
			100yr	89.61	0.33	13.03
			Static	89.57	0.29	
2-06	LCB-2-15	89.30	2yr	88.18	0.00	
			5yr	89.18	0.00	
			100yr	89.53	0.21	1.27
			Static	89.58	0.28	

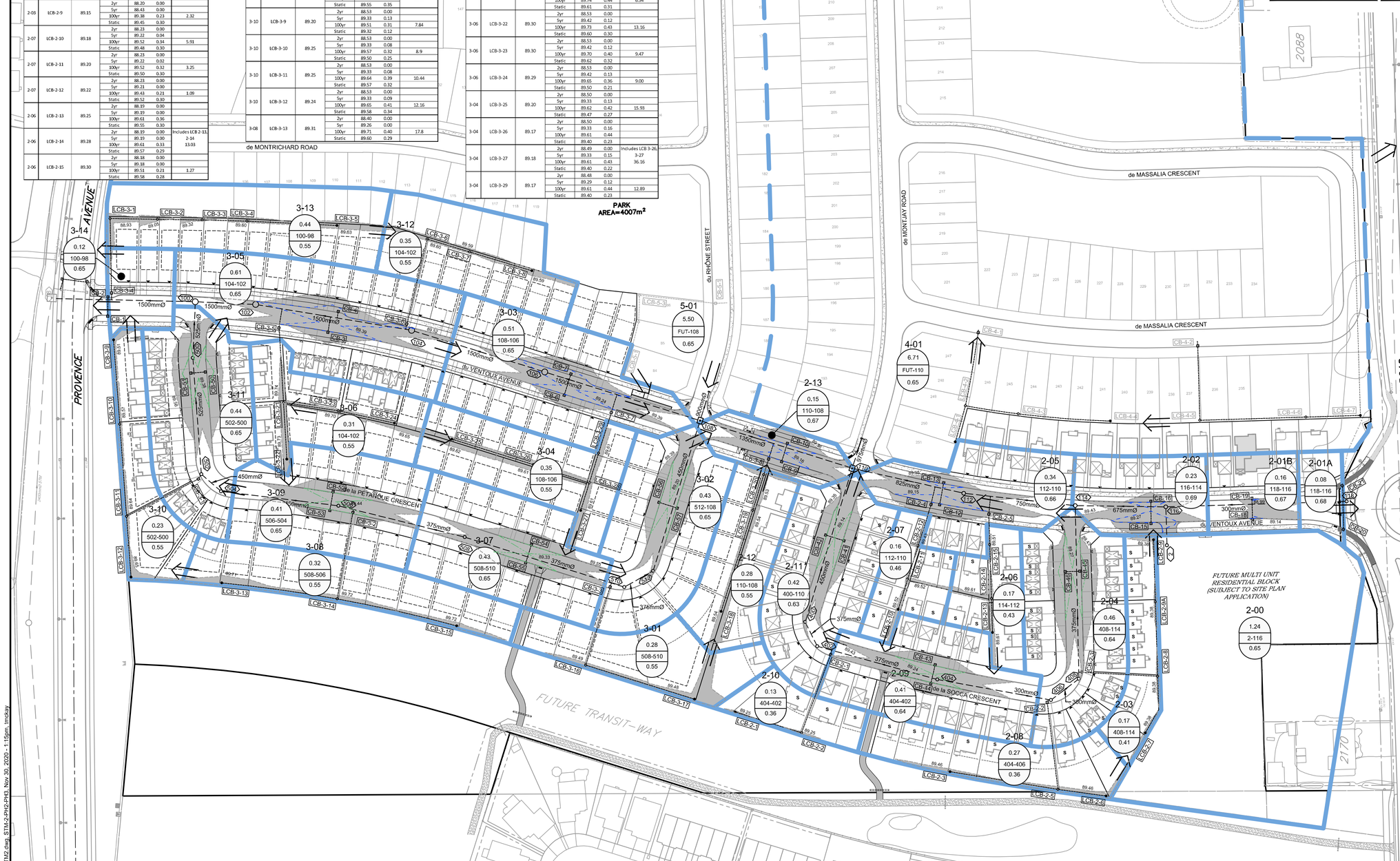
AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		100 yr Ponding Volume (Cu. M.)
3-13	LCB-3-1	88.48	2yr	88.16	0.00	
			5yr	88.78	0.30	
			100yr	88.93	0.45	17.29
			Static	88.67	0.19	
3-13	LCB-3-2	88.65	2yr	88.21	0.00	
			5yr	88.88	0.23	
			100yr	89.05	0.40	5.67
			Static	88.85	0.20	
3-13	LCB-3-3	89.00	2yr	88.24	0.00	
			5yr	88.99	0.00	
			100yr	89.32	0.32	3.82
			Static	89.20	0.20	
3-13	LCB-3-4	89.20	2yr	88.26	0.00	
			5yr	89.08	0.00	
			100yr	89.60	0.40	8.33
			Static	89.55	0.35	
3-13	LCB-3-5	89.23	2yr	88.26	0.00	
			5yr	89.10	0.00	
			100yr	89.63	0.40	13.29
			Static	89.59	0.36	
3-12	LCB-3-6	89.20	2yr	88.00	0.00	
			5yr	88.53	0.00	
			100yr	89.60	0.40	8.11
			Static	89.57	0.37	
3-12	LCB-3-7	89.20	2yr	88.00	0.00	
			5yr	88.53	0.00	
			100yr	89.59	0.39	
			Static	89.56	0.36	
3-12	LCB-3-8	89.20	2yr	88.16	0.00	Includes 3-7, 3-8
			5yr	88.53	0.00	
			100yr	89.59	0.39	15.89
			Static	89.55	0.35	
3-10	LCB-3-9	89.20	2yr	88.53	0.00	
			5yr	89.33	0.13	
			100yr	89.51	0.31	7.84
			Static	89.32	0.12	
3-10	LCB-3-10	89.25	2yr	88.53	0.00	
			5yr	89.33	0.08	
			100yr	89.57	0.32	8.9
			Static	89.50	0.25	
3-10	LCB-3-11	89.25	2yr	88.53	0.00	
			5yr	89.33	0.08	
			100yr	89.64	0.39	10.44
			Static	89.57	0.32	
3-10	LCB-3-12	89.24	2yr	88.53	0.00	
			5yr	89.33	0.09	
			100yr	89.65	0.41	12.16
			Static	89.58	0.34	
3-08	LCB-3-13	89.31	2yr	88.40	0.00	
			5yr	89.26	0.00	
			100yr	89.71	0.40	17.8
			Static	89.60	0.29	

AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		100 yr Ponding Volume (Cu. M.)
3-08	LCB-3-14	89.32	2yr	88.40	0.00	
			5yr	89.26	0.00	
			100yr	89.72	0.40	
			Static	89.60	0.28	
3-08	LCB-3-15	89.32	2yr	88.40	0.00	Includes LCB 3-14, 3-15
			5yr	89.26	0.00	
			100yr	89.72	0.40	29.21
			Static	89.70	0.38	
3-01	LCB-3-16	89.12	2yr	88.14	0.00	
			5yr	88.62	0.00	
			100yr	89.49	0.37	10.53
			Static	89.45	0.33	
3-01	LCB-3-17	89.10	2yr	88.14	0.00	
			5yr	88.62	0.00	
			100yr	89.48	0.38	26.34
			Static	89.40	0.32	
2-12	LCB-3-18	89.15	2yr	88.69	0.00	
			5yr	89.37	0.22	
			100yr	89.54	0.39	17.07
			Static	89.45	0.30	
2-12	LCB-3-19	89.16	2yr	88.69	0.00	
			5yr	89.37	0.21	
			100yr	89.54	0.38	8.45
			Static	89.30	0.14	
2-12	LCB-3-20	89.15	2yr	88.68	0.00	
			5yr	89.35	0.20	
			100yr	89.53	0.38	12.02
			Static	89.30	0.15	
3-06	LCB-3-21	89.30	2yr	88.53	0.00	
			5yr	89.42	0.12	
			100yr	89.74	0.44	6.54
			Static	89.61	0.31	
3-06	LCB-3-22	89.30	2yr	88.53	0.00	
			5yr	89.42	0.12	
			100yr	89.73	0.43	13.16
			Static	89.60	0.30	
3-06	LCB-3-23	89.30	2yr	88.53	0.00	
			5yr	89.42	0.12	
			100yr	89.70	0.40	9.47
			Static	89.62	0.32	
3-06	LCB-3-24	89.29	2yr	88.53	0.00	
			5yr	89.42	0.13	
			100yr	89.65	0.36	9.00
			Static	89.50	0.21	
3-04	LCB-3-25	89.20	2yr	88.50	0.00	
			5yr	89.33	0.13	
			100yr	89.62	0.42	15.93
			Static	89.47	0.27	
3-04	LCB-3-26	89.17	2yr	88.50	0.00	
			5yr	89.33	0.16	
			100yr	89.61	0.44	
			Static	89.40	0.23	
3-04	LCB-3-27	89.18	2yr	88.49	0.00	Includes LCB 3-26, 3-27
			5yr	89.33	0.15	
			100yr	89.61	0.43	36.16
			Static	89.40	0.22	
3-04	LCB-3-29	89.17	2yr	88.48	0.00	
			5yr	89.29	0.12	
			100yr	89.61	0.44	12.89
			Static	89.40	0.23	

PARK
AREA=4007m²







LEGEND

- PROPOSED STORM SEWER
- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA BOUNDARY - FUTURE
- 2-02 — AREA ID
- 0.10 / 116-114 / 0.65 — CATCHMENT AREA / MH TO MH / RUNOFF COEFFICIENT
- MAJOR OVERLAND FLOW DIRECTION
- 96.96 — 1:100yr PONDING AREA AND ELEVATION
- 96.89 — 1:5yr PONDING AREA AND ELEVATION
- 96.73 — 1:2yr PONDING AREA AND ELEVATION
- S — INDICATES "SOLD UNIT"

MILLENNIUM PARK

AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		Ponding Volume (Cu. M.)	100 yr Capture Rate (L/s)
3-05	CB-3-4	89.20	2yr	89.32	0.12	-	27/30
			5yr	89.39	0.19	-	
			100yr	89.52	0.32	115.8	
			Static	89.48	0.28	74.88	
3-03	CB-6-7	89.05	2yr	89.19	0.14	-	18/18
			5yr	89.24	0.19	-	
			100yr	89.39	0.34	111.8	
			Static	89.37	0.32	91.15	
2-13	CB-9-10	89.04	2yr	89.11	0.07	-	7/7
			5yr	89.16	0.12	-	
			100yr	89.36	0.32	87.15	
			Static	89.28	0.24	35.68	
2-05	CB-12-13	89.02	2yr	89.08	0.06	-	23/23
			5yr	89.15	0.13	-	
			100yr	89.35	0.33	104.78	
			Static	89.27	0.25	41.16	
2-02	CB-15-16	89.11	2yr	89.21	0.10	-	9/18
			5yr	89.27	0.16	-	
			100yr	89.43	0.32	65.07	
			Static	89.36	0.25	29.02	
2-02	CB-18-19	88.96	2yr	88.42	0.00	-	17/17
			5yr	88.99	0.03	-	
			100yr	89.14	0.18	15.23	
			Static	89.09	0.13	5.47	
2-11	CB-41-42	89.02	2yr	89.14	0.12	-	13/18
			5yr	89.20	0.18	-	
			100yr	89.35	0.33	105.01	
			Static	89.27	0.25	44.84	
2-09	CB-43-44	89.12	2yr	89.24	0.12	-	13/13
			5yr	89.30	0.18	-	
			100yr	89.43	0.31	95.04	
			Static	89.42	0.30	85.83	
2-04	CB-45-46	89.14	2yr	89.27	0.13	-	18/13
			5yr	89.34	0.20	-	
			100yr	89.43	0.29	113.35	
			Static	89.36	0.22	49.77	
3-11	CB-50-51	89.24	2yr	89.38	0.14	-	13/18
			5yr	89.44	0.20	-	
			100yr	89.58	0.34	125.72	
			Static	89.54	0.30	88.53	
3-09	CB-52-53	89.31	2yr	89.44	0.13	-	13/13
			5yr	89.50	0.19	-	
			100yr	89.64	0.33	99.96	
			Static	89.61	0.30	75.15	
3-07	CB-54-55	89.21	2yr	89.33	0.12	-	13/18
			5yr	89.39	0.18	-	
			100yr	89.55	0.34	120.83	
			Static	89.51	0.30	81.61	
3-02	CB-56-57	89.07	2yr	89.20	0.13	-	13/18
			5yr	89.26	0.19	-	
			100yr	89.39	0.32	96.68	
			Static	89.34	0.27	59.18	

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
6.	RE-ISSUED FOR CONSTRUCTION	NOV 27/20	MER
5.	ISSUED FOR CONSTRUCTION	NOV 04/20	MER
4.	RE-ISSUED FOR APPROVAL	SEPT 21/20	MER
3.	REVISED PER CITY COMMENTS	JULY 23/20	MER
2.	ISSUED FOR APPROVAL	MAY 15/20	MER
1.	ISSUED FOR REVIEW	FEB. 28/20	MER

SCALE 1:1000 (1:1000 0 10 20 30 40)

DESIGN CAH
CHECKED MER
DRAWN CAH
CHECKED LAB
APPROVED MER

LICENSED PROFESSIONAL ENGINEER M.E. RIDDELL 100040125 PROVINCE OF ONTARIO Nov 27/20

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 2 AND PHASE 3
STORM SEWER SYSTEM AND
DRAINAGE AREAS

PROJECT No. 117155
REV REV # 6
DRAWING No. 117155-STM2

D07-16-18-0021

PLAN FILING - Reference Only
#18004

M:\2017\117155\CAD\Design\PH2\3\117155-STM2.dwg, STM-2-PH2-PH3, Nov 30, 2020 - 1:15pm, imckay

Appendix F

Stormwater Management

Kallie Auld

From: Kallie Auld
Sent: Tuesday, July 28, 2020 3:11 PM
To: Kallie Auld
Subject: FW: Provence -2nd round of comments

From: Melanie Riddell <m.riddell@novatech-eng.com>
Sent: Thursday, August 29, 2019 2:32 PM
To: Kallie Auld <k.auld@novatech-eng.com>
Subject: Fwd: Provence -2nd round of comments

FYI

Melanie E. Riddell, P.Eng., Senior Project Manager | Land Development
NOVATECH
Tel: 613.254.9643 x 240 | Cell: 613.276.7240
The information contained in this email message is confidential and is for exclusive use of the addressee.

Sent from my iPhone

Begin forwarded message:

From: "Warnock, Charles" <Charles.Warnock@ottawa.ca>
Date: August 29, 2019 at 2:14:48 PM EDT
To: Melanie Riddell <m.riddell@novatech-eng.com>
Cc: Trevor McKay <t.mcKay@novatech-eng.com>, "Lebrun, Julie (Planning)" <Julie.Lebrun@ottawa.ca>, "Curry, William" <William.Curry@ottawa.ca>, "Erin O'Connor" <eoconnor@regionalgroup.com>, "Mashaie, Sara" <sara.mashaie@ottawa.ca>
Subject: Provence -2nd round of comments

Sorry, one other thing we spoke about that I forgot to put in the email below.
We do not want to have an ICD on the City storm sewer.
We expect with the criteria below this will no longer be necessary.
Thank you.
Charles

From: Warnock, Charles
Sent: August 29, 2019 2:09 PM
To: 'Melanie Riddell' <m.riddell@novatech-eng.com>
Cc: Trevor McKay <t.mcKay@novatech-eng.com>; Lebrun, Julie (Planning) <Julie.Lebrun@ottawa.ca>; Curry, William <William.Curry@ottawa.ca>; Erin O'Connor <eoconnor@regionalgroup.com>; Mashaie, Sara <sara.mashaie@ottawa.ca>
Subject: Provence -2nd round of comments

Hi Melanie, the following is a summary of our conversation this afternoon.
Please let me know if I have missed anything, not clear, or not same as we discussed.

The restriction of 70 L/s/ha is less than the 2 year peak flow for the development area.
Preferably we would like to be able to boost the minor flows to the 2 year level. However this could be a problem as it was designed for 70 L/s/ha.

If you have a computer model that verifies that the input to the minor system can be increased from70 L/s/ha cities that would be the preferred option.

We will accept a design that limits the flow to 70 L/s/ha and ponds on the surface during the 2 year storm. The pipe design should follow the rational mthod design process (2, 5, and 10 year storms). Please include the following in your report and drawings:

- The 2 year ponding limits shown on the ponding plan.
- The actual L/s/ha capture rate for each individual ICD and the corresponding rational design flow for the same inlet in L/s/ha. We would like to have a consistent ponding frequency throughout the development.
- Provide a table that shows the length of time for surface ponding during the 2 year event.

The area also has a prescribed major storage requirement (cu.m./ha). This was to ensure the 100 year was self-contained within the subdivision. This storage requirement is not easily obtained without going to elaborate designs. Therefore please provide us information on the following for the major overland flow:

- Overflow points from the subdivision.
- The approximate return period of when the major overland flow exits the site.
- The flow and volume of water overflowing from the site in the 100 year storm.

Thank you.
Charles

VORTECHS SYSTEM® ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION
BASED ON AN AVERAGE PARTICLE SIZE OF TYPICAL MICRONS

Province P5
Ottawa
VORTECHS 9000
-

Design Ratio[1] = $\frac{\text{(5.51 hectares) x (0.63) x (2.775)}}{\text{(5.9 m2)}}$ **= 1.62**

Rainfall Intensity mm/hr	Operating Rate[2] % of capacity	Flow Treated (l/s)	% Total Rainfall Volume[3]	Rmvl. Effcy[4] (%)	Rel. Effcy (%)
0.5	1.2	4.7	9.2%	98.0%	9.0%
1.0	2.4	9.5	10.6%	98.0%	10.4%
1.5	3.6	14.2	9.9%	98.0%	9.7%
2.0	4.8	18.9	8.4%	98.0%	8.2%
2.5	6.0	23.6	7.7%	98.0%	7.5%
3.0	7.2	28.4	5.9%	97.6%	5.8%
3.5	8.4	33.1	4.4%	96.9%	4.2%
4.0	9.5	37.8	4.7%	96.3%	4.5%
4.5	10.7	42.6	3.3%	96.0%	3.2%
5.0	11.9	47.3	3.0%	95.3%	2.9%
6.0	14.3	56.8	5.4%	92.8%	5.0%
7.0	16.7	66.2	4.4%	90.6%	3.9%
8.0	19.1	75.7	3.5%	88.0%	3.1%
9.0	21.5	85.1	2.8%	86.8%	2.4%
10.0	23.9	94.6	2.2%	85.7%	1.9%
15.0	35.8	141.9	7.0%	79.4%	5.5%
20.0	47.7	189.2	4.5%	67.7%	3.1%
25.0	59.6	236.5	1.4%	58.7%	0.8%
30.0	71.6	283.8	0.7%	47.9%	0.3%
35.0	83.5	331.1	0.5%	30.1%	0.1%
40.0	95.4	378.4	0.5%	12.8%	0.1%
					91.8%

Predicted Annual Runoff Volume Treated = 93.5%
Assumed Removal Efficiency of remaining % = 0.0%
Removal Efficiency Adjustment[5] = 6.5%
Predicted Net Annual Load Removal Efficiency = **85%**

1 - Design Ratio = (Total Drainage Area) x (Runoff Coefficient) x (Rational Method Conversion) / Grit Chamber Area
- The Total Drainage Area and Runoff Coefficient are specified by the site engineer.
- The rational method conversion based on the units in the above equation is 2.775.

2 - Operating Rate (% of capacity) = percentage of peak operating rate of 68 l/s/m^2.

3 - Based on 42 years of hourly rainfall data from Canadian Station 6105976, Ottawa CDA, ON

4 - Based on Contech Construction Products laboratory verified removal of an average particle size of TYPICAL microns (see Technical Bulletin #1).

5- Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Calculated by:	NP	2-MAY-24	Checked by:

VORTECHS SYSTEM® ESTIMATED FLOW CALCULATIONS

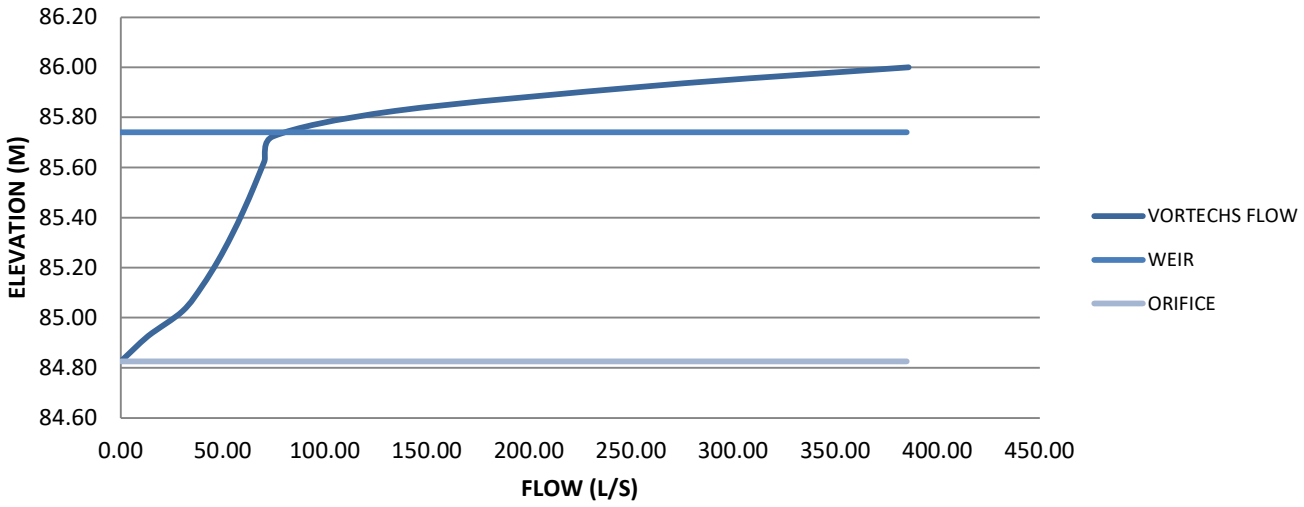
Province P5
Ottawa
MODEL NAME VORTECHS 9000
SITE DESIGNATION -

Vortechs Orifice		Weir	
Cd =	0.56	Cd =	3.3
A (m^2) =	0.033	Weir Crest Length (m) =	1.219
Crest Elevation (m) =	84.83	Crest Elevation (m) =	85.74

Head (m)	Elevation (m)	Orifice Flow (l/s)	Weir Flow (l/s)	Total Flow (l/s)
0.00	84.83	0.00	0.00	0.00
0.10	84.93	13.44	0.00	13.44
0.20	85.03	30.29	0.00	30.29
0.30	85.13	39.86	0.00	39.86
0.40	85.23	47.55	0.00	47.55
0.50	85.33	54.16	0.00	54.16
0.60	85.43	60.04	0.00	60.04
0.70	85.53	65.40	0.00	65.40
0.80	85.63	70.35	0.00	70.35
0.90	85.73	74.97	0.00	74.97
1.00	85.83	79.33	55.29	134.62
1.10	85.93	83.46	177.08	260.54
1.17	86.00	86.53	299.35	385.87

Calculated by: NP | 2-MAY-24

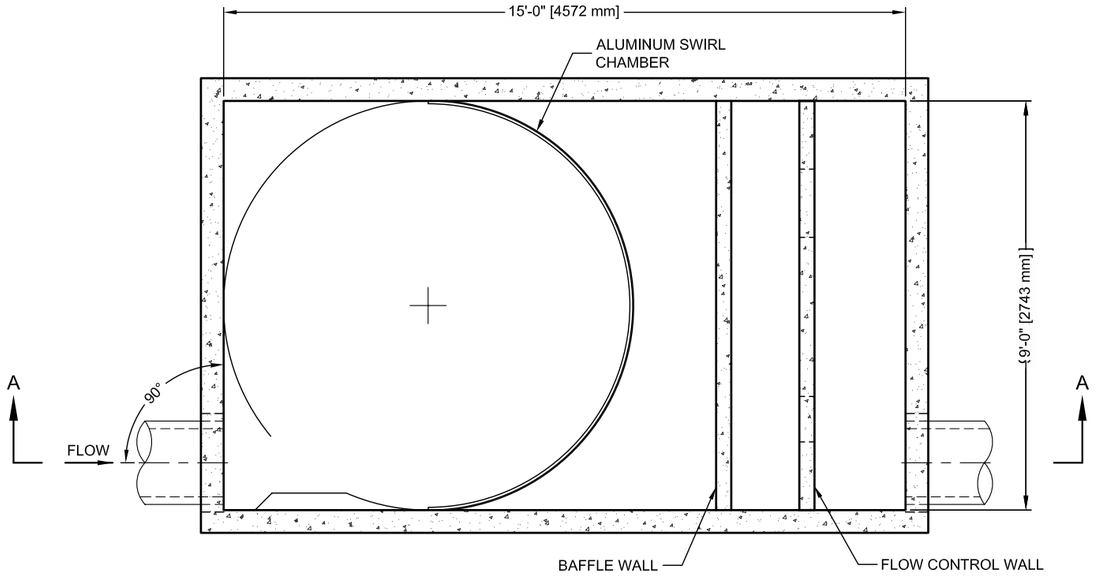
VORTECHS STAGE DISCHARGE CURVE



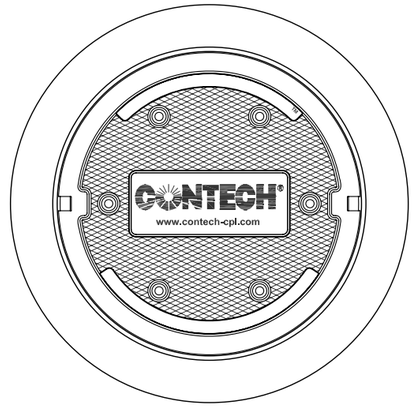
VORTECHS 9000 DESIGN NOTES

VORTECHS 9000 RATED TREATMENT CAPACITY IS 14 CFS, OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED RATED TREATMENT CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD INLET/OUTLET CONFIGURATION IS SHOWN. FOR OTHER CONFIGURATION OPTIONS , PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com



SECTION B-B



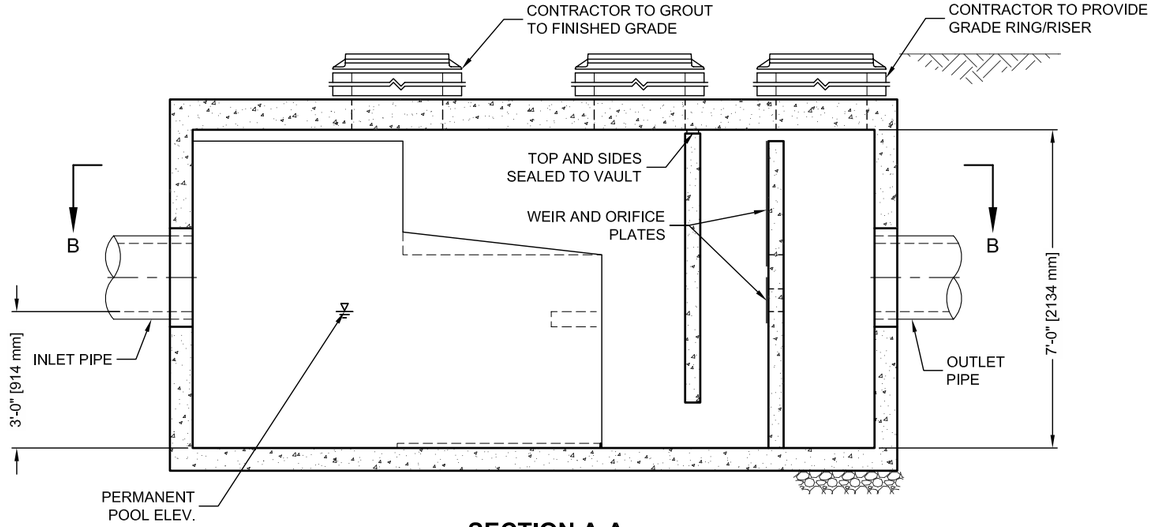
FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (CFS)			*
PEAK FLOW RATE (CFS)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD



SECTION A-A

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com
4. VORTECHS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. INLET PIPE(S) MUST BE PERPEDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER. DUAL INLETS NOT TO HAVE OPPOSING TANGENTIAL FLOW DIRECTIONS.
7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

Vortechs®

THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

CONTECH® ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

VORTECHS 9000 STANDARD DETAIL

C:\USERS\FISHERS\DESKTOP\LOGO UPDATE\VORTECHS DIM UPDATE\VX-9000-DTL.DWG 8/28/2012 11:03 AM

CONTECH ENGINEERED SOLUTIONS

SECTION [_____]

STORMWATER TREATMENT DEVICE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

The Contractor, and/or a manufacturer selected by the Contractor and approved by the Engineer, shall furnish all labor, materials, equipment and incidentals required and install all precast concrete stormwater treatment systems and appurtenances in accordance with the Drawings and these specifications.

1.2 QUALITY CONTROL INSPECTION

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer's acceptance level, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement.

C. Imperfections may be repaired, subject to the acceptance of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi (28 MPa) at the end of 7 days and 5,000 psi (34 MPa) at the end of 28 days when tested in 3 inch (76 mm) diameter by 6 inch (152 mm) long cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs.

1.3 SUBMITTALS

A. Shop Drawings

The Contractor shall be provided with dimensional drawings and, when specified, utilize these drawings as the basis for preparation of shop drawings showing details for construction, reinforcing, joints and any cast-in-place appurtenances. Shop drawings shall be annotated to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Shop drawings shall be prepared at a scale of not less than 3/16-inches per foot (1:75). Six (6) hard copies of said shop drawings shall be submitted to the Engineer for review and approval.

PART 2 – PRODUCTS

2.1 MATERIALS AND DESIGN

A. Concrete for precast stormwater treatment systems shall conform to ASTM C 857 and C 858 and meet the following additional requirements:

1. The wall thickness shall not be less than 6 inches (152 mm) or as shown on the dimensional drawings. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 (MS18) loading requirements as determined by a Licensed Professional Engineer.

2. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.

3. Cement shall be Type II Portland cement conforming to ASTM C 150.

4. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.

5. Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C 595M

B. Internal aluminum plate components shall be aluminum alloy 5052-H32 in accordance with ASTM B 209.

C. Sealant to be utilized at the base of the swirl chamber shall be 60 durometer extruded nitrile butadiene rubber (Buna N) and shall be provided to the concrete precaster for installation.

D. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C 32 or ASTM C 139 and shall be installed in conformance with all local requirements.

E. Casting for manhole frames and covers shall be in accordance with ASTM A48, CL.30B and AASHTO M105. The manhole frame and cover shall be equivalent to Campbell Foundry Pattern #1009A or #1012D custom cast with the Contech Engineered Solutions logo and the words “Vortechs® Stormwater Treatment System”.

F. A bitumen sealant in conformance with ASTM C 990 shall be utilized in the sealing of the joint between the swirl chamber and the vault at the long wall tangent points. The butyl material shall be 3/4-inch thick by 3/4-inch wide.

2.2 PERFORMANCE

A. Each stormwater treatment system shall adhere to the following performance specifications at the design treatment capacities, as listed below:

Table 2.2

Vortechs® Model	**Design Treatment Capacity** (cfs)/(l/s)	**Sediment Storage** (yd^3)/(m^3)
1000	**0 - 1.6 (0 - 45)**	**0.7 (0.54)**
2000	**1.6 - 2.8 (45-80)**	**1.2 (0.91)**
3000	**2.8 - 4.5 (80-125)**	**1.8 (1.38)**
4000	**4.5 - 6.0 (125-175)**	**2.4 (1.84)**
5000	**6.0 - 8.5 (175-240)**	**3.2 (2.45)**
7000	**8.5 - 11.0 (240-315)**	**4.0 (3.06)**
9000	**11.0 - 14.0 (315-400)**	**4.8 (3.67)**
11000	**14.0 - 17.5 (400-495)**	**5.6 (4.28)**
16000	**17.5 - 25.0 (495-710)**	**7.1 (5.43)**

Each stormwater treatment system shall include a circular aluminum “swirl chamber” (or “grit chamber”) with a tangential inlet to induce a swirling flow pattern that will accumulate and store settleable solids in a manner and a location that will prevent re-suspension of previously captured particulates.

Each stormwater treatment system shall be of a hydraulic design that includes flow controls designed and certified by a professional engineer using accepted principles of fluid mechanics that raise the water surface inside the tank to a pre-determined level in order to prevent the re- entrainment of trapped floating contaminants.

Each stormwater treatment system shall be capable of removing 80% of the net annual Total Suspended Solids (TSS) load based on a 50-micron particle size. Annual TSS removal efficiency models shall be based on documented removal efficiency performance from full scale laboratory tests. Annual TSS removal efficiency models shall only be considered valid if they are corroborated by independent third party field testing. Said field testing shall include influent and effluent composite samples from a minimum of ten storms at one location.

Individual stormwater treatment systems shall have the Design Treatment Capacity listed in Table 2.2, and shall not re- suspend trapped sediments or re-entrain floating contaminants at flow rates up to and including the specified Design Treatment Capacity.

Individual stormwater treatment systems shall have usable sediment storage capacity of not less than the corresponding volume listed in Table 2.2. The systems shall be designed such that the pump-out volume is less than ½ of the total system volume. The systems shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

A water-lock feature shall be incorporated into the design of the stormwater treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

Stormwater treatment systems shall be completely housed within one rectangular structure.

2.3 MANUFACTURER

A. Each stormwater treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of stormwater runoff during the aforementioned period.

Each stormwater treatment system is shall be a Vortechs® System protected under U.S. Patent #5,759,415 as manufactured by

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400
West Chester, Ohio 45069
800-338-1122

PART 3 – EXECUTION

3.1 INSTALLATION

A. Each Stormwater Treatment System shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.

B. Place the precast base unit on a granular subbase of minimum thickness of six inches (152 mm) after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all

four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.

C. Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990 along the construction joint in the section that is already in place.

D. After setting the base and wall or riser sections, prepare to install the swirl chamber. Place the 3/4-inch (19 mm) thick by 3/4-inch (19 mm) wide butyl mastic seal vertically on the outside of the swirl chamber starting one inch above the bottom of the swirl chamber and continuing to a height equal to the elevation of the bottom of the upper aperture of the swirl chamber. The butyl mastic seal should abut the downstream side of the pre- drilled mounting holes that attach the swirl chamber to the long walls of the concrete vault. Next, install the extruded Buna N seal on the bottom edge of the 180 degree downstream section of the swirl chamber by first applying a bead of Sikaflex-1a polyurethane elastomeric sealant into the extruded slot then slide the seal onto the swirl chamber. The extruded seal should extend 3-inches (76 mm) upstream of the mounting holes, toward the inlet end of the vault. Set the swirl chamber into position and keep the seal approximately ½-inch (13 mm) above the floor of the concrete vault. Apply a continuous bead of Sikaflex-1a sealant under the cupped bottom of the seal. Set the circular swirl chamber on the floor of the vault and anchor it by bolting the swirl chamber to the side walls of the concrete vault at the three (3) tangent points and at the inlet tab using HILTI brand stainless steel drop-in wedge anchors or equivalent 3/8-inch (10 mm) diameter by 2-3/4 inch (70 mm) minimum length at heights of approximately three inches (3”) (76 mm) off the floor and at fifteen inch (15”) (381 mm) intervals to approximately the same height of the butyl mastic sealant (at locations of pre-drilled holes in aluminum components). Apply a continuous bead of Sikaflex-1a sealant to the intersection of the inside bottom edge of the extruded seal and the vault floor.

E. If the oil baffle wall (Baffle A) and flow control wall (Baffle B) are not integrally cast-in to riser/wall sections then the Baffle wall panels shall be placed in the formed keyways or between bolted-in-place angle flanges as provided by the manufacturer. Apply non-shrink grout or Sikaflex-1a sealant to each end of Baffle A and Baffle B at the upstream intersection with the side walls of the concrete vault.

F. Prior to setting the precast roof section, bitumen sealant equal to ASTM C 990 shall be placed along the top of the oil baffle wall (Baffle A), using more than one layer of mastic if necessary, to a thickness at least 1-inch (25 mm) greater than the nominal gap between the top of the baffle and the roof section. The nominal gap shall be determined either by field measurement or the shop drawings. Do not seal the top of Baffle B unless specified on the shop drawings to do so. After placement of the roof section has compressed the butyl mastic sealant in the gap over Baffle A, finish sealing the gap with an approved non-shrink grout on both sides of the gap using the butyl mastic as a backing material to which to apply the grout. If roof section is “clamshell” or “bathtub” halves, then finish sealing the ends of the Baffle walls by applying non- shrink

grout or Sikaflex-1a sealant to each end of Baffle A at the upstream intersection with the side walls of the concrete vault and to each end of Baffle B at the downstream intersection with the side walls of the concrete vault.

G. After setting the precast roof section of the stormwater treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch (6 mm) maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6- inch (152 mm) lifts on all sides. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Stormwater Treatment Systems shall conform to ASTM specification C 891 “Standard Practice for Installation of Underground Precast Utility Structures”.

H. Holes made in the concrete sections for handling or other purposes shall be plugged with a nonshrink grout or by using grout in combination with concrete plugs.

I. Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

END OF SECTION

Provence Orleans Phase 5B
Post-Development Model Parameters

NOVATECH
Engineers, Planners & Landscape Architects

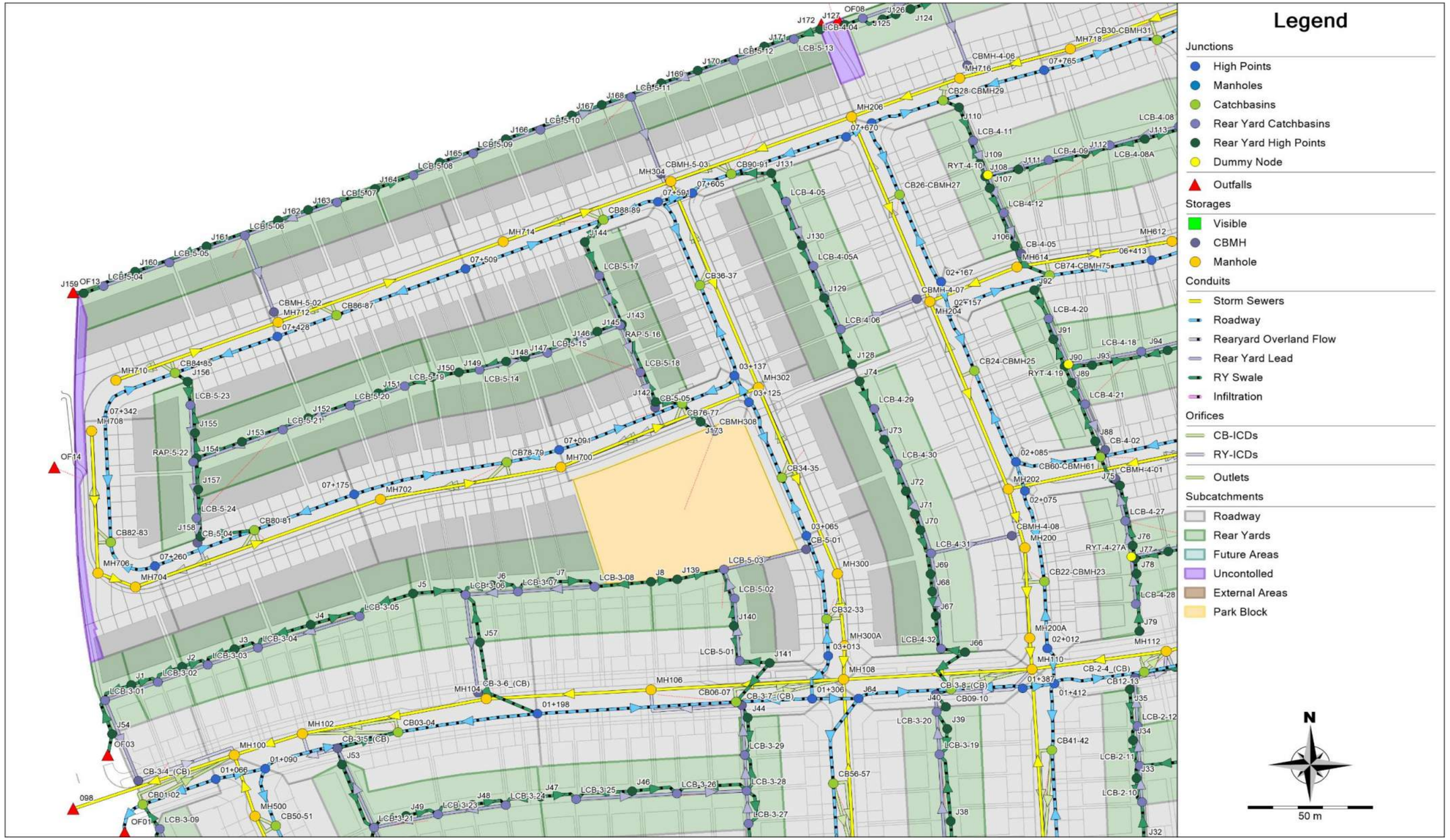
Area ID	Catchment Area (ha)	Runoff Coeff. (C)	Percent Imperv. (%)	No Depression (%)	Flow Path Length (m)	Equivalent Width (m)	Average Slope (%)
Phases 2 & 3							
2-00	1.239	0.65	64%	50%	44.5	278.6	0.5%
2-01A	0.084	0.68	69%	30%	27.4	30.7	3.0%
2-01B	0.162	0.67	67%	30%	27.4	59.2	3.0%
2-02	0.230	0.69	70%	25%	24.8	92.7	3.0%
2-03	0.173	0.41	30%	100%	20.8	83.1	3.0%
2-04	0.464	0.64	63%	39%	23.8	195.4	3.0%
2-05	0.339	0.66	66%	26%	26.6	127.5	3.5%
2-06	0.173	0.43	33%	100%	16.8	103.3	3.3%
2-07	0.160	0.46	37%	100%	15.7	101.6	3.5%
2-08	0.265	0.36	23%	100%	30.1	88.0	2.5%
2-09	0.411	0.64	63%	39%	24.1	170.5	3.5%
2-10	0.133	0.36	23%	100%	29.9	44.5	2.5%
2-11	0.417	0.63	61%	44%	25.7	162.2	3.5%
2-12	0.280	0.55	50%	100%	22.3	125.4	3.0%
2-13	0.146	0.67	67%	0%	9.9	147.0	0.8%
3-01	0.280	0.55	50%	100%	43.0	65.1	2.5%
3-02	0.433	0.65	64%	41%	21.9	197.5	3.5%
3-03	0.508	0.65	64%	36%	25.3	200.9	3.0%
3-04	0.349	0.55	50%	100%	13.7	253.9	2.5%
3-05	0.617	0.65	64%	36%	25.7	240.3	3.5%
3-06	0.313	0.55	50%	100%	14.1	221.9	2.5%
3-07	0.425	0.65	64%	40%	23.7	179.3	3.5%
3-08	0.324	0.55	50%	100%	23.3	139.4	2.5%
3-09	0.410	0.65	64%	42%	23.2	177.0	3.5%
3-10	0.232	0.55	50%	100%	35.8	64.7	3.0%
3-11	0.440	0.65	64%	48%	24.7	177.8	3.0%
3-12	0.346	0.55	50%	100%	40.1	86.4	2.0%
3-13_1	0.157	0.55	50%	100%	23.2	67.5	2.0%
3-13_2	0.068	0.55	50%	100%	17.7	38.5	2.0%
3-13_3	0.104	0.55	50%	100%	18.8	55.3	2.0%
3-13_4	0.066	0.55	50%	100%	16.7	39.6	2.0%
3-13_6	0.043	0.55	50%	100%	15.9	27.1	2.0%
3-14	0.120	0.65	64%	28%	25.0	48.0	4.5%
Phase 4							
4A-01	0.319	0.68	69%	40%	24.8	128.8	4.0%
4A-02	0.521	0.59	56%	100%	18.0	289.9	3.0%
4A-03	0.420	0.70	71%	50%	23.9	175.9	4.0%
4A-04	0.363	0.70	71%	45%	24.4	148.5	4.0%
4A-05	0.262	0.56	51%	25%	24.6	106.4	4.0%
4A-06	0.320	0.63	61%	40%	25.3	126.7	4.0%
4A-07	0.265	0.57	53%	100%	16.9	156.9	3.5%
4A-08	0.302	0.56	51%	100%	15.4	195.8	3.0%
4A-09	0.386	0.68	69%	50%	24.6	157.1	3.5%
4A-10	0.384	0.56	51%	100%	16.4	233.5	3.5%
4A-11	0.376	0.55	50%	100%	15.3	245.5	3.5%
4A-12	0.267	0.66	66%	40%	25.6	104.2	4.0%
4A-13	0.386	0.60	57%	100%	15.1	254.8	3.0%
4A-14	0.339	0.69	70%	45%	24.4	138.7	4.0%
4B-01A	0.223	0.72	74%	55%	26.8	83.3	3.5%
4B-01B	0.213	0.69	70%	25%	22.9	93.1	4.0%
4B-02	0.264	0.63	61%	100%	17.6	149.7	4.0%
4B-03	0.311	0.70	71%	45%	23.0	135.5	3.5%
4B-04	0.353	0.68	69%	45%	25.1	140.6	4.0%
4B-05	0.279	0.56	51%	100%	15.9	175.5	3.5%
DR-1	0.025	0.34	20%	0%	24.7	10.1	3.0%
DR-2	0.039	0.20	0%	0%	4.5	86.8	12.0%
Phase 5A							
5A-01	0.262	0.70	71%	35%	39.7	66.0	4.0%
5A-02	0.310	0.58	54%	100%	16.4	189.5	5.5%
5A-03	0.382	0.71	73%	40%	24.2	157.8	4.0%
5A-04	0.395	0.56	51%	100%	24.4	161.9	2.5%
5A-05	0.219	0.68	69%	30%	37.0	59.2	3.5%
5A-06	0.136	0.61	59%	100%	19.4	70.1	5.0%
5A-07	0.269	0.71	73%	45%	23.1	116.4	4.0%
Phase 5B							
5B-01	0.344	0.69	70%	45%	21.6	159.4	3.5%
5B-02	0.203	0.60	57%	100%	16.1	126.3	4.0%
5B-03	0.403	0.71	73%	45%	25.3	159.4	3.5%
5B-04	0.381	0.70	71%	45%	23.3	163.7	3.5%
5B-05	0.284	0.71	73%	35%	38.5	73.8	3.0%
5B-06	0.386	0.72	74%	45%	22.8	169.1	4.0%
5B-07	0.417	0.58	54%	100%	20.6	202.3	3.5%
5B-08	0.460	0.72	74%	50%	27.7	166.2	3.5%
5B-09	0.215	0.67	67%	30%	28.4	75.8	3.5%
5B-10	0.401	0.30	14%	0%	55.9	71.7	2.0%
DR-5B	0.048	0.32	17%	85%	3.2	149.2	2.0%
Subtotal:	***22.04***						
Offsite Areas (Drain into Phase 4)							
OS-1	0.529	0.32	17%	40%	32.9	160.6	3.0%
Subtotal:	***0.53***						
TOTAL:	**22.57**						

Provence Orleans Phase 5B
Overall Model Schematic

NOVATECH
Engineers, Planners & Landscape Architects

Provence Orleans Phase 5B
Phase 5 Model Schematic

NOVATECH
Engineers, Planners & Landscape Architects



Provence Orleans Phase 5B
Inlet Control Device Parameters

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Area ID	CB/ ICD ID	ICD Size	Invert (m)	T/G (m)	Max. Head* (m)	Max. Capture Rate** (L/s)	100-yr Water Level*** (m)	100-yr Head (m)	100-year Approach Flow*** (L/s)	100-year Approach Flow*** (L/s/ha)	100-year Rational Method Flow (L/s)	100-year Rational Method Flow (L/s/ha)	100-year Capture Rate*** (L/s)	Drainage Area (ha)	Flow Rate (L/s/ha)****
PHASE 5B															
Roadway Catchbasins															
5B-09	CB76	LMF75	87.86	89.06	1.52	7	89.41	1.52	96	897	45	417	7	0.108	61
	CB77	LMF75	87.86	89.06	1.52	7	89.41	1.52					7	0.108	61
5B-08	CB78	83mm	88.02	89.22	1.51	18	89.56	1.50	214	930	103	448	18	0.230	78
	CB79	LMF105	88.02	89.22	1.52	13	89.56	1.51					13	0.230	56
5B-06	CB80	LMF105	88.09	89.29	1.52	13	89.62	1.50	182	940	86	448	13	0.193	66
	CB81	LMF105	88.09	89.29	1.52	13	89.62	1.50					13	0.193	66
5B-05	CB82	LMF90	88.11	89.31	1.52	10	89.62	1.48	128	900	63	442	9	0.142	66
	CB83	LMF90	88.11	89.31	1.52	10	89.62	1.48					9	0.142	66
5B-01	CB84	LMF90	88.08	89.28	1.52	10	89.63	1.52	159	927	74	429	9	0.172	55
	CB85	LMF100	88.08	89.28	1.52	11	89.63	1.52					11	0.172	65
5B-03	CB86	LMF105	87.97	89.18	1.53	13	89.53	1.53	187	930	89	442	13	0.202	64
	CB87	83mm	87.97	89.18	1.52	18	89.53	1.52					18	0.202	90
5B-04	CB88	LMF105	87.81	89.01	1.52	13	89.36	1.52	177	927	83	435	13	0.191	68
	CB89	LMF105	87.81	89.01	1.52	13	89.36	1.52					13	0.191	68
Rear Yard Catchbasins															
5B-02	CBMH-5-02	LMF75	87.33	89.73	2.77	9	88.95	1.60	96	473	76	373	7	0.203	33
5B-07	CB-5-04	LMF70	87.69	89.69	2.38	7	89.71	2.00	195	467	150	361	6	0.417	15
5B-10	CBMH308	94mm	86.96	89.45	2.84	32	89.75	2.74	70	174	75	187	31	0.401	78

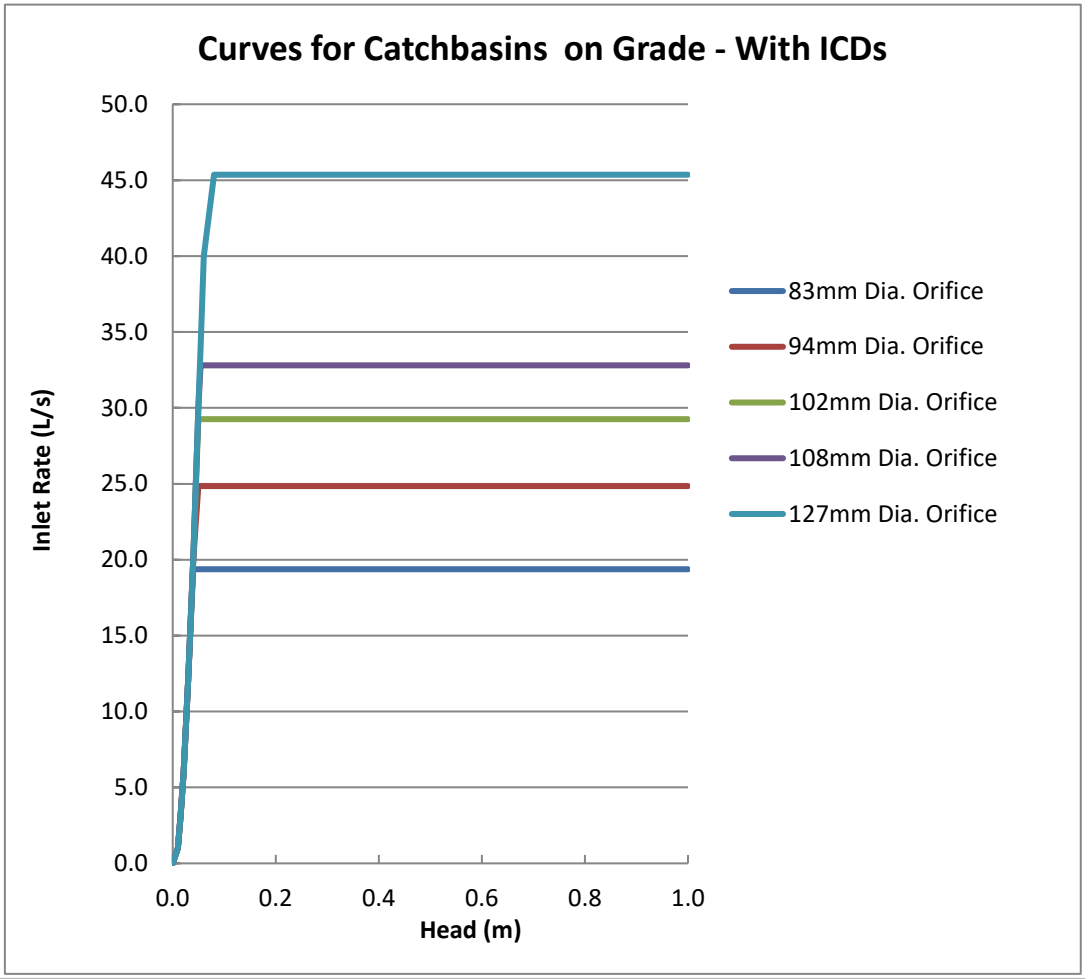
**Max head is calculated as the T/G elevation plus 0.35m for roadway CBs and 0.40m for rear yard CBs*

*** Max capture rate is calculated using the orifice equation, based on the max head*

**** From PCSWMM 100-yr 3-hour Chicago Storm event*

***** Calculated from 100-year Capture Rate*

Provence Orlease Phase 5B
Catchbasin (On-Grade) with ICD Curves



Curb Inlet Catchbasins on Continuous Grade

Depth vs. Captured Flow Curve

A standard depth vs. captured flow curve for catch basins on a continuous grade was provided to Novatech by City staff for use in a dual-drainage model of an existing residential neighbourhood. This standard curve was derived using the inlet curves in Appendix 7A of the Ottawa Sewer Design Guidelines.

Novatech reviewed the methodology used to create this standard curve (described below) and determined that it was suitable for general use in other dual-drainage models.

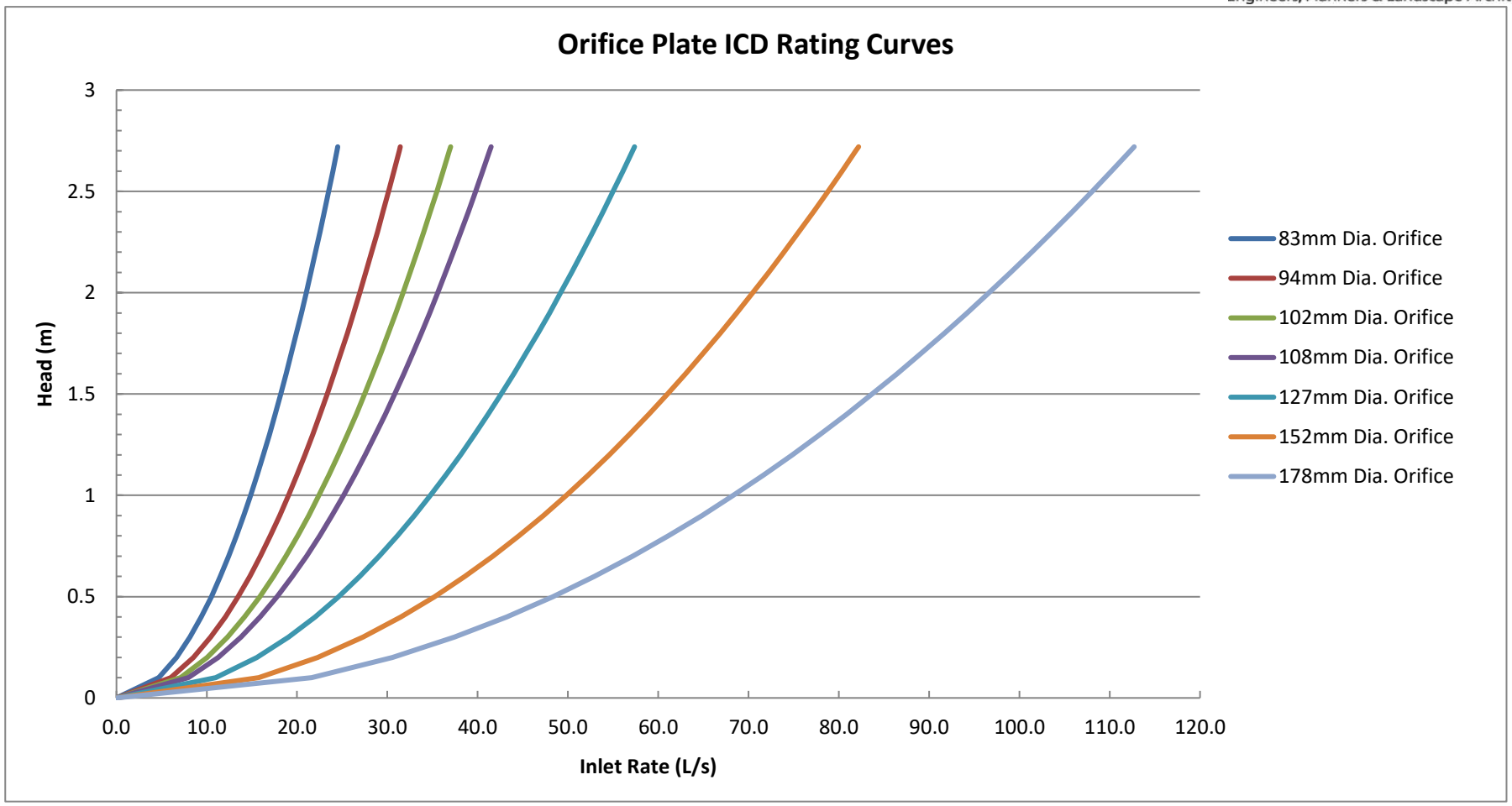
- MTO Design Chart 4.04 provides the relationship between the gutter flow rate (Q_t) and flow spread (T) for Barrier Curb.
- MTO Design Chart 4.12 provides the relationship between flow spread (T) and flow depth (D).
- The relationship between the gutter flow rate (Q_t) and flow depth (D) was determined for different road slopes using the above charts and Manning's equation (refer to pages 58-60 of the MTO Drainage Management Manual – Part 2);
- The relationship between approach flow (Q_t) and captured flow (Q_c) was determined for different road slopes using the design chart for Barrier Curb with Gutter (Appendix 7-A.2).
- Using the above information, a family of curves was developed to characterize the relationship between flow depth and captured flow for curb inlet catchbasins on different road slopes. The results of this exercise can be summarized as follows:
    - For a given flow depth, the gutter flow rate (Q_t) increases as the road slope increases.
    - The capture efficiency (Q_c) of curb inlet catchbasins decrease as the road slope increases.
    - The net result is that the relationship between flow depth and capture rate is largely independent of road slope: While approach flow vs. captured flow (Q_t vs. Q_c) varies significantly with road grade, flow depth vs. captured flow (D vs. Q_c) does not.

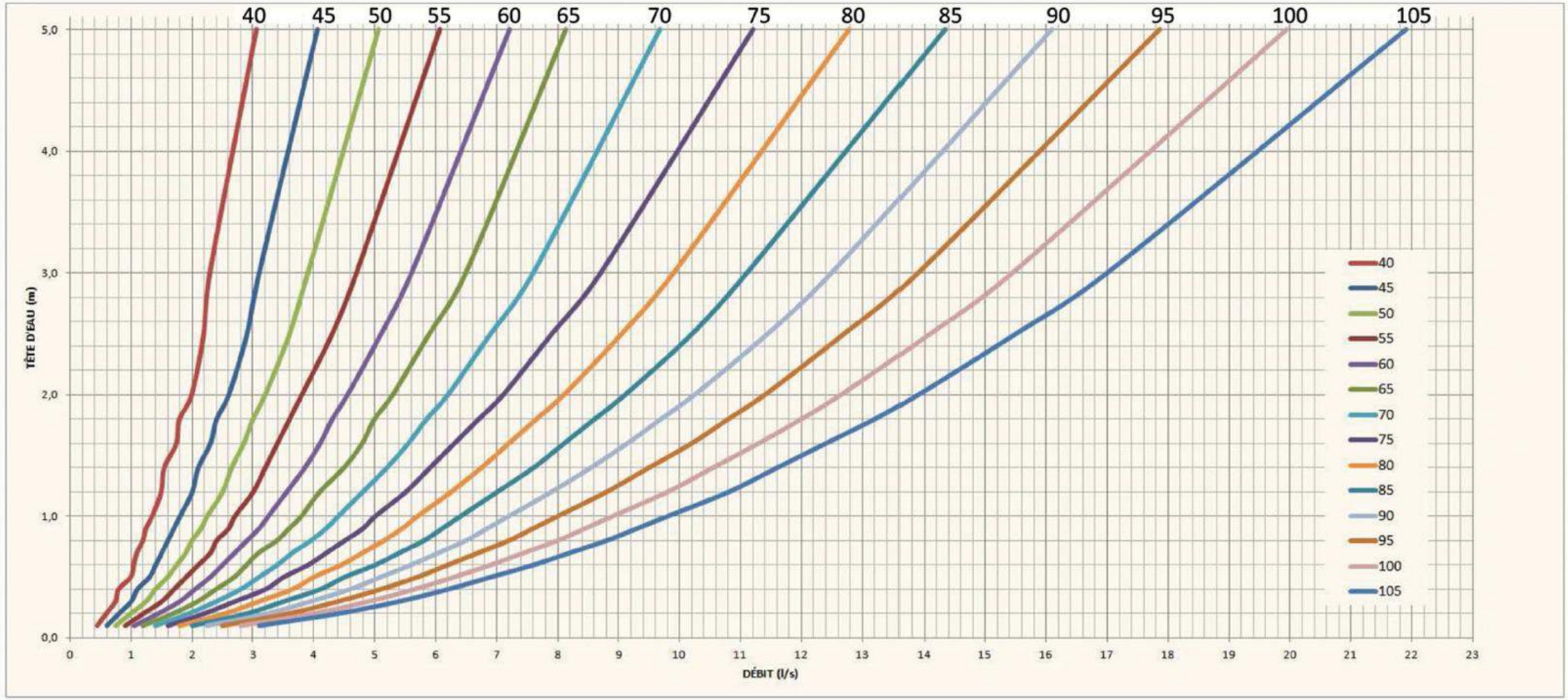
Since there was very little difference in the flow depth vs. captured flow curves for different road slopes, this family of curves was averaged to create a single standard curve for use in dual-drainage models.

Inlet Control Devices

The standard depth vs. capture flow curve was modified to account for the installation of ICDs in curb inlet catchbasins on continuous grade. Separate inlet curves were created for each standard ICD orifice size by capping the inlet rate on the depth vs. capture flow curve at the maximum flow rate through the ICD at a head of 1.2m (depth from centerline of CB lead to top of CICB frame).

Provence Orleans Phase 5B
ICD Rating Curves

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95
100
105
TÊTE D'EAU (m)
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DÉBIT (l/s)

Provence Orleans Phase 5B
HGL Elevations

Manhole ID	MH Invert Elevation (m)	Downstream Pipe Diameter (mm)	Downstream Pipe Obvert (m)	T/G Elevation (m)	HGL Elevation - 100yr3hr (m)	HGL Elevation - 100yr3hr+20% (m)	Design USF (m)	Clearance* (100yr) (m)	Clearance* (100yr+20%) (m)
Phase 5B									
MH700	85.98	675	86.66	89.52	86.31	86.31	87.69	1.03	1.03
MH702	86.24	610	86.85	89.62	86.45	86.45	87.73	0.88	0.88
MH704	86.58	533	87.11	89.58	86.76	86.76	87.82	0.71	0.71
MH706	86.80	381	87.18	89.59	86.90	86.90	87.78	0.60	0.60
MH708	87.03	381	87.41	89.80	87.14	87.14	87.95	0.54	0.54
MH710	87.04	381	87.42	89.62	87.16	87.16	87.72	0.30	0.30
MH712	86.68	533	87.21	89.62	86.86	86.86	87.63	0.42	0.42
MH714	86.32	610	86.93	89.41	86.58	86.58	87.41	0.48	0.48

** Clearance is the difference between the greater of the pipe obvert and HGL to the USF*

Provence Orleans Phase 5B

Ponding in Road Calculations

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Structure	T/G*	Max. Static Ponding (Spill Depth)		2-yr Event (3hr)				5-yr Event (3hr)				100-yr Event (3hr)				100-yr Event (+20%) (3hr)			
	(m)	Elev.** (m)	Depth (m)	Elev. (m)	Depth (m)	Cascading Flow?	Cascade Depth (m)	Elev. (m)	Depth (m)	Cascading Flow?	Cascade Depth (m)	Elev. (m)	Depth (m)	Cascading Flow?	Cascade Depth (m)	Elev. (m)	Depth (m)	Cascading Flow?	Cascade Depth (m)
Phase 5A																			
RYCB																			
LCB-5-08	88.50	88.85	0.35	87.60	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-09	88.50	88.85	0.35	87.60	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-10	88.50	88.85	0.35	87.59	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-11	88.50	88.85	0.35	87.59	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-12	88.50	88.85	0.35	87.59	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-13	88.50	88.85	0.35	87.60	0.00	N	0.00	87.84	0.00	N	0.00	88.82	0.32	N	0.00	88.94	0.44	Y	0.09
LCB-5-14	89.18	89.54	0.36	88.23	0.00	N	0.00	88.97	0.00	N	0.00	89.57	0.39	Y	0.03	89.63	0.45	Y	0.09
LCB-5-15	89.18	89.54	0.36	88.23	0.00	N	0.00	88.97	0.00	N	0.00	89.57	0.39	Y	0.03	89.63	0.45	Y	0.09
LCB-5-17	89.18	89.54	0.36	88.23	0.00	N	0.00	88.97	0.00	N	0.00	89.57	0.39	Y	0.03	89.62	0.44	Y	0.08
LCB-5-18	89.18	89.54	0.36	88.23	0.00	N	0.00	88.97	0.00	N	0.00	89.56	0.38	Y	0.02	89.62	0.44	Y	0.08
Phase 5B																			
Roadway CB																			
CB76-77	89.06	89.36	0.30	89.16	0.10	N	0.00	89.21	0.15	N	0.00	89.41	0.35	Y	0.05	89.45	0.39	Y	0.09
CB78-79	89.22	89.51	0.29	89.37	0.15	N	0.00	89.44	0.22	N	0.00	89.56	0.34	Y	0.05	89.59	0.37	Y	0.08
CB80-81	89.29	89.60	0.31	89.43	0.14	N	0.00	89.49	0.20	N	0.00	89.62	0.33	Y	0.02	89.66	0.37	Y	0.06
CB82-83	89.31	89.65	0.34	89.43	0.12	N	0.00	89.49	0.18	N	0.00	89.62	0.31	N	0.00	89.67	0.36	Y	0.02
CB84-85	89.28	89.58	0.30	89.41	0.13	N	0.00	89.48	0.20	N	0.00	89.63	0.35	Y	0.05	89.65	0.37	Y	0.07
CB86-87	89.18	89.48	0.30	89.32	0.14	N	0.00	89.38	0.20	N	0.00	89.53	0.35	Y	0.05	89.56	0.38	Y	0.08
CB88-89	89.01	89.30	0.29	89.14	0.13	N	0.00	89.21	0.20	N	0.00	89.36	0.35	Y	0.06	89.42	0.41	Y	0.12
RYCB																			
LCB-5-04	88.60	88.95	0.35	87.96	0.00	N	0.00	88.48	0.00	N	0.00	88.95	0.35	N	0.00	89.00	0.40	Y	0.05
LCB-5-05	88.60	88.95	0.35	87.96	0.00	N	0.00	88.48	0.00	N	0.00	88.95	0.35	N	0.00	89.00	0.40	Y	0.05
LCB-5-06	88.60	88.95	0.35	87.96	0.00	N	0.00	88.48	0.00	N	0.00	88.95	0.35	N	0.00	89.00	0.40	Y	0.05
LCB-5-07	88.60	88.95	0.35	87.96	0.00	N	0.00	88.48	0.00	N	0.00	88.95	0.35	N	0.00	89.00	0.40	Y	0.05
LCB-5-19	89.31	89.69	0.38	88.56	0.00	N	0.00	89.48	0.17	N	0.00	89.71	0.40	Y	0.02	89.77	0.46	Y	0.08
LCB-5-20	89.31	89.69	0.38	88.55	0.00	N	0.00	89.48	0.17	N	0.00	89.71	0.40	Y	0.02	89.77	0.46	Y	0.08
LCB-5-21	89.31	89.69	0.38	88.56	0.00	N	0.00	89.48	0.17	N	0.00	89.71	0.40	Y	0.02	89.77	0.46	Y	0.08
LCB-5-23	89.31	89.69	0.38	88.56	0.00	N	0.00	89.48	0.17	N	0.00	89.71	0.40	Y	0.02	89.77	0.46	Y	0.08
LCB-5-24	89.31	89.69	0.38	88.56	0.00	N	0.00	89.48	0.17	N	0.00	89.71	0.40	Y	0.02	89.77	0.46	Y	0.08
CBMH308	89.45	89.75	0.30	87.02	0.00	N	0.00	87.54	0.00	N	0.00	89.75	0.30	N	0.00	89.85	0.40	Y	0.10

** Note that for some CB/CBMH pairs, the T/G elevations differs between the two structures. The lower of the two has been used in the model.*

*** For some highpoints, one side of the road is higher than the other. The lower of the two has been used in the model. For rear yard areas, the highest downstream spill point was used since the ICD on the rear yards causes a lumped ponding area that is interconnected through the pipe system.*

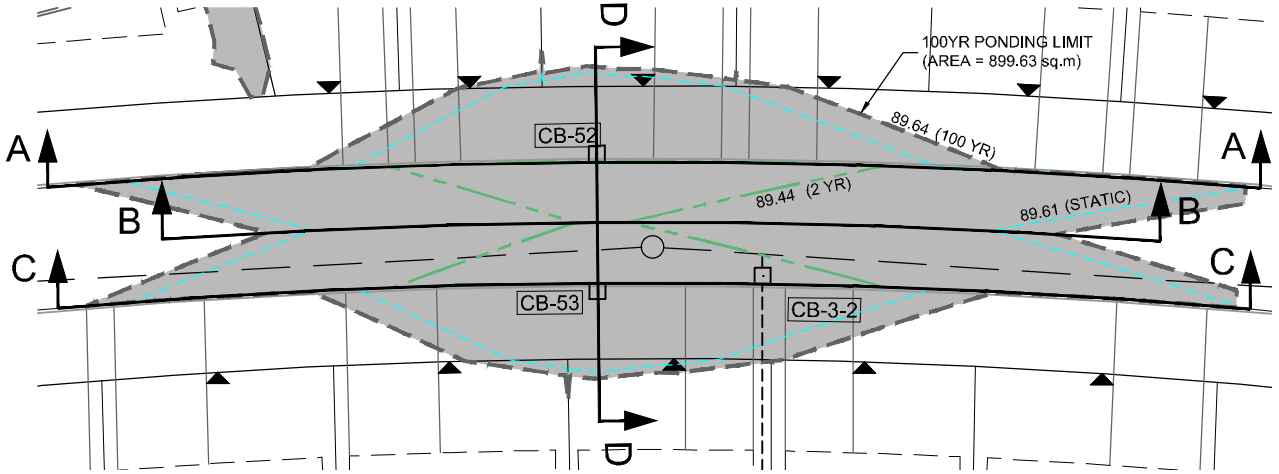
Provence Orleans Phase 5B
ICD Ponding Flow Rates

ICD/ CB	Drainage Area* (ha)	T/G (m)	Invert (m)	Max Head** (m)	Calculated Max Flow Rate		2yr ICD Flow			5yr ICD Flow			100yr ICD Flow		
					L/s	L/s/ha	L/s	L/s/ha	Ponding Time*** (h:mm)	L/s	L/s/ha	Ponding Time*** (h:mm)	L/s	L/s/ha	Ponding Time*** (h:mm)
Phase 5B															
Roadway Catchbasins															
CB76	0.11	89.06	87.86	1.58	7	63	6	56	0:40	6	57	1:06	7	61	3:19
CB77	0.11	89.06	87.86	1.58	7	63	6	56		6	57		7	61	
CB78	0.23	89.22	88.02	1.56	19	81	17	73	0:40	17	75	1:04	18	78	2:02
CB79	0.23	89.22	88.02	1.57	13	57	12	52		12	54		13	56	
CB80	0.19	89.29	88.09	1.57	13	69	12	62	0:40	12	63	1:05	13	66	2:21
CB81	0.19	89.29	88.09	1.57	13	69	12	62		12	63		13	66	
CB82	0.14	89.31	88.11	1.57	10	69	9	62	0:40	9	63	1:04	9	66	2:22
CB83	0.14	89.31	88.11	1.57	10	69	9	62		9	63		9	66	
CB84	0.17	89.28	88.08	1.57	10	57	9	51	0:43	9	52	1:10	9	55	2:43
CB85	0.17	89.28	88.08	1.57	11	66	10	60		11	61		11	65	
CB86	0.20	89.18	87.97	1.58	13	66	12	60	0:33	12	61	0:53	13	64	2:09
CB87	0.20	89.18	87.97	1.57	19	92	17	83		17	85		18	90	
CB88	0.19	89.01	87.81	1.57	13	69	12	63	0:37	12	64	1:01	13	68	2:26
CB89	0.19	89.01	87.81	1.57	13	69	12	63		12	64		13	68	
Rear Yard Catchbasins															
CBMH-5-02	0.20	89.69	87.33	2.68	9	44	4	20	N/A	6	28	N/A	7	33	N/A
CB-5-04	0.42	89.74	87.69	2.38	7	16	4	10	N/A	6	14	N/A	6	15	N/A
CBMH308	0.40	89.45	86.96	2.79	32	79	2	6	N/A	14	34	N/A	31	78	N/A

.

***Max head assumed at 0.35m of ponding above the T/G of each CB, 0.40m above RYCB*

****Ponding time occurs during the peak for the 3-hour storm event. Ponding is cleared by the end of the smaller storm events (<100-year)*

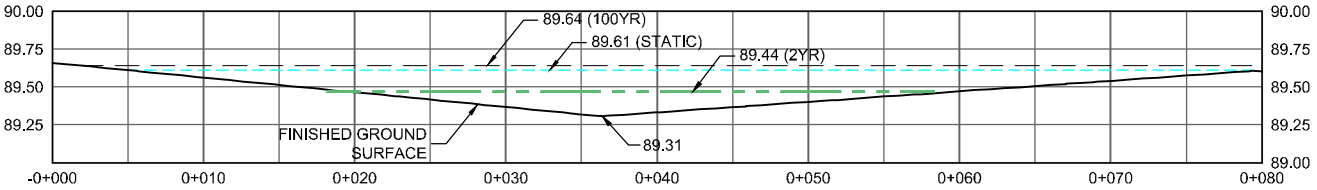


Ponding volumes calculated using Civil 3D composite method. The composite method triangulates a new volume surface, based on points from both the finished ground and ponding surfaces.

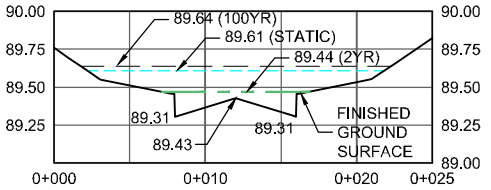
This method uses the points from both surfaces, as well as any location where the edges of the triangles between the two surfaces intersect to create prismoidal segments from composite TIN lines.

The new composite surface elevations are calculated based on the difference between the elevations of the finished ground and ponding surfaces.

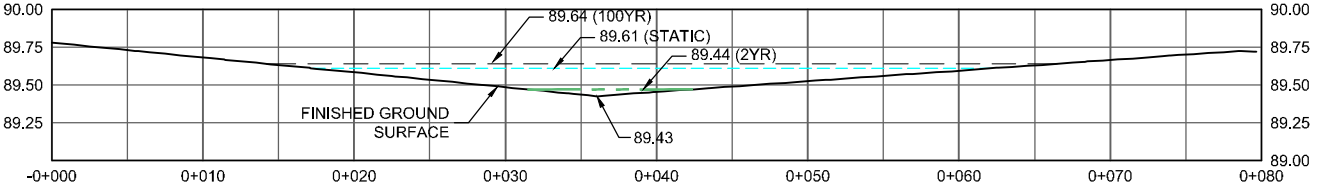
This method gives accurate volume measurements between the two surface definitions.



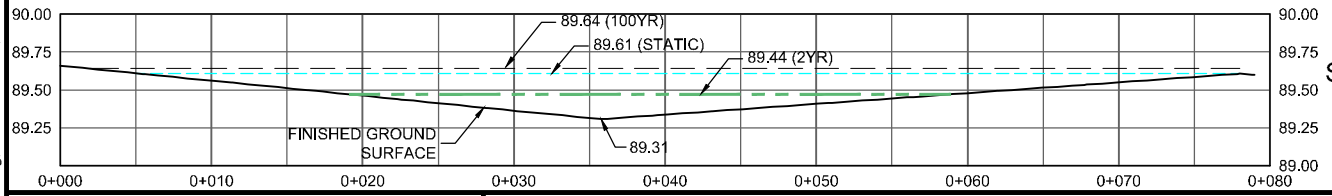
SECTION A-A



SECTION D-D



SECTION B-B



SECTION C-C

100YR PONDING VOLUME CHECK CALCULATION
(FOR ONE LANE OF STREET)

AREA OF PONDING = 899.63 sq.m / 2 = 449.81 sq.m
MAX DEPTH = 0.33m (89.64-89.31)

VOLUME = (A*D)/3
=(449.81*0.33)/3
=49.48cu.m

TOTAL FOR CB 52 & 53 =98.96

CIVIL 3D VOLUME FOR CB 52 & 53 = 99.96 cu.m

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PROVENCE ORLEANS (2128 TRIM ROAD)

SAMPLE PONDING VOLUME CALCULATION

SCALE 1 : 500 (0, 5m, 10m, 20m)

DATE NOV 2020 | JOB 117155 | FIGURE PND-CALC

SHT8X11.DWG - 216mmx279mm

M:\2017\117155\CAD\Design\PH2-3\117155-STM2.dwg, PND-calc-PET, Nov 27, 2020 - 5:54pm, channa

Provence Orleans Phase 5A and 5B
Rear Yard Underground Storage Volume

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PHASE 5A

STM Area ID	Location of ICD (CB ID)	300mm dia. Pipe Storage Dimensions				450mm dia. Pipe Storage Dimensions				600mm dia. Pipe Storage Dimensions				Total Available Storage (m^3)
		Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	
5A-06	CB-5-1	33.9	300	0.07	2.4	0.0	450	0.16	0.0	38.6	600	0.28	10.9	13.3
5A-02	CBMH-5-3	33.8	300	0.07	2.4	0.0	450	0.16	0.0	162.4	600	0.28	45.9	48.3
5A-04	CB-5-5	15.7	300	0.07	1.1	0.0	450	0.16	0.0	102.7	600	0.28	29.0	30.1
TOTAL (Rear Yards)		**83.4**	**-**	**-**	**5.9**	**0.0**	**-**	**-**	**0.0**	**303.7**	**-**	**-**	**85.9**	**91.8**

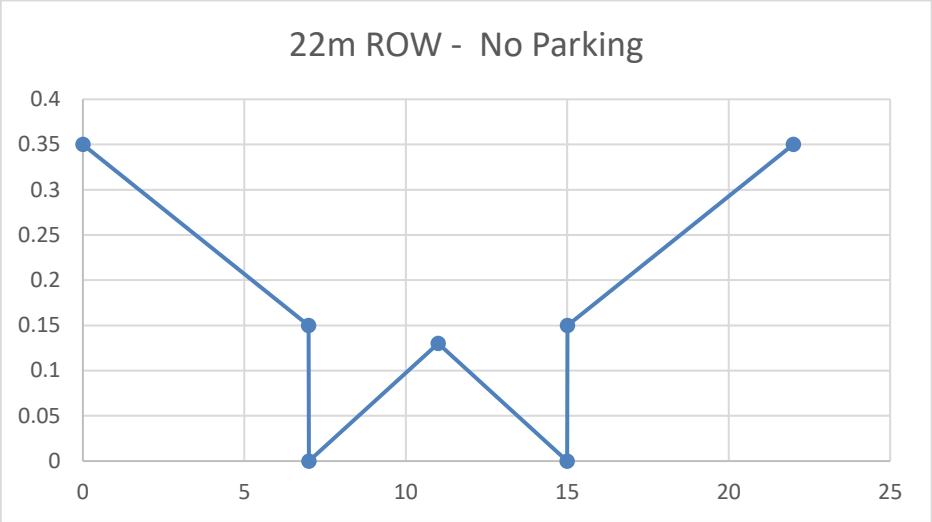
PHASE 5B

STM Area ID	Location of ICD (CB ID)	300mm dia. Pipe Storage Dimensions				450mm dia. Pipe Storage Dimensions				600mm dia. Pipe Storage Dimensions				Total Available Storage (m^3)
		Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	Length (m)	Pipe Dia. (mm)	Area (m^2)	Volume (m^3)	
5B-02	CBMH-5-2	33.8	300	0.07	2.4	99.6	450	0.16	15.8	0.0	600	0.28	0.0	18.2
5B-07	CB-5-4	10.7	300	0.07	0.8	0.0	450	0.16	0.0	137.0	600	0.28	38.7	39.5
TOTAL (Rear Yards)		**44.5**	**-**	**-**	**3.1**	**99.6**	**-**	**-**	**15.8**	**137.0**	**-**	**-**	**38.7**	**57.7**

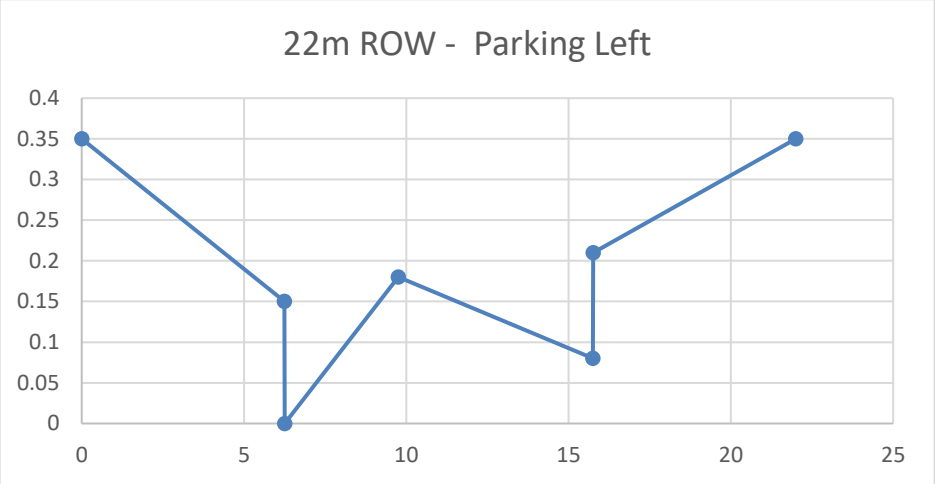
Provence Orleans Phase 5B
Roadway Cross-Sections (PCSWMM Model)

NOVATECH
Engineers, Planners & Landscape Architects

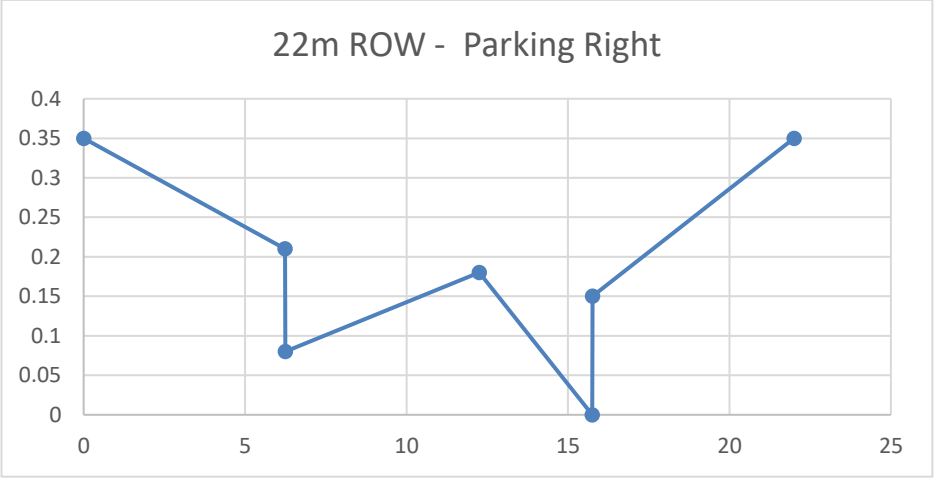
22m ROW - No Parking	
0	0.35
6.99	0.15
7	0
11	0.13
15	0
15.01	0.15
22	0.35



22m ROW - Parking Left	
0	0.35
6.24	0.15
6.25	0
9.75	0.18
15.75	0.08
15.76	0.21
22	0.35



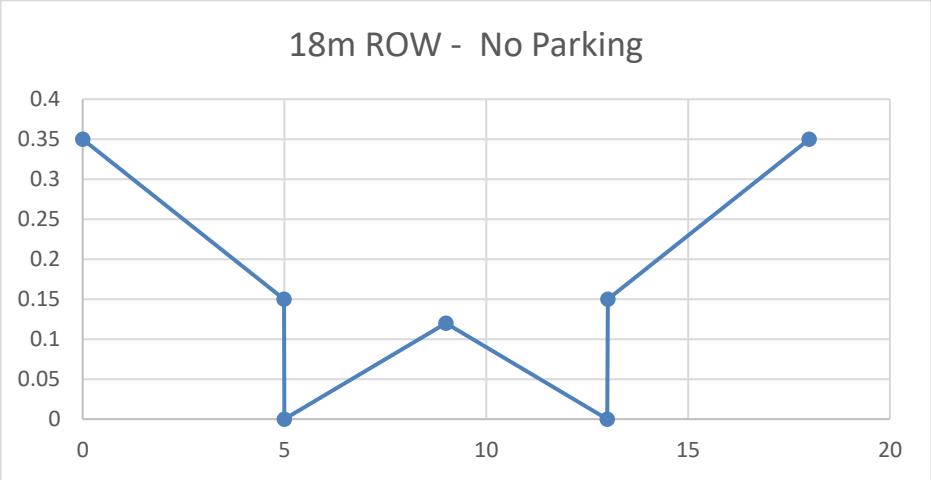
22m ROW - Parking Right	
0	0.35
6.24	0.21
6.25	0.08
12.25	0.18
15.75	0
15.76	0.15
22	0.35



Provence Orleans Phase 5B
Roadway Cross-Sections (PCSWMM Model)

Engineers, Planners & Landscape Architects

18m ROW - No Parking	
0	0.35
4.99	0.15
5	0
9	0.12
13	0
13.01	0.15
18	0.35



Provence Orleans Phase 5B
Design Storm Time Series Data
Chicago Design Storms

NOVATECH
Engineers, Planners & Landscape Architects

C5mm-4.stm		C25mm-4.stm		C2-3.stm	
Duration	Intensity	Duration	Intensity	Duration	Intensity
min	mm/hr	min	mm/hr	min	mm/hr
0:00	0	0:00	0	0:00	0
0:10	0.3	0:10	1.51	0:10	2.81
0:20	0.35	0:20	1.75	0:20	3.5
0:30	0.41	0:30	2.07	0:30	4.69
0:40	0.52	0:40	2.58	0:40	7.3
0:50	0.69	0:50	3.46	0:50	18.21
1:00	1.08	1:00	5.39	1:00	76.81
1:10	2.69	1:10	13.44	1:10	24.08
1:20	11.33	1:20	56.67	1:20	12.36
1:30	3.55	1:30	17.77	1:30	8.32
1:40	1.82	1:40	9.12	1:40	6.3
1:50	1.23	1:50	6.14	1:50	5.09
2:00	0.93	2:00	4.65	2:00	4.29
2:10	0.75	2:10	3.76	2:10	3.72
2:20	0.63	2:20	3.17	2:20	3.29
2:30	0.55	2:30	2.74	2:30	2.95
2:40	0.49	2:40	2.43	2:40	2.68
2:50	0.44	2:50	2.18	2:50	2.46
3:00	0.4	3:00	1.98	3:00	2.28
3:10	0.36	3:10	1.81		
3:20	0.34	3:20	1.68		
3:30	0.31	3:30	1.56		
3:40	0.29	3:40	1.47		
3:50	0.28	3:50	1.38		
4:00	0.26	4:00	1.31		

Provence Orleans Phase 5B
Design Storm Time Series Data
Chicago Design Storms

NOVATECH
Engineers, Planners & Landscape Architects

C5-3.stm		C100-3.stm		C100-3+20%.stm	
Duration	Intensity	Duration	Intensity	Duration	Intensity
min	mm/hr	min	mm/hr	min	mm/hr
0:00	0	0:00	0	0:00	0
0:10	3.68	0:10	6.05	0:10	6:14
0:20	4.58	0:20	7.54	0:20	9.05
0:30	6.15	0:30	10.16	0:30	12.19
0:40	9.61	0:40	15.97	0:40	19.16
0:50	24.17	0:50	40.65	0:50	48.78
1:00	104.19	1:00	178.56	1:00	214.27
1:10	32.04	1:10	54.05	1:10	64.86
1:20	16.34	1:20	27.32	1:20	32.78
1:30	10.96	1:30	18.24	1:30	21.89
1:40	8.29	1:40	13.74	1:40	16.49
1:50	6.69	1:50	11.06	1:50	13.27
2:00	5.63	2:00	9.29	2:00	11.15
2:10	4.87	2:10	8.02	2:10	9.62
2:20	4.3	2:20	7.08	2:20	8.5
2:30	3.86	2:30	6.35	2:30	7.62
2:40	3.51	2:40	5.76	2:40	6.91
2:50	3.22	2:50	5.28	2:50	6.34
3:00	2.98	3:00	4.88	3:00	5.86

Provence Orleans Phase 5B
Design Storm Time Series Data
SCS Design Storms

NOVATECH
Engineers, Planners & Landscape Architects

S2-12.stm		S5-12.stm		S100-12.stm	
Duration	Intensity	Duration	Intensity	Duration	Intensity
min	mm/hr	min	mm/hr	min	mm/hr
0:00	0.00	0:00	0	0:00	0
0:30	1.27	0:30	1.69	0:30	2.82
1:00	0.59	1:00	0.79	1:00	1.31
1:30	1.10	1:30	1.46	1:30	2.44
2:00	1.10	2:00	1.46	2:00	2.44
2:30	1.44	2:30	1.91	2:30	3.19
3:00	1.27	3:00	1.69	3:00	2.82
3:30	1.69	3:30	2.25	3:30	3.76
4:00	1.69	4:00	2.25	4:00	3.76
4:30	2.29	4:30	3.03	4:30	5.07
5:00	2.88	5:00	3.82	5:00	6.39
5:30	4.57	5:30	6.07	5:30	10.14
6:00	36.24	6:00	48.08	6:00	80.38
6:30	9.23	6:30	12.25	6:30	20.47
7:00	4.06	7:00	5.39	7:00	9.01
7:30	2.71	7:30	3.59	7:30	6.01
8:00	2.37	8:00	3.15	8:00	5.26
8:30	1.86	8:30	2.47	8:30	4.13
9:00	1.95	9:00	2.58	9:00	4.32
9:30	1.27	9:30	1.69	9:30	2.82
10:00	1.02	10:00	1.35	10:00	2.25
10:30	1.44	10:30	1.91	10:30	3.19
11:00	0.93	11:00	1.24	11:00	2.07
11:30	0.85	11:30	1.12	11:30	1.88
12:00	0.85	12:00	1.12	12:00	1.88

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
--------------------------------------------------------------

Legault Phase 2 & 3 detailed design
Added Phase 4 detailed design
Added Phase 5 detailed design

WARNING 04: minimum elevation drop used for Conduit C167
WARNING 04: minimum elevation drop used for Conduit C170
WARNING 04: minimum elevation drop used for Conduit C29
WARNING 02: maximum depth increased for Node 01+090
WARNING 02: maximum depth increased for Node 01+412
WARNING 02: maximum depth increased for Node CB03-04
WARNING 02: maximum depth increased for Node CB06-07
WARNING 02: maximum depth increased for Node CB09-10
WARNING 02: maximum depth increased for Node CB15-16
WARNING 02: maximum depth increased for Node CB22-CBMH23
WARNING 02: maximum depth increased for Node CB24-CBMH25
WARNING 02: maximum depth increased for Node CB28-CBMH29
WARNING 02: maximum depth increased for Node CB30-CBMH31
WARNING 02: maximum depth increased for Node CB32-33
WARNING 02: maximum depth increased for Node CB36-37
WARNING 02: maximum depth increased for Node CB43-44
WARNING 02: maximum depth increased for Node CB45-46
WARNING 02: maximum depth increased for Node CB52-53
WARNING 02: maximum depth increased for Node CB76-77
WARNING 02: maximum depth increased for Node CB78-79
WARNING 02: maximum depth increased for Node CB80-81
WARNING 02: maximum depth increased for Node CB82-83
WARNING 02: maximum depth increased for Node CB86-87
WARNING 02: maximum depth increased for Node CB88-89
WARNING 02: maximum depth increased for Node CB90-91
WARNING 02: maximum depth increased for Node LCB-2-03
WARNING 02: maximum depth increased for Node LCB-2-05
WARNING 02: maximum depth increased for Node LCB-2-06
WARNING 02: maximum depth increased for Node LCB-2-07
WARNING 02: maximum depth increased for Node LCB-2-08
WARNING 02: maximum depth increased for Node LCB-2-09
WARNING 02: maximum depth increased for Node LCB-2-09A
WARNING 02: maximum depth increased for Node LCB-2-11
```

```
WARNING 02: maximum depth increased for Node LCB-2-12
WARNING 02: maximum depth increased for Node LCB-3-01
WARNING 02: maximum depth increased for Node LCB-3-03
WARNING 02: maximum depth increased for Node LCB-3-04
WARNING 02: maximum depth increased for Node LCB-3-05
WARNING 02: maximum depth increased for Node LCB-3-06
WARNING 02: maximum depth increased for Node LCB-3-07
WARNING 02: maximum depth increased for Node LCB-3-08
WARNING 02: maximum depth increased for Node LCB-3-09
WARNING 02: maximum depth increased for Node LCB-3-11
WARNING 02: maximum depth increased for Node LCB-3-12
WARNING 02: maximum depth increased for Node LCB-3-13
WARNING 02: maximum depth increased for Node LCB-3-15
WARNING 02: maximum depth increased for Node LCB-3-16
WARNING 02: maximum depth increased for Node LCB-3-17
WARNING 02: maximum depth increased for Node LCB-3-18
WARNING 02: maximum depth increased for Node LCB-3-19
WARNING 02: maximum depth increased for Node LCB-3-20
WARNING 02: maximum depth increased for Node LCB-3-24
WARNING 02: maximum depth increased for Node LCB-3-25
WARNING 02: maximum depth increased for Node LCB-3-29
WARNING 02: maximum depth increased for Node LCB-4-01
WARNING 02: maximum depth increased for Node LCB-4-02
WARNING 02: maximum depth increased for Node LCB-4-03
WARNING 02: maximum depth increased for Node LCB-4-04
WARNING 02: maximum depth increased for Node LCB-4-05
WARNING 02: maximum depth increased for Node LCB-4-05A
WARNING 02: maximum depth increased for Node LCB-4-06
WARNING 02: maximum depth increased for Node LCB-4-07
WARNING 02: maximum depth increased for Node LCB-4-08A
WARNING 02: maximum depth increased for Node LCB-4-15
WARNING 02: maximum depth increased for Node LCB-4-21
WARNING 02: maximum depth increased for Node LCB-4-22
WARNING 02: maximum depth increased for Node LCB-4-23
WARNING 02: maximum depth increased for Node LCB-4-23A
WARNING 02: maximum depth increased for Node LCB-4-24
WARNING 02: maximum depth increased for Node LCB-4-25
WARNING 02: maximum depth increased for Node LCB-4-25A
WARNING 02: maximum depth increased for Node LCB-4-26
WARNING 02: maximum depth increased for Node LCB-4-27
WARNING 02: maximum depth increased for Node LCB-4-28
```

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

```
WARNING 02: maximum depth increased for Node LCB-4-29
WARNING 02: maximum depth increased for Node LCB-4-42
WARNING 02: maximum depth increased for Node LCB-4-43
WARNING 02: maximum depth increased for Node LCB-4-45
WARNING 02: maximum depth increased for Node LCB-5-01
WARNING 02: maximum depth increased for Node LCB-5-02
WARNING 02: maximum depth increased for Node LCB-5-03
WARNING 02: maximum depth increased for Node LCB-5-05
WARNING 02: maximum depth increased for Node LCB-5-11
WARNING 02: maximum depth increased for Node LCB-5-17
WARNING 02: maximum depth increased for Node LCB-5-19
WARNING 02: maximum depth increased for Node LCB-5-21
WARNING 02: maximum depth increased for Node LCB-5-24
WARNING 02: maximum depth increased for Node CB-2-4_(CB)
WARNING 02: maximum depth increased for Node CB-3-5_(CB)

*************
Element Count
*************
Number of rain gages ...... 1
Number of subcatchments ... 74
Number of nodes ........... 456
Number of links ........... 656
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                 Data       Recording
Name                 Data Source                 Type       Interval
------------------------------------------------------------------------
Raingage1            03-C100yr-3hr               INTENSITY   10 min.


********************
Subcatchment Summary
********************
Name                         Area     Width   %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
```

```
2-00                     1.24    278.55     64.00    0.5000 Raingage1           2-00_Stor
2-01A                    0.08     30.70     69.00    3.0000 Raingage1           CB20-21
2-01B                    0.16     59.21     67.00    3.0000 Raingage1           CB18-19
2-02                     0.23     92.74     70.00    3.0000 Raingage1           CB15-16
2-03                     0.17     83.13     30.00    3.0000 Raingage1           LCB-2-08
2-04                     0.46    195.36     63.00    3.0000 Raingage1           CB45-46
2-05                     0.34    127.49     66.00    3.5000 Raingage1           CB12-13
2-06                     0.17    103.26     33.00    3.3000 Raingage1           LCB-2-14
2-07                     0.16    101.64     37.00    3.5000 Raingage1           LCB-2-11
2-08                     0.27     88.02     23.00    2.5000 Raingage1           LCB-2-05
2-09                     0.41    170.50     63.00    3.5000 Raingage1           CB43-44
2-10                     0.13     44.45     23.00    2.5000 Raingage1           LCB-2-02
2-11                     0.42    162.19     61.00    3.5000 Raingage1           CB41-42
2-12                     0.28    125.43     50.00    3.0000 Raingage1           LCB-3-19
2-13                     0.15    146.96     67.00    0.8000 Raingage1           CB09-10
3-01                     0.28     65.09     50.00    2.5000 Raingage1           LCB-3-16
3-02                     0.43    197.53     64.00    3.5000 Raingage1           CB56-57
3-03                     0.51    200.93     64.00    3.0000 Raingage1           CB06-07
3-04                     0.35    253.88     50.00    2.5000 Raingage1           LCB-3-28
3-05                     0.62    240.33     64.00    3.5000 Raingage1           CB03-04
3-06                     0.31    221.87     50.00    2.5000 Raingage1           LCB-3-21
3-07                     0.42    179.34     64.00    3.5000 Raingage1           CB54-55
3-08                     0.32    139.35     50.00    2.5000 Raingage1           LCB-3-14
3-09                     0.41    176.99     64.00    3.5000 Raingage1           CB52-53
3-10                     0.23     64.73     50.00    3.0000 Raingage1           LCB-3-11
3-11                     0.44    177.82     64.00    3.0000 Raingage1           CB50-51
3-12                     0.35     86.37     50.00    2.0000 Raingage1           LCB-3-06
3-13_1                   0.16     67.53     50.00    2.0000 Raingage1           J4
3-13_2                   0.07     38.46     50.00    2.0000 Raingage1           LCB-3-03
3-13_3                   0.10     55.32     50.00    2.0000 Raingage1           LCB-3-04
3-13_4                   0.07     39.55     50.00    2.0000 Raingage1           LCB-3-02
3-13_6                   0.04     27.06     50.00    2.0000 Raingage1           LCB-3-01
3-14                     0.12     48.02     64.00    4.5000 Raingage1           CB01-02
4A-01                    0.32    128.82     69.00    4.0000 Raingage1           CB74-CBMH75
4A-02                    0.52    289.87     56.00    3.0000 Raingage1           LCB-4-12
4A-03                    0.42    175.92     71.00    4.0000 Raingage1           CB72-CBMH73
4A-04                    0.36    148.54     71.00    4.0000 Raingage1           CB24-CBMH25
4A-05                    0.26    106.43     51.00    4.0000 Raingage1           CB68-CBMH69
4A-06                    0.32    126.66     61.00    4.0000 Raingage1           CB64-CBMH65
4A-07                    0.27    156.86     53.00    3.5000 Raingage1           LCB-4-16
4A-08                    0.30    195.83     51.00    3.0000 Raingage1           LCB-4-24
```

4A-09	0.39	157.06	69.00	3.5000	Raingage1	CB62-CBMH63
4A-10	0.38	233.53	51.00	3.5000	Raingage1	LCB-4-21
4A-11	0.38	245.48	50.00	3.5000	Raingage1	LCB-4-27
4A-12	0.27	104.21	66.00	4.0000	Raingage1	CB60-CBMH61
4A-13	0.39	254.82	57.00	3.0000	Raingage1	LCB-4-31
4A-14	0.34	138.66	70.00	4.0000	Raingage1	CB22-CBMH23
4B-01A	0.22	83.30	74.00	3.5000	Raingage1	CB30-CBMH31
4B-01B	0.21	93.13	70.00	4.0000	Raingage1	CB30-CBMH31
4B-02	0.26	149.70	61.00	4.0000	Raingage1	LCB-4-03
4B-03	0.31	135.49	71.00	3.5000	Raingage1	CB28-CBMH29
4B-04	0.35	140.56	69.00	4.0000	Raingage1	CB26-CBMH27
4B-05	0.28	175.53	51.00	3.5000	Raingage1	LCB-4-06
5A-01	0.26	66.04	71.00	4.0000	Raingage1	CB90-91
5A-02	0.31	189.54	54.00	5.5000	Raingage1	LCB-5-11
5A-03	0.38	157.81	73.00	4.0000	Raingage1	CB36-37
5A-04	0.40	161.94	51.00	2.5000	Raingage1	LCB-5-18
5A-05	0.22	59.20	69.00	3.5000	Raingage1	CB34-35
5A-06	0.14	70.06	59.00	5.0000	Raingage1	LCB-5-03
5A-07	0.27	116.42	73.00	4.0000	Raingage1	CB32-33
5B-01	0.34	159.35	70.00	3.5000	Raingage1	CB84-85
5B-02	0.20	126.25	57.00	4.0000	Raingage1	LCB-5-06
5B-03	0.40	159.40	73.00	3.5000	Raingage1	CB86-87
5B-04	0.38	163.71	71.00	3.5000	Raingage1	CB88-89
5B-05	0.28	73.77	73.00	3.0000	Raingage1	CB82-83
5B-06	0.39	169.13	74.00	4.0000	Raingage1	CB80-81
5B-07	0.42	202.33	54.00	3.5000	Raingage1	LCB-5-24
5B-08	0.46	166.22	74.00	3.5000	Raingage1	CB78-79
5B-09	0.22	75.77	67.00	3.5000	Raingage1	CB76-77
5B-10	0.40	71.75	14.00	2.0000	Raingage1	CBMH308
DR-1	0.03	10.11	20.00	3.0000	Raingage1	OF10
DR-2	0.04	86.85	0.00	12.0000	Raingage1	OF11
DR-5B	0.05	149.20	17.00	2.0000	Raingage1	OF14
OS-1	0.53	160.59	17.00	3.0000	Raingage1	DICB-4-40

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
01+066	JUNCTION	89.61	0.35	0.0	
01+090	JUNCTION	89.54	0.35	0.0	
01+198	JUNCTION	89.48	0.35	0.0	
01+306	JUNCTION	89.37	0.35	0.0	
01+387	JUNCTION	89.30	0.35	0.0	
01+412	JUNCTION	89.27	0.35	0.0	
01+494	JUNCTION	89.36	0.35	0.0	
01+517	JUNCTION	89.36	0.35	0.0	
01+568	JUNCTION	89.45	0.35	0.0	
01+610	JUNCTION	89.09	0.35	0.0	
02+012	JUNCTION	89.28	0.35	0.0	
02+075	JUNCTION	89.20	0.35	0.0	
02+085	JUNCTION	89.18	0.35	0.0	
02+157	JUNCTION	89.13	0.35	0.0	
02+167	JUNCTION	89.13	0.35	0.0	
03+013	JUNCTION	89.40	0.35	0.0	
03+065	JUNCTION	89.49	0.35	0.0	
03+125	JUNCTION	89.40	0.35	0.0	
03+137	JUNCTION	89.36	0.35	0.0	
04+090	JUNCTION	89.42	0.35	0.0	
04+190	JUNCTION	89.53	0.35	0.0	
05+105	JUNCTION	89.76	0.35	0.0	
05+194	JUNCTION	89.61	0.35	0.0	
05+287	JUNCTION	89.51	0.35	0.0	
06+089	JUNCTION	89.12	0.35	0.0	
06+166	JUNCTION	89.07	0.35	0.0	
06+243	JUNCTION	89.03	0.35	0.0	
06+328	JUNCTION	89.03	0.35	0.0	
06+413	JUNCTION	89.10	0.35	0.0	
07+091	JUNCTION	89.51	0.35	0.0	
07+175	JUNCTION	89.60	0.35	0.0	
07+260	JUNCTION	89.65	0.35	0.0	
07+342	JUNCTION	89.76	0.35	0.0	
07+428	JUNCTION	89.58	0.35	0.0	
07+509	JUNCTION	89.48	0.35	0.0	
07+591	JUNCTION	89.30	0.35	0.0	
07+605	JUNCTION	89.27	0.35	0.0	
07+670	JUNCTION	89.19	0.35	0.0	
07+683	JUNCTION	89.19	0.35	0.0	
07+765	JUNCTION	89.34	0.35	0.0	
07+847	JUNCTION	89.38	0.35	0.0	

CB01-02	JUNCTION	88.72	0.35	0.0
CB03-04	JUNCTION	87.97	1.58	0.0
CB06-07	JUNCTION	87.91	1.54	0.0
CB09-10	JUNCTION	87.84	1.60	0.0
CB12-13	JUNCTION	87.78	1.59	0.0
CB15-16	JUNCTION	87.91	1.55	0.0
CB18-19	JUNCTION	87.76	1.65	0.0
CB20-21	JUNCTION	88.89	0.35	0.0
CB22-CBMH23	JUNCTION	87.50	1.75	0.0
CB24-CBMH25	JUNCTION	87.50	1.69	0.0
CB26-CBMH27	JUNCTION	87.50	1.73	0.0
CB28-CBMH29	JUNCTION	87.58	1.67	0.0
CB30-CBMH31	JUNCTION	87.58	1.79	0.0
CB32-33	JUNCTION	87.75	1.71	0.0
CB34-35	JUNCTION	87.73	1.67	0.0
CB36-37	JUNCTION	87.81	1.56	0.0
CB41-42	JUNCTION	87.78	1.59	0.0
CB43-44	JUNCTION	87.91	1.56	0.0
CB45-46	JUNCTION	87.93	1.56	0.0
CB50-51	JUNCTION	88.09	1.50	0.0
CB52-53	JUNCTION	88.10	1.56	0.0
CB54-55	JUNCTION	88.01	1.55	0.0
CB56-57	JUNCTION	87.91	1.51	0.0
CB60-CBMH61	JUNCTION	87.49	1.66	0.0
CB62-CBMH63	JUNCTION	87.41	1.69	0.0
CB64-CBMH65	JUNCTION	87.41	1.68	0.0
CB68-CBMH69	JUNCTION	87.41	1.68	0.0
CB72-CBMH73	JUNCTION	87.43	1.67	0.0
CB74-CBMH75	JUNCTION	87.43	1.73	0.0
CB76-77	JUNCTION	87.86	1.55	0.0
CB78-79	JUNCTION	88.02	1.55	0.0
CB80-81	JUNCTION	88.09	1.55	0.0
CB82-83	JUNCTION	88.11	1.55	0.0
CB84-85	JUNCTION	88.08	1.55	0.0
CB86-87	JUNCTION	87.97	1.56	0.0
CB88-89	JUNCTION	87.81	1.55	0.0
CB90-91	JUNCTION	87.60	1.70	0.0
DICB-4-40	JUNCTION	86.81	1.47	0.0
HP-2-00_Stor	JUNCTION	89.70	0.35	0.0
J1	JUNCTION	88.85	0.40	0.0
J10	JUNCTION	89.57	0.40	0.0

J100	JUNCTION	88.95	0.40	0.0
J101	JUNCTION	89.16	0.40	0.0
J102	JUNCTION	88.94	0.40	0.0
J103	JUNCTION	89.15	0.40	0.0
J104	JUNCTION	88.94	0.40	0.0
J105	JUNCTION	89.25	0.40	0.0
J106	JUNCTION	89.30	0.40	0.0
J107	JUNCTION	89.07	0.40	0.0
J108	JUNCTION	89.28	0.40	0.0
J109	JUNCTION	89.05	0.40	0.0
J11	JUNCTION	89.58	0.40	0.0
J110	JUNCTION	89.27	0.40	0.0
J111	JUNCTION	89.06	0.40	0.0
J112	JUNCTION	89.07	0.40	0.0
J113	JUNCTION	89.07	0.40	0.0
J114	JUNCTION	89.07	0.40	0.0
J115	JUNCTION	89.35	0.40	0.0
J116	JUNCTION	88.82	0.40	0.0
J117	JUNCTION	88.64	0.40	0.0
J118	JUNCTION	88.48	0.40	0.0
J119	JUNCTION	88.75	0.40	0.0
J12	JUNCTION	89.60	0.40	0.0
J120	JUNCTION	88.47	0.40	0.0
J121	JUNCTION	88.75	0.40	0.0
J122	JUNCTION	88.49	0.40	0.0
J123	JUNCTION	88.50	0.40	0.0
J124	JUNCTION	88.50	0.40	0.0
J125	JUNCTION	88.75	0.40	0.0
J126	JUNCTION	88.44	0.40	0.0
J127	JUNCTION	88.75	0.40	0.0
J128	JUNCTION	89.33	0.40	0.0
J129	JUNCTION	89.13	0.40	0.0
J13	JUNCTION	89.60	0.40	0.0
J130	JUNCTION	89.16	0.40	0.0
J131	JUNCTION	89.27	0.40	0.0
J132	JUNCTION	88.13	0.40	0.0
J133	JUNCTION	87.95	0.40	0.0
J134	JUNCTION	87.92	0.40	0.0
J135	JUNCTION	87.92	0.40	0.0
J136	JUNCTION	88.39	0.40	0.0
J137	JUNCTION	88.42	0.40	0.0

J138	JUNCTION	88.30	0.40	0.0
J139	JUNCTION	89.39	0.40	0.0
J14	JUNCTION	89.70	0.40	0.0
J140	JUNCTION	89.55	0.40	0.0
J141	JUNCTION	89.55	0.40	0.0
J142	JUNCTION	89.42	0.40	0.0
J143	JUNCTION	89.46	0.40	0.0
J144	JUNCTION	89.50	0.40	0.0
J145	JUNCTION	89.36	0.40	0.0
J146	JUNCTION	89.24	0.40	0.0
J147	JUNCTION	89.51	0.40	0.0
J148	JUNCTION	89.29	0.40	0.0
J149	JUNCTION	89.40	0.40	0.0
J15	JUNCTION	89.72	0.40	0.0
J150	JUNCTION	89.70	0.40	0.0
J151	JUNCTION	89.39	0.40	0.0
J152	JUNCTION	89.65	0.40	0.0
J153	JUNCTION	89.47	0.40	0.0
J154	JUNCTION	89.60	0.40	0.0
J155	JUNCTION	89.43	0.40	0.0
J156	JUNCTION	89.56	0.40	0.0
J157	JUNCTION	89.46	0.40	0.0
J158	JUNCTION	89.65	0.40	0.0
J159	JUNCTION	88.91	0.40	0.0
J16	JUNCTION	89.66	0.40	0.0
J160	JUNCTION	88.82	0.40	0.0
J161	JUNCTION	88.80	0.40	0.0
J162	JUNCTION	88.71	0.40	0.0
J163	JUNCTION	88.83	0.40	0.0
J164	JUNCTION	88.88	0.40	0.0
J165	JUNCTION	88.64	0.40	0.0
J166	JUNCTION	88.67	0.40	0.0
J167	JUNCTION	88.70	0.40	0.0
J168	JUNCTION	88.60	0.40	0.0
J169	JUNCTION	88.61	0.40	0.0
J17	JUNCTION	89.45	0.40	0.0
J170	JUNCTION	88.73	0.40	0.0
J171	JUNCTION	88.65	0.40	0.0
J172	JUNCTION	88.85	0.40	0.0
J173	JUNCTION	89.75	0.40	0.0
J18	JUNCTION	89.40	0.45	0.0
J19	JUNCTION	89.40	0.45	0.0
J2	JUNCTION	89.20	0.40	0.0
J20	JUNCTION	89.60	0.40	0.0
J21	JUNCTION	89.61	0.44	0.0
J22	JUNCTION	89.40	0.45	0.0
J23	JUNCTION	89.40	0.45	0.0
J24	JUNCTION	89.40	0.45	0.0
J25	JUNCTION	89.45	0.40	0.0
J26	JUNCTION	89.45	0.40	0.0
J27	JUNCTION	89.45	0.40	0.0
J28	JUNCTION	89.57	0.40	0.0
J29	JUNCTION	89.57	0.40	0.0
J3	JUNCTION	89.55	0.40	0.0
J30	JUNCTION	89.58	0.40	0.0
J31	JUNCTION	89.55	0.40	0.0
J32	JUNCTION	89.48	0.40	0.0
J33	JUNCTION	89.50	0.40	0.0
J34	JUNCTION	89.52	0.40	0.0
J35	JUNCTION	89.52	0.40	0.0
J36	JUNCTION	89.58	0.40	0.0
J37	JUNCTION	89.45	0.40	0.0
J38	JUNCTION	89.45	0.40	0.0
J39	JUNCTION	89.30	0.40	0.0
J4	JUNCTION	89.60	0.40	0.0
J40	JUNCTION	89.45	0.40	0.0
J41	JUNCTION	89.45	0.40	0.0
J42	JUNCTION	89.94	0.40	0.0
J43	JUNCTION	90.00	0.40	0.0
J44	JUNCTION	89.50	0.40	0.0
J45	JUNCTION	89.93	0.40	0.0
J46	JUNCTION	89.47	0.40	0.0
J47	JUNCTION	89.50	0.40	0.0
J48	JUNCTION	89.63	0.40	0.0
J49	JUNCTION	89.62	0.40	0.0
J5	JUNCTION	89.59	0.40	0.0
J50	JUNCTION	89.60	0.40	0.0
J51	JUNCTION	89.61	0.40	0.0
J52	JUNCTION	89.95	0.40	0.0
J53	JUNCTION	89.80	0.40	0.0
J54	JUNCTION	88.60	0.40	0.0
J55	JUNCTION	90.05	0.40	0.0

J56	JUNCTION	90.24	0.40	0.0
J57	JUNCTION	89.99	0.40	0.0
J58	JUNCTION	89.46	0.40	0.0
J59	JUNCTION	89.30	0.40	0.0
J6	JUNCTION	89.57	0.40	0.0
J60	JUNCTION	89.35	0.40	0.0
J61	JUNCTION	89.35	0.40	0.0
J62	JUNCTION	89.35	0.40	0.0
J63	JUNCTION	89.18	0.40	0.0
J64	JUNCTION	89.34	0.35	0.0
J65	JUNCTION	89.05	0.35	0.0
J66	JUNCTION	89.38	0.40	0.0
J67	JUNCTION	89.20	0.40	0.0
J68	JUNCTION	89.41	0.40	0.0
J69	JUNCTION	89.19	0.40	0.0
J7	JUNCTION	89.56	0.40	0.0
J70	JUNCTION	89.19	0.40	0.0
J71	JUNCTION	89.44	0.40	0.0
J72	JUNCTION	89.20	0.40	0.0
J73	JUNCTION	89.47	0.40	0.0
J74	JUNCTION	89.50	0.40	0.0
J75	JUNCTION	89.18	0.40	0.0
J76	JUNCTION	88.97	0.40	0.0
J77	JUNCTION	89.01	0.40	0.0
J78	JUNCTION	89.19	0.40	0.0
J79	JUNCTION	89.25	0.40	0.0
J8	JUNCTION	89.55	0.40	0.0
J80	JUNCTION	89.19	0.40	0.0
J81	JUNCTION	88.99	0.40	0.0
J82	JUNCTION	89.00	0.40	0.0
J83	JUNCTION	89.20	0.40	0.0
J84	JUNCTION	88.98	0.40	0.0
J85	JUNCTION	88.99	0.40	0.0
J86	JUNCTION	89.00	0.40	0.0
J87	JUNCTION	89.25	0.40	0.0
J88	JUNCTION	89.30	0.40	0.0
J89	JUNCTION	88.97	0.40	0.0
J9	JUNCTION	89.50	0.40	0.0
J90	JUNCTION	89.21	0.40	0.0
J91	JUNCTION	88.95	0.40	0.0
J92	JUNCTION	89.20	0.40	0.0
J93	JUNCTION	89.01	0.40	0.0
J94	JUNCTION	88.96	0.40	0.0
J95	JUNCTION	89.22	0.40	0.0
J96	JUNCTION	88.95	0.40	0.0
J97	JUNCTION	88.97	0.40	0.0
J98	JUNCTION	89.23	0.40	0.0
J99	JUNCTION	88.96	0.40	0.0
LCB-2-01	JUNCTION	88.10	1.35	0.0
LCB-2-02	JUNCTION	87.94	1.51	0.0
LCB-2-03	JUNCTION	88.15	1.31	0.0
LCB-2-05	JUNCTION	87.89	1.57	0.0
LCB-2-06	JUNCTION	88.00	1.90	0.0
LCB-2-07	JUNCTION	88.19	1.31	0.0
LCB-2-08	JUNCTION	87.94	1.61	0.0
LCB-2-09	JUNCTION	88.20	1.35	0.0
LCB-2-09A	JUNCTION	88.08	1.47	0.0
LCB-2-10	JUNCTION	88.09	1.49	0.0
LCB-2-11	JUNCTION	88.02	1.58	0.0
LCB-2-12	JUNCTION	87.94	1.68	0.0
LCB-2-13	JUNCTION	88.10	1.55	0.0
LCB-2-14	JUNCTION	88.02	1.66	0.0
LCB-2-15	JUNCTION	87.89	1.81	0.0
LCB-3-01	JUNCTION	87.50	1.38	0.0
LCB-3-02	JUNCTION	87.72	1.33	0.0
LCB-3-03	JUNCTION	87.83	1.57	0.0
LCB-3-04	JUNCTION	87.94	1.66	0.0
LCB-3-05	JUNCTION	87.97	1.66	0.0
LCB-3-06	JUNCTION	87.85	1.75	0.0
LCB-3-07	JUNCTION	88.00	1.60	0.0
LCB-3-08	JUNCTION	88.16	1.44	0.0
LCB-3-09	JUNCTION	88.20	1.60	0.0
LCB-3-10	JUNCTION	88.09	1.56	0.0
LCB-3-11	JUNCTION	87.91	1.74	0.0
LCB-3-12	JUNCTION	88.20	1.85	0.0
LCB-3-13	JUNCTION	88.20	1.51	0.0
LCB-3-14	JUNCTION	87.92	1.80	0.0
LCB-3-15	JUNCTION	88.21	1.51	0.0
LCB-3-16	JUNCTION	87.78	1.74	0.0
LCB-3-17	JUNCTION	88.05	1.90	0.0
LCB-3-18	JUNCTION	87.95	1.60	0.0
LCB-3-19	JUNCTION	87.73	1.83	0.0

LCB-3-20	JUNCTION	87.64	1.91	0.0
LCB-3-21	JUNCTION	87.98	1.72	0.0
LCB-3-22	JUNCTION	88.12	1.58	0.0
LCB-3-23	JUNCTION	88.01	1.69	0.0
LCB-3-24	JUNCTION	88.24	1.45	0.0
LCB-3-25	JUNCTION	88.15	1.45	0.0
LCB-3-26	JUNCTION	87.95	1.62	0.0
LCB-3-27	JUNCTION	87.86	1.72	0.0
LCB-3-28	JUNCTION	87.72	2.08	0.0
LCB-3-29	JUNCTION	87.65	1.92	0.0
LCB-4-01	JUNCTION	87.42	1.35	0.0
LCB-4-02	JUNCTION	87.33	1.44	0.0
LCB-4-03	JUNCTION	87.25	1.52	0.0
LCB-4-04	JUNCTION	87.32	1.45	0.0
LCB-4-05	JUNCTION	87.73	1.73	0.0
LCB-4-05A	JUNCTION	87.61	1.85	0.0
LCB-4-06	JUNCTION	87.50	1.96	0.0
LCB-4-07	JUNCTION	88.04	1.37	0.0
LCB-4-08	JUNCTION	87.92	1.48	0.0
LCB-4-08A	JUNCTION	87.82	1.58	0.0
LCB-4-09	JUNCTION	87.78	1.62	0.0
LCB-4-11	JUNCTION	87.68	1.72	0.0
LCB-4-12	JUNCTION	87.55	1.86	0.0
LCB-4-13	JUNCTION	87.76	1.53	0.0
LCB-4-15	JUNCTION	87.71	1.58	0.0
LCB-4-16	JUNCTION	87.58	1.71	0.0
LCB-4-17	JUNCTION	87.88	1.43	0.0
LCB-4-18	JUNCTION	87.74	1.57	0.0
LCB-4-20	JUNCTION	87.70	1.61	0.0
LCB-4-21	JUNCTION	87.55	1.77	0.0
LCB-4-22	JUNCTION	87.72	1.61	0.0
LCB-4-23	JUNCTION	87.61	1.72	0.0
LCB-4-23A	JUNCTION	87.51	1.82	0.0
LCB-4-24	JUNCTION	87.42	1.91	0.0
LCB-4-25	JUNCTION	87.86	1.46	0.0
LCB-4-25A	JUNCTION	87.77	1.55	0.0
LCB-4-26	JUNCTION	87.67	1.65	0.0
LCB-4-27	JUNCTION	87.50	1.82	0.0
LCB-4-28	JUNCTION	87.64	1.68	0.0
LCB-4-29	JUNCTION	88.02	1.52	0.0
LCB-4-30	JUNCTION	87.92	1.62	0.0
LCB-4-31	JUNCTION	87.76	1.78	0.0
LCB-4-32	JUNCTION	87.93	1.60	0.0
LCB-4-41	JUNCTION	86.87	1.41	0.0
LCB-4-42	JUNCTION	86.85	1.43	0.0
LCB-4-43	JUNCTION	86.89	1.39	0.0
LCB-4-44	JUNCTION	86.92	1.83	0.0
LCB-4-45	JUNCTION	86.97	1.33	0.0
LCB-5-01	JUNCTION	88.15	1.45	0.0
LCB-5-02	JUNCTION	88.05	1.66	0.0
LCB-5-03	JUNCTION	88.00	1.60	0.0
LCB-5-04	JUNCTION	87.74	1.26	0.0
LCB-5-05	JUNCTION	87.63	1.37	0.0
LCB-5-06	JUNCTION	87.50	1.50	0.0
LCB-5-07	JUNCTION	87.66	1.34	0.0
LCB-5-08	JUNCTION	87.40	1.50	0.0
LCB-5-09	JUNCTION	87.34	1.56	0.0
LCB-5-10	JUNCTION	87.29	1.61	0.0
LCB-5-11	JUNCTION	87.21	1.69	0.0
LCB-5-12	JUNCTION	87.33	1.57	0.0
LCB-5-13	JUNCTION	87.40	1.50	0.0
LCB-5-14	JUNCTION	88.06	1.52	0.0
LCB-5-15	JUNCTION	87.95	1.63	0.0
LCB-5-17	JUNCTION	87.91	1.67	0.0
LCB-5-18	JUNCTION	87.68	1.90	0.0
LCB-5-19	JUNCTION	88.24	1.47	0.0
LCB-5-20	JUNCTION	88.15	1.56	0.0
LCB-5-21	JUNCTION	88.04	1.67	0.0
LCB-5-23	JUNCTION	87.98	1.73	0.0
LCB-5-24	JUNCTION	87.80	1.91	0.0
RAP-5-16	JUNCTION	87.76	2.09	0.0
RAP-5-22	JUNCTION	87.89	2.11	0.0
RYT-4-10	JUNCTION	87.62	2.06	0.0
RYT-4-14	JUNCTION	87.65	1.89	0.0
RYT-4-19	JUNCTION	87.62	1.98	0.0
RYT-4-27A	JUNCTION	87.56	1.85	0.0
098	OUTFALL	81.27	2.71	0.0
OF01	OUTFALL	88.64	0.35	0.0
OF02	OUTFALL	88.88	0.35	0.0
OF03	OUTFALL	88.67	0.40	0.0
OF04	OUTFALL	89.25	0.40	0.0
OF05	OUTFALL	89.10	0.40	0.0

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

OF06	OUTFALL	89.05	0.41	0.0
OF07	OUTFALL	88.97	0.13	0.0
OF08	OUTFALL	88.71	0.40	0.0
OF09	OUTFALL	88.25	0.40	0.0
OF10	OUTFALL	88.60	0.00	0.0
OF11	OUTFALL	89.00	0.00	0.0
OF12	OUTFALL	88.71	0.40	0.0
OF13	OUTFALL	89.00	0.40	0.0
OF14	OUTFALL	0.00	0.00	0.0
2-00_Stor	STORAGE	87.95	1.75	0.0
CB-2-1_(CB)	STORAGE	87.69	1.73	0.0
CB-2-2_(CB)	STORAGE	87.71	1.81	0.0
CB-2-3_(CB)	STORAGE	87.70	1.73	0.0
CB-2-4_(CB)	STORAGE	87.38	2.24	0.0
CB-2-5_(CB)	STORAGE	87.50	2.24	0.0
CB-3-1_(CB)	STORAGE	87.66	2.09	0.0
CB-3-2_(CB)	STORAGE	87.66	1.73	0.0
CB-3-3_(CB)	STORAGE	87.53	1.96	0.0
CB-3-4_(CB)	STORAGE	87.26	1.70	0.0
CB-3-5_(CB)	STORAGE	87.44	2.53	0.0
CB-3-6_(CB)	STORAGE	87.59	2.02	0.0
CB-3-7_(CB)	STORAGE	87.49	2.31	0.0
CB-3-8_(CB)	STORAGE	87.54	2.13	0.0
CB-4-02	STORAGE	87.23	1.78	0.0
CB-4-04	STORAGE	87.30	1.77	0.0
CB-4-05	STORAGE	87.42	1.65	0.0
CB-5-01	STORAGE	87.77	2.26	0.0
CB-5-04	STORAGE	87.69	2.40	0.0
CB-5-05	STORAGE	87.54	2.22	0.0
CBMH308	STORAGE	86.96	2.89	0.0
CBMH-4-01	STORAGE	86.75	2.31	0.0
CBMH-4-03	STORAGE	86.68	2.49	0.0
CBMH-4-06	STORAGE	86.85	2.32	0.0
CBMH-4-07	STORAGE	86.77	2.57	0.0
CBMH-4-08	STORAGE	86.77	2.41	0.0
CBMH-5-02	STORAGE	87.33	2.80	0.0
CBMH-5-03	STORAGE	86.98	2.92	0.0
MH100	STORAGE	82.59	7.03	0.0
MH102	STORAGE	82.64	6.80	0.0
MH104	STORAGE	82.76	6.70	0.0
MH106	STORAGE	82.87	6.48	0.0
MH108	STORAGE	83.00	6.44	0.0
MH110	STORAGE	84.59	4.78	0.0
MH112	STORAGE	85.22	3.98	0.0
MH114	STORAGE	85.39	4.13	0.0
MH116	STORAGE	85.54	3.80	0.0
MH118	STORAGE	86.34	2.70	0.0
MH200	STORAGE	85.15	3.93	0.0
MH200A	STORAGE	85.07	4.06	0.0
MH202	STORAGE	85.29	4.00	0.0
MH204	STORAGE	85.64	3.60	0.0
MH206	STORAGE	85.98	3.32	0.0
MH300	STORAGE	85.12	4.22	0.0
MH300A	STORAGE	84.72	4.66	0.0
MH302	STORAGE	85.60	3.89	0.0
MH304	STORAGE	86.12	3.26	0.0
MH400	STORAGE	86.44	2.91	0.0
MH402	STORAGE	86.58	2.82	0.0
MH404	STORAGE	86.82	2.38	0.0
MH406	STORAGE	86.65	2.89	0.0
MH408	STORAGE	86.50	2.94	0.0
MH500	STORAGE	85.91	3.45	0.0
MH502	STORAGE	86.07	3.58	0.0
MH504	STORAGE	86.20	3.56	0.0
MH506	STORAGE	86.37	3.05	0.0
MH508	STORAGE	86.62	2.89	0.0
MH510	STORAGE	86.55	2.93	0.0
MH512	STORAGE	86.40	2.95	0.0
MH602	STORAGE	85.80	3.11	0.0
MH604	STORAGE	86.09	2.77	0.0
MH606	STORAGE	86.31	2.63	0.0
MH608	STORAGE	86.65	2.37	0.0
MH610	STORAGE	86.56	2.53	0.0
MH612	STORAGE	86.11	3.01	0.0
MH614	STORAGE	85.96	2.96	0.0
MH700	STORAGE	85.98	3.54	0.0
MH702	STORAGE	86.24	3.38	0.0
MH704	STORAGE	86.58	3.00	0.0
MH706	STORAGE	86.80	2.79	0.0
MH708	STORAGE	87.03	2.77	0.0
MH710	STORAGE	87.04	2.58	0.0
MH712	STORAGE	86.68	2.94	0.0

MH714	STORAGE	86.32	3.09	0.0
MH716	STORAGE	86.16	2.88	0.0
MH718	STORAGE	86.37	2.97	0.0
MH720	STORAGE	86.60	2.89	0.0
MHx1000	STORAGE	85.72	3.63	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
100-098	MH100	098	CONDUIT	66.0	0.1971	0.0130
102-100	MH102	MH100	CONDUIT	28.6	0.1398	0.0130
104-102	MH104	MH102	CONDUIT	75.0	0.1468	0.0130
106-104	MH106	MH104	CONDUIT	66.1	0.1514	0.0130
108-106	MH108	MH106	CONDUIT	77.1	0.1555	0.0130
110-108	MH110	MH108	CONDUIT	75.5	0.1457	0.0130
112-110	MH112	MH110	CONDUIT	54.2	0.1660	0.0130
114-112	MH114	MH112	CONDUIT	53.1	0.1505	0.0130
116-114	MH116	MH114	CONDUIT	42.9	0.1631	0.0130
118-116	MH118	MH116	CONDUIT	85.7	0.5015	0.0130
200-200A	MH200	MH200A	CONDUIT	37.4	0.1337	0.0130
200A-110	MH200A	MH110	CONDUIT	13.0	0.2307	0.0130
202-200	MH202	MH200	CONDUIT	25.2	0.1984	0.0130
204-202	MH204	MH202	CONDUIT	83.8	0.2387	0.0130
206-204	MH206	MH204	CONDUIT	82.6	0.1936	0.0130
206-304	MH206	MH304	CONDUIT	77.0	0.4543	0.0130
300-300A	MH300	MH300A	CONDUIT	27.4	1.4618	0.0130
300A-108	MH300A	MH108	CONDUIT	11.6	0.1721	0.0130
302-300	MH302	MH300	CONDUIT	83.4	0.3958	0.0130
304-302	MH304	MH302	CONDUIT	92.2	0.4013	0.0130
400-110	MH400	MH110	CONDUIT	76.2	0.5775	0.0130
402-400	MH402	MH400	CONDUIT	12.9	0.4668	0.0130
404-402	MH404	MH402	CONDUIT	59.1	0.3386	0.0130
404-408	MH404	MH406	CONDUIT	54.7	0.4022	0.0130
406-408	MH406	MH408	CONDUIT	16.6	0.4819	0.0130
408-114	MH408	MH114	CONDUIT	82.1	0.6089	0.0130
500-100	MH500	MH100	CONDUIT	26.6	0.2628	0.0130
502-500	MH502	MH500	CONDUIT	55.3	0.2531	0.0130
504-502	MH504	MH502	CONDUIT	12.3	0.4867	0.0130
508-504	MH506	MH504	CONDUIT	56.1	0.2498	0.0130
508-506	MH508	MH506	CONDUIT	61.6	0.2921	0.0130
508-510	MH508	MH510	CONDUIT	79.3	0.3658	0.0130
510-512	MH510	MH512	CONDUIT	15.6	0.4483	0.0130
512-108	MH512	MH108	CONDUIT	74.6	0.5495	0.0130
602-202	MH602	MH202	CONDUIT	101.2	0.1976	0.0130
604-602	MH604	MH602	CONDUIT	104.0	0.2019	0.0130
606-604	MH606	MH604	CONDUIT	13.7	0.5122	0.0130
608-606	MH608	MH606	CONDUIT	76.5	0.3399	0.0130
610-612	MH610	MH612	CONDUIT	73.6	0.3938	0.0130
612-614	MH612	MH614	CONDUIT	63.0	0.1904	0.0130
614-204	MH614	MH204	CONDUIT	37.6	0.2128	0.0130
700-302	MH700	MH302	CONDUIT	85.7	0.2100	0.0130
702-700	MH702	MH700	CONDUIT	73.3	0.2456	0.0130
704-702	MH704	MH702	CONDUIT	104.6	0.2487	0.0130
706-704	MH706	MH704	CONDUIT	16.0	0.5012	0.0130
708-706	MH708	MH706	CONDUIT	58.8	0.3571	0.0130
710-712	MH710	MH712	CONDUIT	69.1	0.2893	0.0130
712-714	MH712	MH714	CONDUIT	96.1	0.2914	0.0130
714-304	MH714	MH304	CONDUIT	71.5	0.1958	0.0130
716-206	MH716	MH206	CONDUIT	46.2	0.1948	0.0130
718-716	MH718	MH716	CONDUIT	45.8	0.3058	0.0130
720-718	MH720	MH718	CONDUIT	71.9	0.3198	0.0130
C1	01+066	CB01-02	CONDUIT	31.0	2.8694	0.0160
C10	05+105	CB50-51	CONDUIT	57.0	0.9123	0.0160
C100	J27	LCB-2-09	CONDUIT	14.5	2.0648	0.0350
C101	J54	OF03	CONDUIT	8.9	-0.7897	0.0350
C102	J54	LCB-3-01	CONDUIT	15.4	0.7798	0.0350
C103	J1	LCB-3-01	CONDUIT	13.5	2.7479	0.0350
C104	J1	LCB-3-02	CONDUIT	11.6	1.7220	0.0350
C105	J2	LCB-3-02	CONDUIT	13.0	4.2477	0.0350
C106	J2	LCB-3-03	CONDUIT	11.2	1.7897	0.0350
C107	J3	LCB-3-03	CONDUIT	13.9	3.9717	0.0350
C108	J3	LCB-3-04	CONDUIT	10.6	3.3040	0.0350
C109	J4	LCB-3-04	CONDUIT	24.6	1.6262	0.0350
C11	05+105	CB52-53	CONDUIT	45.0	1.0011	0.0160
C110	J4	LCB-3-05	CONDUIT	20.7	1.7888	0.0350
C111	J5	LCB-3-05	CONDUIT	24.4	1.4769	0.0350
C112	J5	LCB-3-06	CONDUIT	21.8	1.7926	0.0350
C113	J6	LCB-3-06	CONDUIT	13.1	2.8215	0.0350
C114	J6	LCB-3-07	CONDUIT	11.5	3.2275	0.0350

C115	J7	LCB-3-07	CONDUIT	15.2	2.3749	0.0350
C116	J7	LCB-3-08	CONDUIT	18.2	1.9748	0.0350
C117	J8	LCB-3-08	CONDUIT	22.6	1.5462	0.0350
C118	J57	LCB-3-06	CONDUIT	21.3	3.7108	0.0350
C119	J57	01+198	CONDUIT	42.7	1.1948	0.0350
C12	05+194	CB52-53	CONDUIT	45.2	0.6633	0.0160
C120	J21	LCB-2-03	CONDUIT	39.7	1.3868	0.0350
C121	J53	CB-3-5_(CB)	CONDUIT	6.9	3.3207	0.0350
C122	J53	LCB-3-21	CONDUIT	29.8	1.6758	0.0350
C123	J49	LCB-3-21	CONDUIT	14.4	2.2208	0.0350
C124	J51	LCB-3-21	CONDUIT	14.7	2.1066	0.0350
C125	J51	LCB-3-22	CONDUIT	14.5	2.1434	0.0350
C126	J50	LCB-3-22	CONDUIT	7.5	3.9952	0.0350
C127	J50	CB52-53	CONDUIT	21.3	1.3634	0.0350
C128	J49	LCB-3-23	CONDUIT	13.7	2.3422	0.0350
C129	J48	LCB-3-23	CONDUIT	15.7	2.1021	0.0350
C13	05+194	CB54-55	CONDUIT	54.1	0.7394	0.0160
C130	J48	LCB-3-24	CONDUIT	14.1	2.4093	0.0350
C131	J47	LCB-3-24	CONDUIT	15.5	1.3591	0.0350
C132	J47	LCB-3-25	CONDUIT	15.1	1.9885	0.0350
C133	J46	LCB-3-25	CONDUIT	23.4	1.1540	0.0350
C134	J46	LCB-3-26	CONDUIT	19.0	1.5809	0.0350
C135	LCB-3-28	LCB-3-26	CONDUIT	30.0	0.7656	0.0350
C136	LCB-3-28	LCB-3-27	CONDUIT	17.0	1.2967	0.0350
C137	J41	LCB-3-27	CONDUIT	18.0	1.5024	0.0350
C138	J41	CB54-55	CONDUIT	18.7	1.2840	0.0350
C139	LCB-3-28	LCB-3-29	CONDUIT	16.6	1.3873	0.0350
C14	05+287	CB54-55	CONDUIT	39.0	0.7700	0.0160
C140	J44	LCB-3-29	CONDUIT	16.2	2.0391	0.0350
C141	J44	CB-3-7_(CB)	CONDUIT	5.6	1.7940	0.0350
C142	J56	05+105	CONDUIT	35.3	1.3592	0.0350
C143	J56	LCB-3-11	CONDUIT	20.3	4.8747	0.0350
C144	J55	CB52-53	CONDUIT	41.0	1.8072	0.0350
C145	J55	LCB-3-14	CONDUIT	21.2	3.5343	0.0350
C146	J58	LCB-2-09	CONDUIT	2.1	15.2143	0.0350
C147	J58	CB15-16	CONDUIT	6.3	5.6007	0.0350
C148	LCB-3-12	OF04	CONDUIT	8.3	4.8220	0.0350
C149	LCB-3-17	OF05	CONDUIT	10.8	4.1796	0.0350
C15	05+287	CB56-57	CONDUIT	46.3	0.9502	0.0160
C150	LCB-2-06	OF06	CONDUIT	8.7	5.0488	0.0350
C151	02+075	CB22-CBMH23	CONDUIT	38.8	0.7742	0.0160
C151_1	03+013	01+306	CONDUIT	21.0	0.1426	0.0160
C152	02+075	02+085	CONDUIT	12.5	0.1595	0.0160
C153	02+085	CB60-CBMH61	CONDUIT	34.3	1.1093	0.0160
C154	06+089	CB60-CBMH61	CONDUIT	42.5	0.7532	0.0160
C155	06+089	CB62-CBMH63	CONDUIT	30.8	1.2013	0.0160
C156	06+166	CB62-CBMH63	CONDUIT	45.6	0.7013	0.0160
C157	06+166	CB64-CBMH65	CONDUIT	31.2	1.0569	0.0160
C158	06+243	CB64-CBMH65	CONDUIT	39.8	0.7291	0.0160
C159	06+243	CB68-CBMH69	CONDUIT	42.4	0.6843	0.0160
C16	04+090	CB41-42	CONDUIT	52.6	0.7611	0.0160
C160	06+328	CB68-CBMH69	CONDUIT	36.4	0.7958	0.0160
C161	06+328	CB72-CBMH73	CONDUIT	32.3	0.8677	0.0160
C162	06+413	CB72-CBMH73	CONDUIT	53.2	0.6576	0.0160
C163	06+413	CB74-CBMH75	CONDUIT	41.4	0.7009	0.0160
C164	02+157	CB74-CBMH75	CONDUIT	43.4	0.7368	0.0160
C165	02+085	CB24-CBMH25	CONDUIT	41.4	0.8218	0.0160
C166	02+157	CB24-CBMH25	CONDUIT	26.7	1.0848	0.0160
C167	02+167	02+157	CONDUIT	12.8	0.0024	0.0160
C168	02+167	CB26-CBMH27	CONDUIT	40.0	0.6251	0.0160
C169	07+683	CB26-CBMH27	CONDUIT	32.4	0.9555	0.0160
C17	04+090	CB43-44	CONDUIT	47.9	0.6262	0.0160
C170	07+670	07+683	CONDUIT	13.1	0.0023	0.0160
C171	07+683	CB28-CBMH29	CONDUIT	30.1	0.9624	0.0160
C172	07+765	CB28-CBMH29	CONDUIT	42.3	1.0399	0.0160
C173	07+765	CB30-CBMH31	CONDUIT	47.4	0.6751	0.0160
C174	07+847	CB30-CBMH31	CONDUIT	35.3	1.0198	0.0160
C175	J65	CB68-CBMH69	CONDUIT	23.8	1.3024	0.0350
C176	J65	OF07	CONDUIT	7.0	1.1449	0.0350
C177	J66	CB09-10	CONDUIT	23.0	1.4787	0.0350
C178	J66	LCB-4-32	CONDUIT	9.7	2.5864	0.0350
C179	J67	LCB-4-32	CONDUIT	14.1	0.4976	0.0350
C18	04+190	CB43-44	CONDUIT	50.8	0.8068	0.0160
C180	J68	J67	CONDUIT	10.1	2.0739	0.0350
C181	J68	J69	CONDUIT	7.3	3.0035	0.0350
C182	J69	LCB-4-31	CONDUIT	9.6	0.5211	0.0350
C183	J70	LCB-4-31	CONDUIT	11.1	0.4491	0.0350
C184	J71	J70	CONDUIT	7.0	3.5493	0.0350
C185	J71	J72	CONDUIT	10.1	2.3671	0.0350
C186	J72	LCB-4-30	CONDUIT	12.1	0.4969	0.0350
C187	J73	LCB-4-30	CONDUIT	11.9	2.7646	0.0350
C188	J73	LCB-4-29	CONDUIT	13.7	2.4061	0.0350

C189	J74	LCB-4-29	CONDUIT	13.1	2.7443	0.0350
C19	04+190	CB45-46	CONDUIT	63.2	0.6169	0.0160
C190	J75	CB60-CBMH61	CONDUIT	14.8	2.5615	0.0350
C191	J75	LCB-4-27	CONDUIT	15.4	1.6845	0.0350
C192	J76	LCB-4-27	CONDUIT	11.3	0.4408	0.0350
C193	J77	J76	CONDUIT	5.4	0.7365	0.0350
C194	J78	J77	CONDUIT	6.4	2.8273	0.0350
C195	J78	LCB-4-28	CONDUIT	13.0	2.0844	0.0350
C196	J79	LCB-4-28	CONDUIT	12.0	2.7552	0.0350
C197	J80	J77	CONDUIT	13.5	1.3296	0.0350
C198	J80	LCB-4-26	CONDUIT	12.9	2.0886	0.0350
C199	J81	LCB-4-26	CONDUIT	14.9	0.4688	0.0350
C2	01+090	CB03-04	CONDUIT	55.7	0.6108	0.0160
C20	01+517	CB15-16	CONDUIT	31.5	0.7929	0.0160
C200	J81	LCB-4-25A	CONDUIT	10.6	0.6580	0.0350
C201	J82	LCB-4-25A	CONDUIT	11.5	0.6948	0.0350
C202	J82	LCB-4-25	CONDUIT	15.1	0.5293	0.0350
C203	J83	LCB-4-25	CONDUIT	13.0	2.1575	0.0350
C204	J83	J84	CONDUIT	10.1	2.1697	0.0350
C205	J84	LCB-4-24	CONDUIT	10.5	0.4770	0.0350
C206	J85	LCB-4-24	CONDUIT	10.5	0.5725	0.0350
C207	J85	LCB-4-23A	CONDUIT	12.4	0.4826	0.0350
C208	J86	LCB-4-23A	CONDUIT	12.4	0.5666	0.0350
C209	J86	LCB-4-23	CONDUIT	14.1	0.4952	0.0350
C21	01+568	CB15-16	CONDUIT	27.1	1.2546	0.0160
C210	J87	LCB-4-23	CONDUIT	14.8	2.1647	0.0350
C211	J87	LCB-4-22	CONDUIT	14.5	2.2123	0.0350
C212	J88	CB60-CBMH61	CONDUIT	6.8	7.4113	0.0350
C213	J88	LCB-4-21	CONDUIT	16.8	2.2675	0.0350
C214	J89	LCB-4-21	CONDUIT	11.3	0.4443	0.0350
C215	J90	J89	CONDUIT	7.3	3.2976	0.0350
C216	J90	J91	CONDUIT	12.1	2.1432	0.0350
C217	J91	LCB-4-20	CONDUIT	9.2	0.4346	0.0350
C218	J92	LCB-4-20	CONDUIT	13.1	2.2156	0.0350
C219	J92	CB74-CBMH75	CONDUIT	8.7	4.4744	0.0350
C22	01+568	CB18-19	CONDUIT	32.9	1.4894	0.0160
C220	J90	J93	CONDUIT	11.0	1.8132	0.0350
C221	J93	LCB-4-18	CONDUIT	21.4	0.4663	0.0350
C222	J94	LCB-4-18	CONDUIT	11.5	0.4357	0.0350
C223	J95	J94	CONDUIT	8.6	3.0099	0.0350
C224	J95	J96	CONDUIT	9.0	3.0007	0.0350
C225	J96	LCB-4-17	CONDUIT	9.4	0.4240	0.0350
C226	J97	LCB-4-17	CONDUIT	13.2	0.4553	0.0350
C227	J98	J97	CONDUIT	5.6	4.6856	0.0350
C228	J98	J99	CONDUIT	5.4	4.9914	0.0350
C229	J99	LCB-4-13	CONDUIT	15.0	0.4668	0.0350
C23	J8	J139	CONDUIT	10.6	1.5146	0.0350
C23_1	01+610	CB18-19	CONDUIT	10.6	1.2222	0.0160
C23_2	01+610	CB20-21	CONDUIT	21.4	0.9357	0.0160
C23_3	J139	LCB-5-03	CONDUIT	19.1	0.9940	0.0350
C23_4	LCB-5-02	LCB-5-03	CONDUIT	13.5	0.8151	0.0350
C23_5	J140	LCB-5-02	CONDUIT	11.9	2.0199	0.0350
C23_6	J140	LCB-5-01	CONDUIT	14.8	2.3689	0.0350
C23_7	J141	LCB-5-01	CONDUIT	12.1	2.8909	0.0350
C23_8	J141	CB06-07	CONDUIT	21.0	2.3837	0.0350
C230	J100	LCB-4-13	CONDUIT	13.2	0.4556	0.0350
C231	J101	J100	CONDUIT	18.5	1.1382	0.0350
C232	J101	J102	CONDUIT	6.7	3.2761	0.0350
C233	J102	LCB-4-16	CONDUIT	11.2	0.4462	0.0350
C234	J103	LCB-4-16	CONDUIT	18.0	1.4431	0.0350
C235	J103	CB64-CBMH65	CONDUIT	15.8	2.5968	0.0350
C236	J101	J104	CONDUIT	4.6	4.7923	0.0350
C237	J104	LCB-4-15	CONDUIT	11.3	0.4424	0.0350
C238	J105	LCB-4-15	CONDUIT	18.2	1.9757	0.0350
C239	J105	06+328	CONDUIT	4.9	4.5017	0.0350
C24	01+066	01+090	CONDUIT	20.3	0.3452	0.0160
C240	J106	CB74-CBMH75	CONDUIT	20.0	2.4489	0.0350
C241	J106	LCB-4-12	CONDUIT	15.0	1.9376	0.0350
C242	J107	LCB-4-12	CONDUIT	12.5	0.4812	0.0350
C243	J108	J107	CONDUIT	5.1	4.0842	0.0350
C244	J108	J109	CONDUIT	5.7	4.0526	0.0350
C245	J109	LCB-4-11	CONDUIT	10.7	0.4673	0.0350
C246	J110	LCB-4-11	CONDUIT	14.9	1.8119	0.0350
C247	J110	CB28-CBMH29	CONDUIT	7.0	5.2705	0.0350
C248	J108	J111	CONDUIT	13.7	1.6058	0.0350
C249	J111	LCB-4-09	CONDUIT	13.1	0.4577	0.0350
C25	01+090	CB50-51	CONDUIT	25.1	1.1975	0.0160
C250	J112	LCB-4-09	CONDUIT	15.2	0.4617	0.0350
C251	J112	LCB-4-08A	CONDUIT	10.9	0.6409	0.0350
C252	J113	LCB-4-08A	CONDUIT	14.9	0.4709	0.0350
C253	J113	LCB-4-08	CONDUIT	15.3	0.4582	0.0350
C254	J114	LCB-4-08	CONDUIT	12.9	0.5408	0.0350

C255	J114	LCB-4-07	CONDUIT	13.1	0.4580	0.0350
C256	J115	LCB-4-07	CONDUIT	19.5	1.7458	0.0350
C257	J116	J117	CONDUIT	12.2	1.4745	0.0350
C258	J117	LCB-4-01	CONDUIT	19.6	1.3743	0.0350
C259	J118	LCB-4-01	CONDUIT	13.1	0.8373	0.0350
C26	CB-3-5_(CB)	CB03-04	CONDUIT	25.0	1.4802	0.0350
C26_1	02+012	01+412	CONDUIT	26.6	0.0376	0.0160
C26_2	J64	CB56-57	CONDUIT	39.0	0.6926	0.0160
C260	J119	J118	CONDUIT	10.7	2.5213	0.0350
C261	J119	J120	CONDUIT	9.6	2.9314	0.0350
C262	J120	LCB-4-02	CONDUIT	11.8	0.8508	0.0350
C263	J122	LCB-4-02	CONDUIT	13.5	0.8893	0.0350
C264	J121	J122	CONDUIT	5.2	5.0540	0.0350
C265	J121	J123	CONDUIT	9.9	2.5235	0.0350
C266	J123	LCB-4-03	CONDUIT	14.3	0.9084	0.0350
C267	J124	LCB-4-03	CONDUIT	15.0	0.8643	0.0350
C268	J125	J124	CONDUIT	6.3	3.9563	0.0350
C269	J125	J126	CONDUIT	5.6	5.5363	0.0350
C27	01+412	CB41-42	CONDUIT	28.0	0.8937	0.0160
C270	J126	LCB-4-04	CONDUIT	9.3	0.7488	0.0350
C271	J127	LCB-4-04	CONDUIT	7.5	5.0651	0.0350
C272	J127	OF08	CONDUIT	3.5	1.1275	0.0350
C273	J128	LCB-4-06	CONDUIT	15.7	1.7224	0.0350
C274	J129	LCB-4-06	CONDUIT	15.1	0.4641	0.0350
C275	J129	LCB-4-05A	CONDUIT	14.2	0.4918	0.0350
C276	J130	LCB-4-05A	CONDUIT	10.3	0.9738	0.0350
C277	J130	LCB-4-05	CONDUIT	19.7	0.5084	0.0350
C278	J131	LCB-4-05	CONDUIT	13.8	1.5205	0.0350
C279	J131	CB90-91	CONDUIT	37.7	0.8499	0.0350
C28	01+517	CB45-46	CONDUIT	26.5	0.8312	0.0160
C280	J132	OF09	CONDUIT	5.2	-2.3267	0.0350
C281	J132	LCB-4-41	CONDUIT	12.3	2.0328	0.0350
C282	J133	LCB-4-41	CONDUIT	15.4	0.4550	0.0350
C283	J133	DICB-4-40	CONDUIT	16.2	0.4310	0.0350
C284	J134	DICB-4-40	CONDUIT	9.4	0.4256	0.0350
C285	J134	LCB-4-42	CONDUIT	10.1	0.3945	0.0350
C286	J135	LCB-4-42	CONDUIT	9.3	0.4295	0.0350
C287	J135	LCB-4-43	CONDUIT	9.9	0.4038	0.0350
C288	J136	LCB-4-43	CONDUIT	7.7	6.6138	0.0350
C289	J136	LCB-4-44	CONDUIT	8.2	0.4870	0.0350
C29	01+494	01+517	CONDUIT	12.2	0.0025	0.0160
C290	J137	LCB-4-44	CONDUIT	9.1	0.7709	0.0350
C291	J137	J138	CONDUIT	13.1	0.9137	0.0350
C292	J138	LCB-4-45	CONDUIT	5.1	7.8134	0.0350
C293	2-00_Stor	HP-2-00_Stor	CONDUIT	3.0	-11.7469	0.0160
C294	HP-2-00_Stor	CB15-16	CONDUIT	3.0	20.0584	0.0160
C295	LCB-4-41	DICB-4-40	CONDUIT	30.0	0.2000	0.0300
C296	LCB-4-42	DICB-4-40	CONDUIT	18.0	0.2222	0.0300
C297	LCB-4-43	LCB-4-42	CONDUIT	18.0	0.2222	0.0300
C298	LCB-4-44	LCB-4-43	CONDUIT	14.5	0.2072	0.0300
C299	LCB-4-45	LCB-4-44	CONDUIT	26.0	0.1923	0.0300
C3	01+198	CB03-04	CONDUIT	56.4	0.4964	0.0160
C30	01+387	01+412	CONDUIT	12.9	0.2328	0.0160
C300	03+013	CB32-33	CONDUIT	15.2	1.9089	0.0160
C301	03+065	CB32-33	CONDUIT	35.7	1.0634	0.0160
C302	03+065	CB34-35	CONDUIT	26.0	1.6911	0.0160
C303	03+125	CB34-35	CONDUIT	34.3	1.0198	0.0160
C304	03+125	03+137	CONDUIT	12.4	0.3214	0.0160
C305	03+137	CB36-37	CONDUIT	40.2	0.8452	0.0160
C306	07+605	CB36-37	CONDUIT	39.5	0.6332	0.0160
C307	03+137	CB76-77	CONDUIT	24.7	1.2144	0.0160
C308	07+091	CB76-77	CONDUIT	52.7	0.8535	0.0160
C309	07+091	CB78-79	CONDUIT	21.6	1.3435	0.0160
C31	CB-3-7_(CB)	CB06-07	CONDUIT	25.0	1.4001	0.0350
C310	07+175	CB78-79	CONDUIT	62.6	0.6074	0.0160
C311	07+175	CB80-81	CONDUIT	42.6	0.7277	0.0160
C312	07+260	CB80-81	CONDUIT	42.5	0.8473	0.0160
C313	07+260	CB82-83	CONDUIT	24.5	1.3869	0.0160
C314	07+342	CB82-83	CONDUIT	50.4	0.8923	0.0160
C315	07+342	CB84-85	CONDUIT	37.3	1.2886	0.0160
C316	07+428	CB84-85	CONDUIT	43.5	0.6889	0.0160
C317	07+428	CB86-87	CONDUIT	25.3	1.5790	0.0160
C318	07+509	CB86-87	CONDUIT	55.0	0.5451	0.0160
C319	07+509	CB88-89	CONDUIT	58.7	0.8007	0.0160
C32	CB20-21	OF02	CONDUIT	18.9	0.0528	0.0160
C320	07+591	CB88-89	CONDUIT	23.6	1.2310	0.0160
C321	07+591	07+605	CONDUIT	14.1	0.2129	0.0160
C322	07+605	CB90-91	CONDUIT	17.9	1.7903	0.0160
C323	07+670	CB90-91	CONDUIT	48.6	0.4941	0.0160
C324	J142	CB76-77	CONDUIT	10.5	3.4401	0.0350
C325	J142	LCB-5-18	CONDUIT	14.4	1.6684	0.0350
C326	J143	LCB-5-18	CONDUIT	21.9	1.2803	0.0350

C327	J143	LCB-5-17	CONDUIT	22.7	1.2354	0.0350
C328	J144	LCB-5-17	CONDUIT	15.1	2.1264	0.0350
C329	J144	CB88-89	CONDUIT	11.8	4.1706	0.0350
C33	CB01-02	OF01	CONDUIT	15.0	0.5350	0.0160
C330	J143	J145	CONDUIT	10.5	0.9516	0.0350
C331	J145	J146	CONDUIT	12.8	0.9393	0.0350
C332	J146	LCB-5-15	CONDUIT	9.4	0.6395	0.0350
C333	J147	LCB-5-15	CONDUIT	9.7	3.4196	0.0350
C334	J147	J148	CONDUIT	7.8	2.8151	0.0350
C335	J148	LCB-5-14	CONDUIT	11.4	0.9643	0.0350
C336	J149	LCB-5-14	CONDUIT	8.5	2.6001	0.0350
C337	J150	J149	CONDUIT	10.7	2.8138	0.0350
C338	J150	LCB-5-19	CONDUIT	11.7	3.3266	0.0350
C339	J151	LCB-5-19	CONDUIT	11.5	0.6939	0.0350
C34	LCB-3-09	CB01-02	CONDUIT	12.1	6.0426	0.0100
C34_1	J9	J59	CONDUIT	6.4	3.1477	0.0350
C34_2	J59	LCB-3-09	CONDUIT	14.1	0.7109	0.0350
C340	J151	LCB-5-20	CONDUIT	12.9	0.6211	0.0350
C341	J152	LCB-5-20	CONDUIT	17.9	1.8945	0.0350
C342	J152	LCB-5-21	CONDUIT	11.7	2.8958	0.0350
C343	J153	LCB-5-21	CONDUIT	17.6	0.9083	0.0350
C344	J154	J153	CONDUIT	19.4	0.6708	0.0350
C345	J154	J155	CONDUIT	10.4	1.6336	0.0350
C346	J155	LCB-5-23	CONDUIT	12.3	0.9774	0.0350
C347	J156	LCB-5-23	CONDUIT	9.8	2.5448	0.0350
C348	J156	CB84-85	CONDUIT	6.1	4.6026	0.0350
C349	J154	J157	CONDUIT	13.0	1.0785	0.0350
C35	CB-3-8_(CB)	CB09-10	CONDUIT	6.5	3.5390	0.0350
C35_1	J9	J60	CONDUIT	7.2	2.0795	0.0350
C35_2	J60	LCB-3-10	CONDUIT	16.0	0.6233	0.0350
C350	J157	LCB-5-24	CONDUIT	12.5	1.1974	0.0350
C351	J158	LCB-5-24	CONDUIT	8.4	4.0413	0.0350
C352	J158	CB80-81	CONDUIT	21.7	1.6616	0.0350
C353	J159	OF13	CONDUIT	4.1	-2.1951	0.0350
C354	J159	LCB-5-04	CONDUIT	8.5	3.6577	0.0350
C355	J160	LCB-5-04	CONDUIT	14.7	1.4946	0.0350
C356	J160	LCB-5-05	CONDUIT	14.8	1.4837	0.0350
C357	J161	LCB-5-05	CONDUIT	17.0	1.1784	0.0350
C358	J161	LCB-5-06	CONDUIT	16.5	1.2107	0.0350
C359	J162	LCB-5-06	CONDUIT	15.4	0.7137	0.0350
C36	CB-2-4_(CB)	CB12-13	CONDUIT	4.4	4.5616	0.0300
C36_1	J10	J61	CONDUIT	8.4	2.6300	0.0350
C36_2	J61	LCB-3-10	CONDUIT	13.3	0.7512	0.0350
C360	J163	J162	CONDUIT	12.8	0.9381	0.0350
C361	J163	LCB-5-07	CONDUIT	12.6	1.8306	0.0350
C362	J164	LCB-5-07	CONDUIT	16.2	1.7249	0.0350
C363	J164	LCB-5-08	CONDUIT	16.4	2.3225	0.0350
C364	J165	LCB-5-08	CONDUIT	12.4	1.1311	0.0350
C365	J165	LCB-5-09	CONDUIT	14.6	0.9589	0.0350
C366	J166	LCB-5-09	CONDUIT	15.1	1.1276	0.0350
C367	J166	LCB-5-10	CONDUIT	14.9	1.1387	0.0350
C368	J167	LCB-5-10	CONDUIT	14.7	1.3625	0.0350
C369	J167	J168	CONDUIT	12.8	0.7804	0.0350
C37	CB-2-5_(CB)	CB12-13	CONDUIT	23.8	1.3436	0.0300
C37_1	J10	J62	CONDUIT	8.2	2.6891	0.0350
C37_2	J62	LCB-3-11	CONDUIT	20.7	0.4833	0.0350
C370	J168	LCB-5-11	CONDUIT	13.0	0.7713	0.0350
C371	J169	LCB-5-11	CONDUIT	14.0	0.7840	0.0350
C372	J170	J169	CONDUIT	15.4	0.7768	0.0350
C373	J170	LCB-5-12	CONDUIT	15.7	1.4654	0.0350
C374	J171	LCB-5-12	CONDUIT	14.2	1.0550	0.0350
C375	J171	LCB-5-13	CONDUIT	13.0	1.1521	0.0350
C376	J172	LCB-5-13	CONDUIT	11.3	3.1101	0.0350
C377	J172	OF12	CONDUIT	2.1	6.8218	0.0350
C378	J173	CBMH308	CONDUIT	6.8	4.4180	0.0350
C379	J173	CB76-77	CONDUIT	10.6	6.4993	0.0350
C38	J11	LCB-3-11	CONDUIT	15.3	2.1585	0.0350
C39	J11	LCB-3-12	CONDUIT	22.8	1.4947	0.0350
C4	01+198	CB06-07	CONDUIT	79.6	0.5400	0.0160
C40	J12	LCB-3-12	CONDUIT	25.9	1.3895	0.0350
C41	J12	LCB-3-13	CONDUIT	20.7	1.4016	0.0350
C42	J13	LCB-3-13	CONDUIT	32.9	0.8811	0.0350
C43	J13	LCB-3-14	CONDUIT	26.5	1.0551	0.0350
C44	J14	LCB-3-14	CONDUIT	32.6	1.1647	0.0350
C45	J14	LCB-3-15	CONDUIT	29.4	1.2943	0.0350
C46	J15	LCB-3-15	CONDUIT	29.7	1.3489	0.0350
C47	J16	LCB-3-16	CONDUIT	32.3	1.6702	0.0350
C48	J17	LCB-3-16	CONDUIT	28.9	1.1434	0.0350
C49	J17	LCB-3-17	CONDUIT	29.0	1.2060	0.0350
C5	01+306	CB06-07	CONDUIT	34.1	0.9388	0.0160
C50	J18	LCB-3-17	CONDUIT	12.4	2.4167	0.0350
C51	J18	LCB-2-01	CONDUIT	11.9	2.9380	0.0350

C52	J19	LCB-2-01	CONDUIT	19.0	1.8424	0.0350
C53	J19	LCB-2-02	CONDUIT	17.9	1.9590	0.0350
C54	J20	LCB-2-02	CONDUIT	28.5	1.9277	0.0350
C55	J37	LCB-3-17	CONDUIT	27.6	1.2684	0.0350
C56	J37	LCB-3-18	CONDUIT	21.8	1.3733	0.0350
C57	J38	LCB-3-18	CONDUIT	17.7	1.6995	0.0350
C58	J38	LCB-3-19	CONDUIT	28.6	1.0152	0.0350
C59	J39	LCB-3-19	CONDUIT	12.0	1.1693	0.0350
C6	01+306	J64	CONDUIT	18.5	0.1619	0.0160
C6_2	J64	CB09-10	CONDUIT	37.5	0.7999	0.0160
C60	J39	LCB-3-20	CONDUIT	8.1	1.8492	0.0350
C61	J40	LCB-3-20	CONDUIT	4.3	7.0715	0.0350
C62	J40	CB-3-8_(CB)	CONDUIT	6.6	2.7483	0.0350
C63	J32	CB43-44	CONDUIT	25.0	1.4416	0.0350
C64	J32	LCB-2-10	CONDUIT	16.3	1.8401	0.0350
C65	J33	LCB-2-10	CONDUIT	10.5	3.0351	0.0350
C66	J33	LCB-2-11	CONDUIT	5.8	5.1811	0.0350
C67	J28	LCB-2-11	CONDUIT	20.9	1.7732	0.0350
C68	J28	LCB-2-14	CONDUIT	19.9	1.4574	0.0350
C69	J29	LCB-2-14	CONDUIT	9.8	2.9529	0.0350
C7	01+387	CB09-10	CONDUIT	28.8	0.9034	0.0160
C70	J29	LCB-2-13	CONDUIT	9.0	3.5432	0.0350
C71	J31	LCB-2-13	CONDUIT	16.0	1.8740	0.0350
C72	J31	CB43-44	CONDUIT	27.5	1.5658	0.0350
C73	J30	LCB-2-14	CONDUIT	13.4	2.2447	0.0350
C74	J30	LCB-2-15	CONDUIT	14.5	1.9363	0.0350
C75	J36	LCB-2-15	CONDUIT	9.8	2.8730	0.0350
C76	J35	LCB-2-12	CONDUIT	16.2	1.8472	0.0350
C77	J34	LCB-2-12	CONDUIT	6.6	4.5564	0.0350
C78	J34	LCB-2-11	CONDUIT	11.3	2.8405	0.0350
C79	J35	CB-2-4_(CB)	CONDUIT	5.2	5.8249	0.0350
C8	01+412	CB12-13	CONDUIT	36.8	0.6797	0.0160
C80	J36	CB-2-5_(CB)	CONDUIT	5.6	4.2516	0.0350
C81	J52	LCB-3-16	CONDUIT	18.7	11.6819	0.0350
C82	J52	05+287	CONDUIT	31.1	1.4158	0.0350
C83	J45	LCB-2-02	CONDUIT	20.3	9.8573	0.0350
C84	J45	04+090	CONDUIT	30.3	1.6834	0.0350
C85	02+012	CB22-CBMH23	CONDUIT	27.7	1.3706	0.0160
C85_1	J22	J63	CONDUIT	13.6	1.6142	0.0350
C85_2	J63	LCB-2-03	CONDUIT	14.9	0.8043	0.0350
C86	J22	LCB-2-05	CONDUIT	26.0	1.3056	0.0350
C87	J23	LCB-2-05	CONDUIT	14.0	2.4375	0.0350
C88	J23	LCB-2-06	CONDUIT	12.2	2.7884	0.0350
C89	J24	LCB-2-06	CONDUIT	18.7	1.8188	0.0350
C9	01+494	CB12-13	CONDUIT	57.8	0.5881	0.0160
C90	J24	LCB-2-07	CONDUIT	19.7	1.5265	0.0350
C91	J25	LCB-2-07	CONDUIT	16.5	2.1225	0.0350
C92	J25	LCB-2-08	CONDUIT	19.5	1.5375	0.0350
C93	J42	LCB-2-08	CONDUIT	15.5	12.9975	0.0350
C94	J42	04+190	CONDUIT	41.5	0.9880	0.0350
C95	J43	LCB-2-05	CONDUIT	21.8	4.3527	0.0350
C96	J43	04+190	CONDUIT	29.0	1.6193	0.0350
C97	J26	LCB-2-08	CONDUIT	22.5	1.3363	0.0350
C98	J26	LCB-2-09A	CONDUIT	17.6	1.7054	0.0350
C99	J27	LCB-2-09A	CONDUIT	19.8	1.5172	0.0350
CB-100_(CB)	LCB-3-25	LCB-3-26	CONDUIT	40.4	0.4946	0.0130
CB-101_(CB)	LCB-3-26	LCB-3-28	CONDUIT	27.9	1.0035	0.0130
CB-102_(CB)	LCB-3-27	LCB-3-28	CONDUIT	13.6	1.0279	0.0130
CB-103_(CB)	LCB-3-28	LCB-3-29	CONDUIT	14.9	0.4711	0.0130
CB-104_(CB)	LCB-3-29	CB-3-7_(CB)	CONDUIT	20.6	0.4849	0.0130
CB-105_(CB)	LCB-3-09	LCB-3-10	CONDUIT	40.0	0.3997	0.0130
CB-106_(CB)	LCB-3-11	CB-3-1_(CB)	CONDUIT	37.8	0.5020	0.0130
CB-108_(CB)	LCB-3-12	LCB-3-11	CONDUIT	28.8	1.0055	0.0130
CB-109_(CB)	LCB-3-10	LCB-3-11	CONDUIT	43.8	0.3880	0.0130
CB-112_(CB)	LCB-3-14	CB-3-2_(CB)	CONDUIT	41.1	0.4866	0.0130
CB-116_(CB)	LCB-3-17	LCB-3-16	CONDUIT	54.0	0.4997	0.0130
CB-117_(CB)	LCB-3-16	CB-3-3_(CB)	CONDUIT	38.3	0.4964	0.0130
CB-119_(CB)	LCB-3-18	LCB-3-19	CONDUIT	44.2	0.4977	0.0130
CB-120_(2)_(CB)	LCB-3-20	CB-3-8_(CB)	CONDUIT	7.3	0.5503	0.0130
CB-120_(CB)	LCB-3-19	LCB-3-20	CONDUIT	17.6	0.5102	0.0130
CB-122_(CB)	LCB-2-01	LCB-2-02	CONDUIT	32.9	0.4862	0.0130
CB-123_(CB)	LCB-2-02	CB-2-1_(CB)	CONDUIT	39.0	0.4869	0.0130
CB-125_(CB)	LCB-2-10	LCB-2-11	CONDUIT	15.0	0.4680	0.0130
CB-126_(CB)	LCB-2-11	LCB-2-12	CONDUIT	16.5	0.4853	0.0130
CB-127_(CB)	LCB-2-12	CB-2-4_(CB)	CONDUIT	20.1	0.4983	0.0130
CB-130_(CB)	LCB-2-03	LCB-2-05	CONDUIT	51.8	0.5018	0.0130
CB-131_(CB)	LCB-2-05	CB-2-2_(CB)	CONDUIT	41.0	0.5854	0.0130
CB-133_(2)_(CB)	LCB-2-07	LCB-2-08	CONDUIT	28.6	0.6300	0.0130
CB-134_(CB)	LCB-2-08	CB-2-3_(CB)	CONDUIT	35.5	0.5068	0.0130
CB-136_(2)_(CB)	LCB-2-09A	LCB-2-08	CONDUIT	35.3	0.3965	0.0130
CB-136_(CB)	LCB-2-09	LCB-2-09A	CONDUIT	29.4	0.4082	0.0130
CB-138_(CB)	LCB-3-01	CB-3-4_(CB)	CONDUIT	35.8	0.5025	0.0130

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PCSWMM Model Results (100-year 3-hour Chicago Event)

CB-140_(2)_(1)_(CB)	LCB-3-02	LCB-3-01	CONDUIT	22.4	0.9821	0.0130
CB-140_(2)_(CB)	LCB-3-03	LCB-3-02	CONDUIT	21.2	0.5187	0.0130
CB-140_(CB)	LCB-3-04	LCB-3-03	CONDUIT	21.2	0.5181	0.0130
CB-141_(CB)	LCB-3-05	LCB-3-04	CONDUIT	42.8	0.4912	0.0130
CB-144_(CB)	LCB-3-06	CB-3-6_(CB)	CONDUIT	40.9	0.4892	0.0130
CB-149_(CB)	LCB-3-08	LCB-3-07	CONDUIT	30.8	0.4867	0.0130
CB-150_(CB)	LCB-3-07	LCB-3-06	CONDUIT	21.0	0.7133	0.0130
CB-153_(CB)	LCB-5-03	CB-5-01	CONDUIT	33.9	0.5021	0.0130
CB-159_(3)_(CB)	LCB-5-02	LCB-5-03	CONDUIT	12.7	0.3944	0.0130
CB-159_(CB)	LCB-5-01	LCB-5-02	CONDUIT	25.9	0.3856	0.0130
CB-160_(CB)	LCB-3-15	LCB-3-14	CONDUIT	58.1	0.4992	0.0130
CB-161_(CB)	LCB-3-13	LCB-3-14	CONDUIT	55.2	0.5071	0.0130
CB-164_(2)_(CB)	LCB-4-25A	LCB-4-26	CONDUIT	24.9	0.4019	0.0130
CB-164_(CB)	LCB-4-25	LCB-4-25A	CONDUIT	25.6	0.3509	0.0130
CB-166_(CB)	LCB-4-26	RYT-4-27A	CONDUIT	27.3	0.4024	0.0130
CB-168_(CB)_1	LCB-4-28	RYT-4-27A	CONDUIT	19.7	0.4057	0.0130
CB-168_(CB)_2	RYT-4-27A	LCB-4-27	CONDUIT	15.1	0.3981	0.0130
CB-170_(CB)	LCB-4-27	CBMH-4-01	CONDUIT	17.9	0.3913	0.0130
CB-175_(2)_(CB)	LCB-4-23A	LCB-4-24	CONDUIT	21.9	0.4110	0.0130
CB-175_(CB)	LCB-4-23	LCB-4-23A	CONDUIT	25.7	0.3891	0.0130
CB-177_(CB)	LCB-4-24	CBMH-4-03	CONDUIT	33.0	0.5147	0.0130
CB-180_(CB)	LCB-3-21	CB-3-5_(CB)	CONDUIT	35.9	0.5009	0.0130
CB-185_(CB)	LCB-2-13	LCB-2-14	CONDUIT	16.1	0.4975	0.0130
CB-187_(CB)	LCB-2-14	LCB-2-15	CONDUIT	25.6	0.5087	0.0130
CB-189_(CB)	LCB-2-15	CB-2-5_(CB)	CONDUIT	13.9	0.5024	0.0130
CB-209_(CB)	LCB-4-22	LCB-4-23	CONDUIT	27.6	0.3983	0.0130
CB-211_(CB)	LCB-3-24	LCB-3-23	CONDUIT	27.3	0.5123	0.0130
CB-215_(CB)	LCB-2-06	LCB-2-05	CONDUIT	23.1	0.4763	0.0130
CB-228_(CB)	LCB-4-17	LCB-4-18	CONDUIT	36.2	0.3864	0.0130
CB-229_(CB)	LCB-4-18	RYT-4-19	CONDUIT	29.6	0.4051	0.0130
CB-230_(CB)	RYT-4-19	LCB-4-21	CONDUIT	17.9	0.3901	0.0130
CB-231_(CB)	LCB-4-21	CB-4-02	CONDUIT	20.4	0.3917	0.0130
CB-233_(CB)	LCB-4-20	RYT-4-19	CONDUIT	20.5	0.3911	0.0130
CB-234_(CB)	LCB-4-13	RYT-4-14	CONDUIT	28.5	0.3862	0.0130
CB-235_(CB)	LCB-4-15	RYT-4-14	CONDUIT	14.4	0.4164	0.0130
CB-236_(CB)	RYT-4-14	LCB-4-16	CONDUIT	17.3	0.4050	0.0130
CB-237_(CB)	LCB-4-16	CB-4-04	CONDUIT	19.7	0.4063	0.0130
CB-239_(1)_(1)_(CB)	LCB-4-08A	LCB-4-09	CONDUIT	25.1	0.1592	0.0130
CB-239_(1)_(CB)	LCB-4-08	LCB-4-08A	CONDUIT	28.9	0.3458	0.0130
CB-239_(CB)	LCB-4-07	LCB-4-08	CONDUIT	24.7	0.4851	0.0130
CB-240_(CB)	LCB-4-09	RYT-4-10	CONDUIT	25.1	0.5970	0.0130
CB-245_(1)_(CB)	LCB-4-12	CB-4-05	CONDUIT	18.2	0.3853	0.0130
CB-245_(CB)	RYT-4-10	LCB-4-12	CONDUIT	17.0	0.4114	0.0130
CB-253_(CB)	LCB-4-01	LCB-4-02	CONDUIT	41.4	0.2175	0.0130
CB-257_(CB)	LCB-4-02	LCB-4-03	CONDUIT	38.9	0.2054	0.0130
CB-264_(CB)	LCB-4-03	CBMH-4-06	CONDUIT	32.7	0.4891	0.0130
CB-268_(CB)	LCB-4-04	LCB-4-03	CONDUIT	32.5	0.2156	0.0130
CB-271_(1)_(CB)	LCB-4-05A	LCB-4-06	CONDUIT	28.4	0.3868	0.0130
CB-271_(CB)	LCB-4-05	LCB-4-05A	CONDUIT	28.9	0.4151	0.0130
CB-273_(CB)	LCB-4-06	CBMH-4-07	CONDUIT	33.0	0.4849	0.0130
CB-280_(1)_(CB)	LCB-4-30	LCB-4-31	CONDUIT	39.4	0.3807	0.0130
CB-280_(CB)	LCB-4-29	LCB-4-30	CONDUIT	24.7	0.4049	0.0130
CB-284_(CB)	LCB-4-32	LCB-4-31	CONDUIT	39.8	0.4273	0.0130
CB-288_(CB)	LCB-4-31	CBMH-4-08	CONDUIT	33.0	0.4846	0.0130
CB-294_(CB)	LCB-4-11	RYT-4-10	CONDUIT	15.3	0.3916	0.0130
CB-386_(CB)	LCB-5-04	LCB-5-05	CONDUIT	28.1	0.3918	0.0130
CB-387_(CB)	LCB-5-05	LCB-5-06	CONDUIT	32.2	0.4037	0.0130
CB-388_(CB)	LCB-5-07	LCB-5-06	CONDUIT	39.3	0.4071	0.0130
CB-391_(CB)	LCB-5-08	LCB-5-09	CONDUIT	25.6	0.2344	0.0130
CB-397_(CB)	LCB-5-09	LCB-5-10	CONDUIT	28.6	0.1748	0.0130
CB-398_(CB)	LCB-5-10	LCB-5-11	CONDUIT	38.8	0.2062	0.0130
CB-406_(CB)	LCB-5-12	LCB-5-11	CONDUIT	43.8	0.2742	0.0130
CB-408_(CB)	LCB-5-13	LCB-5-12	CONDUIT	25.6	0.2736	0.0130
CB-411_(CB)	LCB-5-23	RAP-5-22	CONDUIT	23.5	0.3826	0.0130
CB-413_(CB)	RAP-5-22	LCB-5-24	CONDUIT	23.4	0.3853	0.0130
CB-416_(CB)	LCB-5-17	RAP-5-16	CONDUIT	22.3	0.4028	0.0130
CB-418_(CB)	RAP-5-16	LCB-5-18	CONDUIT	21.0	0.3807	0.0130
CB-421_(CB)	LCB-5-19	LCB-5-20	CONDUIT	23.3	0.3856	0.0130
CB-423_(CB)	LCB-5-20	LCB-5-21	CONDUIT	28.7	0.3835	0.0130
CB-424_(CB)	LCB-5-21	RAP-5-22	CONDUIT	38.1	0.3938	0.0130
CB-427_(CB)	LCB-5-14	LCB-5-15	CONDUIT	28.0	0.3932	0.0130
CB-430_(CB)	LCB-5-15	RAP-5-16	CONDUIT	31.4	0.4147	0.0130
CB-432_(CB)	LCB-5-24	CB-5-04	CONDUIT	10.7	0.4679	0.0130
CB-436_(CB)	LCB-5-18	CB-5-05	CONDUIT	15.7	0.5083	0.0130
CB-439_(CB)	LCB-5-06	CBMH-5-02	CONDUIT	33.8	0.5035	0.0130
CB-444_(CB)	LCB-5-11	CBMH-5-03	CONDUIT	33.8	0.5032	0.0130
CB-98_(CB)	LCB-3-22	LCB-3-21	CONDUIT	26.9	0.5205	0.0130
CB-99_(CB)	LCB-3-23	LCB-3-21	CONDUIT	26.2	0.4964	0.0130
LCB-1_(86)	LCB-4-41	DICB-4-40	CONDUIT	30.0	0.2000	0.0130
LCB-1_(87)	LCB-4-42	DICB-4-40	CONDUIT	18.0	0.2222	0.0130
LCB-1_(88)	LCB-4-43	LCB-4-42	CONDUIT	18.0	0.2222	0.0130
LCB-1_(89)	LCB-4-44	LCB-4-43	CONDUIT	14.5	0.2072	0.0130

LCB-1_(89)_(1)	LCB-4-45	LCB-4-44	CONDUIT	26.0	0.1923	0.0130
x1000-116	MHx1000	MH116	CONDUIT	14.5	0.2763	0.0130
OCB03	CB03-04	MH102	ORIFICE			
OCB04	CB03-04	MH102	ORIFICE			
OCB06	CB06-07	MH108	ORIFICE			
OCB07	CB06-07	MH108	ORIFICE			
OCB09	CB09-10	MH110	ORIFICE			
OCB10	CB09-10	MH110	ORIFICE			
OCB12	CB12-13	MH112	ORIFICE			
OCB13	CB12-13	MH112	ORIFICE			
OCB15	CB15-16	MH116	ORIFICE			
OCB16	CB15-16	MH116	ORIFICE			
OCB18	CB18-19	MH118	ORIFICE			
OCB19	CB18-19	MH118	ORIFICE			
OCB22-CBMH23	CB22-CBMH23	MH200	ORIFICE			
OCB24-CBMH25	CB24-CBMH25	MH204	ORIFICE			
OCB26-CBMH27	CB26-CBMH27	MH206	ORIFICE			
OCB28-CBMH29	CB28-CBMH29	MH716	ORIFICE			
OCB30-CBMH31	CB30-CBMH31	MH720	ORIFICE			
OCB32	CB32-33	MH300	ORIFICE			
OCB33	CB32-33	MH300	ORIFICE			
OCB34	CB34-35	MH302	ORIFICE			
OCB35	CB34-35	MH302	ORIFICE			
OCB36	CB36-37	MH304	ORIFICE			
OCB37	CB36-37	MH304	ORIFICE			
OCB41	CB41-42	MH400	ORIFICE			
OCB42	CB41-42	MH400	ORIFICE			
OCB43	CB43-44	MH404	ORIFICE			
OCB44	CB43-44	MH404	ORIFICE			
OCB45	CB45-46	MH408	ORIFICE			
OCB46	CB45-46	MH408	ORIFICE			
OCB50	CB50-51	MH500	ORIFICE			
OCB51	CB50-51	MH500	ORIFICE			
OCB52	CB52-53	MH506	ORIFICE			
OCB53	CB52-53	MH506	ORIFICE			
OCB54	CB54-55	MH508	ORIFICE			
OCB55	CB54-55	MH508	ORIFICE			
OCB56	CB56-57	MH512	ORIFICE			
OCB57	CB56-57	MH512	ORIFICE			
OCB60-CBMH61	CB60-CBMH61	MH602	ORIFICE			
OCB62-CBMH63	CB62-CBMH63	MH604	ORIFICE			
OCB64-CBMH65	CB64-CBMH65	MH604	ORIFICE			
OCB68-CBMH69	CB68-CBMH69	MH608	ORIFICE			
OCB72-CBMH73	CB72-CBMH73	MH612	ORIFICE			
OCB74-CBMH75	CB74-CBMH75	MH612	ORIFICE			
OCB76	CB76-77	MH700	ORIFICE			
OCB77	CB76-77	MH700	ORIFICE			
OCB78	CB78-79	MH702	ORIFICE			
OCB79	CB78-79	MH702	ORIFICE			
OCB80	CB80-81	MH704	ORIFICE			
OCB81	CB80-81	MH704	ORIFICE			
OCB82	CB82-83	MH708	ORIFICE			
OCB83	CB82-83	MH708	ORIFICE			
OCB84	CB84-85	MH710	ORIFICE			
OCB85	CB84-85	MH710	ORIFICE			
OCB86	CB86-87	MH712	ORIFICE			
OCB87	CB86-87	MH712	ORIFICE			
OCB88	CB88-89	MH714	ORIFICE			
OCB89	CB88-89	MH714	ORIFICE			
OCB90	CB90-91	MH304	ORIFICE			
OCB91	CB90-91	MH304	ORIFICE			
OCBMH02-01	CB-2-1_(CB)	MH402	ORIFICE			
OCBMH02-02	CB-2-2_(CB)	MH406	ORIFICE			
OCBMH02-03	CB-2-3_(CB)	MH408	ORIFICE			
OCBMH02-04	CB-2-4_(CB)	MH112	ORIFICE			
OCBMH02-05	CB-2-5_(CB)	MH112	ORIFICE			
OCBMH03-01	CB-3-1_(CB)	MH502	ORIFICE			
OCBMH03-02	CB-3-2_(CB)	MH506	ORIFICE			
OCBMH03-03	CB-3-3_(CB)	MH510	ORIFICE			
OCBMH03-04	CB-3-4_(CB)	MH100	ORIFICE			
OCBMH03-05	CB-3-5_(CB)	MH102	ORIFICE			
OCBMH03-06	CB-3-6_(CB)	MH104	ORIFICE			
OCBMH03-07	CB-3-7_(CB)	MH106	ORIFICE			
OCBMH03-08	CB-3-8_(CB)	MH110	ORIFICE			
OCBMH04-01	CBMH-4-01	MH602	ORIFICE			
OCBMH04-02	CB-4-02	MH602	ORIFICE			
OCBMH04-03	CBMH-4-03	MH604	ORIFICE			
OCBMH04-04	CB-4-04	MH604	ORIFICE			
OCBMH04-05	CB-4-05	MH612	ORIFICE			
OCBMH04-06	CBMH-4-06	MH718	ORIFICE			
OCBMH04-07	CBMH-4-07	MH206	ORIFICE			
OCBMH04-08	CBMH-4-08	MH202	ORIFICE			

OCBMH05-1	CB-5-01	MH302	ORIFICE
OCBMH05-2	CBMH-5-02	MH712	ORIFICE
OCBMH05-3	CBMH-5-03	MH304	ORIFICE
OCBMH05-4	CB-5-04	MH704	ORIFICE
OCBMH05-5	CB-5-05	MH700	ORIFICE
ODICB4-40	DICB-4-40	MH720	ORIFICE
OPark	CBMH308	MH700	ORIFICE
PH2	2-00_Stor	MHx1000	ORIFICE
OCB01	CB01-02	MH100	OUTLET
OCB02	CB01-02	MH100	OUTLET
OCB20	CB20-21	MH118	OUTLET
OCB21	CB20-21	MH118	OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
100-098	CIRCULAR	1.52	1.82	0.38	1.52	1	3274.17
102-100	CIRCULAR	1.52	1.82	0.38	1.52	1	2757.64
104-102	CIRCULAR	1.52	1.82	0.38	1.52	1	2825.32
106-104	CIRCULAR	1.52	1.82	0.38	1.52	1	2869.46
108-106	CIRCULAR	1.52	1.82	0.38	1.52	1	2908.66
110-108	CIRCULAR	1.37	1.48	0.34	1.37	1	2127.30
112-110	CIRCULAR	0.84	0.55	0.21	0.84	1	609.75
114-112	CIRCULAR	0.76	0.46	0.19	0.76	1	450.66
116-114	CIRCULAR	0.69	0.37	0.17	0.69	1	354.44
118-116	CIRCULAR	0.30	0.07	0.08	0.30	1	71.57
200-200A	CIRCULAR	0.99	0.77	0.25	0.99	1	855.74
200A-110	CIRCULAR	0.99	0.77	0.25	0.99	1	1124.26
202-200	CIRCULAR	0.91	0.66	0.23	0.91	1	840.30
204-202	CIRCULAR	0.76	0.46	0.19	0.76	1	567.49
206-204	CIRCULAR	0.61	0.29	0.15	0.61	1	282.39
206-304	CIRCULAR	0.30	0.07	0.08	0.30	1	68.12
300-300A	CIRCULAR	0.91	0.66	0.23	0.91	1	2280.84
300A-108	CIRCULAR	0.91	0.66	0.23	0.91	1	782.72
302-300	CIRCULAR	0.76	0.46	0.19	0.76	1	730.75
304-302	CIRCULAR	0.61	0.29	0.15	0.61	1	406.50
400-110	CIRCULAR	0.46	0.16	0.11	0.46	1	225.77
402-400	CIRCULAR	0.38	0.11	0.10	0.38	1	124.98
404-402	CIRCULAR	0.38	0.11	0.10	0.38	1	106.44
404-408	CIRCULAR	0.30	0.07	0.08	0.30	1	64.09
406-408	CIRCULAR	0.30	0.07	0.08	0.30	1	70.16
408-114	CIRCULAR	0.38	0.11	0.10	0.38	1	142.74
500-100	CIRCULAR	0.53	0.22	0.13	0.53	1	229.55
502-500	CIRCULAR	0.53	0.22	0.13	0.53	1	225.27
504-502	CIRCULAR	0.46	0.16	0.11	0.46	1	207.28
508-504	CIRCULAR	0.46	0.16	0.11	0.46	1	148.48
508-506	CIRCULAR	0.38	0.11	0.10	0.38	1	98.86
508-510	CIRCULAR	0.38	0.11	0.10	0.38	1	110.64
510-512	CIRCULAR	0.38	0.11	0.10	0.38	1	122.47
512-108	CIRCULAR	0.46	0.16	0.11	0.46	1	220.24
602-202	CIRCULAR	0.69	0.37	0.17	0.69	1	390.09
604-602	CIRCULAR	0.61	0.29	0.15	0.61	1	288.35
606-604	CIRCULAR	0.46	0.16	0.11	0.46	1	212.63
608-606	CIRCULAR	0.38	0.11	0.10	0.38	1	106.64
610-612	CIRCULAR	0.38	0.11	0.10	0.38	1	114.79
612-614	CIRCULAR	0.53	0.22	0.13	0.53	1	195.39
614-204	CIRCULAR	0.53	0.22	0.13	0.53	1	206.55
700-302	CIRCULAR	0.69	0.37	0.17	0.69	1	402.19
702-700	CIRCULAR	0.61	0.29	0.15	0.61	1	318.02
704-702	CIRCULAR	0.53	0.22	0.13	0.53	1	223.30
706-704	CIRCULAR	0.38	0.11	0.10	0.38	1	129.50
708-706	CIRCULAR	0.38	0.11	0.10	0.38	1	109.32
710-712	CIRCULAR	0.38	0.11	0.10	0.38	1	98.39
712-714	CIRCULAR	0.53	0.22	0.13	0.53	1	241.71
714-304	CIRCULAR	0.61	0.29	0.15	0.61	1	283.95
716-206	CIRCULAR	0.53	0.22	0.13	0.53	1	197.63
718-716	CIRCULAR	0.46	0.16	0.11	0.46	1	164.29
720-718	CIRCULAR	0.46	0.16	0.11	0.46	1	168.03
C1	22m-RightParking	0.35	3.40	0.17	22.00	1	10893.94
C10	18m-NoParking	0.35	3.32	0.20	18.00	1	6745.24
C100	TRIANGULAR	0.40	0.48	0.19	2.40	1	650.75
C101	TRIANGULAR	0.40	0.48	0.19	2.40	1	402.45
C102	TRIANGULAR	0.40	0.48	0.19	2.40	1	399.89
C103	TRIANGULAR	0.40	0.48	0.19	2.40	1	750.70
C104	TRIANGULAR	0.40	0.48	0.19	2.40	1	594.27
C105	TRIANGULAR	0.40	0.48	0.19	2.40	1	933.34
C106	TRIANGULAR	0.40	0.48	0.19	2.40	1	605.83
C107	TRIANGULAR	0.40	0.48	0.19	2.40	1	902.51

C108	TRIANGULAR	0.40	0.48	0.19	2.40	1	823.16
C109	TRIANGULAR	0.40	0.48	0.19	2.40	1	577.51
C11	18m-NoParking	0.35	3.32	0.20	18.00	1	7066.22
C110	TRIANGULAR	0.40	0.48	0.19	2.40	1	605.69
C111	TRIANGULAR	0.40	0.48	0.19	2.40	1	550.35
C112	TRIANGULAR	0.40	0.48	0.19	2.40	1	606.32
C113	TRIANGULAR	0.40	0.48	0.19	2.40	1	760.68
C114	TRIANGULAR	0.40	0.48	0.19	2.40	1	813.58
C115	TRIANGULAR	0.40	0.48	0.19	2.40	1	697.89
C116	TRIANGULAR	0.40	0.48	0.19	2.40	1	636.40
C117	TRIANGULAR	0.40	0.48	0.19	2.40	1	563.12
C118	TRIANGULAR	0.40	0.48	0.19	2.40	1	872.37
C119	TRIANGULAR	0.35	0.42	0.17	2.40	1	399.39
C12	18m-NoParking	0.35	3.32	0.20	18.00	1	5751.89
C120	TRIANGULAR	0.40	0.48	0.19	2.40	1	533.31
C121	TRIANGULAR	0.40	0.48	0.19	2.40	1	825.25
C122	TRIANGULAR	0.40	0.48	0.19	2.40	1	586.25
C123	TRIANGULAR	0.40	0.48	0.19	2.40	1	674.87
C124	TRIANGULAR	0.40	0.48	0.19	2.40	1	657.29
C125	TRIANGULAR	0.40	0.48	0.19	2.40	1	663.01
C126	TRIANGULAR	0.40	0.48	0.19	2.40	1	905.18
C127	TRIANGULAR	0.35	0.42	0.17	2.40	1	426.63
C128	TRIANGULAR	0.40	0.48	0.19	2.40	1	693.08
C129	TRIANGULAR	0.40	0.48	0.19	2.40	1	656.59
C13	18m-NoParking	0.35	3.32	0.20	18.00	1	6072.80
C130	TRIANGULAR	0.40	0.48	0.19	2.40	1	702.93
C131	TRIANGULAR	0.40	0.48	0.19	2.40	1	527.95
C132	TRIANGULAR	0.40	0.48	0.19	2.40	1	638.60
C133	TRIANGULAR	0.40	0.48	0.19	2.40	1	486.49
C134	TRIANGULAR	0.40	0.48	0.19	2.40	1	569.40
C135	TRIANGULAR	0.40	0.48	0.19	2.40	1	396.26
C136	TRIANGULAR	0.40	0.48	0.19	2.40	1	515.70
C137	TRIANGULAR	0.40	0.48	0.19	2.40	1	555.09
C138	TRIANGULAR	0.35	0.42	0.17	2.40	1	414.03
C139	TRIANGULAR	0.40	0.48	0.19	2.40	1	533.41
C14	18m-NoParking	0.35	3.32	0.20	18.00	1	6197.22
C140	TRIANGULAR	0.40	0.48	0.19	2.40	1	646.67
C141	TRIANGULAR	0.40	0.48	0.19	2.40	1	606.57
C142	TRIANGULAR	0.35	0.42	0.17	2.40	1	425.97
C143	TRIANGULAR	0.40	0.48	0.19	2.40	1	999.87
C144	TRIANGULAR	0.35	0.42	0.17	2.40	1	491.20
C145	TRIANGULAR	0.40	0.48	0.19	2.40	1	851.37
C146	TRIANGULAR	0.40	0.48	0.19	2.40	1	1766.42
C147	TRIANGULAR	0.35	0.42	0.17	2.40	1	864.71
C148	TRIANGULAR	0.40	0.48	0.19	2.40	1	994.44
C149	TRIANGULAR	0.40	0.48	0.19	2.40	1	925.84
C15	18m-NoParking	0.35	3.32	0.20	18.00	1	6884.18
C150	TRIANGULAR	0.40	0.48	0.19	2.40	1	1017.56
C151	18m-NoParking	0.35	3.32	0.20	18.00	1	6213.99
C151_1	18m-NoParking	0.35	3.32	0.20	18.00	1	2666.53
C152	18m-NoParking	0.35	3.32	0.20	18.00	1	2820.48
C153	18m-NoParking	0.35	3.32	0.20	18.00	1	7438.13
C154	18m-NoParking	0.35	3.32	0.20	18.00	1	6129.19
C155	18m-NoParking	0.35	3.32	0.20	18.00	1	7740.33
C156	18m-NoParking	0.35	3.32	0.20	18.00	1	5914.25
C157	18m-NoParking	0.35	3.32	0.20	18.00	1	7260.35
C158	18m-NoParking	0.35	3.32	0.20	18.00	1	6030.15
C159	18m-NoParking	0.35	3.32	0.20	18.00	1	5842.02
C16	18m-NoParking	0.35	3.32	0.20	18.00	1	6160.96
C160	18m-NoParking	0.35	3.32	0.20	18.00	1	6300.05
C161	18m-NoParking	0.35	3.32	0.20	18.00	1	6578.30
C162	18m-NoParking	0.35	3.32	0.20	18.00	1	5726.75
C163	18m-NoParking	0.35	3.32	0.20	18.00	1	5912.62
C164	18m-NoParking	0.35	3.32	0.20	18.00	1	6061.78
C165	18m-NoParking	0.35	3.32	0.20	18.00	1	6401.95
C166	18m-NoParking	0.35	3.32	0.20	18.00	1	7355.48
C167	18m-NoParking	0.35	3.32	0.20	18.00	1	344.41
C168	18m-NoParking	0.35	3.32	0.20	18.00	1	5583.42
C169	18m-NoParking	0.35	3.32	0.20	18.00	1	6903.40
C17	18m-NoParking	0.35	3.32	0.20	18.00	1	5588.51
C170	18m-NoParking	0.35	3.32	0.20	18.00	1	341.08
C171	18m-NoParking	0.35	3.32	0.20	18.00	1	6928.08
C172	18m-NoParking	0.35	3.32	0.20	18.00	1	7201.79
C173	18m-NoParking	0.35	3.32	0.20	18.00	1	5802.70
C174	18m-NoParking	0.35	3.32	0.20	18.00	1	7131.65
C175	TRAPEZOIDAL	0.13	0.66	0.11	6.08	1	482.96
C176	TRAPEZOIDAL	0.13	0.66	0.11	6.08	1	452.82
C177	TRIANGULAR	0.40	0.48	0.19	2.40	1	550.69
C178	TRIANGULAR	0.40	0.48	0.19	2.40	1	728.31
C179	TRIANGULAR	0.40	0.48	0.19	2.40	1	319.46
C18	18m-NoParking	0.35	3.32	0.20	18.00	1	6343.32
C180	TRIANGULAR	0.40	0.48	0.19	2.40	1	652.17

C181	TRIANGULAR	0.40	0.48	0.19	2.40	1	784.84
C182	TRIANGULAR	0.40	0.48	0.19	2.40	1	326.90
C183	TRIANGULAR	0.40	0.48	0.19	2.40	1	303.49
C184	TRIANGULAR	0.40	0.48	0.19	2.40	1	853.18
C185	TRIANGULAR	0.40	0.48	0.19	2.40	1	696.74
C186	TRIANGULAR	0.40	0.48	0.19	2.40	1	319.24
C187	TRIANGULAR	0.40	0.48	0.19	2.40	1	752.99
C188	TRIANGULAR	0.40	0.48	0.19	2.40	1	702.47
C189	TRIANGULAR	0.40	0.48	0.19	2.40	1	750.21
C19	18m-NoParking	0.35	3.32	0.20	18.00	1	5546.70
C190	TRIANGULAR	0.35	0.42	0.17	2.40	1	584.78
C191	TRIANGULAR	0.40	0.48	0.19	2.40	1	587.76
C192	TRIANGULAR	0.40	0.48	0.19	2.40	1	300.66
C193	TRIANGULAR	0.40	0.48	0.19	2.40	1	388.65
C194	TRIANGULAR	0.40	0.48	0.19	2.40	1	761.47
C195	TRIANGULAR	0.40	0.48	0.19	2.40	1	653.82
C196	TRIANGULAR	0.40	0.48	0.19	2.40	1	751.69
C197	TRIANGULAR	0.40	0.48	0.19	2.40	1	522.19
C198	TRIANGULAR	0.40	0.48	0.19	2.40	1	654.48
C199	TRIANGULAR	0.40	0.48	0.19	2.40	1	310.07
C2	22m-LeftParking	0.35	3.40	0.17	22.00	1	5026.02
C20	22m-RightParking	0.35	3.40	0.17	22.00	1	5726.54
C200	TRIANGULAR	0.40	0.48	0.19	2.40	1	367.34
C201	TRIANGULAR	0.40	0.48	0.19	2.40	1	377.49
C202	TRIANGULAR	0.40	0.48	0.19	2.40	1	329.47
C203	TRIANGULAR	0.40	0.48	0.19	2.40	1	665.18
C204	TRIANGULAR	0.40	0.48	0.19	2.40	1	667.06
C205	TRIANGULAR	0.40	0.48	0.19	2.40	1	312.78
C206	TRIANGULAR	0.40	0.48	0.19	2.40	1	342.65
C207	TRIANGULAR	0.40	0.48	0.19	2.40	1	314.61
C208	TRIANGULAR	0.40	0.48	0.19	2.40	1	340.89
C209	TRIANGULAR	0.40	0.48	0.19	2.40	1	318.69
C21	22m-LeftParking	0.35	3.40	0.17	22.00	1	7203.57
C210	TRIANGULAR	0.40	0.48	0.19	2.40	1	666.30
C211	TRIANGULAR	0.40	0.48	0.19	2.40	1	673.58
C212	TRIANGULAR	0.35	0.42	0.17	2.40	1	994.70
C213	TRIANGULAR	0.40	0.48	0.19	2.40	1	681.93
C214	TRIANGULAR	0.40	0.48	0.19	2.40	1	301.86
C215	TRIANGULAR	0.40	0.48	0.19	2.40	1	822.37
C216	TRIANGULAR	0.40	0.48	0.19	2.40	1	662.98
C217	TRIANGULAR	0.40	0.48	0.19	2.40	1	298.53
C218	TRIANGULAR	0.40	0.48	0.19	2.40	1	674.09
C219	TRIANGULAR	0.35	0.42	0.17	2.40	1	772.88
C22	22m-RightParking	0.35	3.40	0.17	22.00	1	7848.79
C220	TRIANGULAR	0.40	0.48	0.19	2.40	1	609.80
C221	TRIANGULAR	0.40	0.48	0.19	2.40	1	309.23
C222	TRIANGULAR	0.40	0.48	0.19	2.40	1	298.91
C223	TRIANGULAR	0.40	0.48	0.19	2.40	1	785.68
C224	TRIANGULAR	0.40	0.48	0.19	2.40	1	784.47
C225	TRIANGULAR	0.40	0.48	0.19	2.40	1	294.90
C226	TRIANGULAR	0.40	0.48	0.19	2.40	1	305.58
C227	TRIANGULAR	0.40	0.48	0.19	2.40	1	980.28
C228	TRIANGULAR	0.40	0.48	0.19	2.40	1	1011.76
C229	TRIANGULAR	0.40	0.48	0.19	2.40	1	309.41
C23	TRIANGULAR	0.40	0.48	0.19	2.40	1	557.34
C23_1	22m-RightParking	0.35	3.40	0.17	22.00	1	7110.01
C23_2	22m-RightParking	0.35	3.40	0.17	22.00	1	6220.90
C23_3	TRIANGULAR	0.40	0.48	0.19	2.40	1	451.51
C23_4	TRIANGULAR	0.40	0.48	0.19	2.40	1	408.85
C23_5	TRIANGULAR	0.40	0.48	0.19	2.40	1	643.63
C23_6	TRIANGULAR	0.40	0.48	0.19	2.40	1	697.01
C23_7	TRIANGULAR	0.40	0.48	0.19	2.40	1	769.99
C23_8	TRIANGULAR	0.40	0.48	0.19	2.40	1	699.18
C230	TRIANGULAR	0.40	0.48	0.19	2.40	1	305.67
C231	TRIANGULAR	0.40	0.48	0.19	2.40	1	483.14
C232	TRIANGULAR	0.40	0.48	0.19	2.40	1	819.68
C233	TRIANGULAR	0.40	0.48	0.19	2.40	1	302.52
C234	TRIANGULAR	0.40	0.48	0.19	2.40	1	544.01
C235	TRIANGULAR	0.35	0.42	0.17	2.40	1	588.80
C236	TRIANGULAR	0.40	0.48	0.19	2.40	1	991.37
C237	TRIANGULAR	0.40	0.48	0.19	2.40	1	301.21
C238	TRIANGULAR	0.40	0.48	0.19	2.40	1	636.54
C239	TRIANGULAR	0.35	0.42	0.17	2.40	1	775.24
C24	22m-LeftParking	0.35	3.40	0.17	22.00	1	3778.68
C240	TRIANGULAR	0.35	0.42	0.17	2.40	1	571.78
C241	TRIANGULAR	0.40	0.48	0.19	2.40	1	630.37
C242	TRIANGULAR	0.40	0.48	0.19	2.40	1	314.14
C243	TRIANGULAR	0.40	0.48	0.19	2.40	1	915.21
C244	TRIANGULAR	0.40	0.48	0.19	2.40	1	911.66
C245	TRIANGULAR	0.40	0.48	0.19	2.40	1	309.56
C246	TRIANGULAR	0.40	0.48	0.19	2.40	1	609.58
C247	TRIANGULAR	0.35	0.42	0.17	2.40	1	838.82

C248	TRIANGULAR	0.40	0.48	0.19	2.40	1	573.87
C249	TRIANGULAR	0.40	0.48	0.19	2.40	1	306.38
C25	18m-NoParking	0.35	3.32	0.20	18.00	1	7728.02
C250	TRIANGULAR	0.40	0.48	0.19	2.40	1	307.73
C251	TRIANGULAR	0.40	0.48	0.19	2.40	1	362.55
C252	TRIANGULAR	0.40	0.48	0.19	2.40	1	310.76
C253	TRIANGULAR	0.40	0.48	0.19	2.40	1	306.56
C254	TRIANGULAR	0.40	0.48	0.19	2.40	1	333.03
C255	TRIANGULAR	0.40	0.48	0.19	2.40	1	306.46
C256	TRIANGULAR	0.40	0.48	0.19	2.40	1	598.37
C257	TRIANGULAR	0.40	0.48	0.19	2.40	1	549.90
C258	TRIANGULAR	0.40	0.48	0.19	2.40	1	530.90
C259	TRIANGULAR	0.40	0.48	0.19	2.40	1	414.39
C26	TRIANGULAR	0.35	0.42	0.17	2.40	1	444.53
C26_1	18m-NoParking	0.35	3.32	0.20	18.00	1	1369.20
C26_2	18m-NoParking	0.35	3.32	0.20	18.00	1	5877.45
C260	TRIANGULAR	0.40	0.48	0.19	2.40	1	719.09
C261	TRIANGULAR	0.40	0.48	0.19	2.40	1	775.36
C262	TRIANGULAR	0.40	0.48	0.19	2.40	1	417.72
C263	TRIANGULAR	0.40	0.48	0.19	2.40	1	427.05
C264	TRIANGULAR	0.40	0.48	0.19	2.40	1	1018.09
C265	TRIANGULAR	0.40	0.48	0.19	2.40	1	719.40
C266	TRIANGULAR	0.40	0.48	0.19	2.40	1	431.62
C267	TRIANGULAR	0.40	0.48	0.19	2.40	1	421.03
C268	TRIANGULAR	0.40	0.48	0.19	2.40	1	900.76
C269	TRIANGULAR	0.40	0.48	0.19	2.40	1	1065.56
C27	18m-NoParking	0.35	3.32	0.20	18.00	1	6676.26
C270	TRIANGULAR	0.40	0.48	0.19	2.40	1	391.89
C271	TRIANGULAR	0.40	0.48	0.19	2.40	1	1019.20
C272	TRIANGULAR	0.40	0.48	0.19	2.40	1	480.86
C273	TRIANGULAR	0.40	0.48	0.19	2.40	1	594.34
C274	TRIANGULAR	0.40	0.48	0.19	2.40	1	308.52
C275	TRIANGULAR	0.40	0.48	0.19	2.40	1	317.59
C276	TRIANGULAR	0.40	0.48	0.19	2.40	1	446.88
C277	TRIANGULAR	0.40	0.48	0.19	2.40	1	322.91
C278	TRIANGULAR	0.40	0.48	0.19	2.40	1	558.42
C279	TRIANGULAR	0.35	0.42	0.17	2.40	1	336.84
C28	18m-NoParking	0.35	3.32	0.20	18.00	1	6438.45
C280	TRIANGULAR	0.40	0.48	0.19	2.40	1	690.77
C281	TRIANGULAR	0.40	0.48	0.19	2.40	1	645.67
C282	TRIANGULAR	0.40	0.48	0.19	2.40	1	305.48
C283	TRIANGULAR	0.40	0.48	0.19	2.40	1	297.32
C284	TRIANGULAR	0.40	0.48	0.19	2.40	1	295.43
C285	TRIANGULAR	0.40	0.48	0.19	2.40	1	284.43
C286	TRIANGULAR	0.40	0.48	0.19	2.40	1	296.79
C287	TRIANGULAR	0.40	0.48	0.19	2.40	1	287.76
C288	TRIANGULAR	0.40	0.48	0.19	2.40	1	1164.64
C289	TRIANGULAR	0.40	0.48	0.19	2.40	1	316.03
C29	22m-NoParking	0.35	3.68	0.18	22.00	1	361.46
C290	TRIANGULAR	0.40	0.48	0.19	2.40	1	397.61
C291	TRIANGULAR	0.40	0.48	0.19	2.40	1	432.88
C292	TRIANGULAR	0.40	0.48	0.19	2.40	1	1265.87
C293	RECT_OPEN	0.35	1.05	0.28	3.00	1	9713.64
C294	RECT_OPEN	0.35	1.05	0.28	3.00	1	12693.13
C295	RECT_CLOSED	0.95	0.41	0.15	0.43	1	170.39
C296	RECT_CLOSED	0.95	0.41	0.15	0.43	1	179.62
C297	RECT_CLOSED	0.95	0.41	0.15	0.43	1	179.62
C298	RECT_CLOSED	0.95	0.41	0.15	0.43	1	173.45
C299	RECT_CLOSED	0.95	0.41	0.15	0.43	1	167.08
C3	22m-NoParking	0.35	3.68	0.18	22.00	1	5093.25
C30	22m-NoParking	0.35	3.68	0.18	22.00	1	3487.75
C300	18m-NoParking	0.35	3.32	0.20	18.00	1	9757.26
C301	18m-NoParking	0.35	3.32	0.20	18.00	1	7282.77
C302	18m-NoParking	0.35	3.32	0.20	18.00	1	9183.89
C303	18m-NoParking	0.35	3.32	0.20	18.00	1	7131.69
C304	18m-NoParking	0.35	3.32	0.20	18.00	1	4003.81
C305	18m-NoParking	0.35	3.32	0.20	18.00	1	6492.58
C306	18m-NoParking	0.35	3.32	0.20	18.00	1	5619.72
C307	18m-NoParking	0.35	3.32	0.20	18.00	1	7782.58
C308	18m-NoParking	0.35	3.32	0.20	18.00	1	6524.35
C309	18m-NoParking	0.35	3.32	0.20	18.00	1	8185.63
C31	TRIANGULAR	0.35	0.42	0.17	2.40	1	432.35
C310	18m-NoParking	0.35	3.32	0.20	18.00	1	5503.76
C311	18m-NoParking	0.35	3.32	0.20	18.00	1	6024.50
C312	18m-NoParking	0.35	3.32	0.20	18.00	1	6500.70
C313	18m-NoParking	0.35	3.32	0.20	18.00	1	8316.82
C314	18m-NoParking	0.35	3.32	0.20	18.00	1	6671.23
C315	18m-NoParking	0.35	3.32	0.20	18.00	1	8016.73
C316	18m-NoParking	0.35	3.32	0.20	18.00	1	5861.60
C317	18m-NoParking	0.35	3.32	0.20	18.00	1	8874.17
C318	18m-NoParking	0.35	3.32	0.20	18.00	1	5213.92
C319	18m-NoParking	0.35	3.32	0.20	18.00	1	6319.41

C32	22m-NoParking	0.35	3.68	0.18	22.00	1	1661.59
C320	18m-NoParking	0.35	3.32	0.20	18.00	1	7835.68
C321	18m-NoParking	0.35	3.32	0.20	18.00	1	3258.24
C322	18m-NoParking	0.35	3.32	0.20	18.00	1	9449.35
C323	18m-NoParking	0.35	3.32	0.20	18.00	1	4964.11
C324	TRIANGULAR	0.35	0.42	0.17	2.40	1	677.69
C325	TRIANGULAR	0.40	0.48	0.19	2.40	1	584.95
C326	TRIANGULAR	0.40	0.48	0.19	2.40	1	512.41
C327	TRIANGULAR	0.40	0.48	0.19	2.40	1	503.34
C328	TRIANGULAR	0.40	0.48	0.19	2.40	1	660.38
C329	TRIANGULAR	0.35	0.42	0.17	2.40	1	746.19
C33	22m-NoParking	0.35	3.68	0.18	22.00	1	5287.44
C330	TRIANGULAR	0.40	0.48	0.19	2.40	1	441.77
C331	TRIANGULAR	0.40	0.48	0.19	2.40	1	438.90
C332	TRIANGULAR	0.40	0.48	0.19	2.40	1	362.16
C333	TRIANGULAR	0.40	0.48	0.19	2.40	1	837.44
C334	TRIANGULAR	0.40	0.48	0.19	2.40	1	759.83
C335	TRIANGULAR	0.40	0.48	0.19	2.40	1	444.70
C336	TRIANGULAR	0.40	0.48	0.19	2.40	1	730.24
C337	TRIANGULAR	0.40	0.48	0.19	2.40	1	759.65
C338	TRIANGULAR	0.40	0.48	0.19	2.40	1	825.98
C339	TRIANGULAR	0.40	0.48	0.19	2.40	1	377.24
C34	TRIANGULAR	0.35	0.42	0.17	2.40	1	3143.59
C34_1	TRIANGULAR	0.40	0.48	0.19	2.40	1	803.46
C34_2	TRIANGULAR	0.40	0.48	0.19	2.40	1	381.83
C340	TRIANGULAR	0.40	0.48	0.19	2.40	1	356.91
C341	TRIANGULAR	0.40	0.48	0.19	2.40	1	623.32
C342	TRIANGULAR	0.40	0.48	0.19	2.40	1	770.64
C343	TRIANGULAR	0.40	0.48	0.19	2.40	1	431.59
C344	TRIANGULAR	0.40	0.48	0.19	2.40	1	370.91
C345	TRIANGULAR	0.40	0.48	0.19	2.40	1	578.81
C346	TRIANGULAR	0.40	0.48	0.19	2.40	1	447.72
C347	TRIANGULAR	0.40	0.48	0.19	2.40	1	722.43
C348	TRIANGULAR	0.35	0.42	0.17	2.40	1	783.88
C349	TRIANGULAR	0.40	0.48	0.19	2.40	1	470.30
C35	TRIANGULAR	0.35	0.42	0.17	2.40	1	687.37
C35_1	TRIANGULAR	0.40	0.48	0.19	2.40	1	653.04
C35_2	TRIANGULAR	0.40	0.48	0.19	2.40	1	357.53
C350	TRIANGULAR	0.40	0.48	0.19	2.40	1	495.55
C351	TRIANGULAR	0.40	0.48	0.19	2.40	1	910.39
C352	TRIANGULAR	0.35	0.42	0.17	2.40	1	470.99
C353	TRIANGULAR	0.40	0.48	0.19	2.40	1	670.96
C354	TRIANGULAR	0.40	0.48	0.19	2.40	1	866.10
C355	TRIANGULAR	0.40	0.48	0.19	2.40	1	553.65
C356	TRIANGULAR	0.40	0.48	0.19	2.40	1	551.63
C357	TRIANGULAR	0.40	0.48	0.19	2.40	1	491.59
C358	TRIANGULAR	0.40	0.48	0.19	2.40	1	498.29
C359	TRIANGULAR	0.40	0.48	0.19	2.40	1	382.58
C36	TRIANGULAR	0.35	0.42	0.17	2.40	1	910.44
C36_1	TRIANGULAR	0.40	0.48	0.19	2.40	1	734.42
C36_2	TRIANGULAR	0.40	0.48	0.19	2.40	1	392.50
C360	TRIANGULAR	0.40	0.48	0.19	2.40	1	438.61
C361	TRIANGULAR	0.40	0.48	0.19	2.40	1	612.73
C362	TRIANGULAR	0.40	0.48	0.19	2.40	1	594.77
C363	TRIANGULAR	0.40	0.48	0.19	2.40	1	690.15
C364	TRIANGULAR	0.40	0.48	0.19	2.40	1	481.64
C365	TRIANGULAR	0.40	0.48	0.19	2.40	1	443.45
C366	TRIANGULAR	0.40	0.48	0.19	2.40	1	480.89
C367	TRIANGULAR	0.40	0.48	0.19	2.40	1	483.25
C368	TRIANGULAR	0.40	0.48	0.19	2.40	1	528.61
C369	TRIANGULAR	0.40	0.48	0.19	2.40	1	400.05
C37	TRIANGULAR	0.35	0.42	0.17	2.40	1	494.11
C37_1	TRIANGULAR	0.40	0.48	0.19	2.40	1	742.63
C37_2	TRIANGULAR	0.40	0.48	0.19	2.40	1	314.82
C370	TRIANGULAR	0.40	0.48	0.19	2.40	1	397.73
C371	TRIANGULAR	0.40	0.48	0.19	2.40	1	400.98
C372	TRIANGULAR	0.40	0.48	0.19	2.40	1	399.13
C373	TRIANGULAR	0.40	0.48	0.19	2.40	1	548.21
C374	TRIANGULAR	0.40	0.48	0.19	2.40	1	465.15
C375	TRIANGULAR	0.40	0.48	0.19	2.40	1	486.08
C376	TRIANGULAR	0.40	0.48	0.19	2.40	1	798.65
C377	TRIANGULAR	0.40	0.48	0.19	2.40	1	1182.82
C378	TRIANGULAR	0.40	0.48	0.19	2.40	1	951.88
C379	TRIANGULAR	0.35	0.42	0.17	2.40	1	931.49
C38	TRIANGULAR	0.40	0.48	0.19	2.40	1	665.34
C39	TRIANGULAR	0.40	0.48	0.19	2.40	1	553.66
C4	22m-LeftParking	0.35	3.40	0.17	22.00	1	4725.85
C40	TRIANGULAR	0.40	0.48	0.19	2.40	1	533.82
C41	TRIANGULAR	0.40	0.48	0.19	2.40	1	536.14
C42	TRIANGULAR	0.40	0.48	0.19	2.40	1	425.09
C43	TRIANGULAR	0.40	0.48	0.19	2.40	1	465.17
C44	TRIANGULAR	0.40	0.48	0.19	2.40	1	488.73

C45	TRIANGULAR	0.40	0.48	0.19	2.40	1	515.21
C46	TRIANGULAR	0.40	0.48	0.19	2.40	1	525.97
C47	TRIANGULAR	0.40	0.48	0.19	2.40	1	585.27
C48	TRIANGULAR	0.40	0.48	0.19	2.40	1	484.25
C49	TRIANGULAR	0.40	0.48	0.19	2.40	1	497.33
C5	22m-NoParking	0.35	3.68	0.18	22.00	1	7004.23
C50	TRIANGULAR	0.40	0.48	0.19	2.40	1	704.02
C51	TRIANGULAR	0.40	0.48	0.19	2.40	1	776.23
C52	TRIANGULAR	0.40	0.48	0.19	2.40	1	614.70
C53	TRIANGULAR	0.40	0.48	0.19	2.40	1	633.84
C54	TRIANGULAR	0.40	0.48	0.19	2.40	1	628.76
C55	TRIANGULAR	0.40	0.48	0.19	2.40	1	510.04
C56	TRIANGULAR	0.40	0.48	0.19	2.40	1	530.70
C57	TRIANGULAR	0.40	0.48	0.19	2.40	1	590.37
C58	TRIANGULAR	0.40	0.48	0.19	2.40	1	456.29
C59	TRIANGULAR	0.40	0.48	0.19	2.40	1	489.70
C6	22m-NoParking	0.35	3.68	0.18	22.00	1	2908.63
C6_2	22m-NoParking	0.35	3.68	0.18	22.00	1	6465.37
C60	TRIANGULAR	0.40	0.48	0.19	2.40	1	615.83
C61	TRIANGULAR	0.40	0.48	0.19	2.40	1	1204.26
C62	TRIANGULAR	0.40	0.48	0.19	2.40	1	750.75
C63	TRIANGULAR	0.35	0.42	0.17	2.40	1	438.71
C64	TRIANGULAR	0.40	0.48	0.19	2.40	1	614.31
C65	TRIANGULAR	0.40	0.48	0.19	2.40	1	788.96
C66	TRIANGULAR	0.40	0.48	0.19	2.40	1	1030.81
C67	TRIANGULAR	0.40	0.48	0.19	2.40	1	603.05
C68	TRIANGULAR	0.40	0.48	0.19	2.40	1	546.72
C69	TRIANGULAR	0.40	0.48	0.19	2.40	1	778.21
C7	22m-NoParking	0.35	3.68	0.18	22.00	1	6871.10
C70	TRIANGULAR	0.40	0.48	0.19	2.40	1	852.44
C71	TRIANGULAR	0.40	0.48	0.19	2.40	1	619.95
C72	TRIANGULAR	0.35	0.42	0.17	2.40	1	457.21
C73	TRIANGULAR	0.40	0.48	0.19	2.40	1	678.50
C74	TRIANGULAR	0.40	0.48	0.19	2.40	1	630.17
C75	TRIANGULAR	0.40	0.48	0.19	2.40	1	767.60
C76	TRIANGULAR	0.40	0.48	0.19	2.40	1	615.49
C77	TRIANGULAR	0.40	0.48	0.19	2.40	1	966.67
C78	TRIANGULAR	0.40	0.48	0.19	2.40	1	763.25
C79	TRIANGULAR	0.40	0.48	0.19	2.40	1	1092.98
C8	22m-RightParking	0.35	3.40	0.17	22.00	1	5302.26
C80	TRIANGULAR	0.40	0.48	0.19	2.40	1	933.78
C81	TRIANGULAR	0.40	0.48	0.19	2.40	1	1547.83
C82	TRIANGULAR	0.35	0.42	0.17	2.40	1	434.76
C83	TRIANGULAR	0.40	0.48	0.19	2.40	1	1421.82
C84	TRIANGULAR	0.35	0.42	0.17	2.40	1	474.06
C85	18m-NoParking	0.35	3.32	0.20	18.00	1	8267.85
C85_1	TRIANGULAR	0.40	0.48	0.19	2.40	1	575.36
C85_2	TRIANGULAR	0.40	0.48	0.19	2.40	1	406.14
C86	TRIANGULAR	0.40	0.48	0.19	2.40	1	517.45
C87	TRIANGULAR	0.40	0.48	0.19	2.40	1	707.03
C88	TRIANGULAR	0.40	0.48	0.19	2.40	1	756.22
C89	TRIANGULAR	0.40	0.48	0.19	2.40	1	610.74
C9	22m-LeftParking	0.35	3.40	0.17	22.00	1	4931.73
C90	TRIANGULAR	0.40	0.48	0.19	2.40	1	559.52
C91	TRIANGULAR	0.40	0.48	0.19	2.40	1	659.76
C92	TRIANGULAR	0.40	0.48	0.19	2.40	1	561.54
C93	TRIANGULAR	0.40	0.48	0.19	2.40	1	1632.66
C94	TRIANGULAR	0.35	0.42	0.17	2.40	1	363.18
C95	TRIANGULAR	0.40	0.48	0.19	2.40	1	944.82
C96	TRIANGULAR	0.35	0.42	0.17	2.40	1	464.96
C97	TRIANGULAR	0.40	0.48	0.19	2.40	1	523.50
C98	TRIANGULAR	0.40	0.48	0.19	2.40	1	591.39
C99	TRIANGULAR	0.40	0.48	0.19	2.40	1	557.82
CB-100_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.82
CB-101_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	59.57
CB-102_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	60.29
CB-103_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	40.82
CB-104_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.41
CB-105_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	37.60
CB-106_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.14
CB-108_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	59.63
CB-109_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	37.04
CB-112_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.48
CB-116_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.04
CB-117_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.90
CB-119_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.96
CB-120_(2)_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	44.12
CB-120_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.48
CB-122_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.47
CB-123_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.50
CB-125_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	40.69
CB-126_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.43

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CB-127_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.98
CB-130_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.13
CB-131_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	45.50
CB-133_(2)_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	47.20
CB-134_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.34
CB-136_(2)_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	37.45
CB-136_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	38.00
CB-138_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.16
CB-140_(2)_(1)_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	58.94
CB-140_(2)_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.83
CB-140_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.81
CB-141_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.68
CB-144_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.60
CB-149_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.49
CB-150_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	50.23
CB-153_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	71.62
CB-159_(3)_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	403.00
CB-159_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	398.47
CB-160_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.02
CB-161_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.35
CB-164_(2)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	188.35
CB-164_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	176.00
CB-166_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	188.46
CB-168_(CB)_1	CIRCULAR	0.46	0.16	0.11	0.46	1	189.25
CB-168_(CB)_2	CIRCULAR	0.46	0.16	0.11	0.46	1	187.46
CB-170_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.84
CB-175_(2)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	190.46
CB-175_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.33
CB-177_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	72.51
CB-180_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.09
CB-185_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.95
CB-187_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.41
CB-189_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.15
CB-209_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	187.50
CB-211_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.57
CB-215_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.05
CB-228_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	184.69
CB-229_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	189.11
CB-230_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.57
CB-231_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.95
CB-233_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.80
CB-234_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	184.64
CB-235_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	191.72
CB-236_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	189.08
CB-237_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	189.38
CB-239_(1)_(1)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	118.55
CB-239_(1)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	174.70
CB-239_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	206.94
CB-240_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	229.57
CB-245_(1)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	184.43
CB-245_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	190.56
CB-253_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	138.56
CB-257_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	134.67
CB-264_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	70.68
CB-268_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	137.96
CB-271_(1)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	184.77
CB-271_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	191.42
CB-273_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	70.37
CB-280_(1)_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	183.32
CB-280_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	189.06
CB-284_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	194.22
CB-288_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	70.35
CB-294_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.92
CB-386_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	185.98
CB-387_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	188.78
CB-388_(CB)	CIRCULAR	0.46	0.16	0.11	0.46	1	189.57
CB-391_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	310.67
CB-397_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	268.32
CB-398_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	291.39
CB-406_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	336.04
CB-408_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	335.68
CB-411_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	396.95
CB-413_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	398.33
CB-416_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	407.28
CB-418_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	395.97
CB-421_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	398.48
CB-423_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	397.39
CB-424_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	402.71
CB-427_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	402.39
CB-430_(CB)	CIRCULAR	0.61	0.29	0.15	0.61	1	413.23
CB-432_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	69.13
CB-436_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	72.06

CB-439_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	71.71
CB-444_(CB)	CIRCULAR	0.30	0.07	0.08	0.30	1	71.69
CB-98_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	42.91
CB-99_(CB)	CIRCULAR	0.25	0.05	0.06	0.25	1	41.90
LCB-1_(86)	CIRCULAR	0.46	0.16	0.11	0.46	1	132.86
LCB-1_(87)	CIRCULAR	0.46	0.16	0.11	0.46	1	140.06
LCB-1_(88)	CIRCULAR	0.46	0.16	0.11	0.46	1	140.06
LCB-1_(89)	CIRCULAR	0.46	0.16	0.11	0.46	1	135.25
LCB-1_(89)_(1)	CIRCULAR	0.46	0.16	0.11	0.46	1	130.28
x1000-116	CIRCULAR	0.53	0.22	0.13	0.53	1	226.07

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Transect Summary
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Transect 18m-NoParking
Area:

0.0005	0.0020	0.0044	0.0079	0.0123
0.0177	0.0241	0.0315	0.0399	0.0492
0.0596	0.0709	0.0832	0.0965	0.1108
0.1261	0.1423	0.1592	0.1761	0.1930
0.2099	0.2269	0.2445	0.2630	0.2821
0.3020	0.3226	0.3440	0.3661	0.3889
0.4125	0.4368	0.4618	0.4876	0.5141
0.5413	0.5693	0.5980	0.6275	0.6577
0.6886	0.7202	0.7526	0.7858	0.8196
0.8542	0.8896	0.9256	0.9625	1.0000

Hrad:

0.0171	0.0342	0.0513	0.0684	0.0855
0.1026	0.1197	0.1368	0.1539	0.1710
0.1881	0.2052	0.2223	0.2394	0.2565
0.2736	0.2907	0.3220	0.3555	0.3890
0.4223	0.4556	0.4875	0.5175	0.5461
0.5731	0.5989	0.6235	0.6471	0.6696
0.6913	0.7121	0.7322	0.7515	0.7702
0.7884	0.8060	0.8231	0.8397	0.8559
0.8717	0.8871	0.9022	0.9170	0.9315
0.9456	0.9596	0.9733	0.9867	1.0000

Width:

0.0260	0.0520	0.0779	0.1039	0.1299
0.1559	0.1818	0.2078	0.2338	0.2598
0.2858	0.3117	0.3377	0.3637	0.3897
0.4156	0.4416	0.4454	0.4454	0.4455
0.4455	0.4566	0.4760	0.4955	0.5149
0.5343	0.5537	0.5731	0.5925	0.6119
0.6313	0.6507	0.6701	0.6895	0.7089
0.7283	0.7477	0.7671	0.7865	0.8059
0.8254	0.8448	0.8642	0.8836	0.9030
0.9224	0.9418	0.9612	0.9806	1.0000

Transect 22m-LeftParking
Area:

0.0002	0.0010	0.0022	0.0039	0.0060
0.0087	0.0118	0.0154	0.0195	0.0241
0.0292	0.0348	0.0414	0.0489	0.0575
0.0670	0.0775	0.0890	0.1015	0.1150
0.1295	0.1450	0.1619	0.1803	0.2001
0.2213	0.2432	0.2656	0.2884	0.3116
0.3357	0.3608	0.3870	0.4143	0.4427
0.4722	0.5028	0.5345	0.5673	0.6011
0.6361	0.6722	0.7093	0.7476	0.7869
0.8273	0.8689	0.9115	0.9552	1.0000

Hrad:

0.0203	0.0406	0.0610	0.0813	0.1016
0.1219	0.1422	0.1626	0.1829	0.2032
0.2235	0.2431	0.2597	0.2747	0.2891
0.3036	0.3183	0.3333	0.3488	0.3647
0.3809	0.3975	0.4132	0.4283	0.4428
0.4391	0.4746	0.5095	0.5435	0.5768
0.6091	0.6393	0.6677	0.6945	0.7199
0.7440	0.7670	0.7889	0.8099	0.8300
0.8494	0.8682	0.8863	0.9038	0.9209
0.9375	0.9537	0.9694	0.9849	1.0000

Width:

0.0106	0.0213	0.0319	0.0425	0.0531
0.0638	0.0744	0.0850	0.0956	0.1063
0.1169	0.1339	0.1557	0.1775	0.1993
0.2211	0.2428	0.2646	0.2864	0.3082
0.3300	0.3574	0.3891	0.4208	0.4525
0.4780	0.4880	0.4979	0.5079	0.5178

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            0.5419     0.5660     0.5901     0.6143     0.6384
            0.6625     0.6866     0.7107     0.7348     0.7589
            0.7830     0.8071     0.8312     0.8553     0.8795
            0.9036     0.9277     0.9518     0.9759     1.0000

Transect 22m-NoParking
Area:
            0.0004     0.0016     0.0037     0.0066     0.0103
            0.0148     0.0201     0.0263     0.0332     0.0410
            0.0496     0.0591     0.0693     0.0804     0.0923
            0.1050     0.1185     0.1329     0.1480     0.1632
            0.1785     0.1939     0.2101     0.2273     0.2454
            0.2644     0.2844     0.3052     0.3271     0.3498
            0.3735     0.3981     0.4236     0.4501     0.4775
            0.5058     0.5351     0.5653     0.5964     0.6284
            0.6614     0.6953     0.7301     0.7659     0.8026
            0.8402     0.8788     0.9182     0.9587     1.0000
Hrad:
            0.0192     0.0384     0.0577     0.0769     0.0961
            0.1153     0.1345     0.1538     0.1730     0.1922
            0.2114     0.2306     0.2499     0.2691     0.2883
            0.3075     0.3267     0.3460     0.3731     0.4109
            0.4485     0.4859     0.5208     0.5530     0.5828
            0.6106     0.6364     0.6606     0.6833     0.7048
            0.7250     0.7443     0.7626     0.7802     0.7970
            0.8132     0.8288     0.8439     0.8586     0.8728
            0.8867     0.9002     0.9135     0.9265     0.9392
            0.9517     0.9641     0.9762     0.9882     1.0000
Width:
            0.0196     0.0392     0.0589     0.0785     0.0981
            0.1177     0.1374     0.1570     0.1766     0.1962
            0.2159     0.2355     0.2551     0.2747     0.2943
            0.3140     0.3336     0.3532     0.3644     0.3645
            0.3645     0.3773     0.3995     0.4217     0.4440
            0.4662     0.4885     0.5107     0.5329     0.5552
            0.5774     0.5997     0.6219     0.6441     0.6664
            0.6886     0.7109     0.7331     0.7553     0.7776
            0.7998     0.8221     0.8443     0.8666     0.8888
            0.9110     0.9333     0.9555     0.9778     1.0000

Transect 22m-RightParking
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Area:
            0.0002     0.0010     0.0022     0.0039     0.0060
            0.0087     0.0118     0.0154     0.0195     0.0241
            0.0292     0.0348     0.0414     0.0489     0.0575
            0.0670     0.0775     0.0890     0.1015     0.1150
            0.1295     0.1450     0.1619     0.1803     0.2001
            0.2213     0.2432     0.2656     0.2884     0.3116
            0.3357     0.3608     0.3870     0.4143     0.4427
            0.4722     0.5028     0.5345     0.5673     0.6011
            0.6361     0.6722     0.7093     0.7476     0.7869
            0.8273     0.8689     0.9115     0.9552     1.0000
Hrad:
            0.0203     0.0406     0.0610     0.0813     0.1016
            0.1219     0.1422     0.1626     0.1829     0.2032
            0.2235     0.2431     0.2597     0.2747     0.2891
            0.3036     0.3183     0.3333     0.3488     0.3647
            0.3809     0.3975     0.4132     0.4283     0.4428
            0.4391     0.4746     0.5095     0.5435     0.5768
            0.6091     0.6393     0.6677     0.6945     0.7199
            0.7440     0.7670     0.7889     0.8099     0.8300
            0.8494     0.8682     0.8863     0.9038     0.9209
            0.9375     0.9537     0.9694     0.9849     1.0000
Width:
            0.0106     0.0213     0.0319     0.0425     0.0531
            0.0638     0.0744     0.0850     0.0956     0.1063
            0.1169     0.1339     0.1557     0.1775     0.1993
            0.2211     0.2428     0.2646     0.2864     0.3082
            0.3300     0.3574     0.3891     0.4208     0.4525
            0.4780     0.4880     0.4979     0.5079     0.5178
            0.5419     0.5660     0.5901     0.6143     0.6384
            0.6625     0.6866     0.7107     0.7348     0.7589
            0.7830     0.8071     0.8312     0.8553     0.8795
            0.9036     0.9277     0.9518     0.9759     1.0000


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NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
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Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

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Analysis Options
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Flow Units ..... LPS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 02/20/2020 00:00:00
Ending Date ..... 02/21/2020 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:01:00
Wet Time Step ..... 00:01:00
Dry Time Step ..... 00:01:00
Routing Time Step ..... 2.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Initial LID Storage	0.009	0.389
Total Precipitation	1.618	71.667
Evaporation Loss	0.000	0.000
Infiltration Loss	0.448	19.858
Surface Runoff	1.172	51.905
Final Storage	0.009	0.389
Continuity Error (%)	-0.134	

	Volume	Volume

Flow Routing Continuity	hectare-m	10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.172	11.716
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.002
External Outflow	1.171	11.713
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.064	0.636
Final Stored Volume	0.064	0.637
Continuity Error (%)	0.041	

```
************************
Highest Continuity Errors
************************
Node 04+090 (32.34%)
Node 01+090 (8.07%)
Node 01+198 (5.59%)
Node 01+306 (3.51%)
Node J139 (2.77%)
```

```
*************************
Time-Step Critical Elements
*************************
None
```

```
*****************************
Highest Flow Instability Indexes
*****************************
Link CB-418_(CB) (2)
Link CB-416_(CB) (2)
Link CB-430_(CB) (1)
Link CB-294_(CB) (1)
Link CB-245_(CB) (1)
```

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

```
  *************************
  Routing Time Step Summary
  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     2.00 sec
  Maximum Time Step           :     2.00 sec
  Percent in Steady State     :     0.00
  Average Iterations per Step :     2.04
  Percent Not Converging      :     0.16
  Time Step Frequencies       :
      2.000 -  1.516 sec      :    99.90 %
      1.516 -  1.149 sec      :     0.06 %
      1.149 -  0.871 sec      :     0.03 %
      0.871 -  0.660 sec      :     0.01 %
      0.660 -  0.500 sec      :     0.01 %


  ***************************
  Subcatchment Runoff Summary
  ***************************
```

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
2-00	71.67	0.00	0.00	16.67	55.04	9.14	55.04	0.68	454.68	0.768
2-01A	71.67	0.00	0.00	13.68	58.08	8.56	58.08	0.05	37.98	0.810
2-01B	71.67	0.00	0.00	14.57	57.18	9.10	57.18	0.09	72.45	0.798
2-02	71.67	0.00	0.00	13.21	58.55	8.31	58.55	0.13	105.23	0.817
2-03	71.67	0.00	0.00	34.44	21.53	37.32	37.32	0.06	69.90	0.521
2-04	71.67	0.00	0.00	16.33	55.43	10.21	55.43	0.26	205.62	0.773
2-05	71.67	0.00	0.00	15.00	56.76	9.39	56.76	0.19	152.14	0.792
2-06	71.67	0.00	0.00	33.17	23.68	38.60	38.60	0.07	74.73	0.539
2-07	71.67	0.00	0.00	31.62	26.56	40.16	40.16	0.06	71.23	0.560
2-08	71.67	0.00	0.00	37.50	16.51	34.23	34.23	0.09	84.61	0.478
2-09	71.67	0.00	0.00	16.32	55.44	10.23	55.44	0.23	183.16	0.774
2-10	71.67	0.00	0.00	37.49	16.51	34.24	34.24	0.05	42.58	0.478
2-11	71.67	0.00	0.00	17.23	54.53	10.74	54.53	0.23	182.71	0.761
2-12	71.67	0.00	0.00	26.57	35.89	45.21	45.21	0.13	127.77	0.631
2-13	71.67	0.00	0.00	14.50	57.26	9.17	57.26	0.08	66.97	0.799
3-01	71.67	0.00	0.00	26.89	35.88	44.86	44.86	0.13	113.13	0.626
3-02	71.67	0.00	0.00	15.85	55.91	9.98	55.91	0.24	195.42	0.780
3-03	71.67	0.00	0.00	15.90	55.86	9.92	55.86	0.28	225.03	0.779
3-04	71.67	0.00	0.00	26.47	35.89	45.32	45.32	0.16	162.38	0.632
3-05	71.67	0.00	0.00	15.88	55.87	9.94	55.87	0.34	274.86	0.780
3-06	71.67	0.00	0.00	26.47	35.89	45.31	45.31	0.14	145.52	0.632
3-07	71.67	0.00	0.00	15.87	55.90	9.96	55.90	0.24	190.64	0.780
3-08	71.67	0.00	0.00	26.61	35.89	45.16	45.16	0.15	146.15	0.630
3-09	71.67	0.00	0.00	15.86	55.90	9.97	55.90	0.23	184.26	0.780
3-10	71.67	0.00	0.00	26.75	35.89	45.02	45.02	0.10	99.76	0.628
3-11	71.67	0.00	0.00	15.89	55.86	9.93	55.86	0.25	195.36	0.779
3-12	71.67	0.00	0.00	26.92	35.88	44.83	44.83	0.16	138.22	0.626

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

3-13_1	71.67	0.00	0.00	26.65	35.89	45.12	45.12	0.07
69.94	0.630							
3-13_2	71.67	0.00	0.00	26.56	35.89	45.22	45.22	0.03
31.10	0.631							
3-13_3	71.67	0.00	0.00	26.58	35.89	45.20	45.20	0.05
47.34	0.631							
3-13_4	71.67	0.00	0.00	26.54	35.89	45.24	45.24	0.03
30.30	0.631							
3-13_6	71.67	0.00	0.00	26.53	35.89	45.25	45.25	0.02
19.80	0.631							
3-14	71.67	0.00	0.00	15.85	55.91	9.98	55.91	0.07
54.13	0.780							
4A-01	71.67	0.00	0.00	13.63	58.13	8.61	58.13	0.19
146.65	0.811							
4A-02	71.67	0.00	0.00	23.92	40.20	47.87	47.87	0.25
245.06	0.668							
4A-03	71.67	0.00	0.00	12.74	59.03	8.07	59.03	0.25
195.05	0.824							
4A-04	71.67	0.00	0.00	12.74	59.03	8.07	59.03	0.21
168.37	0.824							
4A-05	71.67	0.00	0.00	21.69	50.06	13.45	50.06	0.13
109.39	0.698							
4A-06	71.67	0.00	0.00	17.21	54.55	10.77	54.55	0.17
141.37	0.761							
4A-07	71.67	0.00	0.00	25.22	38.05	46.58	46.58	0.12
124.14	0.650							
4A-08	71.67	0.00	0.00	26.06	36.61	45.73	45.73	0.14
140.80	0.638							
4A-09	71.67	0.00	0.00	13.64	58.12	8.60	58.12	0.22
176.85	0.811							
4A-10	71.67	0.00	0.00	26.05	36.61	45.74	45.74	0.18
179.09	0.638							
4A-11	71.67	0.00	0.00	26.46	35.89	45.33	45.33	0.17
175.22	0.633							
4A-12	71.67	0.00	0.00	14.97	56.79	9.42	56.79	0.15
120.83	0.792							
4A-13	71.67	0.00	0.00	23.44	40.92	48.35	48.35	0.19
182.52	0.675							
4A-14	71.67	0.00	0.00	13.18	58.58	8.34	58.58	0.20
156.61	0.817							
4B-01A	71.67	0.00	0.00	11.43	60.34	7.23	60.34	0.13
103.90	0.842							
4B-01B	71.67	0.00	0.00	13.17	58.59	8.35	58.59	0.12
98.72	0.818							

4B-02	71.67	0.00	0.00	21.55	43.79	50.25	50.25	0.13
125.70	0.701							
4B-03	71.67	0.00	0.00	12.74	59.03	8.07	59.03	0.18
144.22	0.824							
4B-04	71.67	0.00	0.00	13.63	58.13	8.61	58.13	0.21
162.16	0.811							
4B-05	71.67	0.00	0.00	26.05	36.61	45.74	45.74	0.13
130.23	0.638							
5A-01	71.67	0.00	0.00	12.83	58.92	7.97	58.92	0.15
117.62	0.822							
5A-02	71.67	0.00	0.00	24.74	38.76	47.05	47.05	0.15
146.10	0.657							
5A-03	71.67	0.00	0.00	11.85	59.92	7.52	59.92	0.23
178.59	0.836							
5A-04	71.67	0.00	0.00	26.20	36.61	45.57	45.57	0.18
178.27	0.636							
5A-05	71.67	0.00	0.00	13.73	58.02	8.51	58.02	0.13
97.12	0.810							
5A-06	71.67	0.00	0.00	22.51	42.35	49.29	49.29	0.07
64.55	0.688							
5A-07	71.67	0.00	0.00	11.84	59.92	7.53	59.92	0.16
126.00	0.836							
5B-01	71.67	0.00	0.00	13.18	58.59	8.35	58.59	0.20
159.40	0.818							
5B-02	71.67	0.00	0.00	23.43	40.92	48.37	48.37	0.10
96.08	0.675							
5B-03	71.67	0.00	0.00	11.86	59.90	7.51	59.90	0.24
187.48	0.836							
5B-04	71.67	0.00	0.00	12.74	59.02	8.06	59.02	0.22
176.56	0.824							
5B-05	71.67	0.00	0.00	11.95	59.79	7.41	59.79	0.17
127.87	0.834							
5B-06	71.67	0.00	0.00	11.40	60.37	7.26	60.37	0.23
181.50	0.842							
5B-07	71.67	0.00	0.00	24.82	38.76	46.96	46.96	0.20
194.75	0.655							
5B-08	71.67	0.00	0.00	11.43	60.33	7.22	60.33	0.28
213.94	0.842							
5B-09	71.67	0.00	0.00	14.56	57.19	9.11	57.19	0.12
96.48	0.798							
5B-10	71.67	0.00	0.00	42.47	10.05	29.24	29.24	0.12
69.68	0.408							
DR-1	71.67	0.00	0.00	38.29	14.35	33.45	33.45	0.01
8.60	0.467							

```
  DR-2                       71.67       0.00       0.00      43.60       0.00      28.20      28.20       0.01
16.63   0.394
  DR-5B                      71.67       0.00       0.00      38.38      12.19      33.44      33.44       0.02
21.17   0.467
  OS-1                       71.67       0.00       0.00      39.75      12.20      31.97      31.97       0.17
153.65   0.446


  ******************
  Node Depth Summary
  ******************
```

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
01+066	JUNCTION	0.00	0.00	89.61	0 00:00	0.00
01+090	JUNCTION	0.00	0.04	89.58	0 01:22	0.04
01+198	JUNCTION	0.00	0.04	89.52	0 01:21	0.04
01+306	JUNCTION	0.00	0.03	89.40	0 01:31	0.03
01+387	JUNCTION	0.00	0.08	89.38	0 01:24	0.08
01+412	JUNCTION	0.00	0.09	89.36	0 01:33	0.09
01+494	JUNCTION	0.00	0.05	89.41	0 01:24	0.05
01+517	JUNCTION	0.00	0.07	89.43	0 01:19	0.07
01+568	JUNCTION	0.00	0.00	89.45	0 00:00	0.00
01+610	JUNCTION	0.00	0.05	89.14	0 01:10	0.05
02+012	JUNCTION	0.00	0.04	89.32	0 01:33	0.04
02+075	JUNCTION	0.00	0.05	89.25	0 01:37	0.05
02+085	JUNCTION	0.00	0.03	89.21	0 01:39	0.03
02+157	JUNCTION	0.00	0.06	89.19	0 01:34	0.06
02+167	JUNCTION	0.00	0.10	89.23	0 01:31	0.10
03+013	JUNCTION	0.00	0.05	89.45	0 01:20	0.05
03+065	JUNCTION	0.00	0.00	89.49	0 00:00	0.00
03+125	JUNCTION	0.00	0.01	89.41	0 01:34	0.01
03+137	JUNCTION	0.00	0.05	89.41	0 01:30	0.05
04+090	JUNCTION	0.00	0.01	89.43	0 01:30	0.01
04+190	JUNCTION	0.00	0.00	89.53	0 00:00	0.00
05+105	JUNCTION	0.00	0.00	89.76	0 00:00	0.00
05+194	JUNCTION	0.00	0.03	89.64	0 01:25	0.03
05+287	JUNCTION	0.00	0.04	89.55	0 01:26	0.04
06+089	JUNCTION	0.00	0.03	89.15	0 01:38	0.03
06+166	JUNCTION	0.00	0.03	89.10	0 01:22	0.03
06+243	JUNCTION	0.00	0.06	89.09	0 01:40	0.06
06+328	JUNCTION	0.00	0.06	89.09	0 01:42	0.06
06+413	JUNCTION	0.00	0.06	89.16	0 01:34	0.06
07+091	JUNCTION	0.00	0.05	89.56	0 01:20	0.05
07+175	JUNCTION	0.00	0.02	89.62	0 01:24	0.02
07+260	JUNCTION	0.00	0.00	89.65	0 00:00	0.00
07+342	JUNCTION	0.00	0.00	89.76	0 00:00	0.00
07+428	JUNCTION	0.00	0.05	89.63	0 01:24	0.05
07+509	JUNCTION	0.00	0.05	89.53	0 01:31	0.05
07+591	JUNCTION	0.00	0.06	89.36	0 01:32	0.06
07+605	JUNCTION	0.00	0.05	89.32	0 01:33	0.05
07+670	JUNCTION	0.00	0.09	89.28	0 01:31	0.09
07+683	JUNCTION	0.00	0.06	89.25	0 01:25	0.06
07+765	JUNCTION	0.00	0.03	89.37	0 01:21	0.03
07+847	JUNCTION	0.00	0.00	89.38	0 00:00	0.00
CB01-02	JUNCTION	0.00	0.06	88.78	0 01:10	0.06
CB03-04	JUNCTION	0.10	1.55	89.52	0 01:23	1.55
CB06-07	JUNCTION	0.15	1.49	89.40	0 01:32	1.49
CB09-10	JUNCTION	0.16	1.54	89.38	0 01:24	1.54
CB12-13	JUNCTION	0.10	1.58	89.36	0 01:30	1.58
CB15-16	JUNCTION	0.09	1.52	89.43	0 01:21	1.52
CB18-19	JUNCTION	0.03	1.38	89.14	0 01:10	1.38
CB20-21	JUNCTION	0.00	0.08	88.97	0 01:10	0.08
CB22-CBMH23	JUNCTION	0.16	1.75	89.25	0 01:37	1.75
CB24-CBMH25	JUNCTION	0.17	1.69	89.19	0 01:34	1.69
CB26-CBMH27	JUNCTION	0.16	1.73	89.23	0 01:31	1.73
CB28-CBMH29	JUNCTION	0.16	1.67	89.25	0 01:26	1.67
CB30-CBMH31	JUNCTION	0.16	1.79	89.37	0 01:20	1.79
CB32-33	JUNCTION	0.13	1.70	89.45	0 01:21	1.70
CB34-35	JUNCTION	0.16	1.62	89.35	0 01:30	1.62
CB36-37	JUNCTION	0.12	1.51	89.32	0 01:32	1.51
CB41-42	JUNCTION	0.13	1.58	89.36	0 01:33	1.58
CB43-44	JUNCTION	0.15	1.52	89.43	0 01:30	1.52
CB45-46	JUNCTION	0.11	1.50	89.43	0 01:20	1.50
CB50-51	JUNCTION	0.12	1.49	89.58	0 01:22	1.49
CB52-53	JUNCTION	0.15	1.54	89.64	0 01:24	1.54
CB54-55	JUNCTION	0.14	1.54	89.55	0 01:25	1.54
CB56-57	JUNCTION	0.12	1.48	89.39	0 01:23	1.48
CB60-CBMH61	JUNCTION	0.19	1.66	89.15	0 01:39	1.66

CB62-CBMH63	JUNCTION	0.17	1.69	89.10	0	01:23	1.69
CB64-CBMH65	JUNCTION	0.20	1.68	89.09	0	01:40	1.68
CB68-CBMH69	JUNCTION	0.26	1.68	89.09	0	01:41	1.68
CB72-CBMH73	JUNCTION	0.17	1.66	89.09	0	01:43	1.66
CB74-CBMH75	JUNCTION	0.18	1.73	89.16	0	01:35	1.73
CB76-77	JUNCTION	0.21	1.55	89.41	0	01:30	1.55
CB78-79	JUNCTION	0.13	1.54	89.56	0	01:20	1.54
CB80-81	JUNCTION	0.15	1.53	89.62	0	01:25	1.53
CB82-83	JUNCTION	0.15	1.51	89.62	0	01:30	1.51
CB84-85	JUNCTION	0.17	1.55	89.63	0	01:23	1.55
CB86-87	JUNCTION	0.14	1.56	89.53	0	01:30	1.56
CB88-89	JUNCTION	0.15	1.55	89.36	0	01:32	1.55
CB90-91	JUNCTION	0.18	1.68	89.28	0	01:30	1.68
DICB-4-40	JUNCTION	0.04	1.07	87.88	0	01:25	1.07
HP-2-00_Stor	JUNCTION	0.00	0.00	89.70	0	00:00	0.00
J1	JUNCTION	0.00	0.17	89.02	0	01:11	0.17
J10	JUNCTION	0.00	0.07	89.64	0	01:25	0.07
J100	JUNCTION	0.01	0.34	89.29	0	01:16	0.34
J101	JUNCTION	0.00	0.13	89.29	0	01:16	0.13
J102	JUNCTION	0.01	0.35	89.29	0	01:16	0.35
J103	JUNCTION	0.00	0.12	89.27	0	01:16	0.12
J104	JUNCTION	0.01	0.35	89.29	0	01:16	0.35
J105	JUNCTION	0.00	0.04	89.29	0	01:16	0.04
J106	JUNCTION	0.00	0.10	89.40	0	01:11	0.10
J107	JUNCTION	0.01	0.33	89.40	0	01:11	0.33
J108	JUNCTION	0.00	0.12	89.40	0	01:15	0.12
J109	JUNCTION	0.01	0.35	89.40	0	01:15	0.35
J11	JUNCTION	0.00	0.06	89.64	0	01:25	0.06
J110	JUNCTION	0.00	0.11	89.38	0	01:15	0.11
J111	JUNCTION	0.01	0.34	89.40	0	01:14	0.34
J112	JUNCTION	0.01	0.33	89.40	0	01:14	0.33
J113	JUNCTION	0.01	0.33	89.40	0	01:14	0.33
J114	JUNCTION	0.01	0.33	89.40	0	01:13	0.33
J115	JUNCTION	0.00	0.05	89.40	0	01:13	0.05
J116	JUNCTION	0.00	0.00	88.82	0	00:00	0.00
J117	JUNCTION	0.01	0.13	88.77	0	01:32	0.13
J118	JUNCTION	0.02	0.29	88.77	0	01:33	0.29
J119	JUNCTION	0.00	0.02	88.77	0	01:33	0.02
J12	JUNCTION	0.00	0.11	89.71	0	01:21	0.11
J120	JUNCTION	0.02	0.30	88.77	0	01:33	0.30
J121	JUNCTION	0.00	0.02	88.77	0	01:30	0.02
J122	JUNCTION	0.02	0.28	88.77	0	01:32	0.28
J123	JUNCTION	0.02	0.27	88.77	0	01:30	0.27
J124	JUNCTION	0.02	0.27	88.77	0	01:31	0.27
J125	JUNCTION	0.00	0.02	88.77	0	01:30	0.02
J126	JUNCTION	0.02	0.33	88.77	0	01:30	0.33
J127	JUNCTION	0.00	0.02	88.77	0	01:30	0.02
J128	JUNCTION	0.00	0.10	89.43	0	01:14	0.10
J129	JUNCTION	0.01	0.30	89.43	0	01:14	0.30
J13	JUNCTION	0.00	0.11	89.71	0	01:21	0.11
J130	JUNCTION	0.01	0.27	89.43	0	01:15	0.27
J131	JUNCTION	0.01	0.14	89.41	0	01:15	0.14
J132	JUNCTION	0.00	0.00	88.13	0	00:00	0.00
J133	JUNCTION	0.00	0.00	87.95	0	00:00	0.00
J134	JUNCTION	0.00	0.00	87.92	0	00:00	0.00
J135	JUNCTION	0.00	0.00	87.92	0	00:00	0.00
J136	JUNCTION	0.00	0.00	88.39	0	00:00	0.00
J137	JUNCTION	0.00	0.00	88.42	0	00:00	0.00
J138	JUNCTION	0.00	0.00	88.30	0	00:00	0.00
J139	JUNCTION	0.01	0.15	89.54	0	01:25	0.15
J14	JUNCTION	0.00	0.02	89.72	0	01:20	0.02
J140	JUNCTION	0.00	0.00	89.55	0	00:00	0.00
J141	JUNCTION	0.00	0.00	89.55	0	00:00	0.00
J142	JUNCTION	0.00	0.12	89.54	0	01:16	0.12
J143	JUNCTION	0.00	0.10	89.56	0	01:16	0.10
J144	JUNCTION	0.00	0.06	89.56	0	01:16	0.06
J145	JUNCTION	0.01	0.21	89.57	0	01:16	0.21
J146	JUNCTION	0.01	0.33	89.57	0	01:17	0.33
J147	JUNCTION	0.00	0.06	89.57	0	01:16	0.06
J148	JUNCTION	0.01	0.28	89.57	0	01:16	0.28
J149	JUNCTION	0.01	0.17	89.57	0	01:16	0.17
J15	JUNCTION	0.00	0.00	89.72	0	00:00	0.00
J150	JUNCTION	0.00	0.01	89.71	0	01:16	0.01
J151	JUNCTION	0.02	0.32	89.71	0	01:16	0.32
J152	JUNCTION	0.00	0.06	89.71	0	01:17	0.06
J153	JUNCTION	0.01	0.24	89.71	0	01:17	0.24
J154	JUNCTION	0.00	0.11	89.71	0	01:18	0.11
J155	JUNCTION	0.02	0.28	89.71	0	01:17	0.28
J156	JUNCTION	0.01	0.13	89.69	0	01:18	0.13
J157	JUNCTION	0.01	0.25	89.71	0	01:17	0.25
J158	JUNCTION	0.00	0.06	89.71	0	01:17	0.06
J159	JUNCTION	0.00	0.04	88.95	0	01:26	0.04

J16	JUNCTION	0.00	0.00	89.66	0	00:00	0.00
J160	JUNCTION	0.01	0.13	88.95	0	01:26	0.13
J161	JUNCTION	0.01	0.15	88.95	0	01:26	0.15
J162	JUNCTION	0.02	0.24	88.95	0	01:26	0.24
J163	JUNCTION	0.01	0.12	88.95	0	01:26	0.12
J164	JUNCTION	0.00	0.07	88.95	0	01:26	0.07
J165	JUNCTION	0.01	0.18	88.82	0	01:51	0.18
J166	JUNCTION	0.01	0.15	88.82	0	01:51	0.15
J167	JUNCTION	0.01	0.12	88.82	0	01:52	0.12
J168	JUNCTION	0.02	0.22	88.82	0	01:51	0.22
J169	JUNCTION	0.02	0.21	88.82	0	01:52	0.21
J17	JUNCTION	0.00	0.04	89.49	0	01:24	0.04
J170	JUNCTION	0.00	0.09	88.82	0	01:52	0.09
J171	JUNCTION	0.01	0.17	88.82	0	01:52	0.17
J172	JUNCTION	0.00	0.00	88.85	0	00:00	0.00
J173	JUNCTION	0.00	0.00	89.75	0	01:30	0.00
J18	JUNCTION	0.00	0.08	89.48	0	01:27	0.08
J19	JUNCTION	0.00	0.00	89.40	0	00:00	0.00
J2	JUNCTION	0.00	0.10	89.30	0	01:11	0.10
J20	JUNCTION	0.00	0.00	89.60	0	00:00	0.00
J21	JUNCTION	0.00	0.00	89.61	0	00:00	0.00
J22	JUNCTION	0.00	0.06	89.46	0	01:32	0.06
J23	JUNCTION	0.00	0.06	89.46	0	01:32	0.06
J24	JUNCTION	0.00	0.06	89.46	0	01:31	0.06
J25	JUNCTION	0.00	0.00	89.45	0	00:00	0.00
J26	JUNCTION	0.00	0.00	89.45	0	00:00	0.00
J27	JUNCTION	0.00	0.00	89.45	0	00:00	0.00
J28	JUNCTION	0.00	0.04	89.61	0	01:13	0.04
J29	JUNCTION	0.00	0.04	89.61	0	01:13	0.04
J3	JUNCTION	0.00	0.05	89.60	0	01:12	0.04
J30	JUNCTION	0.00	0.03	89.61	0	01:13	0.03
J31	JUNCTION	0.00	0.06	89.61	0	01:13	0.06
J32	JUNCTION	0.00	0.04	89.52	0	01:12	0.04
J33	JUNCTION	0.00	0.02	89.52	0	01:12	0.02
J34	JUNCTION	0.00	0.00	89.52	0	00:00	0.00
J35	JUNCTION	0.00	0.00	89.52	0	00:00	0.00
J36	JUNCTION	0.00	0.00	89.58	0	00:00	0.00
J37	JUNCTION	0.00	0.09	89.54	0	01:12	0.09
J38	JUNCTION	0.00	0.09	89.54	0	01:12	0.09
J39	JUNCTION	0.01	0.23	89.53	0	01:11	0.23
J4	JUNCTION	0.01	0.14	89.74	0	01:10	0.14
J40	JUNCTION	0.00	0.07	89.52	0	01:11	0.07
J41	JUNCTION	0.01	0.14	89.59	0	01:15	0.14
J42	JUNCTION	0.00	0.00	89.94	0	00:00	0.00
J43	JUNCTION	0.00	0.00	90.00	0	00:00	0.00
J44	JUNCTION	0.00	0.10	89.60	0	01:15	0.10
J45	JUNCTION	0.00	0.00	89.93	0	00:00	0.00
J46	JUNCTION	0.00	0.15	89.62	0	01:15	0.15
J47	JUNCTION	0.00	0.13	89.63	0	01:13	0.13
J48	JUNCTION	0.00	0.07	89.70	0	01:12	0.07
J49	JUNCTION	0.00	0.11	89.73	0	01:11	0.11
J5	JUNCTION	0.00	0.04	89.63	0	01:13	0.04
J50	JUNCTION	0.00	0.13	89.73	0	01:11	0.13
J51	JUNCTION	0.00	0.12	89.73	0	01:11	0.12
J52	JUNCTION	0.00	0.00	89.95	0	00:00	0.00
J53	JUNCTION	0.00	0.00	89.80	0	00:00	0.00
J54	JUNCTION	0.01	0.32	88.92	0	01:12	0.32
J55	JUNCTION	0.00	0.00	90.05	0	00:00	0.00
J56	JUNCTION	0.00	0.00	90.24	0	00:00	0.00
J57	JUNCTION	0.00	0.00	89.99	0	00:00	0.00
J58	JUNCTION	0.00	0.00	89.46	0	00:00	0.00
J59	JUNCTION	0.01	0.21	89.51	0	01:27	0.21
J6	JUNCTION	0.00	0.03	89.60	0	01:15	0.03
J60	JUNCTION	0.01	0.22	89.57	0	01:27	0.22
J61	JUNCTION	0.01	0.22	89.57	0	01:27	0.22
J62	JUNCTION	0.01	0.29	89.64	0	01:24	0.29
J63	JUNCTION	0.01	0.28	89.46	0	01:32	0.28
J64	JUNCTION	0.00	0.05	89.39	0	01:25	0.05
J65	JUNCTION	0.00	0.03	89.08	0	01:42	0.03
J66	JUNCTION	0.00	0.14	89.52	0	01:14	0.14
J67	JUNCTION	0.01	0.33	89.53	0	01:14	0.33
J68	JUNCTION	0.00	0.12	89.53	0	01:14	0.12
J69	JUNCTION	0.01	0.35	89.54	0	01:14	0.35
J7	JUNCTION	0.00	0.04	89.60	0	01:18	0.04
J70	JUNCTION	0.01	0.35	89.54	0	01:14	0.35
J71	JUNCTION	0.00	0.10	89.54	0	01:14	0.10
J72	JUNCTION	0.01	0.34	89.54	0	01:14	0.34
J73	JUNCTION	0.00	0.07	89.54	0	01:14	0.07
J74	JUNCTION	0.00	0.04	89.54	0	01:14	0.04
J75	JUNCTION	0.00	0.12	89.30	0	01:21	0.12
J76	JUNCTION	0.01	0.35	89.32	0	01:20	0.35
J77	JUNCTION	0.01	0.31	89.32	0	01:20	0.31

J78	JUNCTION	0.00	0.13	89.32	0	01:20	0.13
J79	JUNCTION	0.00	0.07	89.32	0	01:20	0.07
J8	JUNCTION	0.00	0.05	89.60	0	01:18	0.05
J80	JUNCTION	0.00	0.13	89.32	0	01:21	0.13
J81	JUNCTION	0.01	0.33	89.32	0	01:21	0.33
J82	JUNCTION	0.01	0.32	89.32	0	01:21	0.32
J83	JUNCTION	0.00	0.12	89.32	0	01:21	0.12
J84	JUNCTION	0.01	0.35	89.33	0	01:21	0.35
J85	JUNCTION	0.01	0.34	89.33	0	01:21	0.34
J86	JUNCTION	0.01	0.33	89.33	0	01:21	0.33
J87	JUNCTION	0.00	0.08	89.33	0	01:20	0.08
J88	JUNCTION	0.00	0.02	89.32	0	01:15	0.02
J89	JUNCTION	0.01	0.35	89.32	0	01:14	0.35
J9	JUNCTION	0.00	0.06	89.56	0	01:27	0.06
J90	JUNCTION	0.00	0.10	89.31	0	01:14	0.10
J91	JUNCTION	0.02	0.36	89.31	0	01:14	0.36
J92	JUNCTION	0.00	0.10	89.30	0	01:14	0.10
J93	JUNCTION	0.01	0.30	89.31	0	01:15	0.30
J94	JUNCTION	0.02	0.35	89.31	0	01:15	0.35
J95	JUNCTION	0.00	0.09	89.31	0	01:15	0.09
J96	JUNCTION	0.02	0.36	89.31	0	01:16	0.36
J97	JUNCTION	0.01	0.34	89.31	0	01:16	0.34
J98	JUNCTION	0.00	0.08	89.31	0	01:16	0.08
J99	JUNCTION	0.01	0.33	89.29	0	01:16	0.33
LCB-2-01	JUNCTION	0.07	1.15	89.25	0	01:40	1.15
LCB-2-02	JUNCTION	0.09	1.31	89.25	0	01:40	1.31
LCB-2-03	JUNCTION	0.09	1.31	89.46	0	01:32	1.31
LCB-2-05	JUNCTION	0.22	1.57	89.46	0	01:31	1.57
LCB-2-06	JUNCTION	0.11	1.46	89.46	0	01:31	1.46
LCB-2-07	JUNCTION	0.09	1.19	89.38	0	01:43	1.19
LCB-2-08	JUNCTION	0.13	1.44	89.38	0	01:43	1.44
LCB-2-09	JUNCTION	0.09	1.18	89.38	0	01:43	1.18
LCB-2-09A	JUNCTION	0.11	1.30	89.38	0	01:43	1.30
LCB-2-10	JUNCTION	0.06	1.43	89.52	0	01:12	1.43
LCB-2-11	JUNCTION	0.07	1.50	89.52	0	01:11	1.50
LCB-2-12	JUNCTION	0.07	1.49	89.43	0	01:12	1.49
LCB-2-13	JUNCTION	0.04	1.51	89.61	0	01:12	1.51
LCB-2-14	JUNCTION	0.04	1.59	89.61	0	01:13	1.59
LCB-2-15	JUNCTION	0.04	1.62	89.51	0	01:13	1.62
LCB-3-01	JUNCTION	0.04	1.43	88.93	0	01:11	1.43
LCB-3-02	JUNCTION	0.04	1.33	89.05	0	01:11	1.33
LCB-3-03	JUNCTION	0.04	1.49	89.32	0	01:11	1.49
LCB-3-04	JUNCTION	0.04	1.66	89.60	0	01:12	1.66
LCB-3-05	JUNCTION	0.21	1.66	89.63	0	01:13	1.66
LCB-3-06	JUNCTION	0.04	1.75	89.60	0	01:14	1.75
LCB-3-07	JUNCTION	0.03	1.60	89.60	0	01:18	1.60
LCB-3-08	JUNCTION	0.03	1.44	89.60	0	01:18	1.44
LCB-3-09	JUNCTION	0.15	1.31	89.51	0	01:27	1.31
LCB-3-10	JUNCTION	0.12	1.48	89.57	0	01:27	1.48
LCB-3-11	JUNCTION	0.15	1.73	89.64	0	01:24	1.73
LCB-3-12	JUNCTION	0.11	1.45	89.65	0	01:25	1.45
LCB-3-13	JUNCTION	0.07	1.51	89.71	0	01:21	1.51
LCB-3-14	JUNCTION	0.09	1.80	89.72	0	01:20	1.80
LCB-3-15	JUNCTION	0.07	1.51	89.72	0	01:21	1.51
LCB-3-16	JUNCTION	0.10	1.71	89.49	0	01:24	1.71
LCB-3-17	JUNCTION	0.07	1.43	89.48	0	01:26	1.43
LCB-3-18	JUNCTION	0.06	1.59	89.54	0	01:12	1.59
LCB-3-19	JUNCTION	0.08	1.81	89.54	0	01:11	1.81
LCB-3-20	JUNCTION	0.08	1.89	89.53	0	01:11	1.88
LCB-3-21	JUNCTION	0.06	1.76	89.74	0	01:11	1.76
LCB-3-22	JUNCTION	0.05	1.61	89.73	0	01:11	1.61
LCB-3-23	JUNCTION	0.15	1.70	89.71	0	01:12	1.70
LCB-3-24	JUNCTION	0.05	1.41	89.65	0	01:13	1.41
LCB-3-25	JUNCTION	0.10	1.47	89.62	0	01:14	1.47
LCB-3-26	JUNCTION	0.11	1.66	89.61	0	01:14	1.66
LCB-3-27	JUNCTION	0.08	1.75	89.61	0	01:15	1.75
LCB-3-28	JUNCTION	0.08	1.89	89.61	0	01:15	1.89
LCB-3-29	JUNCTION	0.08	1.96	89.61	0	01:15	1.96
LCB-4-01	JUNCTION	0.11	1.35	88.77	0	01:32	1.35
LCB-4-02	JUNCTION	0.12	1.44	88.77	0	01:31	1.44
LCB-4-03	JUNCTION	0.13	1.52	88.77	0	01:31	1.52
LCB-4-04	JUNCTION	0.12	1.45	88.77	0	01:30	1.45
LCB-4-05	JUNCTION	0.08	1.70	89.43	0	01:14	1.70
LCB-4-05A	JUNCTION	0.09	1.82	89.43	0	01:15	1.82
LCB-4-06	JUNCTION	0.10	1.93	89.43	0	01:14	1.93
LCB-4-07	JUNCTION	0.06	1.36	89.40	0	01:13	1.36
LCB-4-08	JUNCTION	0.07	1.48	89.40	0	01:14	1.48
LCB-4-08A	JUNCTION	0.08	1.58	89.40	0	01:14	1.58
LCB-4-09	JUNCTION	0.08	1.62	89.40	0	01:14	1.62
LCB-4-11	JUNCTION	0.09	1.72	89.40	0	01:15	1.72
LCB-4-12	JUNCTION	0.10	1.85	89.40	0	01:11	1.85
LCB-4-13	JUNCTION	0.08	1.53	89.29	0	01:16	1.53

LCB-4-15	JUNCTION	0.09	1.58	89.29	0	01:16	1.58
LCB-4-16	JUNCTION	0.10	1.71	89.29	0	01:16	1.71
LCB-4-17	JUNCTION	0.08	1.43	89.31	0	01:15	1.43
LCB-4-18	JUNCTION	0.09	1.57	89.31	0	01:15	1.57
LCB-4-20	JUNCTION	0.09	1.61	89.31	0	01:14	1.61
LCB-4-21	JUNCTION	0.11	1.77	89.32	0	01:14	1.77
LCB-4-22	JUNCTION	0.09	1.61	89.33	0	01:20	1.61
LCB-4-23	JUNCTION	0.10	1.72	89.33	0	01:20	1.72
LCB-4-23A	JUNCTION	0.11	1.82	89.33	0	01:20	1.82
LCB-4-24	JUNCTION	0.11	1.91	89.33	0	01:21	1.91
LCB-4-25	JUNCTION	0.06	1.46	89.32	0	01:21	1.46
LCB-4-25A	JUNCTION	0.07	1.55	89.32	0	01:21	1.55
LCB-4-26	JUNCTION	0.08	1.65	89.32	0	01:21	1.65
LCB-4-27	JUNCTION	0.09	1.82	89.32	0	01:20	1.82
LCB-4-28	JUNCTION	0.08	1.68	89.32	0	01:20	1.68
LCB-4-29	JUNCTION	0.06	1.52	89.54	0	01:14	1.52
LCB-4-30	JUNCTION	0.07	1.62	89.54	0	01:15	1.62
LCB-4-31	JUNCTION	0.08	1.78	89.54	0	01:14	1.78
LCB-4-32	JUNCTION	0.06	1.60	89.53	0	01:14	1.60
LCB-4-41	JUNCTION	0.03	1.01	87.88	0	01:25	1.01
LCB-4-42	JUNCTION	0.03	1.03	87.88	0	01:25	1.03
LCB-4-43	JUNCTION	0.03	0.99	87.88	0	01:25	0.99
LCB-4-44	JUNCTION	0.03	0.96	87.88	0	01:25	0.96
LCB-4-45	JUNCTION	0.02	0.91	87.88	0	01:24	0.91
LCB-5-01	JUNCTION	0.08	1.39	89.54	0	01:25	1.39
LCB-5-02	JUNCTION	0.09	1.49	89.54	0	01:25	1.49
LCB-5-03	JUNCTION	0.09	1.54	89.54	0	01:26	1.54
LCB-5-04	JUNCTION	0.12	1.21	88.95	0	01:26	1.21
LCB-5-05	JUNCTION	0.14	1.32	88.95	0	01:26	1.32
LCB-5-06	JUNCTION	0.17	1.45	88.95	0	01:26	1.45
LCB-5-07	JUNCTION	0.14	1.29	88.95	0	01:26	1.29
LCB-5-08	JUNCTION	0.20	1.42	88.82	0	01:51	1.42
LCB-5-09	JUNCTION	0.21	1.48	88.82	0	01:51	1.48
LCB-5-10	JUNCTION	0.23	1.53	88.82	0	01:51	1.53
LCB-5-11	JUNCTION	0.25	1.61	88.82	0	01:52	1.61
LCB-5-12	JUNCTION	0.22	1.49	88.82	0	01:52	1.49
LCB-5-13	JUNCTION	0.20	1.42	88.82	0	01:52	1.42
LCB-5-14	JUNCTION	0.08	1.51	89.57	0	01:16	1.51
LCB-5-15	JUNCTION	0.08	1.62	89.57	0	01:17	1.62
LCB-5-17	JUNCTION	0.09	1.66	89.57	0	01:16	1.65
LCB-5-18	JUNCTION	0.11	1.88	89.56	0	01:16	1.88
LCB-5-19	JUNCTION	0.18	1.47	89.71	0	01:16	1.47
LCB-5-20	JUNCTION	0.20	1.56	89.71	0	01:16	1.56
LCB-5-21	JUNCTION	0.23	1.67	89.71	0	01:17	1.67
LCB-5-23	JUNCTION	0.25	1.73	89.71	0	01:18	1.73
LCB-5-24	JUNCTION	0.30	1.91	89.71	0	01:18	1.91
RAP-5-16	JUNCTION	0.10	1.81	89.57	0	01:16	1.80
RAP-5-22	JUNCTION	0.28	1.82	89.71	0	01:18	1.82
RYT-4-10	JUNCTION	0.10	1.78	89.40	0	01:15	1.78
RYT-4-14	JUNCTION	0.09	1.64	89.29	0	01:16	1.64
RYT-4-19	JUNCTION	0.10	1.69	89.31	0	01:14	1.69
RYT-4-27A	JUNCTION	0.08	1.76	89.32	0	01:20	1.76
098	OUTFALL	3.55	3.55	84.82	0	00:00	3.55
OF01	OUTFALL	0.00	0.05	88.69	0	01:10	0.05
OF02	OUTFALL	0.00	0.05	88.93	0	01:10	0.05
OF03	OUTFALL	0.00	0.18	88.85	0	01:12	0.18
OF04	OUTFALL	0.00	0.00	89.25	0	00:00	0.00
OF05	OUTFALL	0.00	0.00	89.10	0	00:00	0.00
OF06	OUTFALL	0.00	0.00	89.05	0	00:00	0.00
OF07	OUTFALL	0.00	0.02	88.99	0	01:42	0.02
OF08	OUTFALL	0.00	0.01	88.72	0	01:30	0.01
OF09	OUTFALL	0.00	0.00	88.25	0	00:00	0.00
OF10	OUTFALL	0.00	0.00	88.60	0	00:00	0.00
OF11	OUTFALL	0.00	0.00	89.00	0	00:00	0.00
OF12	OUTFALL	0.00	0.00	88.71	0	00:00	0.00
OF13	OUTFALL	0.00	0.00	89.00	0	00:00	0.00
OF14	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
2-00_Stor	STORAGE	0.15	1.71	89.66	0	01:31	1.71
CB-2-1_(CB)	STORAGE	0.12	1.55	89.24	0	01:40	1.55
CB-2-2_(CB)	STORAGE	0.13	1.74	89.45	0	01:32	1.74
CB-2-3_(CB)	STORAGE	0.16	1.68	89.38	0	01:43	1.68
CB-2-4_(CB)	STORAGE	0.10	1.99	89.37	0	01:23	1.98
CB-2-5_(CB)	STORAGE	0.05	1.96	89.46	0	01:14	1.96
CB-3-1_(CB)	STORAGE	0.18	1.97	89.63	0	01:25	1.97
CB-3-2_(CB)	STORAGE	0.10	1.98	89.64	0	01:20	1.98
CB-3-3_(CB)	STORAGE	0.11	1.92	89.45	0	01:24	1.92
CB-3-4_(CB)	STORAGE	0.05	1.50	88.76	0	01:12	1.50
CB-3-5_(CB)	STORAGE	0.08	2.19	89.63	0	01:12	2.19
CB-3-6_(CB)	STORAGE	0.04	1.59	89.18	0	01:15	1.59
CB-3-7_(CB)	STORAGE	0.09	2.03	89.52	0	01:15	2.03
CB-3-8_(CB)	STORAGE	0.08	1.87	89.41	0	01:11	1.87
CB-4-02	STORAGE	0.14	2.08	89.31	0	01:14	2.08

CB-4-04	STORAGE	0.12	1.99	89.29	0	01:16	1.99
CB-4-05	STORAGE	0.11	1.98	89.40	0	01:11	1.98
CB-5-01	STORAGE	0.11	1.77	89.54	0	01:25	1.77
CB-5-04	STORAGE	0.34	2.02	89.71	0	01:18	2.02
CB-5-05	STORAGE	0.12	2.02	89.56	0	01:16	2.02
CBMH308	STORAGE	0.11	2.79	89.75	0	01:31	2.79
CBMH-4-01	STORAGE	0.14	2.57	89.32	0	01:20	2.57
CBMH-4-03	STORAGE	0.18	2.64	89.32	0	01:21	2.64
CBMH-4-06	STORAGE	0.18	1.91	88.76	0	01:31	1.91
CBMH-4-07	STORAGE	0.15	2.66	89.43	0	01:09	2.65
CBMH-4-08	STORAGE	0.14	2.74	89.51	0	01:14	2.73
CBMH-5-02	STORAGE	0.20	1.62	88.95	0	01:27	1.62
CBMH-5-03	STORAGE	0.31	1.83	88.81	0	01:52	1.83
MH100	STORAGE	2.24	2.31	84.90	0	01:23	2.31
MH102	STORAGE	2.19	2.27	84.91	0	01:20	2.27
MH104	STORAGE	2.07	2.18	84.94	0	01:20	2.18
MH106	STORAGE	1.96	2.09	84.96	0	01:20	2.09
MH108	STORAGE	1.83	1.99	84.99	0	01:20	1.99
MH110	STORAGE	0.26	0.57	85.16	0	01:22	0.57
MH112	STORAGE	0.04	0.38	85.60	0	01:18	0.38
MH114	STORAGE	0.04	0.35	85.74	0	01:17	0.35
MH116	STORAGE	0.03	0.31	85.85	0	01:17	0.31
MH118	STORAGE	0.01	0.19	86.53	0	01:11	0.19
MH200	STORAGE	0.06	0.54	85.69	0	01:29	0.54
MH200A	STORAGE	0.07	0.57	85.64	0	01:29	0.57
MH202	STORAGE	0.05	0.47	85.76	0	01:29	0.47
MH204	STORAGE	0.04	0.37	86.01	0	01:28	0.37
MH206	STORAGE	0.03	0.32	86.30	0	01:28	0.32
MH300	STORAGE	0.04	0.23	85.35	0	01:31	0.23
MH300A	STORAGE	0.14	0.48	85.20	0	01:31	0.48
MH302	STORAGE	0.05	0.35	85.95	0	01:31	0.35
MH304	STORAGE	0.04	0.25	86.37	0	01:33	0.25
MH400	STORAGE	0.02	0.17	86.61	0	01:34	0.17
MH402	STORAGE	0.02	0.13	86.71	0	01:38	0.13
MH404	STORAGE	0.02	0.12	86.94	0	01:30	0.12
MH406	STORAGE	0.01	0.10	86.75	0	01:32	0.10
MH408	STORAGE	0.02	0.17	86.67	0	01:29	0.17
MH500	STORAGE	0.04	0.33	86.24	0	01:25	0.33
MH502	STORAGE	0.03	0.24	86.31	0	01:25	0.24
MH504	STORAGE	0.02	0.22	86.42	0	01:24	0.22
MH506	STORAGE	0.03	0.25	86.62	0	01:24	0.25
MH508	STORAGE	0.02	0.15	86.77	0	01:26	0.15
MH510	STORAGE	0.01	0.11	86.66	0	01:25	0.11
MH512	STORAGE	0.02	0.16	86.56	0	01:25	0.16
MH602	STORAGE	0.04	0.35	86.15	0	01:27	0.35
MH604	STORAGE	0.03	0.23	86.32	0	01:28	0.23
MH606	STORAGE	0.01	0.08	86.39	0	01:42	0.08
MH608	STORAGE	0.02	0.09	86.74	0	01:42	0.09
MH610	STORAGE	0.00	0.00	86.56	0	00:00	0.00
MH612	STORAGE	0.03	0.25	86.36	0	01:22	0.25
MH614	STORAGE	0.03	0.28	86.24	0	01:22	0.28
MH700	STORAGE	0.05	0.33	86.31	0	01:27	0.33
MH702	STORAGE	0.03	0.21	86.45	0	01:24	0.21
MH704	STORAGE	0.03	0.18	86.76	0	01:26	0.18
MH706	STORAGE	0.01	0.10	86.90	0	01:31	0.10
MH708	STORAGE	0.01	0.11	87.14	0	01:31	0.11
MH710	STORAGE	0.02	0.12	87.16	0	01:25	0.12
MH712	STORAGE	0.03	0.18	86.86	0	01:29	0.18
MH714	STORAGE	0.04	0.26	86.58	0	01:31	0.26
MH716	STORAGE	0.03	0.34	86.50	0	01:27	0.34
MH718	STORAGE	0.02	0.25	86.62	0	01:26	0.25
MH720	STORAGE	0.02	0.22	86.82	0	01:26	0.22
MHx1000	STORAGE	0.02	0.21	85.93	0	01:31	0.21

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
01+066	JUNCTION	0.00	0.00	0 00:00	0	0	0.000 ltr
01+090	JUNCTION	0.00	39.42	0 01:11	0	0.0129	8.775
01+198	JUNCTION	0.00	62.57	0 01:11	0	0.0177	5.919
01+306	JUNCTION	0.00	14.62	0 01:16	0	0.0134	3.635
01+387	JUNCTION	0.00	64.31	0 01:23	0	0.0721	0.123
01+412	JUNCTION	0.00	79.58	0 01:22	0	0.103	0.346
01+494	JUNCTION	0.00	21.47	0 01:21	0	0.0234	1.727

01+517	JUNCTION	0.00	65.99	0	01:10	0	0.0503	-0.684	
01+568	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
01+610	JUNCTION	0.00	22.86	0	01:10	0	0.00697	2.078	
02+012	JUNCTION	0.00	28.60	0	01:33	0	0.0418	0.992	
02+075	JUNCTION	0.00	28.58	0	01:11	0	0.0275	0.829	
02+085	JUNCTION	0.00	14.36	0	01:37	0	0.0254	2.369	
02+157	JUNCTION	0.00	70.24	0	01:10	0	0.136	0.073	
02+167	JUNCTION	0.00	71.68	0	01:30	0	0.124	0.264	
03+013	JUNCTION	0.00	23.06	0	01:09	0	0.0127	-1.302	
03+065	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
03+125	JUNCTION	0.00	1.00	0	01:29	0	0.000406	41.399	
03+137	JUNCTION	0.00	36.40	0	01:19	0	0.0429	0.992	
04+090	JUNCTION	0.00	14.89	0	01:20	0	0.00175	47.791	
04+190	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
05+105	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
05+194	JUNCTION	0.00	29.51	0	01:15	0	0.01	7.767	
05+287	JUNCTION	0.00	34.95	0	01:14	0	0.026	2.529	
06+089	JUNCTION	0.00	18.12	0	01:24	0	0.0114	4.491	
06+166	JUNCTION	0.00	25.92	0	01:13	0	0.0146	2.495	
06+243	JUNCTION	0.00	41.79	0	01:21	0	0.0484	-0.379	
06+328	JUNCTION	0.00	61.57	0	01:38	0	0.104	-0.401	
06+413	JUNCTION	0.00	63.60	0	01:31	0	0.12	0.662	
07+091	JUNCTION	0.00	69.11	0	01:09	0	0.039	-1.912	
07+175	JUNCTION	0.00	24.13	0	01:14	0	0.00912	12.639	
07+260	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
07+342	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
07+428	JUNCTION	0.00	52.50	0	01:21	0	0.07	0.507	
07+509	JUNCTION	0.00	46.74	0	01:11	0	0.0558	1.770	
07+591	JUNCTION	0.00	27.40	0	01:30	0	0.0455	0.472	
07+605	JUNCTION	0.00	58.39	0	01:09	0	0.0901	0.178	
07+670	JUNCTION	0.00	57.58	0	01:21	0	0.111	0.344	
07+683	JUNCTION	0.00	88.13	0	01:23	0	0.139	0.344	
07+765	JUNCTION	0.00	39.57	0	01:12	0	0.0151	2.738	
07+847	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
CB01-02	JUNCTION	54.13	54.13	0	01:10	0.0671	0.118	-0.015	
CB03-04	JUNCTION	274.86	275.70	0	01:10	0.345	0.362	-0.558	
CB06-07	JUNCTION	225.03	230.22	0	01:10	0.284	0.32	0.085	
CB09-10	JUNCTION	66.97	131.60	0	01:14	0.0836	0.212	0.165	
CB12-13	JUNCTION	152.14	270.14	0	01:41	0.192	0.319	-0.218	
CB15-16	JUNCTION	105.23	121.05	0	01:10	0.135	0.16	0.241	
CB18-19	JUNCTION	72.45	72.45	0	01:10	0.0926	0.0927	0.034	
CB20-21	JUNCTION	37.98	56.23	0	01:10	0.0488	0.0555	-0.196	
CB22-CBMH23	JUNCTION	156.61	156.61	0	01:10	0.199	0.242	-0.142	
CB24-CBMH25	JUNCTION	168.37	168.37	0	01:10	0.214	0.235	-0.203	
CB26-CBMH27	JUNCTION	162.16	162.16	0	01:10	0.205	0.338	-0.126	
CB28-CBMH29	JUNCTION	144.22	159.02	0	01:10	0.184	0.245	-0.041	
CB30-CBMH31	JUNCTION	202.61	202.62	0	01:10	0.259	0.261	-0.095	
CB32-33	JUNCTION	126.00	126.00	0	01:10	0.161	0.162	0.022	
CB34-35	JUNCTION	97.12	97.12	0	01:10	0.127	0.127	-0.045	
CB36-37	JUNCTION	178.59	178.59	0	01:10	0.229	0.272	-0.217	
CB41-42	JUNCTION	182.71	182.71	0	01:10	0.227	0.256	-0.182	
CB43-44	JUNCTION	183.16	183.17	0	01:10	0.228	0.23	-0.040	
CB45-46	JUNCTION	205.62	205.62	0	01:10	0.257	0.259	-0.043	
CB50-51	JUNCTION	195.36	195.36	0	01:10	0.246	0.248	-0.028	
CB52-53	JUNCTION	184.26	194.49	0	01:10	0.229	0.242	-0.029	
CB54-55	JUNCTION	190.64	206.64	0	01:10	0.238	0.287	-0.155	
CB56-57	JUNCTION	195.42	195.42	0	01:10	0.242	0.268	-0.217	
CB60-CBMH61	JUNCTION	120.83	122.92	0	01:10	0.152	0.208	-0.079	
CB62-CBMH63	JUNCTION	176.85	176.85	0	01:10	0.224	0.237	-0.212	
CB64-CBMH65	JUNCTION	141.37	149.44	0	01:10	0.175	0.244	-0.048	
CB68-CBMH69	JUNCTION	109.39	109.57	0	01:10	0.131	0.263	0.469	
CB72-CBMH73	JUNCTION	195.05	195.05	0	01:10	0.248	0.372	-0.166	
CB74-CBMH75	JUNCTION	146.65	164.14	0	01:10	0.185	0.362	0.053	
CB76-77	JUNCTION	96.48	103.46	0	01:16	0.123	0.206	0.489	
CB78-79	JUNCTION	213.94	213.94	0	01:10	0.278	0.285	-0.263	
CB80-81	JUNCTION	181.50	181.50	0	01:10	0.233	0.239	-0.089	
CB82-83	JUNCTION	127.87	127.87	0	01:10	0.17	0.17	0.047	
CB84-85	JUNCTION	159.40	160.71	0	01:10	0.202	0.282	-0.036	
CB86-87	JUNCTION	187.48	187.49	0	01:10	0.241	0.313	-0.204	
CB88-89	JUNCTION	176.56	176.56	0	01:10	0.225	0.283	-0.126	
CB90-91	JUNCTION	117.62	130.08	0	01:10	0.154	0.277	-0.031	
DICB-4-40	JUNCTION	153.65	153.65	0	01:10	0.169	0.227	-0.031	
HP-2-00_Stor	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J1	JUNCTION	0.00	71.36	0	01:11	0	0.0552	-0.066	
J10	JUNCTION	0.00	6.03	0	01:24	0	0.00465	-0.052	
J100	JUNCTION	0.00	21.46	0	01:08	0	0.00997	1.097	
J101	JUNCTION	0.00	14.87	0	01:16	0	0.0154	0.114	
J102	JUNCTION	0.00	19.52	0	01:10	0	0.0192	0.386	
J103	JUNCTION	0.00	37.09	0	01:16	0	0.0433	-0.221	
J104	JUNCTION	0.00	16.31	0	01:07	0	0.00875	0.854	
J105	JUNCTION	0.00	3.08	0	01:11	0	0.00163	0.571	
J106	JUNCTION	0.00	20.25	0	01:10	0	0.0165	-0.936	

J107	JUNCTION	0.00	38.25	0	01:10	0	0.0172	0.654
J108	JUNCTION	0.00	35.55	0	01:11	0	0.0225	-0.359
J109	JUNCTION	0.00	21.68	0	01:11	0	0.0201	0.470
J11	JUNCTION	0.00	5.38	0	01:23	0	0.00395	1.123
J110	JUNCTION	0.00	37.18	0	01:15	0	0.0405	-0.079
J111	JUNCTION	0.00	18.97	0	01:08	0	0.0116	1.558
J112	JUNCTION	0.00	40.97	0	01:10	0	0.0248	0.545
J113	JUNCTION	0.00	28.41	0	01:11	0	0.0183	0.800
J114	JUNCTION	0.00	17.05	0	01:09	0	0.0119	0.916
J115	JUNCTION	0.00	4.78	0	01:11	0	0.000369	5.886
J116	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J117	JUNCTION	0.00	4.56	0	01:11	0	0.00123	1.868
J118	JUNCTION	0.00	8.97	0	01:09	0	0.00312	1.156
J119	JUNCTION	0.00	0.60	0	01:22	0	0.000163	4.599
J12	JUNCTION	0.00	16.57	0	01:19	0	0.017	-0.121
J120	JUNCTION	0.00	8.17	0	01:09	0	0.00293	1.143
J121	JUNCTION	0.00	0.46	0	01:22	0	0.000154	2.182
J122	JUNCTION	0.00	6.54	0	01:10	0	0.00248	1.234
J123	JUNCTION	0.00	8.67	0	01:09	0	0.00283	1.259
J124	JUNCTION	0.00	8.09	0	01:09	0	0.00267	1.387
J125	JUNCTION	0.00	0.37	0	01:24	0	0.000147	1.572
J126	JUNCTION	0.00	9.69	0	01:08	0	0.00247	1.296
J127	JUNCTION	0.00	0.25	0	01:21	0	6.75e-05	1.980
J128	JUNCTION	0.00	4.78	0	01:09	0	0.000538	2.726
J129	JUNCTION	0.00	32.21	0	01:10	0	0.0157	1.198
J13	JUNCTION	0.00	18.20	0	01:11	0	0.0125	-0.117
J130	JUNCTION	0.00	22.50	0	01:10	0	0.0134	0.919
J131	JUNCTION	0.00	32.39	0	01:13	0	0.032	-0.704
J132	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J133	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J134	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J135	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J136	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J137	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J138	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J139	JUNCTION	0.00	4.39	0	01:12	0	0.00166	2.851
J14	JUNCTION	0.00	2.47	0	01:13	0	0.000345	38.809
J140	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J141	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J142	JUNCTION	0.00	40.74	0	01:16	0	0.044	-0.207
J143	JUNCTION	0.00	13.28	0	01:11	0	0.00584	1.240
J144	JUNCTION	0.00	7.99	0	01:15	0	0.00498	-0.076
J145	JUNCTION	0.00	12.33	0	01:10	0	0.00298	1.384
J146	JUNCTION	0.00	28.51	0	01:10	0	0.00723	0.479
J147	JUNCTION	0.00	3.96	0	01:11	0	0.00128	0.702
J148	JUNCTION	0.00	15.45	0	01:10	0	0.00318	1.305
J149	JUNCTION	0.00	6.50	0	01:10	0	0.000953	0.545
J15	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J150	JUNCTION	0.00	0.93	0	01:14	0	6.43e-05	14.568
J151	JUNCTION	0.00	28.92	0	01:09	0	0.0136	0.829
J152	JUNCTION	0.00	8.19	0	01:11	0	0.00287	0.488
J153	JUNCTION	0.00	21.56	0	01:10	0	0.00531	1.435
J154	JUNCTION	0.00	8.34	0	01:16	0	0.00736	0.188
J155	JUNCTION	0.00	16.88	0	01:09	0	0.00962	0.557
J156	JUNCTION	0.00	50.80	0	01:18	0	0.0795	-0.009
J157	JUNCTION	0.00	16.70	0	01:09	0	0.00608	0.616
J158	JUNCTION	0.00	4.92	0	01:17	0	0.00335	-0.213
J159	JUNCTION	0.00	0.70	0	01:15	0	0.000128	1.093
J16	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J160	JUNCTION	0.00	5.93	0	01:11	0	0.00362	0.509
J161	JUNCTION	0.00	7.70	0	01:10	0	0.00512	0.587
J162	JUNCTION	0.00	12.18	0	01:10	0	0.00527	0.800
J163	JUNCTION	0.00	3.80	0	01:11	0	0.003	0.514
J164	JUNCTION	0.00	7.26	0	01:25	0	0.012	-0.925
J165	JUNCTION	0.00	2.48	0	01:20	0	0.00253	0.487
J166	JUNCTION	0.00	2.34	0	01:19	0	0.00198	0.712
J167	JUNCTION	0.00	1.60	0	01:22	0	0.00205	0.658
J168	JUNCTION	0.00	2.90	0	01:21	0	0.00332	0.157
J169	JUNCTION	0.00	2.72	0	01:21	0	0.0029	0.151
J17	JUNCTION	0.00	4.42	0	01:18	0	0.00111	8.181
J170	JUNCTION	0.00	1.30	0	01:21	0	0.00135	1.255
J171	JUNCTION	0.00	2.37	0	01:22	0	0.00259	0.473
J172	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J173	JUNCTION	0.00	0.26	0	01:27	0	1.76e-05	7.378 ltr
J18	JUNCTION	0.00	9.65	0	01:26	0	0.00866	0.164
J19	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J2	JUNCTION	0.00	25.46	0	01:11	0	0.0125	0.314
J20	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J21	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 ltr
J22	JUNCTION	0.00	2.68	0	01:24	0	0.00272	1.358
J23	JUNCTION	0.00	3.55	0	01:30	0	0.00312	0.483
J24	JUNCTION	0.00	4.33	0	01:30	0	0.00512	-0.846

J25	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J26	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J27	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J28	JUNCTION	0.00	5.47	0	01:10	0	0.000505	17.473	
J29	JUNCTION	0.00	4.41	0	01:10	0	0.000356	3.873	
J3	JUNCTION	0.00	6.40	0	01:10	0	0.000658	6.161	
J30	JUNCTION	0.00	2.50	0	01:10	0	0.000196	10.039	
J31	JUNCTION	0.00	7.93	0	01:10	0	0.00141	0.010	
J32	JUNCTION	0.00	6.06	0	01:10	0	0.000602	1.974	
J33	JUNCTION	0.00	2.59	0	01:10	0	0.000119	10.224	
J34	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J35	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J36	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J37	JUNCTION	0.00	12.28	0	01:12	0	0.00318	-5.653	
J38	JUNCTION	0.00	13.41	0	01:10	0	0.00358	1.803	
J39	JUNCTION	0.00	66.24	0	01:10	0	0.0542	0.089	
J4	JUNCTION	69.94	69.94	0	01:10	0.0708	0.0708	0.395	
J40	JUNCTION	0.00	8.45	0	01:11	0	0.00241	0.111	
J41	JUNCTION	0.00	38.26	0	01:13	0	0.0491	0.103	
J42	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J43	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J44	JUNCTION	0.00	15.94	0	01:13	0	0.0112	0.119	
J45	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J46	JUNCTION	0.00	28.16	0	01:12	0	0.0218	0.314	
J47	JUNCTION	0.00	33.34	0	01:13	0	0.0275	-0.117	
J48	JUNCTION	0.00	10.09	0	01:12	0	0.00229	0.895	
J49	JUNCTION	0.00	26.89	0	01:09	0	0.00802	-0.340	
J5	JUNCTION	0.00	8.27	0	01:11	0	0.00081	17.337	
J50	JUNCTION	0.00	32.67	0	01:10	0	0.0123	-0.720	
J51	JUNCTION	0.00	30.10	0	01:09	0	0.00715	0.443	
J52	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J53	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J54	JUNCTION	0.00	87.33	0	01:11	0	0.0725	0.155	
J55	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J56	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J57	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J58	JUNCTION	0.00	0.00	0	00:00	0	0	0.000	ltr
J59	JUNCTION	0.00	6.21	0	01:27	0	0.0077	0.358	
J6	JUNCTION	0.00	4.13	0	01:12	0	0.000492	5.650	
J60	JUNCTION	0.00	6.36	0	01:25	0	0.00763	0.288	
J61	JUNCTION	0.00	6.02	0	01:25	0	0.00577	0.372	
J62	JUNCTION	0.00	14.97	0	01:10	0	0.0078	1.212	
J63	JUNCTION	0.00	4.82	0	01:12	0	0.00442	0.627	
J64	JUNCTION	0.00	63.53	0	01:10	0	0.0459	-0.120	
J65	JUNCTION	0.00	31.96	0	01:41	0	0.0603	0.002	
J66	JUNCTION	0.00	36.59	0	01:14	0	0.0338	-0.722	
J67	JUNCTION	0.00	20.76	0	01:08	0	0.0109	1.108	
J68	JUNCTION	0.00	13.21	0	01:13	0	0.00858	0.150	
J69	JUNCTION	0.00	18.87	0	01:10	0	0.0111	0.567	
J7	JUNCTION	0.00	4.24	0	01:14	0	0.000752	10.200	
J70	JUNCTION	0.00	18.98	0	01:08	0	0.00838	0.984	
J71	JUNCTION	0.00	8.39	0	01:13	0	0.00504	0.213	
J72	JUNCTION	0.00	22.74	0	01:08	0	0.00685	1.398	
J73	JUNCTION	0.00	8.32	0	01:10	0	0.0024	0.999	
J74	JUNCTION	0.00	3.33	0	01:11	0	0.000224	4.961	
J75	JUNCTION	0.00	35.22	0	01:20	0	0.0418	-0.265	
J76	JUNCTION	0.00	32.93	0	01:08	0	0.0261	0.290	
J77	JUNCTION	0.00	20.97	0	01:08	0	0.0213	0.125	
J78	JUNCTION	0.00	5.85	0	01:11	0	0.00694	0.233	
J79	JUNCTION	0.00	1.69	0	01:11	0	0.000283	2.899	
J8	JUNCTION	0.00	4.39	0	01:14	0	0.00107	4.484	
J80	JUNCTION	0.00	10.89	0	01:13	0	0.0111	0.232	
J81	JUNCTION	0.00	21.55	0	01:08	0	0.0238	0.520	
J82	JUNCTION	0.00	17.50	0	01:08	0	0.0194	0.556	
J83	JUNCTION	0.00	23.07	0	01:17	0	0.0263	0.111	
J84	JUNCTION	0.00	23.91	0	01:15	0	0.0283	0.239	
J85	JUNCTION	0.00	32.07	0	01:10	0	0.0177	0.664	
J86	JUNCTION	0.00	23.38	0	01:08	0	0.013	1.031	
J87	JUNCTION	0.00	7.28	0	01:11	0	0.00234	0.977	
J88	JUNCTION	0.00	1.46	0	01:13	0	0.00014	5.104	
J89	JUNCTION	0.00	26.28	0	01:07	0	0.0127	0.786	
J9	JUNCTION	0.00	6.21	0	01:27	0	0.0064	0.018	
J90	JUNCTION	0.00	19.53	0	01:11	0	0.0124	-0.219	
J91	JUNCTION	0.00	26.17	0	01:07	0	0.0126	0.840	
J92	JUNCTION	0.00	28.78	0	01:14	0	0.0306	-0.180	
J93	JUNCTION	0.00	21.95	0	01:09	0	0.0065	2.756	
J94	JUNCTION	0.00	15.60	0	01:10	0	0.00674	1.114	
J95	JUNCTION	0.00	6.33	0	01:11	0	0.0029	0.355	
J96	JUNCTION	0.00	14.24	0	01:07	0	0.00458	1.270	
J97	JUNCTION	0.00	16.16	0	01:12	0	0.0136	0.516	
J98	JUNCTION	0.00	13.84	0	01:15	0	0.0113	0.081	
J99	JUNCTION	0.00	13.80	0	01:16	0	0.0143	0.603	

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

LCB-2-01	JUNCTION	0.00	9.59	0	01:27	0	0.0102	-0.016
LCB-2-02	JUNCTION	42.58	42.58	0	01:10	0.0455	0.0557	0.222
LCB-2-03	JUNCTION	0.00	24.91	0	01:07	0	0.0204	-0.104
LCB-2-05	JUNCTION	84.61	84.61	0	01:10	0.0907	0.117	0.275
LCB-2-06	JUNCTION	0.00	15.57	0	01:10	0	0.0126	-0.096
LCB-2-07	JUNCTION	0.00	6.89	0	01:06	0	0.0087	0.682
LCB-2-08	JUNCTION	69.90	69.90	0	01:10	0.0646	0.0836	0.204
LCB-2-09	JUNCTION	0.00	9.38	0	01:07	0	0.00309	0.122
LCB-2-09A	JUNCTION	0.00	15.89	0	01:07	0	0.0134	-0.021
LCB-2-10	JUNCTION	0.00	19.30	0	01:04	0	0.00621	-0.070
LCB-2-11	JUNCTION	71.23	71.23	0	01:10	0.0643	0.0704	-0.043
LCB-2-12	JUNCTION	0.00	49.63	0	02:15	0	0.0645	-0.592
LCB-2-13	JUNCTION	0.00	17.69	0	01:07	0	0.00723	0.177
LCB-2-14	JUNCTION	74.73	74.73	0	01:10	0.0668	0.0732	-0.049
LCB-2-15	JUNCTION	0.00	78.25	0	01:41	0	0.0655	-1.093
LCB-3-01	JUNCTION	19.80	130.44	0	01:11	0.0195	0.198	0.013
LCB-3-02	JUNCTION	30.30	117.81	0	01:10	0.0299	0.178	-0.023
LCB-3-03	JUNCTION	31.10	94.47	0	01:10	0.0308	0.148	-0.004
LCB-3-04	JUNCTION	47.34	87.94	0	01:10	0.047	0.118	-0.028
LCB-3-05	JUNCTION	0.00	35.57	0	01:04	0	0.0369	-0.341
LCB-3-06	JUNCTION	138.22	138.22	0	01:10	0.155	0.176	0.143
LCB-3-07	JUNCTION	0.00	33.57	0	01:10	0	0.0314	0.000
LCB-3-08	JUNCTION	0.00	20.46	0	01:05	0	0.0112	-0.530
LCB-3-09	JUNCTION	0.00	28.71	0	01:27	0	0.0566	-0.403
LCB-3-10	JUNCTION	0.00	36.48	0	01:05	0	0.073	0.705
LCB-3-11	JUNCTION	99.76	99.76	0	01:10	0.104	0.147	0.165
LCB-3-12	JUNCTION	0.00	23.11	0	01:10	0	0.0251	0.302
LCB-3-13	JUNCTION	0.00	31.03	0	01:12	0	0.0296	0.390
LCB-3-14	JUNCTION	146.15	146.15	0	01:10	0.146	0.176	0.405
LCB-3-15	JUNCTION	0.00	29.93	0	01:05	0	0.0159	0.052
LCB-3-16	JUNCTION	113.13	113.13	0	01:10	0.126	0.14	0.175
LCB-3-17	JUNCTION	0.00	28.23	0	01:12	0	0.023	0.885
LCB-3-18	JUNCTION	0.00	35.25	0	01:03	0	0.0143	0.115
LCB-3-19	JUNCTION	127.77	127.77	0	01:10	0.127	0.139	0.144
LCB-3-20	JUNCTION	0.00	83.35	0	01:10	0	0.124	0.014
LCB-3-21	JUNCTION	145.52	145.52	0	01:10	0.142	0.161	0.320
LCB-3-22	JUNCTION	0.00	39.46	0	01:10	0	0.0181	-0.185
LCB-3-23	JUNCTION	0.00	51.50	0	01:10	0	0.0437	0.746
LCB-3-24	JUNCTION	0.00	36.73	0	01:12	0	0.0318	-0.449
LCB-3-25	JUNCTION	0.00	35.23	0	01:11	0	0.0373	-0.745
LCB-3-26	JUNCTION	0.00	60.12	0	01:10	0	0.0704	0.279
LCB-3-27	JUNCTION	0.00	204.36	0	02:00	0	0.148	-0.089
LCB-3-28	JUNCTION	162.38	210.42	0	02:02	0.158	0.323	0.204
LCB-3-29	JUNCTION	0.00	65.61	0	01:09	0	0.153	0.161
LCB-4-01	JUNCTION	0.00	38.18	0	01:04	0	0.0216	0.201
LCB-4-02	JUNCTION	0.00	72.49	0	01:04	0	0.064	-0.119
LCB-4-03	JUNCTION	125.70	125.70	0	01:10	0.133	0.191	0.017
LCB-4-04	JUNCTION	0.00	21.70	0	01:09	0	0.0138	0.117
LCB-4-05	JUNCTION	0.00	43.89	0	01:10	0	0.0415	-0.038
LCB-4-05A	JUNCTION	0.00	77.33	0	01:04	0	0.0682	-0.103
LCB-4-06	JUNCTION	130.23	130.23	0	01:10	0.128	0.156	0.196
LCB-4-07	JUNCTION	0.00	86.61	0	01:04	0	0.0162	0.217
LCB-4-08	JUNCTION	0.00	118.06	0	01:04	0	0.0537	-0.260
LCB-4-08A	JUNCTION	0.00	134.16	0	01:04	0	0.0946	0.008
LCB-4-09	JUNCTION	0.00	154.71	0	01:04	0	0.138	-0.083
LCB-4-11	JUNCTION	0.00	39.07	0	01:14	0	0.0496	0.107
LCB-4-12	JUNCTION	245.06	245.06	0	01:10	0.249	0.328	0.023
LCB-4-13	JUNCTION	0.00	56.93	0	01:08	0	0.036	-0.204
LCB-4-15	JUNCTION	0.00	34.94	0	01:06	0	0.0186	0.295
LCB-4-16	JUNCTION	124.14	124.14	0	01:10	0.123	0.175	0.043
LCB-4-17	JUNCTION	0.00	63.82	0	01:04	0	0.0317	-0.116
LCB-4-18	JUNCTION	0.00	108.82	0	01:04	0	0.0755	-0.220
LCB-4-20	JUNCTION	0.00	38.96	0	01:07	0	0.0423	0.082
LCB-4-21	JUNCTION	179.09	179.09	0	01:10	0.176	0.231	0.056
LCB-4-22	JUNCTION	0.00	43.72	0	01:04	0	0.00948	0.711
LCB-4-23	JUNCTION	0.00	77.90	0	01:04	0	0.0393	-0.083
LCB-4-23A	JUNCTION	0.00	88.28	0	01:04	0	0.0804	-0.098
LCB-4-24	JUNCTION	140.80	140.80	0	01:10	0.138	0.191	0.147
LCB-4-25	JUNCTION	0.00	57.79	0	01:05	0	0.0375	0.114
LCB-4-25A	JUNCTION	0.00	98.01	0	01:05	0	0.0662	-0.187
LCB-4-26	JUNCTION	0.00	111.21	0	01:04	0	0.101	0.007
LCB-4-27	JUNCTION	175.22	175.22	0	01:10	0.17	0.262	0.081
LCB-4-28	JUNCTION	0.00	28.19	0	01:07	0	0.0126	0.787
LCB-4-29	JUNCTION	0.00	32.91	0	01:07	0	0.0111	0.450
LCB-4-30	JUNCTION	0.00	81.59	0	01:04	0	0.0453	-0.133
LCB-4-31	JUNCTION	182.52	182.52	0	01:10	0.187	0.237	0.117
LCB-4-32	JUNCTION	0.00	50.08	0	01:09	0	0.0487	-0.048
LCB-4-41	JUNCTION	0.00	22.93	0	01:10	0	0.0121	0.251
LCB-4-42	JUNCTION	0.00	85.13	0	01:09	0	0.08	0.001
LCB-4-43	JUNCTION	0.00	66.74	0	01:09	0	0.0566	0.011
LCB-4-44	JUNCTION	0.00	49.94	0	01:08	0	0.0344	0.026
LCB-4-45	JUNCTION	0.00	27.15	0	01:08	0	0.0116	0.413

LCB-5-01	JUNCTION	0.00	19.73	0	01:06	0	0.00984	0.404	
LCB-5-02	JUNCTION	0.00	40.59	0	01:05	0	0.033	-0.056	
LCB-5-03	JUNCTION	64.55	64.55	0	01:10	0.067	0.0918	0.020	
LCB-5-04	JUNCTION	0.00	18.88	0	01:06	0	0.0101	0.188	
LCB-5-05	JUNCTION	0.00	46.98	0	01:04	0	0.0354	-0.020	
LCB-5-06	JUNCTION	96.08	96.08	0	01:10	0.0982	0.137	-0.123	
LCB-5-07	JUNCTION	0.00	20.94	0	01:09	0	0.0221	0.096	
LCB-5-08	JUNCTION	0.00	26.18	0	01:08	0	0.0215	0.676	
LCB-5-09	JUNCTION	0.00	53.92	0	01:08	0	0.0436	0.036	
LCB-5-10	JUNCTION	0.00	74.06	0	01:08	0	0.0789	-0.013	
LCB-5-11	JUNCTION	146.10	146.10	0	01:10	0.146	0.237	-0.060	
LCB-5-12	JUNCTION	0.00	49.77	0	01:07	0	0.0444	0.050	
LCB-5-13	JUNCTION	0.00	23.27	0	01:07	0	0.0111	0.152	
LCB-5-14	JUNCTION	0.00	67.16	0	01:07	0	0.0176	-0.111	
LCB-5-15	JUNCTION	0.00	110.13	0	01:06	0	0.0587	0.011	
LCB-5-17	JUNCTION	0.00	47.97	0	01:09	0	0.0197	0.588	
LCB-5-18	JUNCTION	178.27	178.27	0	01:10	0.18	0.246	0.032	
LCB-5-19	JUNCTION	0.00	45.84	0	01:06	0	0.0201	0.090	
LCB-5-20	JUNCTION	0.00	115.51	0	01:06	0	0.0575	-0.029	
LCB-5-21	JUNCTION	0.00	149.26	0	01:06	0	0.102	-0.010	
LCB-5-23	JUNCTION	0.00	51.24	0	01:17	0	0.0913	0.088	
LCB-5-24	JUNCTION	194.75	194.75	0	01:10	0.196	0.267	0.017	
RAP-5-16	JUNCTION	0.00	125.03	0	01:05	0	0.118	-0.780	
RAP-5-22	JUNCTION	0.00	161.93	0	01:06	0	0.214	-0.468	
RYT-4-10	JUNCTION	0.00	162.65	0	01:04	0	0.18	-0.400	
RYT-4-14	JUNCTION	0.00	81.30	0	01:08	0	0.0692	-1.014	
RYT-4-19	JUNCTION	0.00	121.46	0	01:08	0	0.134	-0.474	
RYT-4-27A	JUNCTION	0.00	118.61	0	01:04	0	0.126	-0.478	
098	OUTFALL	0.00	1610.35	0	01:24	0	11.5	0.000	
OF01	OUTFALL	0.00	39.64	0	01:10	0	0.0565	0.000	
OF02	OUTFALL	0.00	34.48	0	01:10	0	0.0156	0.000	
OF03	OUTFALL	0.00	86.49	0	01:12	0	0.0718	0.000	
OF04	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF05	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF06	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF07	OUTFALL	0.00	31.28	0	01:42	0	0.0601	0.000	
OF08	OUTFALL	0.00	0.06	0	01:30	0	4.02e-05	0.000	
OF09	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF10	OUTFALL	8.60	8.60	0	01:10	0.00836	0.00836	0.000	
OF11	OUTFALL	16.63	16.63	0	01:10	0.011	0.011	0.000	
OF12	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF13	OUTFALL	0.00	0.00	0	00:00	0	0	0.000	ltr
OF14	OUTFALL	21.17	21.17	0	01:10	0.0161	0.0161	0.000	
2-00_Stor	STORAGE	454.68	454.68	0	01:10	0.682	0.682	0.048	
CB-2-1_(CB)	STORAGE	0.00	17.90	0	01:05	0	0.054	-0.241	
CB-2-2_(CB)	STORAGE	0.00	29.04	0	01:05	0	0.0853	-0.232	
CB-2-3_(CB)	STORAGE	0.00	21.80	0	01:04	0	0.0694	-0.191	
CB-2-4_(CB)	STORAGE	0.00	77.10	0	02:15	0	0.0808	0.062	
CB-2-5_(CB)	STORAGE	0.00	132.78	0	01:41	0	0.066	-0.204	
CB-3-1_(CB)	STORAGE	0.00	24.66	0	01:03	0	0.07	-0.153	
CB-3-2_(CB)	STORAGE	0.00	41.77	0	01:07	0	0.129	-0.260	
CB-3-3_(CB)	STORAGE	0.00	27.93	0	01:10	0	0.119	-0.168	
CB-3-4_(CB)	STORAGE	0.00	46.82	0	01:05	0	0.125	-0.245	
CB-3-5_(CB)	STORAGE	0.00	46.96	0	01:05	0	0.104	-0.473	
CB-3-6_(CB)	STORAGE	0.00	65.88	0	01:07	0	0.154	-0.210	
CB-3-7_(CB)	STORAGE	0.00	54.80	0	01:13	0	0.152	-0.167	
CB-3-8_(CB)	STORAGE	0.00	82.48	0	01:11	0	0.135	-0.468	
CB-4-02	STORAGE	0.00	55.53	0	01:05	0	0.134	-0.124	
CB-4-04	STORAGE	0.00	52.20	0	01:05	0	0.0901	-0.090	
CB-4-05	STORAGE	0.00	68.09	0	01:05	0	0.193	-0.050	
CB-5-01	STORAGE	0.00	21.91	0	01:07	0	0.0679	-0.095	
CB-5-04	STORAGE	0.00	25.17	0	01:07	0	0.114	-0.024	
CB-5-05	STORAGE	0.00	42.94	0	01:07	0	0.132	-0.034	
CBMH308	STORAGE	69.68	69.68	0	01:10	0.117	0.117	0.088	
CBMH-4-01	STORAGE	0.00	62.35	0	01:06	0	0.155	-0.187	
CBMH-4-03	STORAGE	0.00	44.29	0	01:02	0	0.111	-0.316	
CBMH-4-06	STORAGE	0.00	28.36	0	01:05	0	0.132	-0.117	
CBMH-4-07	STORAGE	0.00	44.57	0	01:02	0	0.0954	-0.363	
CBMH-4-08	STORAGE	0.00	55.24	0	01:02	0	0.152	-0.285	
CBMH-5-02	STORAGE	0.00	19.01	0	01:08	0	0.0862	0.085	
CBMH-5-03	STORAGE	0.00	24.74	0	01:01	0	0.158	-0.040	
MH100	STORAGE	0.00	1610.32	0	01:23	0	11.5	-0.000	
MH102	STORAGE	0.00	1435.47	0	01:23	0	10.4	-0.000	
MH104	STORAGE	0.00	1350.46	0	01:23	0	9.93	-0.000	
MH106	STORAGE	0.00	1290.13	0	01:23	0	9.77	-0.000	
MH108	STORAGE	0.00	1259.07	0	01:23	0	9.64	-0.004	
MH110	STORAGE	0.00	844.74	0	01:22	0	6.1	0.001	
MH112	STORAGE	0.00	280.23	0	01:17	0	1.72	-0.014	
MH114	STORAGE	0.00	212.73	0	01:17	0	1.35	-0.061	
MH116	STORAGE	0.00	161.62	0	01:17	0	0.963	0.195	
MH118	STORAGE	0.00	51.09	0	01:10	0	0.126	-0.004	
MH200	STORAGE	0.00	481.17	0	01:29	0	3.67	0.007	

MH200A	STORAGE	0.00	481.16	0	01:29	0	3.67	-0.020	
MH202	STORAGE	0.00	456.59	0	01:28	0	3.46	0.004	
MH204	STORAGE	0.00	269.01	0	01:28	0	2	-0.005	
MH206	STORAGE	0.00	158.03	0	01:27	0	1.07	-0.013	
MH300	STORAGE	0.00	329.37	0	01:30	0	2.86	0.000	
MH300A	STORAGE	0.00	329.37	0	01:31	0	2.86	-0.001	
MH302	STORAGE	0.00	309.56	0	01:30	0	2.71	-0.001	
MH304	STORAGE	0.00	139.90	0	01:33	0	1.34	0.001	
MH400	STORAGE	0.00	60.44	0	01:33	0	0.499	-0.002	
MH402	STORAGE	0.00	29.23	0	01:38	0	0.26	-0.005	
MH404	STORAGE	0.00	25.50	0	01:30	0	0.228	0.065	
MH406	STORAGE	0.00	14.62	0	01:32	0	0.108	-0.251	
MH408	STORAGE	0.00	51.73	0	01:28	0	0.391	0.032	
MH500	STORAGE	0.00	120.44	0	01:24	0	0.92	0.018	
MH502	STORAGE	0.00	90.14	0	01:24	0	0.684	-0.047	
MH504	STORAGE	0.00	82.68	0	01:24	0	0.614	-0.001	
MH506	STORAGE	0.00	82.69	0	01:23	0	0.613	-0.129	
MH508	STORAGE	0.00	30.86	0	01:25	0	0.254	0.389	
MH510	STORAGE	0.00	20.17	0	01:24	0	0.119	-0.037	
MH512	STORAGE	0.00	50.35	0	01:25	0	0.351	0.008	
MH602	STORAGE	0.00	157.00	0	01:24	0	1.31	-0.038	
MH604	STORAGE	0.00	87.59	0	01:26	0	0.82	0.137	
MH606	STORAGE	0.00	13.43	0	01:43	0	0.192	-0.003	
MH608	STORAGE	0.00	13.43	0	01:41	0	0.192	-0.003	
MH610	STORAGE	0.00	0.00	0	00:00	0	0	0.000	ltr
MH612	STORAGE	0.00	86.92	0	01:21	0	0.706	0.145	
MH614	STORAGE	0.00	86.92	0	01:22	0	0.705	-0.065	
MH700	STORAGE	0.00	146.15	0	01:25	0	1.17	-0.077	
MH702	STORAGE	0.00	81.19	0	01:23	0	0.76	0.276	
MH704	STORAGE	0.00	50.43	0	01:25	0	0.513	-0.003	
MH706	STORAGE	0.00	18.72	0	01:31	0	0.17	-0.000	
MH708	STORAGE	0.00	18.72	0	01:30	0	0.17	-0.004	
MH710	STORAGE	0.00	20.59	0	01:23	0	0.212	-0.005	
MH712	STORAGE	0.00	58.38	0	01:28	0	0.556	0.134	
MH714	STORAGE	0.00	84.14	0	01:30	0	0.793	-0.094	
MH716	STORAGE	0.00	116.81	0	01:26	0	0.762	0.009	
MH718	STORAGE	0.00	92.76	0	01:26	0	0.548	0.048	
MH720	STORAGE	0.00	78.45	0	01:25	0	0.415	-0.039	
MHx1000	STORAGE	0.00	84.24	0	01:31	0	0.682	-0.002	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB22-CBMH23	JUNCTION	0.05	0.000	0.000
CB24-CBMH25	JUNCTION	0.11	0.001	0.000
CB28-CBMH29	JUNCTION	0.18	0.005	0.000
CB30-CBMH31	JUNCTION	0.05	0.001	0.000
CB64-CBMH65	JUNCTION	0.03	0.001	0.000
CB68-CBMH69	JUNCTION	0.04	0.001	0.000
CB74-CBMH75	JUNCTION	0.18	0.002	0.000
LCB-2-03	JUNCTION	0.13	0.003	0.000
LCB-2-05	JUNCTION	0.12	0.003	0.000
LCB-3-01	JUNCTION	0.17	0.048	0.000
LCB-3-05	JUNCTION	0.03	0.003	0.000
LCB-3-06	JUNCTION	0.03	0.002	0.000
LCB-3-08	JUNCTION	0.01	0.000	0.000
LCB-3-13	JUNCTION	0.07	0.003	0.000
LCB-3-21	JUNCTION	0.09	0.038	0.000
LCB-3-22	JUNCTION	0.08	0.034	0.000
LCB-3-23	JUNCTION	0.03	0.005	0.000
LCB-3-25	JUNCTION	0.15	0.023	0.000
LCB-3-26	JUNCTION	0.24	0.044	0.000
LCB-3-27	JUNCTION	0.20	0.027	0.000
LCB-3-29	JUNCTION	0.23	0.035	0.000
LCB-4-13	JUNCTION	0.09	0.003	0.000
LCB-4-15	JUNCTION	0.08	0.003	0.000
LCB-4-16	JUNCTION	0.07	0.002	0.000
LCB-4-17	JUNCTION	0.09	0.004	0.000
LCB-4-18	JUNCTION	0.09	0.004	0.000
LCB-4-20	JUNCTION	0.07	0.004	0.000
LCB-4-25	JUNCTION	0.01	0.000	0.000
LCB-4-32	JUNCTION	0.07	0.004	0.000
LCB-5-19	JUNCTION	0.07	0.001	0.000
LCB-5-20	JUNCTION	0.07	0.001	0.000

LCB-5-21	JUNCTION	0.06	0.001	0.000
LCB-5-24	JUNCTION	0.06	0.002	0.000
RAP-5-16	JUNCTION	1.40	1.135	0.285
RAP-5-22	JUNCTION	3.97	1.211	0.289
RYT-4-10	JUNCTION	1.49	1.311	0.282
RYT-4-14	JUNCTION	1.49	1.186	0.247
RYT-4-19	JUNCTION	1.60	1.237	0.286
RYT-4-27A	JUNCTION	1.29	1.301	0.092
CB-2-1_(CB)	STORAGE	2.77	1.244	0.176
CB-2-2_(CB)	STORAGE	2.25	1.427	0.073
CB-2-3_(CB)	STORAGE	3.43	1.368	0.052
CB-3-2_(CB)	STORAGE	1.56	1.667	0.000
CB-3-3_(CB)	STORAGE	1.95	1.609	0.041
CB-4-02	STORAGE	1.77	1.388	0.000
CB-4-04	STORAGE	1.64	1.335	0.000
CB-4-05	STORAGE	1.64	1.464	0.000
CBMH-4-01	STORAGE	1.40	1.429	0.000
CBMH-4-03	STORAGE	2.01	1.763	0.000
CBMH-4-06	STORAGE	2.84	1.365	0.410
CBMH-4-07	STORAGE	1.72	1.790	0.000
CBMH-4-08	STORAGE	1.45	1.600	0.000

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
2-00_Stor	0.014	4	0	0	0.279	78	0 01:31	84.24
CB-2-1_(CB)	0.000	7	0	0	0.002	90	0 01:40	6.60
CB-2-2_(CB)	0.000	7	0	0	0.002	96	0 01:32	11.78
CB-2-3_(CB)	0.000	9	0	0	0.002	97	0 01:43	6.87
CB-2-4_(CB)	0.000	4	0	0	0.002	89	0 01:23	116.45
CB-2-5_(CB)	0.000	2	0	0	0.002	87	0 01:14	255.58
CB-3-1_(CB)	0.000	9	0	0	0.002	94	0 01:25	7.45
CB-3-2_(CB)	0.000	5	0	0	0.002	100	0 01:08	26.22
CB-3-3_(CB)	0.000	6	0	0	0.002	98	0 01:24	20.17
CB-3-4_(CB)	0.000	3	0	0	0.002	88	0 01:12	41.24
CB-3-5_(CB)	0.000	3	0	0	0.002	87	0 01:12	31.82
CB-3-6_(CB)	0.000	2	0	0	0.002	79	0 01:15	60.66
CB-3-7_(CB)	0.000	4	0	0	0.002	88	0 01:15	54.40
CB-3-8_(CB)	0.000	4	0	0	0.002	88	0 01:11	98.14
CB-4-02	0.000	7	0	0	0.002	100	0 01:06	21.04
CB-4-04	0.000	7	0	0	0.002	100	0 01:06	14.65
CB-4-05	0.000	6	0	0	0.002	100	0 01:05	34.59
CB-5-01	0.000	5	0	0	0.002	78	0 01:25	10.14
CB-5-04	0.000	14	0	0	0.002	84	0 01:18	6.12
CB-5-05	0.000	6	0	0	0.002	91	0 01:16	20.69
CBMH308	0.001	2	0	0	0.031	64	0 01:31	31.53
CBMH-4-01	0.000	6	0	0	0.003	100	0 01:07	29.96
CBMH-4-03	0.000	7	0	0	0.003	100	0 01:09	16.89
CBMH-4-06	0.000	8	0	0	0.002	82	0 01:31	14.34
CBMH-4-07	0.000	6	0	0	0.003	100	0 01:09	16.92
CBMH-4-08	0.000	5	0	0	0.003	100	0 01:07	31.17
CBMH-5-02	0.000	7	0	0	0.002	58	0 01:27	6.75
CBMH-5-03	0.000	11	0	0	0.002	63	0 01:52	8.69
MH100	0.010	32	0	0	0.010	33	0 01:23	1610.35
MH102	0.010	32	0	0	0.010	33	0 01:20	1435.51
MH104	0.009	31	0	0	0.010	33	0 01:20	1350.54
MH106	0.009	30	0	0	0.009	32	0 01:20	1290.21
MH108	0.008	28	0	0	0.009	31	0 01:20	1259.05
MH110	0.001	5	0	0	0.003	12	0 01:22	844.82
MH112	0.000	1	0	0	0.001	9	0 01:18	280.16
MH114	0.000	1	0	0	0.001	8	0 01:17	212.69
MH116	0.000	1	0	0	0.001	8	0 01:17	161.60
MH118	0.000	0	0	0	0.000	7	0 01:11	51.06
MH200	0.000	2	0	0	0.001	14	0 01:29	481.16
MH200A	0.000	2	0	0	0.003	14	0 01:29	481.15
MH202	0.000	1	0	0	0.001	12	0 01:29	456.56
MH204	0.000	1	0	0	0.001	10	0 01:28	269.01
MH206	0.000	1	0	0	0.001	10	0 01:28	158.00

MH300	0.000	1	0	0	0.001	6	0	01:31	329.37
MH300A	0.000	3	0	0	0.001	10	0	01:31	329.37
MH302	0.000	1	0	0	0.001	9	0	01:31	309.56
MH304	0.000	1	0	0	0.000	8	0	01:33	139.89
MH400	0.000	1	0	0	0.000	6	0	01:34	60.44
MH402	0.000	1	0	0	0.000	5	0	01:38	29.23
MH404	0.000	1	0	0	0.000	5	0	01:30	25.49
MH406	0.000	0	0	0	0.000	3	0	01:32	14.62
MH408	0.000	1	0	0	0.000	6	0	01:29	51.73
MH500	0.000	1	0	0	0.000	9	0	01:25	120.44
MH502	0.000	1	0	0	0.000	7	0	01:25	90.13
MH504	0.000	1	0	0	0.000	6	0	01:24	82.68
MH506	0.000	1	0	0	0.000	8	0	01:24	82.68
MH508	0.000	1	0	0	0.000	5	0	01:26	30.86
MH510	0.000	0	0	0	0.000	4	0	01:25	20.16
MH512	0.000	1	0	0	0.000	5	0	01:25	50.35
MH602	0.000	1	0	0	0.001	11	0	01:27	156.97
MH604	0.000	1	0	0	0.000	8	0	01:28	87.59
MH606	0.000	1	0	0	0.000	3	0	01:42	13.43
MH608	0.000	1	0	0	0.000	4	0	01:42	13.43
MH610	0.000	0	0	0	0.000	0	0	00:00	0.00
MH612	0.000	1	0	0	0.000	8	0	01:22	86.92
MH614	0.000	1	0	0	0.000	9	0	01:22	86.92
MH700	0.000	1	0	0	0.001	9	0	01:27	146.13
MH702	0.000	1	0	0	0.000	6	0	01:24	81.19
MH704	0.000	1	0	0	0.000	6	0	01:26	50.42
MH706	0.000	0	0	0	0.000	4	0	01:31	18.72
MH708	0.000	0	0	0	0.000	4	0	01:31	18.72
MH710	0.000	1	0	0	0.000	5	0	01:25	20.59
MH712	0.000	1	0	0	0.000	6	0	01:29	58.38
MH714	0.000	1	0	0	0.000	8	0	01:31	84.14
MH716	0.000	1	0	0	0.000	12	0	01:27	116.80
MH718	0.000	1	0	0	0.000	8	0	01:26	92.73
MH720	0.000	1	0	0	0.000	8	0	01:26	78.43
MHx1000	0.000	1	0	0	0.000	6	0	01:31	84.24

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
098	92.16	144.84	1610.35	11.476
OF01	12.32	5.35	39.64	0.057
OF02	6.44	2.84	34.48	0.016
OF03	2.07	40.40	86.49	0.072
OF04	0.00	0.00	0.00	0.000
OF05	0.00	0.00	0.00	0.000
OF06	0.00	0.00	0.00	0.000
OF07	4.27	16.29	31.28	0.060
OF08	0.84	0.04	0.06	0.000
OF09	0.00	0.00	0.00	0.000
OF10	5.55	1.76	8.60	0.008
OF11	3.52	3.67	16.63	0.011
OF12	0.00	0.00	0.00	0.000
OF13	0.00	0.00	0.00	0.000
OF14	4.35	4.34	21.17	0.016
System	8.77	219.52	1696.35	11.715

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Link Flow Summary
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Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
100-098	CONDUIT	1610.35	0 01:24	0.88	0.49	1.00
102-100	CONDUIT	1435.51	0 01:24	0.79	0.52	1.00
104-102	CONDUIT	1350.54	0 01:23	0.74	0.48	1.00
106-104	CONDUIT	1290.21	0 01:24	0.71	0.45	1.00
108-106	CONDUIT	1259.05	0 01:23	0.69	0.43	1.00
110-108	CONDUIT	844.82	0 01:22	1.58	0.40	0.39
112-110	CONDUIT	280.16	0 01:18	1.31	0.46	0.41
114-112	CONDUIT	212.69	0 01:18	1.18	0.47	0.42

116-114	CONDUIT	161.60	0	01:17	1.13	0.46	0.42
118-116	CONDUIT	51.06	0	01:11	1.11	0.71	0.60
200-200A	CONDUIT	481.16	0	01:29	1.13	0.56	0.54
200A-110	CONDUIT	481.15	0	01:30	1.30	0.43	0.48
202-200	CONDUIT	456.56	0	01:29	1.39	0.54	0.50
204-202	CONDUIT	269.01	0	01:29	1.35	0.47	0.45
206-204	CONDUIT	158.00	0	01:28	1.16	0.56	0.47
206-304	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
300-300A	CONDUIT	329.37	0	01:31	1.38	0.14	0.39
300A-108	CONDUIT	329.37	0	01:31	1.17	0.42	0.44
302-300	CONDUIT	309.56	0	01:31	1.55	0.42	0.45
304-302	CONDUIT	139.89	0	01:34	1.29	0.34	0.40
400-110	CONDUIT	60.44	0	01:34	1.12	0.27	0.36
402-400	CONDUIT	29.23	0	01:38	0.88	0.23	0.33
404-402	CONDUIT	22.65	0	01:30	0.78	0.21	0.30
404-408	CONDUIT	2.84	0	01:30	0.44	0.04	0.18
406-408	CONDUIT	14.62	0	01:32	0.74	0.21	0.32
408-114	CONDUIT	51.73	0	01:29	1.11	0.36	0.43
500-100	CONDUIT	120.44	0	01:25	1.02	0.52	0.52
502-500	CONDUIT	90.13	0	01:25	0.80	0.40	0.51
504-502	CONDUIT	82.68	0	01:24	1.15	0.40	0.45
508-504	CONDUIT	82.68	0	01:24	1.03	0.56	0.49
508-506	CONDUIT	30.86	0	01:26	0.80	0.31	0.43
508-510	CONDUIT	0.00	0	00:00	0.00	0.00	0.09
510-512	CONDUIT	20.16	0	01:25	0.79	0.16	0.27
512-108	CONDUIT	50.35	0	01:26	1.05	0.23	0.33
602-202	CONDUIT	156.97	0	01:27	1.03	0.40	0.43
604-602	CONDUIT	87.59	0	01:28	0.85	0.30	0.41
606-604	CONDUIT	13.43	0	01:43	0.71	0.06	0.18
608-606	CONDUIT	13.43	0	01:43	0.67	0.13	0.23
610-612	CONDUIT	0.00	0	00:00	0.00	0.00	0.12
612-614	CONDUIT	86.92	0	01:22	0.85	0.44	0.47
614-204	CONDUIT	86.92	0	01:23	0.91	0.42	0.44
700-302	CONDUIT	146.13	0	01:27	1.02	0.36	0.41
702-700	CONDUIT	81.19	0	01:24	0.96	0.26	0.37
704-702	CONDUIT	50.42	0	01:26	0.88	0.23	0.30
706-704	CONDUIT	18.72	0	01:31	0.79	0.14	0.26
708-706	CONDUIT	18.72	0	01:31	0.74	0.17	0.27
710-712	CONDUIT	20.59	0	01:25	0.74	0.21	0.29
712-714	CONDUIT	58.38	0	01:29	0.89	0.24	0.33
714-304	CONDUIT	84.14	0	01:31	0.87	0.30	0.37

716-206	CONDUIT	116.80	0	01:27	0.96	0.59	0.54
718-716	CONDUIT	92.73	0	01:26	0.97	0.56	0.57
720-718	CONDUIT	78.43	0	01:26	0.93	0.47	0.51
C1	CHANNEL	0.00	0	00:00	0.00	0.00	0.08
C10	CHANNEL	0.00	0	00:00	0.00	0.00	0.48
C100	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C101	CONDUIT	86.49	0	01:12	0.48	0.21	0.61
C102	CONDUIT	87.33	0	01:11	0.23	0.22	0.89
C103	CONDUIT	71.17	0	01:11	0.30	0.09	0.71
C104	CONDUIT	71.36	0	01:11	0.30	0.12	0.71
C105	CONDUIT	25.29	0	01:11	0.13	0.03	0.63
C106	CONDUIT	25.46	0	01:11	0.19	0.04	0.53
C107	CONDUIT	2.79	0	01:12	0.10	0.00	0.46
C108	CONDUIT	6.40	0	01:10	0.10	0.01	0.55
C109	CONDUIT	33.90	0	01:10	0.60	0.06	0.65
C11	CHANNEL	0.00	0	00:00	0.00	0.00	0.46
C110	CONDUIT	35.55	0	01:10	0.63	0.06	0.65
C111	CONDUIT	8.27	0	01:11	0.10	0.02	0.55
C112	CONDUIT	1.66	0	01:13	0.09	0.00	0.55
C113	CONDUIT	4.13	0	01:12	0.09	0.01	0.54
C114	CONDUIT	1.52	0	01:18	0.09	0.00	0.54
C115	CONDUIT	4.24	0	01:14	0.10	0.01	0.55
C116	CONDUIT	1.75	0	01:18	0.08	0.00	0.55
C117	CONDUIT	4.39	0	01:14	0.07	0.01	0.56
C118	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C119	CONDUIT	0.00	0	00:00	0.00	0.00	0.06
C12	CHANNEL	29.51	0	01:15	0.05	0.01	0.50
C120	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C121	CONDUIT	0.00	0	00:00	0.00	0.00	0.08
C122	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C123	CONDUIT	26.89	0	01:09	0.15	0.04	0.64
C124	CONDUIT	30.10	0	01:09	0.16	0.05	0.66
C125	CONDUIT	22.31	0	01:10	0.11	0.03	0.66
C126	CONDUIT	32.67	0	01:10	0.23	0.04	0.66
C127	CONDUIT	28.57	0	01:11	0.20	0.07	0.59
C128	CONDUIT	22.75	0	01:11	0.12	0.03	0.64
C129	CONDUIT	10.09	0	01:12	0.09	0.02	0.59
C13	CHANNEL	6.38	0	01:25	0.10	0.00	0.52
C130	CONDUIT	8.09	0	01:12	0.06	0.01	0.54
C131	CONDUIT	33.34	0	01:13	0.19	0.06	0.61
C132	CONDUIT	32.88	0	01:13	0.16	0.05	0.66

C133	CONDUIT	28.16	0	01:12	0.13	0.06	0.68
C134	CONDUIT	27.05	0	01:12	0.12	0.05	0.68
C135	CONDUIT	43.05	0	01:11	0.18	0.11	0.76
C136	CONDUIT	204.36	0	02:00	0.65	0.40	0.81
C137	CONDUIT	38.26	0	01:13	0.22	0.07	0.68
C138	CONDUIT	37.20	0	01:15	0.21	0.09	0.67
C139	CONDUIT	48.64	0	01:13	0.21	0.09	0.76
C14	CHANNEL	34.95	0	01:14	0.05	0.01	0.54
C140	CONDUIT	15.94	0	01:13	0.09	0.02	0.63
C141	CONDUIT	15.52	0	01:15	0.44	0.03	0.27
C142	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C143	CONDUIT	0.00	0	00:00	0.00	0.00	0.49
C144	CONDUIT	0.00	0	00:00	0.00	0.00	0.46
C145	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C146	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C147	CONDUIT	0.00	0	00:00	0.00	0.00	0.45
C148	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C149	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C15	CHANNEL	23.39	0	01:26	0.05	0.00	0.51
C150	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C151	CHANNEL	28.58	0	01:11	0.04	0.00	0.57
C151_1	CHANNEL	14.62	0	01:16	0.45	0.01	0.11
C152	CHANNEL	14.36	0	01:37	0.48	0.01	0.11
C153	CHANNEL	7.49	0	01:39	0.04	0.00	0.53
C154	CHANNEL	18.12	0	01:24	0.03	0.00	0.53
C155	CHANNEL	8.00	0	01:38	0.06	0.00	0.52
C156	CHANNEL	25.92	0	01:13	0.05	0.00	0.53
C157	CHANNEL	9.02	0	01:22	0.02	0.00	0.53
C158	CHANNEL	41.79	0	01:21	0.08	0.01	0.59
C159	CHANNEL	38.25	0	01:25	0.04	0.01	0.59
C16	CHANNEL	0.27	0	01:30	0.05	0.00	0.49
C160	CHANNEL	59.77	0	01:37	0.05	0.01	0.59
C161	CHANNEL	61.55	0	01:38	0.10	0.01	0.57
C162	CHANNEL	61.51	0	01:34	0.09	0.01	0.57
C163	CHANNEL	63.60	0	01:31	0.06	0.01	0.59
C164	CHANNEL	64.21	0	01:34	0.05	0.01	0.59
C165	CHANNEL	6.45	0	01:39	0.04	0.00	0.54
C166	CHANNEL	67.78	0	01:10	0.08	0.01	0.59
C167	CHANNEL	70.19	0	01:31	0.35	0.20	0.22
C168	CHANNEL	71.68	0	01:30	0.09	0.01	0.64
C169	CHANNEL	84.57	0	01:25	0.07	0.01	0.59

C17	CHANNEL	14.89	0	01:20	0.04	0.00	0.45
C170	CHANNEL	55.03	0	01:30	0.29	0.16	0.22
C171	CHANNEL	34.58	0	01:23	0.07	0.00	0.59
C172	CHANNEL	13.25	0	01:21	0.06	0.00	0.54
C173	CHANNEL	39.57	0	01:12	0.04	0.01	0.55
C174	CHANNEL	0.00	0	00:00	0.00	0.00	0.50
C175	CONDUIT	31.96	0	01:41	0.08	0.07	0.63
C176	CONDUIT	31.28	0	01:42	0.29	0.07	0.20
C177	CONDUIT	36.15	0	01:14	0.28	0.07	0.58
C178	CONDUIT	36.59	0	01:14	0.17	0.05	0.68
C179	CONDUIT	20.76	0	01:08	0.27	0.06	0.92
C18	CHANNEL	0.00	0	00:00	0.00	0.00	0.44
C180	CONDUIT	12.30	0	01:13	0.08	0.02	0.57
C181	CONDUIT	13.21	0	01:13	0.09	0.02	0.59
C182	CONDUIT	18.87	0	01:10	0.27	0.06	0.93
C183	CONDUIT	18.98	0	01:08	0.27	0.06	0.93
C184	CONDUIT	8.01	0	01:13	0.07	0.01	0.55
C185	CONDUIT	8.39	0	01:13	0.06	0.01	0.54
C186	CONDUIT	22.74	0	01:08	0.25	0.07	0.92
C187	CONDUIT	6.18	0	01:10	0.06	0.01	0.58
C188	CONDUIT	5.73	0	01:12	0.06	0.01	0.58
C189	CONDUIT	3.33	0	01:11	0.06	0.00	0.55
C19	CHANNEL	0.00	0	00:00	0.00	0.00	0.41
C190	CONDUIT	35.18	0	01:21	0.23	0.06	0.63
C191	CONDUIT	35.22	0	01:20	0.17	0.06	0.65
C192	CONDUIT	32.93	0	01:08	0.29	0.11	0.93
C193	CONDUIT	20.97	0	01:08	0.33	0.05	0.82
C194	CONDUIT	5.85	0	01:11	0.10	0.01	0.55
C195	CONDUIT	4.86	0	01:23	0.05	0.01	0.66
C196	CONDUIT	1.69	0	01:11	0.06	0.00	0.58
C197	CONDUIT	9.11	0	01:16	0.11	0.02	0.55
C198	CONDUIT	10.89	0	01:13	0.07	0.02	0.66
C199	CONDUIT	19.99	0	01:10	0.20	0.06	0.91
C2	CHANNEL	7.95	0	01:22	0.09	0.00	0.51
C20	CHANNEL	36.83	0	01:13	0.11	0.01	0.55
C200	CONDUIT	18.93	0	01:16	0.19	0.05	0.91
C201	CONDUIT	15.75	0	01:16	0.18	0.04	0.90
C202	CONDUIT	17.02	0	01:13	0.16	0.05	0.90
C203	CONDUIT	22.56	0	01:17	0.12	0.03	0.65
C204	CONDUIT	23.07	0	01:17	0.15	0.03	0.58
C205	CONDUIT	23.91	0	01:15	0.27	0.08	0.93

C206	CONDUIT	32.07	0	01:10	0.25	0.09	0.92
C207	CONDUIT	18.36	0	01:10	0.19	0.06	0.92
C208	CONDUIT	20.52	0	01:10	0.21	0.06	0.91
C209	CONDUIT	11.49	0	01:08	0.19	0.04	0.91
C21	CHANNEL	0.00	0	00:00	0.00	0.00	0.45
C210	CONDUIT	3.86	0	01:11	0.05	0.01	0.59
C211	CONDUIT	4.63	0	01:11	0.05	0.01	0.59
C212	CONDUIT	0.29	0	01:15	0.00	0.00	0.50
C213	CONDUIT	1.46	0	01:13	0.01	0.00	0.52
C214	CONDUIT	26.28	0	01:07	0.30	0.09	0.93
C215	CONDUIT	19.53	0	01:11	0.15	0.02	0.56
C216	CONDUIT	12.75	0	01:14	0.08	0.02	0.58
C217	CONDUIT	26.17	0	01:07	0.33	0.09	0.95
C218	CONDUIT	28.78	0	01:14	0.15	0.04	0.63
C219	CONDUIT	28.64	0	01:15	0.21	0.04	0.62
C22	CHANNEL	0.00	0	00:00	0.00	0.00	0.26
C220	CONDUIT	10.09	0	01:12	0.10	0.02	0.51
C221	CONDUIT	21.43	0	01:09	0.19	0.07	0.88
C222	CONDUIT	15.60	0	01:10	0.26	0.05	0.94
C223	CONDUIT	6.33	0	01:11	0.07	0.01	0.56
C224	CONDUIT	4.53	0	01:13	0.03	0.01	0.57
C225	CONDUIT	14.24	0	01:07	0.25	0.05	0.96
C226	CONDUIT	16.16	0	01:12	0.21	0.05	0.93
C227	CONDUIT	13.84	0	01:15	0.10	0.01	0.53
C228	CONDUIT	13.80	0	01:16	0.11	0.01	0.52
C229	CONDUIT	14.19	0	01:16	0.23	0.05	0.92
C23	CONDUIT	2.22	0	01:18	0.10	0.00	0.24
C23_1	CHANNEL	22.86	0	01:10	0.11	0.00	0.33
C23_2	CHANNEL	21.26	0	01:10	0.30	0.00	0.19
C23_3	CONDUIT	4.39	0	01:12	0.08	0.01	0.62
C23_4	CONDUIT	2.28	0	01:27	0.02	0.01	0.72
C23_5	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C23_6	CONDUIT	0.00	0	00:00	0.00	0.00	0.43
C23_7	CONDUIT	0.00	0	00:00	0.00	0.00	0.43
C23_8	CONDUIT	0.00	0	00:00	0.00	0.00	0.44
C230	CONDUIT	21.46	0	01:08	0.26	0.07	0.93
C231	CONDUIT	9.34	0	01:14	0.06	0.02	0.59
C232	CONDUIT	14.76	0	01:16	0.11	0.02	0.61
C233	CONDUIT	19.52	0	01:10	0.25	0.06	0.94
C234	CONDUIT	37.09	0	01:16	0.18	0.07	0.65
C235	CONDUIT	36.97	0	01:16	0.22	0.06	0.65

C236	CONDUIT	6.85	0	01:17	0.04	0.01	0.61
C237	CONDUIT	16.31	0	01:07	0.26	0.05	0.94
C238	CONDUIT	3.08	0	01:11	0.03	0.00	0.55
C239	CONDUIT	2.71	0	01:16	0.47	0.00	0.12
C24	CHANNEL	0.00	0	00:00	0.00	0.00	0.05
C240	CONDUIT	18.69	0	01:11	0.18	0.03	0.60
C241	CONDUIT	20.25	0	01:10	0.12	0.03	0.61
C242	CONDUIT	38.25	0	01:10	0.29	0.12	0.91
C243	CONDUIT	35.55	0	01:11	0.26	0.04	0.56
C244	CONDUIT	21.68	0	01:11	0.16	0.02	0.58
C245	CONDUIT	21.34	0	01:07	0.28	0.07	0.93
C246	CONDUIT	37.18	0	01:15	0.19	0.06	0.63
C247	CONDUIT	37.03	0	01:15	0.24	0.04	0.64
C248	CONDUIT	14.98	0	01:11	0.13	0.03	0.57
C249	CONDUIT	17.92	0	01:08	0.23	0.06	0.92
C25	CHANNEL	39.42	0	01:11	0.05	0.01	0.53
C250	CONDUIT	40.97	0	01:10	0.20	0.13	0.91
C251	CONDUIT	28.48	0	01:11	0.19	0.08	0.91
C252	CONDUIT	28.41	0	01:11	0.20	0.09	0.91
C253	CONDUIT	14.02	0	01:14	0.17	0.05	0.91
C254	CONDUIT	12.98	0	01:11	0.18	0.04	0.91
C255	CONDUIT	9.29	0	01:14	0.19	0.03	0.90
C256	CONDUIT	4.78	0	01:11	0.06	0.01	0.55
C257	CONDUIT	0.00	0	00:00	0.00	0.00	0.16
C258	CONDUIT	4.56	0	01:11	0.06	0.01	0.66
C259	CONDUIT	8.97	0	01:09	0.16	0.02	0.86
C26	CONDUIT	4.18	0	01:12	0.04	0.01	0.52
C26_1	CHANNEL	28.60	0	01:33	0.21	0.02	0.18
C26_2	CHANNEL	63.53	0	01:10	0.10	0.01	0.52
C260	CONDUIT	0.60	0	01:22	0.01	0.00	0.38
C261	CONDUIT	0.46	0	01:21	0.01	0.00	0.39
C262	CONDUIT	8.17	0	01:09	0.18	0.02	0.87
C263	CONDUIT	6.54	0	01:10	0.14	0.02	0.84
C264	CONDUIT	0.46	0	01:22	0.01	0.00	0.37
C265	CONDUIT	0.40	0	01:20	0.01	0.00	0.35
C266	CONDUIT	8.67	0	01:09	0.14	0.02	0.83
C267	CONDUIT	8.09	0	01:09	0.13	0.02	0.83
C268	CONDUIT	0.33	0	01:23	0.01	0.00	0.35
C269	CONDUIT	0.37	0	01:24	0.00	0.00	0.43
C27	CHANNEL	56.43	0	01:10	0.11	0.01	0.61
C270	CONDUIT	9.69	0	01:08	0.20	0.02	0.90

C271	CONDUIT	0.25	0	01:21	0.01	0.00	0.52
C272	CONDUIT	0.06	0	01:30	0.11	0.00	0.03
C273	CONDUIT	4.78	0	01:09	0.06	0.01	0.58
C274	CONDUIT	32.21	0	01:10	0.25	0.10	0.83
C275	CONDUIT	20.94	0	01:10	0.20	0.07	0.83
C276	CONDUIT	22.50	0	01:10	0.22	0.05	0.79
C277	CONDUIT	12.83	0	01:14	0.16	0.04	0.79
C278	CONDUIT	32.39	0	01:13	0.20	0.06	0.64
C279	CONDUIT	31.70	0	01:15	0.19	0.09	0.66
C28	CHANNEL	65.99	0	01:10	0.09	0.01	0.51
C280	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C281	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C282	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C283	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C284	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C285	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C286	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C287	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C288	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C289	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C29	CHANNEL	21.47	0	01:21	0.24	0.06	0.17
C290	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C291	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C292	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C293	CONDUIT	0.00	0	00:00	0.00	0.00	0.44
C294	CONDUIT	0.00	0	00:00	0.00	0.00	0.45
C295	CONDUIT	8.23	0	01:10	0.15	0.05	1.00
C296	CONDUIT	29.68	0	01:10	0.22	0.17	1.00
C297	CONDUIT	23.92	0	01:09	0.23	0.13	1.00
C298	CONDUIT	19.27	0	01:08	0.28	0.11	1.00
C299	CONDUIT	11.68	0	01:08	0.22	0.07	0.98
C3	CHANNEL	62.57	0	01:11	0.11	0.01	0.51
C30	CHANNEL	62.85	0	01:24	0.34	0.02	0.23
C300	CHANNEL	23.06	0	01:09	0.03	0.00	0.56
C301	CHANNEL	0.00	0	00:00	0.00	0.00	0.49
C302	CHANNEL	0.00	0	00:00	0.00	0.00	0.43
C303	CHANNEL	0.10	0	01:34	0.01	0.00	0.44
C304	CHANNEL	1.00	0	01:29	0.05	0.00	0.07
C305	CHANNEL	33.29	0	01:30	0.11	0.01	0.49
C306	CHANNEL	58.39	0	01:09	0.09	0.01	0.49
C307	CHANNEL	36.40	0	01:19	0.05	0.00	0.56
C308	CHANNEL	33.06	0	01:20	0.04	0.01	0.55
C309	CHANNEL	69.11	0	01:09	0.09	0.01	0.55
C31	CONDUIT	23.16	0	01:15	0.15	0.05	0.64
C310	CHANNEL	4.68	0	01:24	0.09	0.00	0.51
C311	CHANNEL	24.13	0	01:14	0.05	0.00	0.51
C312	CHANNEL	0.00	0	00:00	0.00	0.00	0.48
C313	CHANNEL	0.00	0	00:00	0.00	0.00	0.44
C314	CHANNEL	0.00	0	00:00	0.00	0.00	0.44
C315	CHANNEL	0.00	0	00:00	0.00	0.00	0.50
C316	CHANNEL	52.50	0	01:21	0.05	0.01	0.57
C317	CHANNEL	49.56	0	01:24	0.07	0.01	0.56
C318	CHANNEL	46.74	0	01:11	0.08	0.01	0.57
C319	CHANNEL	35.39	0	01:31	0.06	0.01	0.57
C32	CHANNEL	34.48	0	01:10	0.27	0.02	0.18
C320	CHANNEL	27.40	0	01:30	0.03	0.00	0.58
C321	CHANNEL	26.98	0	01:32	0.29	0.01	0.15
C322	CHANNEL	46.65	0	01:33	0.04	0.00	0.54
C323	CHANNEL	57.58	0	01:21	0.07	0.01	0.60
C324	CONDUIT	40.70	0	01:16	0.30	0.06	0.64
C325	CONDUIT	40.74	0	01:16	0.21	0.07	0.63
C326	CONDUIT	7.04	0	01:11	0.08	0.01	0.61
C327	CONDUIT	6.30	0	01:10	0.08	0.01	0.61
C328	CONDUIT	7.99	0	01:15	0.07	0.01	0.56
C329	CONDUIT	7.82	0	01:16	0.06	0.01	0.56
C33	CHANNEL	39.64	0	01:10	0.44	0.01	0.15
C330	CONDUIT	4.12	0	01:14	0.06	0.01	0.39
C331	CONDUIT	12.15	0	01:10	0.19	0.03	0.66
C332	CONDUIT	28.51	0	01:10	0.28	0.08	0.89
C333	CONDUIT	2.68	0	01:11	0.03	0.00	0.55
C334	CONDUIT	2.96	0	01:14	0.04	0.00	0.42
C335	CONDUIT	15.45	0	01:10	0.20	0.03	0.83
C336	CONDUIT	6.50	0	01:10	0.09	0.01	0.69
C337	CONDUIT	0.06	0	01:16	0.02	0.00	0.22
C338	CONDUIT	0.93	0	01:14	0.01	0.00	0.51
C339	CONDUIT	15.11	0	01:09	0.20	0.04	0.90
C34	CONDUIT	28.70	0	01:27	2.81	0.01	0.16
C34_1	CONDUIT	6.21	0	01:27	0.11	0.01	0.35
C34_2	CONDUIT	6.20	0	01:27	0.13	0.02	0.66
C340	CONDUIT	13.92	0	01:09	0.22	0.04	0.90
C341	CONDUIT	5.05	0	01:12	0.04	0.01	0.58
C342	CONDUIT	4.57	0	01:11	0.05	0.01	0.58

C343	CONDUIT	21.44	0	01:10	0.16	0.05	0.80
C344	CONDUIT	4.08	0	01:16	0.05	0.01	0.44
C345	CONDUIT	7.88	0	01:17	0.09	0.01	0.49
C346	CONDUIT	16.88	0	01:09	0.21	0.04	0.85
C347	CONDUIT	50.80	0	01:18	0.25	0.07	0.66
C348	CONDUIT	50.78	0	01:18	0.28	0.06	0.67
C349	CONDUIT	4.85	0	01:11	0.12	0.01	0.45
C35	CONDUIT	93.37	0	02:24	0.94	0.14	0.64
C35_1	CONDUIT	6.21	0	01:27	0.10	0.01	0.36
C35_2	CONDUIT	6.36	0	01:25	0.11	0.02	0.68
C350	CONDUIT	16.70	0	01:09	0.20	0.03	0.81
C351	CONDUIT	4.92	0	01:17	0.05	0.01	0.58
C352	CONDUIT	4.54	0	01:17	0.04	0.01	0.56
C353	CONDUIT	0.00	0	00:00	0.00	0.00	0.06
C354	CONDUIT	0.70	0	01:15	0.01	0.00	0.50
C355	CONDUIT	3.28	0	01:11	0.07	0.01	0.61
C356	CONDUIT	2.94	0	01:11	0.05	0.01	0.61
C357	CONDUIT	3.40	0	01:10	0.07	0.01	0.64
C358	CONDUIT	4.31	0	01:10	0.09	0.01	0.64
C359	CONDUIT	12.18	0	01:10	0.17	0.03	0.75
C36	CONDUIT	113.69	0	02:16	0.95	0.12	0.68
C36_1	CONDUIT	6.02	0	01:25	0.10	0.01	0.36
C36_2	CONDUIT	5.74	0	01:26	0.11	0.01	0.68
C360	CONDUIT	2.04	0	01:22	0.03	0.00	0.46
C361	CONDUIT	3.41	0	01:11	0.07	0.01	0.60
C362	CONDUIT	7.26	0	01:25	0.05	0.01	0.53
C363	CONDUIT	7.21	0	01:26	0.09	0.01	0.46
C364	CONDUIT	1.58	0	01:21	0.05	0.00	0.62
C365	CONDUIT	1.51	0	01:19	0.05	0.00	0.62
C366	CONDUIT	1.72	0	01:21	0.05	0.00	0.58
C367	CONDUIT	1.10	0	01:20	0.04	0.00	0.58
C368	CONDUIT	1.60	0	01:22	0.03	0.00	0.54
C369	CONDUIT	0.83	0	01:33	0.02	0.00	0.42
C37	CONDUIT	252.77	0	01:41	0.86	0.51	0.84
C37_1	CONDUIT	6.03	0	01:24	0.06	0.01	0.44
C37_2	CONDUIT	14.97	0	01:10	0.19	0.05	0.85
C370	CONDUIT	2.78	0	01:20	0.08	0.01	0.67
C371	CONDUIT	2.72	0	01:21	0.08	0.01	0.65
C372	CONDUIT	0.50	0	01:53	0.02	0.00	0.37
C373	CONDUIT	1.04	0	01:21	0.02	0.00	0.50
C374	CONDUIT	1.21	0	01:18	0.04	0.00	0.60
C375	CONDUIT	1.50	0	01:20	0.05	0.00	0.60
C376	CONDUIT	0.00	0	00:00	0.00	0.00	0.40
C377	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C378	CONDUIT	0.26	0	01:27	0.01	0.00	0.38
C379	CONDUIT	0.00	0	01:30	0.00	0.00	0.50
C38	CONDUIT	5.17	0	01:25	0.03	0.01	0.57
C39	CONDUIT	5.38	0	01:23	0.04	0.01	0.58
C4	CHANNEL	8.29	0	01:21	0.08	0.00	0.55
C40	CONDUIT	16.33	0	01:21	0.09	0.03	0.64
C41	CONDUIT	16.57	0	01:19	0.10	0.03	0.64
C42	CONDUIT	12.35	0	01:16	0.07	0.03	0.64
C43	CONDUIT	18.20	0	01:11	0.14	0.04	0.64
C44	CONDUIT	2.47	0	01:13	0.06	0.01	0.52
C45	CONDUIT	1.67	0	01:18	0.06	0.00	0.52
C46	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C47	CONDUIT	0.00	0	00:00	0.00	0.00	0.47
C48	CONDUIT	4.42	0	01:18	0.06	0.01	0.52
C49	CONDUIT	1.28	0	01:24	0.06	0.00	0.53
C5	CHANNEL	6.56	0	01:23	0.03	0.00	0.55
C50	CONDUIT	9.65	0	01:26	0.06	0.01	0.57
C51	CONDUIT	9.59	0	01:27	0.55	0.01	0.31
C52	CONDUIT	0.00	0	00:00	0.00	0.00	0.25
C53	CONDUIT	0.00	0	00:00	0.00	0.00	0.25
C54	CONDUIT	0.00	0	00:00	0.00	0.00	0.25
C55	CONDUIT	9.71	0	01:12	0.36	0.02	0.51
C56	CONDUIT	12.28	0	01:12	0.07	0.02	0.60
C57	CONDUIT	10.80	0	01:11	0.06	0.02	0.60
C58	CONDUIT	13.41	0	01:10	0.10	0.03	0.59
C59	CONDUIT	66.24	0	01:10	0.27	0.14	0.76
C6	CHANNEL	6.09	0	01:31	0.14	0.00	0.11
C6_2	CHANNEL	27.89	0	01:25	0.03	0.00	0.55
C60	CONDUIT	63.90	0	01:11	0.24	0.10	0.75
C61	CONDUIT	8.45	0	01:11	0.06	0.01	0.56
C62	CONDUIT	8.38	0	01:11	0.24	0.01	0.27
C63	CONDUIT	1.51	0	01:12	0.02	0.00	0.46
C64	CONDUIT	6.06	0	01:10	0.07	0.01	0.48
C65	CONDUIT	1.48	0	01:11	0.02	0.00	0.45
C66	CONDUIT	2.59	0	01:10	0.04	0.00	0.42
C67	CONDUIT	0.99	0	01:13	0.03	0.00	0.44
C68	CONDUIT	5.47	0	01:10	0.07	0.01	0.45
C69	CONDUIT	4.41	0	01:10	0.06	0.01	0.45

C7	CHANNEL	64.31	0	01:23	0.05	0.01	0.59
C70	CONDUIT	1.27	0	01:12	0.13	0.00	0.49
C71	CONDUIT	7.93	0	01:10	0.28	0.01	0.51
C72	CONDUIT	3.35	0	01:13	0.04	0.01	0.48
C73	CONDUIT	2.50	0	01:10	0.90	0.00	0.44
C74	CONDUIT	0.44	0	01:13	0.03	0.00	0.29
C75	CONDUIT	0.00	0	00:00	0.00	0.00	0.26
C76	CONDUIT	0.00	0	00:00	0.00	0.00	0.26
C77	CONDUIT	0.00	0	00:00	0.00	0.00	0.26
C78	CONDUIT	0.00	0	00:00	0.00	0.00	0.40
C79	CONDUIT	0.00	0	00:00	0.00	0.00	0.18
C8	CHANNEL	42.12	0	01:29	0.11	0.01	0.61
C80	CONDUIT	0.00	0	00:00	0.00	0.00	0.15
C81	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C82	CONDUIT	0.00	0	00:00	0.00	0.00	0.06
C83	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C84	CONDUIT	0.00	0	00:00	0.00	0.00	0.01
C85	CHANNEL	28.00	0	01:33	0.03	0.00	0.56
C85_1	CONDUIT	2.02	0	01:24	0.03	0.00	0.43
C85_2	CONDUIT	4.82	0	01:12	0.11	0.01	0.85
C86	CONDUIT	2.68	0	01:24	0.04	0.01	0.58
C87	CONDUIT	3.55	0	01:30	0.03	0.01	0.58
C88	CONDUIT	3.27	0	01:30	0.03	0.00	0.58
C89	CONDUIT	4.33	0	01:30	0.05	0.01	0.58
C9	CHANNEL	17.51	0	01:24	0.10	0.00	0.55
C90	CONDUIT	3.88	0	01:31	0.05	0.01	0.42
C91	CONDUIT	0.00	0	00:00	0.00	0.00	0.35
C92	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C93	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C94	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C95	CONDUIT	0.00	0	00:00	0.00	0.00	0.50
C96	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
C97	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C98	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
C99	CONDUIT	0.00	0	00:00	0.00	0.00	0.29
CB-100_(CB)	CONDUIT	32.86	0	01:04	0.67	0.79	1.00
CB-101_(CB)	CONDUIT	54.39	0	02:06	1.11	0.91	1.00
CB-102_(CB)	CONDUIT	190.11	0	02:04	3.87	3.15	1.00
CB-103_(CB)	CONDUIT	60.01	0	02:06	1.22	1.47	1.00
CB-104_(CB)	CONDUIT	44.66	0	01:05	0.91	1.08	1.00
CB-105_(CB)	CONDUIT	22.51	0	01:27	0.47	0.60	1.00
CB-106_(CB)	CONDUIT	24.66	0	01:03	0.68	0.59	1.00
CB-108_(CB)	CONDUIT	23.11	0	01:10	0.47	0.39	1.00
CB-109_(CB)	CONDUIT	36.48	0	01:05	0.75	0.98	1.00
CB-112_(CB)	CONDUIT	41.77	0	01:07	0.85	1.01	1.00
CB-116_(CB)	CONDUIT	19.75	0	01:06	0.44	0.47	1.00
CB-117_(CB)	CONDUIT	27.93	0	01:10	0.74	0.67	1.00
CB-119_(CB)	CONDUIT	35.25	0	01:03	0.72	0.84	1.00
CB-120_(2)_(CB)	CONDUIT	74.09	0	01:11	1.51	1.68	1.00
CB-120_(CB)	CONDUIT	44.14	0	01:05	0.90	1.04	1.00
CB-122_(CB)	CONDUIT	7.72	0	01:07	0.25	0.19	1.00
CB-123_(CB)	CONDUIT	17.90	0	01:05	0.62	0.43	1.00
CB-125_(CB)	CONDUIT	27.37	0	02:15	0.56	0.67	1.00
CB-126_(CB)	CONDUIT	49.63	0	02:15	1.01	1.20	1.00
CB-127_(CB)	CONDUIT	77.10	0	02:15	1.61	1.84	1.00
CB-130_(CB)	CONDUIT	24.91	0	01:07	0.53	0.59	1.00
CB-131_(CB)	CONDUIT	29.04	0	01:05	0.76	0.64	1.00
CB-133_(2)_(CB)	CONDUIT	6.89	0	01:06	0.21	0.15	1.00
CB-134_(CB)	CONDUIT	21.80	0	01:04	0.67	0.51	1.00
CB-136_(2)_(CB)	CONDUIT	15.89	0	01:07	0.41	0.42	1.00
CB-136_(CB)	CONDUIT	9.38	0	01:07	0.30	0.25	1.00
CB-138_(CB)	CONDUIT	46.82	0	01:05	0.95	1.11	1.00
CB-140_(2)_(1)_(CB)	CONDUIT	57.86	0	01:06	1.18	0.98	1.00
CB-140_(2)_(CB)	CONDUIT	67.73	0	01:09	1.38	1.58	1.00
CB-140_(CB)	CONDUIT	67.97	0	01:13	1.38	1.59	1.00
CB-141_(CB)	CONDUIT	25.37	0	01:19	0.52	0.61	1.00
CB-144_(CB)	CONDUIT	65.88	0	01:07	1.34	1.58	1.00
CB-149_(CB)	CONDUIT	20.46	0	01:05	0.48	0.49	1.00
CB-150_(CB)	CONDUIT	33.57	0	01:10	0.68	0.67	1.00
CB-153_(CB)	CONDUIT	21.91	0	01:07	0.54	0.31	1.00
CB-159_(3)_(CB)	CONDUIT	40.59	0	01:05	0.39	0.10	1.00
CB-159_(CB)	CONDUIT	19.73	0	01:06	0.34	0.05	1.00
CB-160_(CB)	CONDUIT	29.93	0	01:05	0.62	0.71	1.00
CB-161_(CB)	CONDUIT	30.00	0	01:04	0.63	0.71	1.00
CB-164_(2)_(CB)	CONDUIT	98.01	0	01:05	0.64	0.52	1.00
CB-164_(CB)	CONDUIT	57.79	0	01:05	0.57	0.33	1.00
CB-166_(CB)	CONDUIT	111.21	0	01:04	0.69	0.59	1.00
CB-168_(CB)_1	CONDUIT	28.19	0	01:07	0.43	0.15	1.00
CB-168_(CB)_2	CONDUIT	118.61	0	01:04	0.73	0.63	1.00
CB-170_(CB)	CONDUIT	62.35	0	01:06	0.87	0.34	1.00
CB-175_(2)_(CB)	CONDUIT	88.28	0	01:04	0.62	0.46	1.00
CB-175_(CB)	CONDUIT	77.90	0	01:04	0.64	0.42	1.00

CB-177_(CB)	CONDUIT	44.29	0	01:02	0.86	0.61	1.00
CB-180_(CB)	CONDUIT	46.96	0	01:05	0.96	1.12	1.00
CB-185_(CB)	CONDUIT	34.85	0	01:41	0.71	0.83	1.00
CB-187_(CB)	CONDUIT	78.25	0	01:41	1.59	1.84	1.00
CB-189_(CB)	CONDUIT	132.78	0	01:41	2.70	3.15	1.00
CB-209_(CB)	CONDUIT	43.72	0	01:04	0.52	0.23	1.00
CB-211_(CB)	CONDUIT	29.84	0	01:03	0.61	0.70	1.00
CB-215_(CB)	CONDUIT	15.57	0	01:10	0.32	0.38	1.00
CB-228_(CB)	CONDUIT	63.82	0	01:04	0.54	0.35	1.00
CB-229_(CB)	CONDUIT	108.82	0	01:04	0.67	0.58	1.00
CB-230_(CB)	CONDUIT	121.46	0	01:08	0.74	0.65	1.00
CB-231_(CB)	CONDUIT	55.53	0	01:05	0.66	0.30	1.00
CB-233_(CB)	CONDUIT	38.96	0	01:07	0.42	0.21	1.00
CB-234_(CB)	CONDUIT	56.93	0	01:08	0.40	0.31	1.00
CB-235_(CB)	CONDUIT	34.94	0	01:06	0.34	0.18	1.00
CB-236_(CB)	CONDUIT	81.30	0	01:08	0.58	0.43	1.00
CB-237_(CB)	CONDUIT	52.20	0	01:05	0.60	0.28	1.00
CB-239_(1)_(1)_(CB)	CONDUIT	134.16	0	01:04	0.89	1.13	1.00
CB-239_(1)_(CB)	CONDUIT	118.06	0	01:04	0.89	0.68	1.00
CB-239_(CB)	CONDUIT	86.61	0	01:04	0.71	0.42	1.00
CB-240_(CB)	CONDUIT	154.71	0	01:04	0.94	0.67	1.00
CB-245_(1)_(CB)	CONDUIT	68.09	0	01:05	0.60	0.37	1.00
CB-245_(CB)	CONDUIT	162.65	0	01:04	0.99	0.85	1.00
CB-253_(CB)	CONDUIT	38.18	0	01:04	0.46	0.28	1.00
CB-257_(CB)	CONDUIT	72.49	0	01:04	0.52	0.54	1.00
CB-264_(CB)	CONDUIT	28.36	0	01:05	0.68	0.40	1.00
CB-268_(CB)	CONDUIT	21.70	0	01:09	0.32	0.16	1.00
CB-271_(1)_(CB)	CONDUIT	77.33	0	01:04	0.63	0.42	1.00
CB-271_(CB)	CONDUIT	39.87	0	01:04	0.50	0.21	1.00
CB-273_(CB)	CONDUIT	44.57	0	01:02	0.85	0.63	1.00
CB-280_(1)_(CB)	CONDUIT	81.59	0	01:04	0.54	0.45	1.00
CB-280_(CB)	CONDUIT	32.91	0	01:07	0.42	0.17	1.00
CB-284_(CB)	CONDUIT	50.08	0	01:09	0.41	0.26	1.00
CB-288_(CB)	CONDUIT	55.24	0	01:02	0.94	0.79	1.00
CB-294_(CB)	CONDUIT	37.87	0	01:07	0.29	0.20	1.00
CB-386_(CB)	CONDUIT	18.88	0	01:06	0.32	0.10	1.00
CB-387_(CB)	CONDUIT	46.98	0	01:04	0.37	0.25	1.00
CB-388_(CB)	CONDUIT	20.94	0	01:09	0.29	0.11	1.00
CB-391_(CB)	CONDUIT	26.18	0	01:08	0.40	0.08	1.00
CB-397_(CB)	CONDUIT	53.92	0	01:08	0.50	0.20	1.00
CB-398_(CB)	CONDUIT	74.06	0	01:08	0.47	0.25	1.00
CB-406_(CB)	CONDUIT	49.77	0	01:07	0.41	0.15	1.00
CB-408_(CB)	CONDUIT	23.27	0	01:07	0.35	0.07	1.00
CB-411_(CB)	CONDUIT	45.11	0	01:13	0.35	0.11	1.00
CB-413_(CB)	CONDUIT	161.93	0	01:06	0.57	0.41	1.00
CB-416_(CB)	CONDUIT	47.97	0	01:09	0.36	0.12	1.00
CB-418_(CB)	CONDUIT	125.03	0	01:05	0.46	0.32	1.00
CB-421_(CB)	CONDUIT	45.84	0	01:06	0.43	0.12	1.00
CB-423_(CB)	CONDUIT	115.51	0	01:06	0.50	0.29	1.00
CB-424_(CB)	CONDUIT	149.26	0	01:06	0.53	0.37	1.00
CB-427_(CB)	CONDUIT	67.16	0	01:07	0.39	0.17	1.00
CB-430_(CB)	CONDUIT	110.13	0	01:06	0.44	0.27	1.00
CB-432_(CB)	CONDUIT	25.17	0	01:07	0.52	0.36	1.00
CB-436_(CB)	CONDUIT	42.94	0	01:07	0.62	0.60	1.00
CB-439_(CB)	CONDUIT	19.01	0	01:08	0.53	0.27	1.00
CB-444_(CB)	CONDUIT	24.74	0	01:01	0.56	0.35	1.00
CB-98_(CB)	CONDUIT	20.51	0	01:03	0.43	0.48	1.00
CB-99_(CB)	CONDUIT	42.25	0	01:03	0.86	1.01	1.00
LCB-1_(86)	CONDUIT	14.70	0	01:10	0.26	0.11	1.00
LCB-1_(87)	CONDUIT	55.78	0	01:09	0.43	0.40	1.00
LCB-1_(88)	CONDUIT	43.53	0	01:10	0.42	0.31	1.00
LCB-1_(89)	CONDUIT	32.88	0	01:10	0.46	0.24	1.00
LCB-1_(89)_(1)	CONDUIT	16.24	0	01:10	0.37	0.12	1.00
x1000-116	CONDUIT	84.24	0	01:31	1.11	0.37	0.38
OCB03	ORIFICE	27.19	0	01:23			1.00
OCB04	ORIFICE	30.46	0	01:23			1.00
OCB06	ORIFICE	17.74	0	01:32			1.00
OCB07	ORIFICE	17.74	0	01:32			1.00
OCB09	ORIFICE	6.57	0	01:24			1.00
OCB10	ORIFICE	6.57	0	01:24			1.00
OCB12	ORIFICE	23.36	0	01:30			1.00
OCB13	ORIFICE	23.36	0	01:30			1.00
OCB15	ORIFICE	9.38	0	01:21			1.00
OCB16	ORIFICE	17.89	0	01:21			1.00
OCB18	ORIFICE	17.05	0	01:10			1.00
OCB19	ORIFICE	17.05	0	01:10			1.00
OCB22-CBMH23	ORIFICE	24.64	0	01:38			1.00
OCB24-CBMH25	ORIFICE	24.21	0	01:34			1.00
OCB26-CBMH27	ORIFICE	24.47	0	01:31			1.00
OCB28-CBMH29	ORIFICE	24.09	0	01:26			1.00
OCB30-CBMH31	ORIFICE	29.32	0	01:20			1.00
OCB32	ORIFICE	9.95	0	01:21			1.00

OCB33	ORIFICE	9.95	0	01:21	1.00
OCB34	ORIFICE	6.75	0	01:30	1.00
OCB35	ORIFICE	6.75	0	01:30	1.00
OCB36	ORIFICE	17.81	0	01:32	1.00
OCB37	ORIFICE	12.70	0	01:32	1.00
OCB41	ORIFICE	13.01	0	01:33	1.00
OCB42	ORIFICE	18.25	0	01:33	1.00
OCB43	ORIFICE	12.75	0	01:30	1.00
OCB44	ORIFICE	12.75	0	01:30	1.00
OCB45	ORIFICE	17.76	0	01:20	1.00
OCB46	ORIFICE	12.66	0	01:20	1.00
OCB50	ORIFICE	12.62	0	01:22	1.00
OCB51	ORIFICE	17.70	0	01:22	1.00
OCB52	ORIFICE	12.82	0	01:24	1.00
OCB53	ORIFICE	12.82	0	01:24	1.00
OCB54	ORIFICE	12.84	0	01:25	1.00
OCB55	ORIFICE	18.02	0	01:25	1.00
OCB56	ORIFICE	12.57	0	01:24	1.00
OCB57	ORIFICE	17.63	0	01:24	1.00
OCB60-CBMH61	ORIFICE	18.70	0	01:39	1.00
OCB62-CBMH63	ORIFICE	24.18	0	01:23	1.00
OCB64-CBMH65	ORIFICE	18.85	0	01:40	1.00
OCB68-CBMH69	ORIFICE	13.43	0	01:41	1.00
OCB72-CBMH73	ORIFICE	28.20	0	01:43	1.00
OCB74-CBMH75	ORIFICE	24.51	0	01:35	1.00
OCB76	ORIFICE	6.59	0	01:30	1.00
OCB77	ORIFICE	6.59	0	01:30	1.00
OCB78	ORIFICE	18.00	0	01:20	1.00
OCB79	ORIFICE	12.83	0	01:20	1.00
OCB80	ORIFICE	12.81	0	01:25	1.00
OCB81	ORIFICE	12.81	0	01:25	1.00
OCB82	ORIFICE	9.36	0	01:30	1.00
OCB83	ORIFICE	9.36	0	01:30	1.00
OCB84	ORIFICE	9.48	0	01:23	1.00
OCB85	ORIFICE	11.12	0	01:23	1.00
OCB86	ORIFICE	12.92	0	01:30	1.00
OCB87	ORIFICE	18.13	0	01:30	1.00
OCB88	ORIFICE	12.88	0	01:32	1.00
OCB89	ORIFICE	12.88	0	01:32	1.00
OCB90	ORIFICE	8.31	0	01:30	1.00
OCB91	ORIFICE	8.31	0	01:30	1.00

OCBMH02-01	ORIFICE	6.60	0	01:41	1.00
OCBMH02-02	ORIFICE	11.78	0	01:32	1.00
OCBMH02-03	ORIFICE	6.87	0	01:43	1.00
OCBMH02-04	ORIFICE	10.76	0	01:23	1.00
OCBMH02-05	ORIFICE	10.67	0	01:14	1.00
OCBMH03-01	ORIFICE	7.45	0	01:25	1.00
OCBMH03-02	ORIFICE	26.22	0	01:20	1.00
OCBMH03-03	ORIFICE	20.17	0	01:24	1.00
OCBMH03-04	ORIFICE	41.24	0	01:12	1.00
OCBMH03-05	ORIFICE	27.64	0	01:12	1.00
OCBMH03-06	ORIFICE	60.66	0	01:15	1.00
OCBMH03-07	ORIFICE	31.25	0	01:15	1.00
OCBMH03-08	ORIFICE	19.92	0	01:11	1.00
OCBMH04-01	ORIFICE	29.96	0	01:20	1.00
OCBMH04-02	ORIFICE	21.04	0	01:14	1.00
OCBMH04-03	ORIFICE	16.89	0	01:21	1.00
OCBMH04-04	ORIFICE	14.65	0	01:16	1.00
OCBMH04-05	ORIFICE	34.59	0	01:11	1.00
OCBMH04-06	ORIFICE	14.34	0	01:31	1.00
OCBMH04-07	ORIFICE	16.92	0	01:14	1.00
OCBMH04-08	ORIFICE	31.17	0	01:07	1.00
OCBMH05-1	ORIFICE	10.14	0	01:25	1.00
OCBMH05-2	ORIFICE	6.75	0	01:27	1.00
OCBMH05-3	ORIFICE	8.69	0	01:52	1.00
OCBMH05-4	ORIFICE	6.12	0	01:18	1.00
OCBMH05-5	ORIFICE	20.69	0	01:16	1.00
ODICB4-40	ORIFICE	49.14	0	01:25	1.00
OPark	ORIFICE	31.29	0	01:31	1.00
PH2	ORIFICE	84.24	0	01:31	1.00
OCB01	DUMMY	7.00	0	01:00	
OCB02	DUMMY	7.00	0	01:00	
OCB20	DUMMY	8.50	0	01:01	
OCB21	DUMMY	8.50	0	01:01	

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Flow Classification Summary
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	Adjusted	---------- Fraction of Time in Flow Class ----------

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
100-098	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
102-100	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
104-102	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
106-104	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
108-106	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
110-108	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
112-110	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
114-112	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
116-114	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
118-116	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
200-200A	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.85	0.00	0.00
200A-110	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
202-200	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
204-202	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
206-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
206-304	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300-300A	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.99	0.00
300A-108	1.00	0.00	0.00	0.00	0.87	0.00	0.00	0.13	0.00	0.00
302-300	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
304-302	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
400-110	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
402-400	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
404-402	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.00	0.00
404-408	1.00	0.88	0.01	0.00	0.09	0.00	0.00	0.02	0.95	0.00
406-408	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.01	0.00
408-114	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
500-100	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
502-500	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.08	0.00
504-502	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
508-504	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
508-506	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.08	0.00
508-510	1.00	0.91	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510-512	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
512-108	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
602-202	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
604-602	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.06	0.00
606-604	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
608-606	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
610-612	1.00	0.89	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
612-614	1.00	0.00	0.00	0.00	0.13	0.00	0.00	0.87	0.00	0.00
614-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
700-302	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
702-700	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.04	0.00
704-702	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
706-704	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
708-706	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
710-712	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
712-714	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.03	0.00
714-304	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
716-206	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
718-716	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.04	0.00
720-718	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.97	0.00
C1	1.00	0.81	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C10	1.00	0.92	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C100	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C101	1.00	0.00	0.98	0.00	0.02	0.00	0.00	0.00	0.93	0.00
C102	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.00	0.00
C103	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C104	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C105	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C106	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.00	0.00
C107	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C108	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C109	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C11	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C110	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C111	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C112	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C113	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C114	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C115	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C116	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C117	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C118	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C119	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C12	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.08	0.00
C120	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C121	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C122	1.00	0.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C123	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C124	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C125	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C126	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C127	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.95	0.00
C128	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C129	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C13	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.09	0.00
C130	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C131	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.01	0.00
C132	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C133	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C134	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C135	1.00	0.96	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
C136	1.00	0.96	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00
C137	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C138	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.07	0.00
C139	1.00	0.96	0.00	0.00	0.03	0.00	0.00	0.00	0.93	0.00
C14	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.07	0.00
C140	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C141	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C142	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C143	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C144	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C145	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C146	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C147	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C148	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C149	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.08	0.00
C150	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C151	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.06	0.00
C151_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C152	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C153	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.12	0.00
C154	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.09	0.00
C155	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C156	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.08	0.00
C157	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.11	0.00
C158	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.07	0.00
C159	1.00	0.00	0.00	0.00	0.16	0.00	0.00	0.84	0.12	0.00
C16	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.08	0.00
C160	1.00	0.00	0.00	0.00	0.16	0.00	0.00	0.84	0.12	0.00
C161	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.06	0.00
C162	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C163	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.07	0.00
C164	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C165	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C166	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.06	0.00
C167	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C168	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.05	0.00
C169	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C17	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.09	0.00
C170	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C171	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.06	0.00
C172	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C173	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.07	0.00
C174	1.00	0.91	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C175	1.00	0.84	0.07	0.00	0.10	0.00	0.00	0.00	0.90	0.00
C176	1.00	0.90	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
C177	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C178	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C179	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
C18	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C180	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C181	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C182	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
C183	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
C184	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C185	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C186	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
C187	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C188	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.02	0.00
C189	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C19	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C190	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.96	0.00
C191	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C192	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C193	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C194	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C195	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C196	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00

C197	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C198	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C199	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C2	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.06	0.00
C20	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.04	0.00
C200	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C201	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C202	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C203	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C204	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C205	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C206	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C207	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C208	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C209	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C21	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C210	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.03	0.00
C211	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.03	0.00
C212	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.96	0.00
C213	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.95	0.00
C214	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C215	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C216	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C217	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C218	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.02	0.00
C219	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.96	0.00
C22	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C220	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C221	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C222	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C223	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C224	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C225	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C226	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C227	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C228	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C229	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C23	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C23_1	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C23_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C23_3	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C23_4	1.00	0.96	0.00	0.00	0.04	0.00	0.00	0.00	0.91	0.00
C23_5	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C23_6	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C23_7	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C23_8	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C230	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C231	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C232	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C233	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C234	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.02	0.00
C235	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.96	0.00
C236	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C237	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C238	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.94	0.00
C239	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C24	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C240	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C241	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.02	0.00
C242	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C243	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C244	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C245	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C246	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.02	0.00
C247	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.96	0.00
C248	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C249	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C25	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.06	0.00
C250	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C251	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C252	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C253	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C254	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C255	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C256	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.04	0.00
C257	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C258	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.03	0.00
C259	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C26	1.00	0.94	0.05	0.00	0.01	0.00	0.00	0.00	0.95	0.00
C26_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C26_2	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.05	0.00
C260	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00

C261	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C262	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C263	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C264	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C265	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C266	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C267	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C268	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C269	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C27	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.04	0.00
C270	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
C271	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.94	0.00
C272	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C273	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C274	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C275	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C276	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C277	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C278	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C279	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C28	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.04	0.00
C280	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C281	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C282	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C283	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C284	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C285	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C286	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C287	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C288	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C289	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C290	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C291	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C292	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C293	1.00	0.91	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C294	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C295	1.00	0.60	0.26	0.00	0.14	0.00	0.00	0.00	0.89	0.00
C296	1.00	0.60	0.01	0.00	0.39	0.00	0.00	0.00	0.84	0.00
C297	1.00	0.61	0.06	0.00	0.33	0.00	0.00	0.00	0.88	0.00
C298	1.00	0.67	0.05	0.00	0.28	0.00	0.00	0.00	0.90	0.00
C299	1.00	0.72	0.11	0.00	0.18	0.00	0.00	0.00	0.90	0.00
C3	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.04	0.00
C30	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C300	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.05	0.00
C301	1.00	0.92	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C302	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C303	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C304	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C305	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.08	0.00
C306	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.05	0.00
C307	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.11	0.00
C308	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.14	0.00
C309	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.06	0.00
C31	1.00	0.90	0.07	0.00	0.03	0.00	0.00	0.00	0.95	0.00
C310	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.08	0.00
C311	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.08	0.00
C312	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C313	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C314	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C315	1.00	0.89	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C316	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.08	0.00
C317	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.09	0.00
C318	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.06	0.00
C319	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C32	1.00	0.81	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
C320	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.06	0.00
C321	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C322	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C323	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.06	0.00
C324	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.96	0.00
C325	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C326	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C327	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C328	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C329	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.96	0.00
C33	1.00	0.81	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
C330	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C331	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C332	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C333	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.94	0.00
C334	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00

C335	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
C336	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C337	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C338	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.95	0.00
C339	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
C34	1.00	0.81	0.15	0.00	0.00	0.04	0.00	0.00	0.91	0.00
C34_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C34_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C340	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
C341	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.94	0.00
C342	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.94	0.00
C343	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C344	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C345	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C346	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
C347	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.90	0.00
C348	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.96	0.00
C349	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C35	1.00	0.89	0.05	0.00	0.03	0.00	0.03	0.00	0.01	0.00
C35_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C35_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C350	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C351	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.94	0.00
C352	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.96	0.00
C353	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C354	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.92	0.00
C355	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.03	0.00
C356	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.03	0.00
C357	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.02	0.00
C358	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.03	0.00
C359	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.01	0.00
C36	1.00	0.94	0.01	0.00	0.04	0.00	0.01	0.00	0.01	0.00
C36_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C36_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C360	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C361	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.03	0.00
C362	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.05	0.00
C363	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C364	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C365	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C366	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.03	0.00
C367	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.03	0.00
C368	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.03	0.00
C369	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
C37	1.00	0.94	0.04	0.00	0.02	0.00	0.01	0.00	0.02	0.00
C37_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
C37_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C370	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
C371	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
C372	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
C373	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.04	0.00
C374	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C375	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.02	0.00
C376	1.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C377	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C378	1.00	0.05	0.01	0.00	0.03	0.00	0.00	0.91	0.02	0.00
C379	1.00	0.04	0.02	0.00	0.11	0.00	0.00	0.82	0.94	0.00
C38	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.07	0.00
C39	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.06	0.00
C4	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C40	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.07	0.00
C41	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C42	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C43	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C44	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C45	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C46	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C47	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C48	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C49	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C5	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.08	0.00
C50	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
C51	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
C52	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C53	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C54	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C55	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C56	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C57	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C58	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.03	0.00
C59	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00

C6_2	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.11	0.00
C60	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.01	0.00
C61	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.95	0.00
C62	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.95	0.00
C63	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C64	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C65	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.95	0.00
C66	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.95	0.00
C67	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
C68	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C69	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C7	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.07	0.00
C70	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C71	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C72	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.10	0.00
C73	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C74	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.02	0.00
C75	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C76	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C77	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C78	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C79	1.00	0.96	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.04	0.00
C80	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C81	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C82	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C83	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C84	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C85	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.09	0.00
C85_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C85_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.01	0.00
C86	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.05	0.00
C87	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.04	0.00
C88	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.04	0.00
C89	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.04	0.00
C9	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.06	0.00
C90	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.06	0.00
C91	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C92	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C93	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C94	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C95	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C96	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C97	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C98	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C99	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CB-100_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
CB-101_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
CB-102_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
CB-103_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
CB-104_(CB)	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.00	0.00
CB-105_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.85	0.00
CB-106_(CB)	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.01	0.00
CB-108_(CB)	1.00	0.00	0.85	0.00	0.15	0.00	0.00	0.00	0.84	0.00
CB-109_(CB)	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.02	0.00
CB-112_(CB)	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
CB-116_(CB)	1.00	0.00	0.87	0.00	0.13	0.00	0.00	0.00	0.88	0.00
CB-117_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
CB-119_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
CB-120_(2)_(CB)	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.00	0.00
CB-120_(CB)	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.90	0.00
CB-122_(CB)	1.00	0.00	0.84	0.00	0.16	0.00	0.00	0.00	0.85	0.00
CB-123_(CB)	1.00	0.00	0.00	0.00	0.13	0.00	0.00	0.87	0.01	0.00
CB-125_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
CB-126_(CB)	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.91	0.00
CB-127_(CB)	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
CB-130_(CB)	1.00	0.00	0.76	0.00	0.24	0.00	0.00	0.00	0.87	0.00
CB-131_(CB)	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
CB-133_(2)_(CB)	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.02	0.00
CB-134_(CB)	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.85	0.01	0.00
CB-136_(2)_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
CB-136_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.83	0.00
CB-138_(CB)	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.00	0.00
CB-140_(2)_(1)_(CB)	1.00	0.00	0.84	0.00	0.15	0.01	0.00	0.00	0.92	0.00
CB-140_(2)_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.84	0.00
CB-140_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
CB-141_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
CB-144_(CB)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
CB-149_(CB)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
CB-150_(CB)	1.00	0.00	0.91	0.00	0.09	0.00	0.00	0.00	0.93	0.00
CB-153_(CB)	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.01	0.00
CB-159_(3)_(CB)	1.00	0.00	0.89	0.00	0.11	0.00	0.00	0.00	0.86	0.00

CB-159_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
CB-160_(CB)	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.90	0.00
CB-161_(CB)	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.90	0.00
CB-164_(2)_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
CB-164_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
CB-166_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
CB-168_(CB)_1	1.00	0.88	0.03	0.00	0.09	0.00	0.00	0.00	0.89	0.00
CB-168_(CB)_2	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.89	0.00
CB-170_(CB)	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
CB-175_(2)_(CB)	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.87	0.00
CB-175_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
CB-177_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
CB-180_(CB)	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
CB-185_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
CB-187_(CB)	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.93	0.00
CB-189_(CB)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.00	0.00
CB-209_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
CB-211_(CB)	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	0.92	0.00
CB-215_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
CB-228_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
CB-229_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
CB-230_(CB)	1.00	0.00	0.80	0.00	0.20	0.00	0.00	0.00	0.87	0.00
CB-231_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
CB-233_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
CB-234_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
CB-235_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
CB-236_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
CB-237_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
CB-239_(1)_(1)_(CB)	1.00	0.00	0.87	0.00	0.13	0.00	0.00	0.00	0.89	0.00
CB-239_(1)_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
CB-239_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
CB-240_(CB)	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.01	0.00
CB-245_(1)_(CB)	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.00	0.00
CB-245_(CB)	1.00	0.00	0.82	0.00	0.18	0.00	0.00	0.00	0.88	0.00
CB-253_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.84	0.00
CB-257_(CB)	1.00	0.00	0.82	0.00	0.18	0.00	0.00	0.00	0.84	0.00
CB-264_(CB)	1.00	0.00	0.00	0.00	0.13	0.00	0.00	0.87	0.00	0.00
CB-268_(CB)	1.00	0.00	0.82	0.00	0.18	0.00	0.00	0.00	0.84	0.00
CB-271_(1)_(CB)	1.00	0.00	0.87	0.00	0.13	0.00	0.00	0.00	0.89	0.00
CB-271_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
CB-273_(CB)	1.00	0.00	0.00	0.00	0.08	0.00	0.00	0.92	0.00	0.00

CB-280_(1)_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.03	0.00
CB-280_(CB)	1.00	0.00	0.92	0.00	0.08	0.00	0.00	0.00	0.90	0.00
CB-284_(CB)	1.00	0.00	0.83	0.00	0.17	0.00	0.00	0.00	0.90	0.00
CB-288_(CB)	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.00	0.00
CB-294_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07	0.00
CB-386_(CB)	1.00	0.79	0.02	0.00	0.19	0.00	0.00	0.00	0.80	0.00
CB-387_(CB)	1.00	0.00	0.79	0.00	0.21	0.00	0.00	0.00	0.78	0.00
CB-388_(CB)	1.00	0.00	0.79	0.00	0.21	0.00	0.00	0.00	0.78	0.00
CB-391_(CB)	1.00	0.00	0.72	0.00	0.27	0.00	0.00	0.00	0.70	0.00
CB-397_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.69	0.00
CB-398_(CB)	1.00	0.00	0.70	0.00	0.30	0.00	0.00	0.00	0.69	0.00
CB-406_(CB)	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.69	0.00
CB-408_(CB)	1.00	0.71	0.02	0.00	0.27	0.00	0.00	0.00	0.70	0.00
CB-411_(CB)	1.00	0.68	0.01	0.00	0.31	0.00	0.00	0.00	0.67	0.00
CB-413_(CB)	1.00	0.00	0.68	0.00	0.32	0.00	0.00	0.00	0.66	0.00
CB-416_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.00	0.00
CB-418_(CB)	1.00	0.00	0.79	0.00	0.21	0.00	0.00	0.00	0.86	0.00
CB-421_(CB)	1.00	0.72	0.03	0.00	0.25	0.00	0.00	0.00	0.73	0.00
CB-423_(CB)	1.00	0.69	0.03	0.00	0.28	0.00	0.00	0.00	0.70	0.00
CB-424_(CB)	1.00	0.68	0.01	0.00	0.31	0.00	0.00	0.00	0.68	0.00
CB-427_(CB)	1.00	0.00	0.86	0.00	0.14	0.00	0.00	0.00	0.88	0.00
CB-430_(CB)	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.01	0.00
CB-432_(CB)	1.00	0.00	0.00	0.00	0.31	0.00	0.00	0.69	0.00	0.00
CB-436_(CB)	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.00	0.00
CB-439_(CB)	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.77	0.00
CB-444_(CB)	1.00	0.00	0.00	0.00	0.28	0.00	0.00	0.72	0.01	0.00
CB-98_(CB)	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.91	0.00
CB-99_(CB)	1.00	0.00	0.89	0.00	0.11	0.00	0.00	0.00	0.91	0.00
LCB-1_(86)	1.00	0.60	0.26	0.00	0.14	0.00	0.00	0.00	0.89	0.00
LCB-1_(87)	1.00	0.60	0.01	0.00	0.39	0.00	0.00	0.00	0.89	0.00
LCB-1_(88)	1.00	0.61	0.06	0.00	0.33	0.00	0.00	0.00	0.90	0.00
LCB-1_(89)	1.00	0.67	0.05	0.00	0.28	0.00	0.00	0.00	0.90	0.00
LCB-1_(89)_(1)	1.00	0.72	0.11	0.00	0.18	0.00	0.00	0.00	0.90	0.00
x1000-116	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

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Conduit Surcharge Summary
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Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
100-098	24.00	24.00	24.00	0.01	0.01
102-100	24.00	24.00	24.00	0.01	0.01
104-102	24.00	24.00	24.00	0.01	0.01
106-104	24.00	24.00	24.00	0.01	0.01
108-106	24.00	24.00	24.00	0.01	0.01
C102	0.01	0.01	0.17	0.01	0.01
C103	0.01	0.01	0.17	0.01	0.01
C110	0.01	0.01	0.03	0.01	0.01
C111	0.01	0.01	0.03	0.01	0.01
C112	0.01	0.01	0.03	0.01	0.01
C113	0.01	0.01	0.03	0.01	0.01
C116	0.01	0.01	0.01	0.01	0.01
C117	0.01	0.01	0.01	0.01	0.01
C123	0.01	0.01	0.09	0.01	0.01
C124	0.01	0.01	0.09	0.01	0.01
C125	0.01	0.01	0.08	0.01	0.01
C126	0.01	0.01	0.08	0.01	0.01
C128	0.01	0.01	0.03	0.01	0.01
C129	0.01	0.01	0.03	0.01	0.01
C132	0.01	0.01	0.15	0.01	0.01
C133	0.01	0.01	0.15	0.01	0.01
C134	0.01	0.01	0.24	0.01	0.01
C135	0.01	0.01	0.24	0.01	0.01
C136	0.01	0.01	0.20	0.01	0.01
C137	0.01	0.01	0.20	0.01	0.01
C139	0.01	0.01	0.23	0.01	0.01
C140	0.01	0.01	0.23	0.01	0.01
C151	0.01	0.01	0.05	0.01	0.01
C157	0.01	0.01	0.03	0.01	0.01
C158	0.01	0.01	0.03	0.01	0.01
C159	0.01	0.01	0.04	0.01	0.01
C160	0.01	0.01	0.04	0.01	0.01
C163	0.01	0.01	0.18	0.01	0.01
C164	0.01	0.01	0.18	0.01	0.01
C165	0.01	0.01	0.10	0.01	0.01
C166	0.01	0.01	0.10	0.01	0.01
C171	0.01	0.01	0.18	0.01	0.01
C172	0.01	0.01	0.18	0.01	0.01
C173	0.01	0.01	0.05	0.01	0.01
C175	0.01	0.01	22.57	0.01	0.01
C178	0.01	0.01	0.07	0.01	0.01
C179	0.01	0.01	0.07	0.01	0.01
C202	0.01	0.01	0.01	0.01	0.01
C203	0.01	0.01	0.01	0.01	0.01
C217	0.01	0.01	0.07	0.01	0.01
C218	0.01	0.01	0.07	0.01	0.01
C219	0.01	0.01	0.18	0.01	0.01
C221	0.01	0.01	0.08	0.01	0.01
C222	0.01	0.01	0.08	0.01	0.01
C225	0.01	0.01	0.09	0.01	0.01
C226	0.01	0.01	0.09	0.01	0.01
C229	0.01	0.01	0.09	0.01	0.01
C230	0.01	0.01	0.09	0.01	0.01
C233	0.01	0.01	0.07	0.01	0.01
C234	0.01	0.01	0.07	0.01	0.01
C235	0.01	0.01	0.03	0.01	0.01
C237	0.01	0.01	0.08	0.01	0.01
C238	0.01	0.01	0.08	0.01	0.01
C240	0.01	0.01	0.18	0.01	0.01
C247	0.01	0.01	0.18	0.01	0.01
C295	0.21	0.21	0.29	0.01	0.01
C296	0.24	0.24	0.29	0.01	0.01
C297	0.17	0.17	0.24	0.01	0.01
C298	0.07	0.07	0.17	0.01	0.01
C299	0.01	0.01	0.07	0.01	0.01
C31	0.01	0.01	0.25	0.01	0.01
C338	0.01	0.01	0.07	0.01	0.01
C339	0.01	0.01	0.07	0.01	0.01
C340	0.01	0.01	0.07	0.01	0.01
C341	0.01	0.01	0.07	0.01	0.01
C342	0.01	0.01	0.06	0.01	0.01
C343	0.01	0.01	0.06	0.01	0.01
C350	0.01	0.01	0.06	0.01	0.01
C351	0.01	0.01	0.06	0.01	0.01
C39	0.01	0.01	0.11	0.01	0.01
C4	0.01	0.01	0.25	0.01	0.01
C40	0.01	0.01	0.11	0.01	0.01
C41	0.01	0.01	0.07	0.01	0.01

C42	0.01	0.01	0.07	0.01	0.01
C5	0.01	0.01	0.25	0.01	0.01
C85	0.01	0.01	0.05	0.01	0.01
C85_2	0.01	0.01	0.13	0.01	0.01
C86	0.01	0.01	0.12	0.01	0.01
C87	0.01	0.01	0.12	0.01	0.01
C88	0.01	0.01	0.11	0.01	0.01
C89	0.01	0.01	0.11	0.01	0.01
CB-100_(CB)	0.98	0.98	1.10	0.01	0.01
CB-101_(CB)	1.10	1.10	1.25	0.01	0.01
CB-102_(CB)	1.21	1.21	1.25	0.16	0.17
CB-103_(CB)	1.25	1.25	1.27	0.09	0.09
CB-104_(CB)	1.27	1.27	1.31	0.01	0.02
CB-105_(CB)	2.31	2.31	2.51	0.01	0.01
CB-106_(CB)	2.84	2.84	3.14	0.01	0.01
CB-108_(CB)	2.38	2.38	2.83	0.01	0.01
CB-109_(CB)	2.51	2.51	2.82	0.01	0.01
CB-112_(CB)	1.45	1.45	1.56	0.01	0.01
CB-116_(CB)	1.57	1.57	1.81	0.01	0.01
CB-117_(CB)	1.81	1.81	1.95	0.01	0.01
CB-119_(CB)	1.15	1.15	1.26	0.01	0.01
CB-120_(2)_(CB)	1.30	1.30	1.32	0.26	0.26
CB-120_(CB)	1.26	1.26	1.30	0.01	0.01
CB-122_(CB)	2.10	2.10	2.41	0.01	0.01
CB-123_(CB)	2.41	2.41	2.77	0.01	0.01
CB-125_(CB)	1.20	1.20	1.20	0.01	0.01
CB-126_(CB)	1.20	1.20	1.21	0.09	0.09
CB-127_(CB)	1.20	1.21	1.22	0.09	0.08
CB-130_(CB)	1.91	1.91	2.14	0.01	0.01
CB-131_(CB)	2.02	2.02	2.25	0.01	0.01
CB-133_(2)_(CB)	2.46	2.46	2.87	0.01	0.01
CB-134_(CB)	3.05	3.05	3.43	0.01	0.01
CB-136_(2)_(CB)	2.69	2.69	3.05	0.01	0.01
CB-136_(CB)	2.44	2.44	2.69	0.01	0.01
CB-138_(CB)	0.82	0.82	0.87	0.08	0.08
CB-140_(2)_(1)_(CB)	0.77	0.77	0.82	0.01	0.01
CB-140_(2)_(CB)	0.74	0.74	0.77	0.39	0.38
CB-140_(CB)	0.71	0.71	0.74	0.36	0.36
CB-141_(CB)	0.64	0.64	0.71	0.01	0.01
CB-144_(CB)	0.67	0.67	0.71	0.54	0.54
CB-149_(CB)	0.59	0.59	0.62	0.01	0.01
CB-150_(CB)	0.63	0.63	0.67	0.01	0.01
CB-153_(CB)	1.89	1.89	2.18	0.01	0.01
CB-159_(3)_(CB)	1.42	1.42	1.47	0.01	0.01
CB-159_(CB)	1.35	1.35	1.42	0.01	0.01
CB-160_(CB)	1.27	1.27	1.44	0.01	0.01
CB-161_(CB)	1.28	1.28	1.44	0.01	0.01
CB-164_(2)_(CB)	1.18	1.18	1.23	0.01	0.01
CB-164_(CB)	1.16	1.16	1.18	0.01	0.01
CB-166_(CB)	1.23	1.23	1.29	0.01	0.01
CB-168_(CB)_1	1.24	1.24	1.29	0.01	0.01
CB-168_(CB)_2	1.29	1.29	1.34	0.01	0.01
CB-170_(CB)	1.34	1.34	1.40	0.01	0.01
CB-175_(2)_(CB)	1.64	1.64	1.72	0.01	0.01
CB-175_(CB)	1.57	1.57	1.64	0.01	0.01
CB-177_(CB)	1.88	1.88	2.01	0.01	0.01
CB-180_(CB)	1.03	1.03	1.11	0.02	0.02
CB-185_(CB)	0.65	0.65	0.65	0.01	0.01
CB-187_(CB)	0.65	0.65	0.66	0.02	0.02
CB-189_(CB)	0.65	0.66	0.66	0.02	0.01
CB-209_(CB)	1.52	1.52	1.57	0.01	0.01
CB-211_(CB)	0.91	0.91	0.96	0.01	0.01
CB-215_(CB)	2.03	2.03	2.15	0.01	0.01
CB-228_(CB)	1.45	1.45	1.51	0.01	0.01
CB-229_(CB)	1.51	1.51	1.60	0.01	0.01
CB-230_(CB)	1.60	1.60	1.67	0.01	0.01
CB-231_(CB)	1.67	1.67	1.77	0.01	0.01
CB-233_(CB)	1.54	1.54	1.60	0.01	0.01
CB-234_(CB)	1.44	1.44	1.49	0.01	0.01
CB-235_(CB)	1.46	1.46	1.49	0.01	0.01
CB-236_(CB)	1.49	1.49	1.55	0.01	0.01
CB-237_(CB)	1.55	1.55	1.64	0.01	0.01
CB-239_(1)_(1)_(CB)	1.35	1.35	1.38	0.02	0.01
CB-239_(1)_(CB)	1.30	1.30	1.35	0.01	0.01
CB-239_(CB)	1.26	1.26	1.30	0.01	0.01
CB-240_(CB)	1.38	1.38	1.49	0.01	0.01
CB-245_(1)_(CB)	1.57	1.57	1.64	0.01	0.01
CB-245_(CB)	1.50	1.50	1.57	0.01	0.01
CB-253_(CB)	2.10	2.10	2.18	0.01	0.01
CB-257_(CB)	2.18	2.18	2.26	0.01	0.01
CB-264_(CB)	2.52	2.52	2.84	0.01	0.01
CB-268_(CB)	2.18	2.18	2.26	0.01	0.01

Provence Orleans Phase 5B (117155)
PCSWMM Model Results (100-year 3-hour Chicago Event)

CB-271_(1)_(CB)	1.37	1.37	1.45	0.01	0.01
CB-271_(CB)	1.32	1.32	1.37	0.01	0.01
CB-273_(CB)	1.59	1.59	1.72	0.01	0.01
CB-280_(1)_(CB)	1.12	1.12	1.20	0.01	0.01
CB-280_(CB)	1.08	1.08	1.12	0.01	0.01
CB-284_(CB)	1.11	1.11	1.21	0.01	0.01
CB-288_(CB)	1.34	1.34	1.45	0.01	0.01
CB-294_(CB)	1.46	1.46	1.50	0.01	0.01
CB-386_(CB)	2.64	2.64	2.80	0.01	0.01
CB-387_(CB)	2.80	2.80	3.10	0.01	0.01
CB-388_(CB)	2.76	2.76	3.10	0.01	0.01
CB-391_(CB)	3.33	3.33	3.45	0.01	0.01
CB-397_(CB)	3.45	3.45	3.57	0.01	0.01
CB-398_(CB)	3.57	3.57	3.82	0.01	0.01
CB-406_(CB)	3.47	3.47	3.82	0.01	0.01
CB-408_(CB)	3.33	3.33	3.47	0.01	0.01
CB-411_(CB)	3.66	3.66	3.97	0.01	0.01
CB-413_(CB)	3.97	3.97	4.44	0.01	0.01
CB-416_(CB)	1.33	1.33	1.40	0.01	0.01
CB-418_(CB)	1.47	1.47	1.58	0.01	0.01
CB-421_(CB)	3.12	3.12	3.27	0.01	0.01
CB-423_(CB)	3.27	3.27	3.50	0.01	0.01
CB-424_(CB)	3.50	3.50	3.97	0.01	0.01
CB-427_(CB)	1.26	1.26	1.31	0.01	0.01
CB-430_(CB)	1.31	1.31	1.40	0.01	0.01
CB-432_(CB)	6.37	6.37	6.64	0.01	0.01
CB-436_(CB)	2.08	2.08	2.18	0.01	0.01
CB-439_(CB)	3.63	3.63	4.26	0.01	0.01
CB-444_(CB)	5.44	5.44	6.38	0.01	0.01
CB-98_(CB)	0.97	0.97	1.03	0.01	0.01
CB-99_(CB)	0.96	0.96	1.03	0.01	0.01
LCB-1_(86)	0.74	0.74	0.80	0.01	0.01
LCB-1_(87)	0.76	0.76	0.80	0.01	0.01
LCB-1_(88)	0.72	0.72	0.76	0.01	0.01
LCB-1_(89)	0.69	0.69	0.72	0.01	0.01
LCB-1_(89)_(1)	0.64	0.64	0.69	0.01	0.01

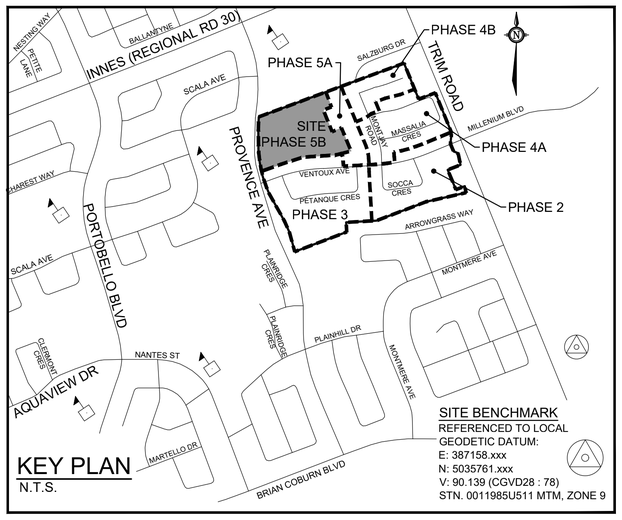
Analysis begun on: Fri Oct 17 17:29:41 2025
Analysis ended on: Fri Oct 17 17:29:51 2025
Total elapsed time: 00:00:10

Appendix G

Drawings

PROVENCE ORLEANS SUBDIVISION
PHASE 5B
(2128 TRIM ROAD)
CITY OF OTTAWA
ROADS, SEWERS AND WATERMAINS

PROVENCE
ORLÉANS



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ISSUED FOR REVIEW

PROJECT No. 117155

OCTOBER 2025

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D07-16-18-0021

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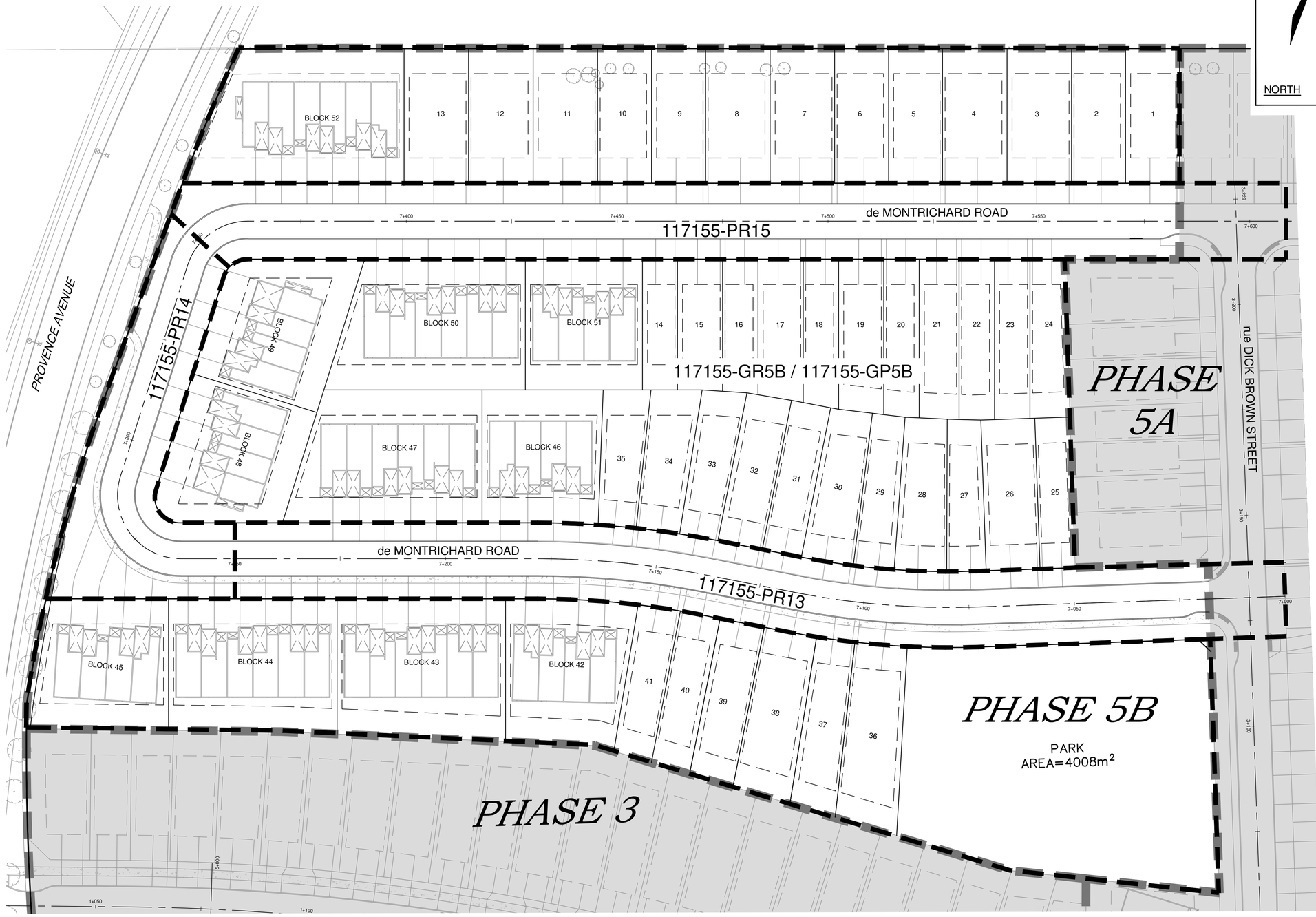

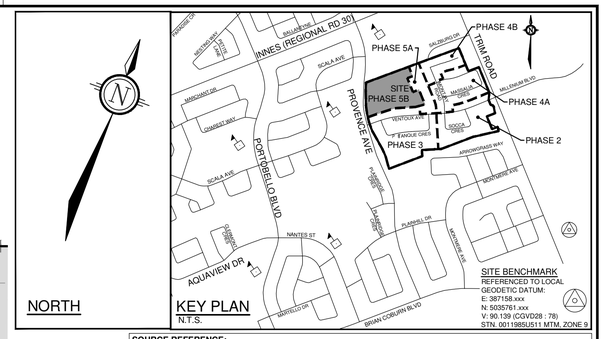

SOURCE REFERENCE:

LEGAL INFORMATION:

1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:

HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9

VERTICAL DATUM: CGVD 28:78

1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- PHASING BOUNDARY
- PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED CONCRETE SIDEWALK
- PREVIOUSLY APPROVED/CONSTRUCTED PHASES
- LAYOUT WINDOW EXTENTS

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES, TABLES & LEGEND

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE 1:500

1:500
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DESIGN	SAB
CHECKED	TJM
DRAWN	MA
CHECKED	TJM
APPROVED	TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

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Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
LAYOUT PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-LP5B

D07-16-18-0021

#18004

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PLANAT.DWG

GENERAL

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL, AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN AND PAY ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
5. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. GAS, HYDRO, TELEPHONE OR ANY OTHER UTILITY THAT MAY EXIST ON SITE OR WITHIN THE STREETLINES MUST BE LOCATED BY ITS OWN UTILITIES AND VERIFIED PRIOR TO CONSTRUCTION.
6. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
7. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
8. ALL UNDERGROUND SERVICES MATERIALS AND INSTALLATIONS TO BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND CODES OF THE MUNICIPALITY.
9. WHEREVER PIPES ARE PASSING THROUGH UNCOMPACTED FILL AREA, THE BEDDING TRENCH SHALL BE EXCAVATED TO THE UNDISTURBED GROUND LEVEL AND BACKFILLED WITH GRANULAR "A" COMPACTED TO A MINIMUM 98% STANDARD PROCTOR DENSITY.
10. THE OWNER SHALL BE RESPONSIBLE TO SUPPLY A CIVIL ENGINEERING FIRM FOR FULL TIME INSPECTION FOR ALL WORKS UNDERTAKEN WITHIN THE CITY ROAD ALLOWANCE. THE CIVIL ENGINEERING FIRM SHALL BE RESPONSIBLE FOR SUPPLYING WITHIN 48 HOURS OF REINSTATEMENT, A WRITTEN REPORT DETAILING THE WORKS WITHIN THE CITY'S ROAD ALLOWANCE. THIS REPORT SHALL CONFIRM THAT THE REINSTATEMENT HAS BEEN IN ACCORDANCE WITH THE CITY STANDARDS, SPECIFICATIONS AND BY-LAWS. FAILURE TO COMPLY SHALL MEAN SEIZURE OF SECURITIES TO COVER COSTS INCURRED BY THE CITY TO INVESTIGATE AND WHERE REQUIRED UNDERTAKE REINSTATEMENT TO THE SATISFACTION OF THE MUNICIPALITY.
11. BEFORE COMMENCING CONSTRUCTION CONTRACTOR TO PROVIDE PROOF OF COMPREHENSIVE ALL RISK AND OPERATIONAL LIABILITY INSURANCE INCLUDING BLASTING (ONLY IF REQUIRED). INSURANCE POLICY TO NAME THE OWNER, ENGINEER AND ARCHITECT AS CO-INSURED. AMOUNT OF INSURANCE TO BE SPECIFIED BY OWNERS AGENT.
12. CONNECTION TO EXISTING SYSTEMS AS DETAILED, INCLUDING ALL RESTORATION WORK NECESSARY TO REINSTATE SURFACES TO THE CONDITION THAT EXISTED PRIOR TO CONSTRUCTION OR BETTER.
13. STANDARD ROAD CUT SHALL BE IN ACCORDANCE WITH CITY STANDARD R10. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN LOCATIONS AS PER CITY OF OTTAWA STANDARDS.
14. EXISTING BOULEVARDS SHALL BE REINSTATED WITH 150mm OF TOPSOIL, SEED AND MULCH.
15. INVESTIGATION REPORT FOR SUBSURFACE INFORMATION PREPARED BY THE GEOTECHNICAL CONSULTANT. INTERPRETATION OF INFORMATION IS THE RESPONSIBILITY OF THE CONTRACTOR. NO RECYCLED GEOTECHNICAL MATERIAL SHALL BE PERMITTED FOR USE ONSITE.
16. REMOVE AND STOCKPILE ONSITE IN A SUITABLE LOCATION ALL TOPSOIL.
17. TOPSOIL IN FILL AREA TO BE STRIPPED AND APPROVED CLEAN FILL TO BE PLACED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
18. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
19. THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY DATA SHOWN ON THIS PLAN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED FROM THESE PLANS.
20. THICKNESS OF GRANULAR MATERIAL AND ASPHALT LAYERS SHALL BE IN ACCORDANCE WITH CITY STANDARD ROAD CROSS SECTION AND THE GEOTECHNICAL REPORT.
21. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. ALL MEASUREMENTS UTILIZE METRIC UNITS.
22. CONTRACTOR TO PROVIDE THE ENGINEER WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INDICATE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANTS LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC. THE DRAWING SHALL ALSO INCLUDE THE AS-BUILT LOCATION AND INVERTS OF ALL SERVICE STUBS.

WATERMAINS

1. GENERAL:

ITEM	DETAIL No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT	W18, W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22, W23	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER / OVER SEWER	W25 / W25.2	CITY OF OTTAWA
VALVE BOX	W24	CITY OF OTTAWA

2. THE WATERMAIN SHALL BE PVCO (BIONAX, OR APPROVED EQUIVALENT) IN ACCORDANCE WITH MATERIAL SPECIFICATION MW-18.1, UNLESS OTHERWISE INDICATED.
3. CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY CONTRACTOR. CONNECTION TO EXISTING WATERMAIN BY CITY OF OTTAWA. NO WORK TO COMMENCE UNLESS A CITY OF OTTAWA WATER DEPARTMENT INSPECTOR IS ON SITE.
4. WATERMAIN MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.25m OVER AND 0.50m UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
5. WATERMAINS AND/OR WATER SERVICE ARE TO HAVE A MINIMUM COVER OF 2.4m WITH A MINIMUM HORIZONTAL SPACING OF 2.0m FROM THEMSELVES AND OTHER UTILITIES, AS PER CITY OF OTTAWA STANDARD R20.
6. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS CITY OF OTTAWA STANDARD DETAILS W40 AND W42.
7. PROVIDE THERMAL INSULATION FOR WATERMAIN AT OPEN STRUCTURES PER CITY OF OTTAWA STANDARD DETAIL W23.
8. WATERMAINS TO BE INSTALLED TO GRADE AS SHOWN, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK WHERE REQUESTED BY THE INSPECTOR. CONTRACTOR TO PROVIDE AS-BUILT ELEVATIONS OF TOP OF WATERMAIN.
9. IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.
10. WATERMAIN TRENCHING AND BEDDING TO CONFORM TO CITY OF OTTAWA STANDARD DETAIL W17.
11. VALVES AND VALVE BOXES TO CONFORM WITH CITY OF OTTAWA STANDARD DETAIL W24.
12. FIRE HYDRANT C/W GATE VALVE AND VALVE BOX SHALL CONFORM TO CITY OF OTTAWA STANDARD DETAIL W19 AND CONTRACT SPECIFIC DETAILS.
13. CONCRETE THRUST BLOCKS TO CONFORM TO W25.3 AND W25.4.
14. ALL WATERMAIN SERVICE INSTALLATIONS AT SEWER CROSSINGS PER CITY OF OTTAWA STANDARD DETAIL W38.
15. RESTRAINING RINGS TO BE INSTALLED ON ALL CAPS, TEES, CROSSES, HORIZONTAL AND VERTICAL BENDS, REDUCERS, SLEEVES, COUPLINGS, CURB-STUBS, AUXILIARY, ISOLATION/LINE/BRANCH VALVES, TAPPING VALVES, HYDRANTS, OTHER FITTINGS THAT STOP FLOW OR CHANGE DIRECTION AND PUSH ON JOINTS WITHIN RESTRAINED LENGTH AS PER CITY OF OTTAWA DETAIL W25.5 AND W25.6.
16. WATER SERVICES ARE TO BE CONSTRUCTED TO 2.0m PAST PROPERTY LINE WITH REMAINING PIPE COILED FOR BUILDER EXTENSION.
17. WATERMAIN TESTING REQUIRED AS PER CITY OF OTTAWA SPECIFICATIONS F-4491 INCLUDING THE USE OF CHLORINATION NOZZLE AS PER CITY OF OTTAWA W46.
18. HYDRANT VALVES TO BE LOCATED WITHIN THE ROADWAY ASPHALT LIMITS AS PER W19 WHERE EVER POSSIBLE. CONTRACTOR IS TO ENSURE THAT THE VALVE IS NOT LOCATED WITHIN THE PROPOSED CURB LINE. VALVE TO BE LOCATED WITHIN THE BOULEVARD WHERE IT IS NOT POSSIBLE TO LOCATE WITHIN THE ASPHALT LIMITS.

GEOTECHNICAL REFERENCE

1. REFER TO GEOTECHNICAL INVESTIGATION (REPORT #PG4278-1, REVISION 5, DATED SEPTEMBER 22, 2022) BY PATERSON GROUP.

CLAY SEALS

1. INSTALL CLAY SEALS (SEEPAGE BARRIERS) AS PER CITY OF OTTAWA DETAIL S8.
2. CLAY SEALS SHALL EXTEND FROM TRENCH WALL TO TRENCH WALL AND FROM SEWER SUB GRADE LEVEL.
3. CLAY SEALS SHALL CONSIST OF 1.5m WIDE WEATHER DRIED (COMPATIBLE) SILTY CLAY, COMPACTED IN THIN LIFTS TO AT LEAST 95% STANDARD PROCTOR DENSITY.
4. REFER TO PLAN AND PROFILE DRAWINGS FOR LOCATION OF SEEPAGE BARRIERS.
5. CLAY SEALS TO BE INSTALLED AT NO MORE THAN 60m INTERVALS.

PAVEMENT STRUCTURE

LOCAL ROADS

40mm SUPERPAVE 12.5 LEVEL B PG 58-34
50mm SUPERPAVE 19.0 LEVEL B PG 58-34
150mm GRANULAR "A"
450mm GRANULAR "B" TYPE II
690mm

SEWERS

1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCH BASIN (600x600mm)	705.010	OPSD
[illegible]		OPSD
[illegible]	701.011	OPSD
ROADSIDE CB, FRAME & COVER	S2 & S19	CITY OF OTTAWA
CURB INLET CB, FRAME & COVER	S3, S22 & S23	CITY OF OTTAWA
STORM / SANITARY MH FRAME & COVER	S24.1 / S24 & S25	CITY OF OTTAWA
STORM SEWER	PVC DR 35 OR CONC. 100-D	
SANITARY SEWER	PVC DR 35	
RYCB PIPE AND CB LEAD	HDPE, 320kPa (min.)	
CATCH BASIN LEAD	PVC DR 35	
BEDDING - CLASS "B"	S5, S6 AND S7	

2. ALL SEWER MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARDS. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
3. REARYARD SUBDRAIN SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAILS S29, S30 AND S31 AND CONTRACT SPECIFIC DETAILS (SEE 117155-XS5B).
4. ALL ROAD CATCH BASINS SHALL INCLUDE THE CONNECTION OF THE CONTINUOUS ROADWAY SUBDRAIN.
5. ALL PROPOSED FOUNDATION DRAINS SHALL BE CONNECTED TO STORM SEWER.
6. SANITARY MAINTENANCE HOLE BENCHING SHALL FOLLOW OPSD 701.021.
7. ALL WORKS SHALL BE PERFORMED AS APPLICABLE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD SPECIFICATIONS, AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS 407 AND 410.
8. ALL STORM AND SANITARY SERVICES ARE TO BE THE SIZES INDICATED AND THE MATERIAL SHALL BE PVC DR-28 @ 1.0% MINIMUM. SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
9. INSULATE ALL STORM AND SANITARY SEWERS THAT HAVE LESS THAN 1.5m OF COVER WITH THERMAL INSULATION AS PER W22. PROVIDE 150mm OF CLEARANCE BETWEEN PIPE AND INSULATION.
10. SUPPLY AND INSTALLATION OF ALL PIPING AND APPURTENANCES AS SHOWN AND DETAILED TO 2.0m PAST PROPERTY LINE, UNLESS OTHERWISE NOTED. ALL SERVICE AND FUTURE MAINLINE STUBS ARE TO BE CAPPED USING MANUFACTURER APPROVED END CAPS.
11. THE SITE SERVICING CONTRACTOR SHALL PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16 AND 407.07.25. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN WHEN REQUIRED BY CITY OF OTTAWA INSPECTOR. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
12. [illegible] 300mm SUMPS UNLESS OTHERWISE INDICATED. STORM MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES FOR [illegible]
13. [illegible] COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
14. [illegible] OUTLET PIPE OF SANITARY MAINTENANCE HOLES 701 AND 713. TEMPORARY INLET CONTROL DEVICES TO BE REMOVED PRIOR TO CONNECTION OF SANITARY SERVICE LATERALS.
15. FLEXIBLE CONNECTIONS ARE REQUIRED FOR ALL CONNECTIONS TO CONCRETE PIPES AND CONNECTIONS TO MAINTENANCE [illegible] TO BE CONNECTED TO MAINTENANCE HOLES AS PER MUNICIPAL STANDARDS.
16. SEWER TRENCHES TO BE BACKFILLED WITH NATIVE SOIL TO MATCH THE EXISTING SOIL PROFILE, IN ORDER TO MINIMIZE THE DIFFERENTIAL FROST HEAVING OVER THE SERVICES.
17. ALL SEWER PIPES INSTALLED TO A GRADIENT OF 0.50% OR LOWER USING A LASER DEVICE SHALL BE CHECKED WITH A LEVEL INSTRUMENT PRIOR TO BACKFILLING.
18. CONTRACTOR TO INSTALL CLAY SEALS IN SERVICE TRENCHES WHERE INDICATED. CLAY SEALS PER CITY OF OTTAWA STANDARD S8 AND MUST BE A MINIMUM LENGTH OF 1.5m.
19. ALL ROADWAY CATCH BASIN LEADS SHALL BE 200mm DIA. UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL LEADS FROM REAR YARD CATCH BASIN/CATCH BASIN MAINTENANCE HOLES SHALL BE 250mm DIA. UNLESS OTHERWISE NOTED ON THE DRAWINGS.
20. WHERE START OF RUN STORM MAINTENANCE HOLES ARE NOT LOCATED WITHIN PONDING AREAS, THEY SHALL HAVE A PERFORATED COVER AS PER S28.1.

TYPICAL LOT SERVICING NOTES

1. [illegible] HORIZONTAL BENDS FOR SANITARY AND STORM SERVICES.
2. 1.0% MINIMUM SANITARY AND STORM SERVICE GRADIENT WITH 2% PREFERRED.
3. STORM SERVICE LATERAL SHALL BE LOCATED TO THE LEFT OF SANITARY SERVICE LATERAL WHEN LOOKING AT THE STRUCTURE FROM THE STREET AS PER CITY OF OTTAWA STANDARD S11.3. SERVICE SIZES IN CONFORMANCE WITH CITY OF OTTAWA STANDARD S11.
4. HOME BUILDER TO INSTALL BACKWATER VALVES ON ALL NEW SANITARY AND STORM LATERALS AS PER STANDARD DETAIL DRAWING S14 AND S14.1 OR 14.2.
5. SEE CITY OF OTTAWA STANDARD S6 AND S7 FOR PIPE FOUNDATION, EMBEDMENT AND FINAL BACKFILL REQUIREMENTS.
6. MULTIPLE TAPS WITH SADDLES IN PVC WATERMAIN SHALL BE STAGGERED AND BE A MINIMUM OF 600mm APART.
7. ELEVATION OF SERVICES VARIABLE DEPENDING ON GRADIENT AND/OR DEPTH OF COVER.
8. GRADE AND/OR FILL BEHIND PROPOSED CURB AND BETWEEN BUILDINGS AND CURBS, WHERE REQUIRED TO PROVIDE POSITIVE DRAINAGE.
9. SEE CITY OF OTTAWA STANDARD W27 FOR ADDITIONAL WATER SERVICING SCENARIOS.

GRADING

1. FINISHED LOT GRADING WILL NOT ADVERSELY AFFECT DRAINAGE PATTERNS OF ADJACENT LANDS.
2. ALL GRADES TO BE WITHIN 33% MAX. (3:1) SLOPE AT PROPERTY LINE AND WITHIN THE SITE, UNLESS OTHERWISE NOTED.
3. MATCH EXISTING ELEVATIONS AT ALL PROPERTY LINES, UNLESS OTHERWISE NOTED. ENSURE POSITIVE DRAINAGE WHETHER INDICATED OR NOT.
4. WHERE EXISTING GRADE IS FOUND TO BE MORE THAN 300mm BELOW THE GRADES INDICATED ON THIS GRADING PLAN, CONTACT ENGINEER IMMEDIATELY.
5. SWALES LESS THAN 1.5% SHALL HAVE A SUBDRAIN AS PER CITY OF OTTAWA STANDARD S29, S30 AND S31.
6. CURBS ARE BARRIER TYPE, AS NOTED ON DRAWINGS. CONSTRUCTION OF CURBS PER CITY OF OTTAWA DETAILS SC1.1.
7. ALL TOPSOIL, ORGANICS AND ANY SOFT, WET OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER IN PREPARATION OF THE SUBGRADE.
8. ALL EXCESS EXCAVATED MATERIAL TO BE STOCKPILED OR SPREAD ONSITE AS DIRECTED BY THE ENGINEER. ALL ORGANIC MATERIAL AND DEBRIS TO BE USED OR STOCKPILED ONSITE AS INSTRUCTED BY THE ENGINEER.
9. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
10. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
11. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
12. PRIOR TO CONSTRUCTION ALL SUBGRADE SURFACES FOR FOOTING AND PAVEMENT STRUCTURES ARE TO BE INSPECTED BY A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.
13. ROADWAY SUBGRADE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION TO REVIEW THE GRANULAR 'B' DEPTH AND FOR THE NECESSITY OF A WOVEN GEOTEXTILE BELOW THE GRANULAR MATERIALS.
14. ALL ROADWAYS TO HAVE 3% CROSSFALL INCLUDING SUBGRADE AND GRANULAR BASE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
15. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
16. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
17. ALL ROADWAYS TO HAVE CONTINUOUS 150mm DIA. PERFORATED SUBDRAIN INSTALLED ALONG THE EDGE OF PAVEMENT AS PER CITY OF OTTAWA DETAIL R1.

EROSION AND SEDIMENT CONTROL NOTES

1. THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS AND DURING ALL PHASES OF THE SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MAINTENANCE HOLES & REARYARD CATCHBASINS, INLET PROTECTION FOR CATCHBASINS/CATCHBASIN MAINTENANCE HOLES AND INSTALLING AND MAINTAINING LIGHT DUTY SILT FENCE BARRIERS AND ROCK FLOW CHECK DAMS AS REQUIRED.
2. CONDITIONS OF THE EROSION AND SEDIMENT CONTROL MEASURES TO BE INSPECTED REGULARLY AND REPLACED OR REPAIRED AS REQUIRED OR AS INSTRUCTED BY THE ENGINEER.
3. THE CONTRACTOR SHALL ENSURE THAT ROADS ARE KEPT CLEAN AT ALL TIMES USING SUCH PRACTICES AS WASHING DOWN TRUCK TIRES, ROAD SWEEPING AND FLUSHING ETC.
4. THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM HIS CONSTRUCTION OPERATIONS WILL HAVE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN A MANNER THAT STRICTLY MEETS THE REQUIREMENTS OF ALL APPLICABLE LEGISLATION AND REGULATIONS.
5. AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT HIS OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING ANY SEWER OR WATERCOURSE WITHIN DOWNSTREAM OF THE WORKING AREA.
6. FOR THIS PROJECT THE SUGGESTED ON-SITE MEASURES SHALL INCLUDE BUT SHALL NOT BE LIMITED TO THE FOLLOWING METHODS:
   - CATCHBASIN INLET PROTECTION
   - MAINTENANCE HOLE AND REAR YARD CATCHBASIN INLET PROTECTION
   - LIGHT DUTY SILT FENCE
   - MUD MATS
   - ROCK FLOW CHECK DAMS
7. SPECIFIC MEASURES SHALL BE INSTALLED AT THE SPECIFIED LOCATIONS AND IN ACCORDANCE WITH THE REQUIREMENTS OF OPSS 805 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR ANY REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR THE REGULATORY AGENCY, AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIMES WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY THE CONTRACTOR AT A MOMENTS NOTICE.
9. THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTORS, IN THE WORKING AREA ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES AND THE SPECIFICATIONS DETAILED HEREIN.
10. THE CONTRACTOR SHALL PERIODICALLY, OR WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO ANY SEWER OR WATERCOURSE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.
11. TO LIMIT EROSION: MINIMIZE THE AMOUNT OF EXPOSED SOILS AT ANY GIVEN TIME, RE-VEGETATE EXPOSED AREAS AND SLOPES AS SOON AS POSSIBLE AND PROTECT EXPOSED SLOPES WITH NATURAL OR SYNTHETIC MULCHES.
12. ANY ONSITE STOCKPILES SHALL BE LOCATED IN AREAS TO BE DESIGNATED BY THE ENGINEER AND WELL AWAY FROM DRAINAGE SWALES AND OUTLET DITCHES.
13. EROSION AND SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED DURING CONSTRUCTION IN ACCORDANCE WITH THE "GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES" (GOVERNMENT OF ONTARIO, MAY 1987). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEETING ALL REGULATORY AGENCY REQUIREMENTS.
14. A VISUAL INSPECTION OF THE SEDIMENT CONTROL MEASURES WILL BE PERFORMED DAILY BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR A WEEKLY INSPECTION REPORT DETAILING AND PROVING THE SPECIFIED AND REQUIRED PERFORMANCE OF THE INSTALLED MEASURES. THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE ENGINEER, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES WITHOUT DAMAGING THE DEVICES OR CAUSING DISCHARGE INTO THE SEWERS OR NEARBY WATERCOURSES.
15. THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
16. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY DITCH OR STORM SEWER SYSTEM. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
17. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
18. THE CONTRACTOR SHALL MONITOR ALL WEATHER FORECASTS AND SCHEDULE THE WORK IN ORDER TO MINIMIZE THE RISK OF SEDIMENT-LADEN RUNOFF ENTERING ANY WATERCOURSE OR SEWER SYSTEM.
19. THE CONTRACTOR SHALL KEEP MATERIAL FOR ADDITIONAL EROSION AND SEDIMENT CONTROLS ONSITE AT ALL TIMES. THESE MATERIALS INCLUDE BUT ARE NOT LIMITED TO: SILT FENCES, STRAW BALES, SEDIMENT BAGS AND CLEAR STONE. A CONTINGENCY PLAN TO INCLUDE THE PROVISION OF ADDITIONAL LABOUR, EQUIPMENT OR MATERIALS TO INSTALL ADDITIONAL CONTROL MEASURES, AS WELL AS PROVIDE AN EMERGENCY RESPONSE PLAN IN CASE OF AN ACCIDENTAL EVENT. AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIMES WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED AT A MOMENTS NOTICE.
20. IN ADDITION TO ANY OTHER REMEDY AND/OR PENALTY PROVIDED BY LAW, WHERE THERE HAS BEEN DEFAULT OR NON-COMPLIANCE WITH ANY OF THE TERMS SPECIFIED HEREIN AND THE CONTRACTOR REFUSES TO PERFORM OR RECTIFY WITHIN FORTY-EIGHT (48) HOURS OF THE RECEIPT OF THE WRITTEN DEMAND OF THE CONTRACT ADMINISTRATOR TO DO SO, THE OWNER IS HERERBY ENTITLED TO ENTER UPON THE WORKING AREA AND EITHER COMPLETE THE WORK IN CONFORMANCE WITH THE CONTRACT OR HAVE THE WORK DONE THAT IT CONSIDERS NECESSARY TO COMPLETE THE WORK TO ITS INTENDED CONDITION, WHICHEVER, IN THE OWNER'S SOLE OPINION, IS THE MOST REASONABLE COURSE OF ACTION. THE CONTRACTOR AND THE OWNER FURTHER AGREE THAT THE COST INCURRED FOR ANY SUCH WORK SHALL BE RETAINED BY THE OWNER FROM MONIES OTHERWISE DUE TO THE CONTRACTOR.
21. ENSURE PROPER DUST CONTROL WITH (AT MINIMUM) THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE OR OTHER APPROVED ALTERNATIVE) DURING DRY PERIODS.
22. EROSION AND SEDIMENT CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.

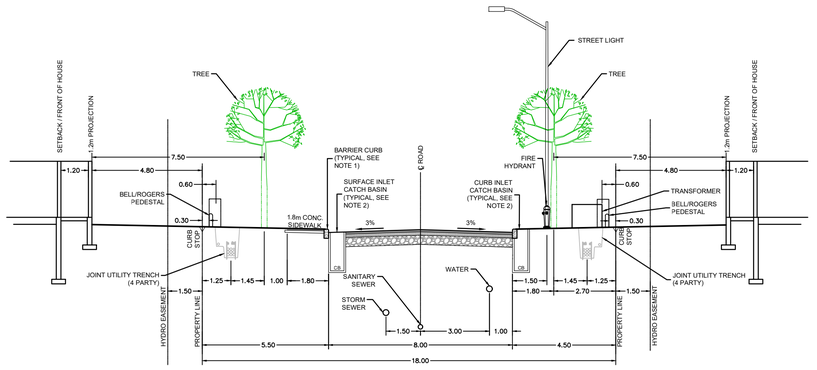
SANITARY MAINTENANCE HOLE TABLE

MANHOLE ID	STATION	SIZE (mm)	T/G ELEV (m)	INVERT (m)
701	7+091.30	1,200 mm dia	89.58	NE=85.66 W=85.69
703	7+163.63	1,200 mm dia	89.63	E=85.94 W=85.97
705[a]	7+269.21	1,200 mm dia	89.63	E=86.34 NW=86.37
707[a]	7+282.50	1,200 mm dia	89.45	SE=86.43 N=86.46
709	7+336.34	1,200 mm dia	89.83	S=86.82
711	7+360.04	1,200 mm dia	89.68	E=86.57
713[a]	7+477.95	1,200 mm dia	89.43	W=86.16 E=86.13

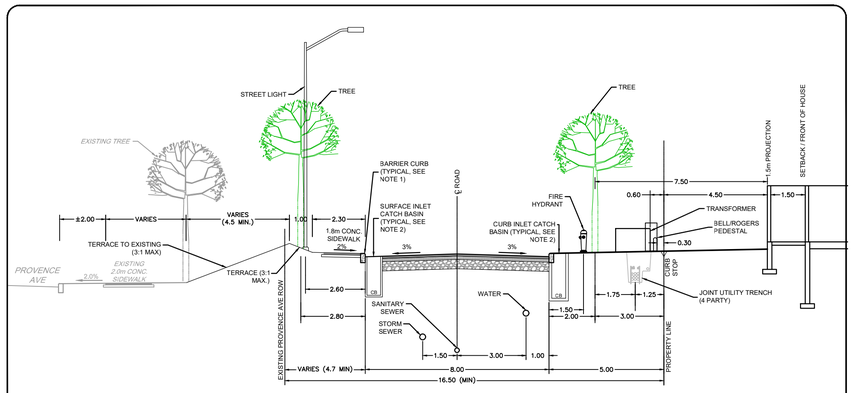
a - MAINTENANCE HOLE FRAME AND COVER TO BE WATERTIGHT, "CAMPRESSION" (#41420049W01) BY EJ.

STORM MAINTENANCE HOLE TABLE

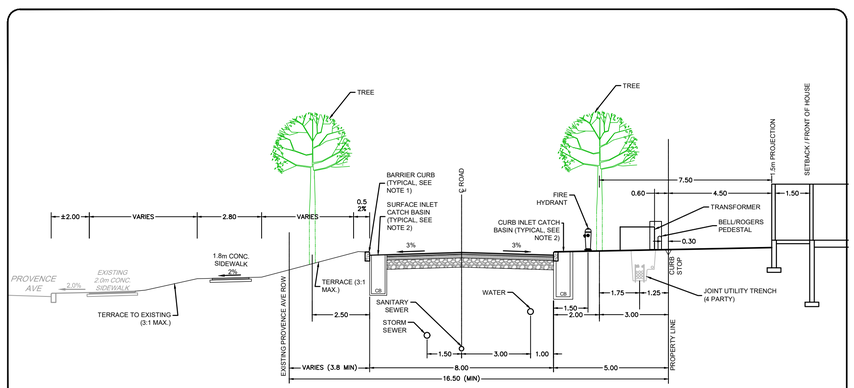
MANHOLE ID	STATION	SIZE (mm)	T/G ELEV (m)	INVERT (m)
700[a]	7+092.44	1,500 mm dia	89.52	NE=85.98 W=86.06
702	7+165.63	1,200 mm dia	89.62	E=86.24 W=86.32
704[a]	7+269.17	1,200 mm dia	89.58	E=86.58 W=86.72
706[a]	7+281.94	1,200 mm dia	89.59	E=86.80 N=86.82
708	7+338.29	1,200 mm dia	89.80	S=87.03
710[a]	7+361.61	1,200 mm dia	89.62	E=87.04
712	7+430.66	1,200 mm dia	89.62	W=86.84 E=86.68 N=87.24
714	7+526.76	1,200 mm dia	89.41	W=86.40 E=86.



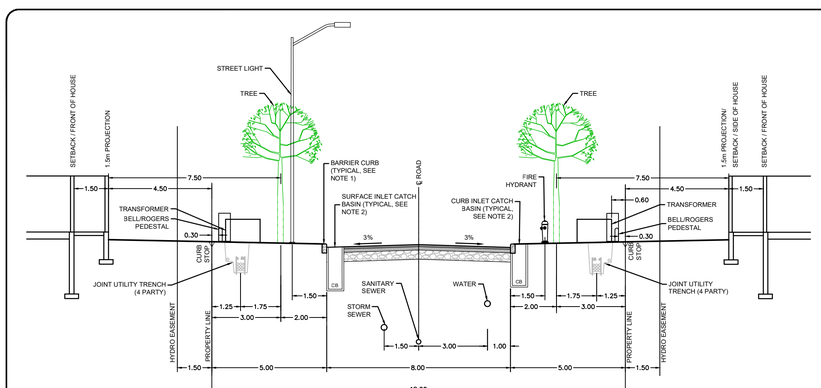
RESIDENTIAL ROAD 18m ROW (WITH SIDEWALK) TYPICAL CROSS SECTION
de MONTRICHARD ROAD (STA. 7+020 to 7+265)
N.T.S
4-PARTY JOINT UTILITY TRENCH



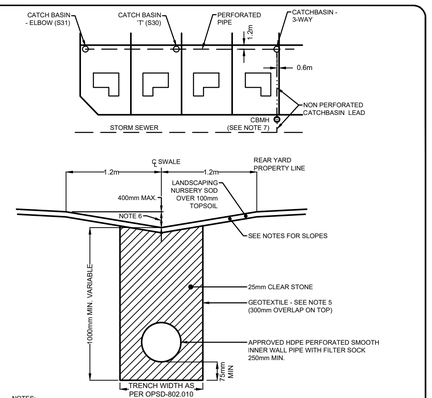
16.5m (MIN) ROW CROSS SECTION A-A
MONTRICHARD ROAD (STA. 7+265 to 7+320)
N.T.S
4-PARTY JOINT UTILITY TRENCH (RIGHT SIDE ONLY)



16.5m (MIN) ROW CROSS SECTION B-B
MONTRICHARD ROAD (STA. 7+320 to 7+355)
N.T.S.
4-PARTY JOINT UTILITY TRENCH (RIGHT SIDE ONLY)



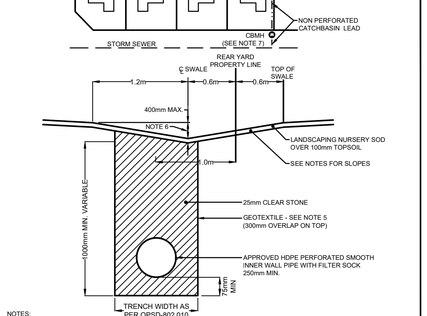
RESIDENTIAL ROAD 18m ROW (NO SIDEWALK) TYPICAL CROSS SECTION
de MONTRICHARD ROAD (STA. 7+355 to 7+600)
N.T.S.
4-PARTY JOINT UTILITY TRENCH



NOTES:

1. SIDE SLOPE OF SWALE - MIN. 1.5%, MAX 3:1
2. LONGITUDINAL SLOPE OF SWALE WITHOUT PERFORATED PIPE 1.5% MIN.
3. LONGITUDINAL SLOPE OF SWALE WITH PERFORATED PIPE 0.5% MIN. WITH 1% OR GREATER PREFERRED.
4. UNDER DRIVEWAYS NON PERFORATED PIPE TO BE USED WITH 75mm BEDDING AND BACKFILLED WITH APPROVED NATIVE MATERIAL.
5. GEOTEXTILE SHALL BE APPROVED NON-WOVEN CLASS 1 OR AS SPECIFIED.
6. MAXIMUM REAR YARD WATER DEPTH IS 400mm.
7. A STANDARD CATCHBASIN NO DEEPER THAN 2.4m OR A CATCHBASIN MAINTENANCE HOLE. STANDARD FRAMES C/W PERFORATED OR SOLID COVER AS SPECIFIED. STANDARD ICD'S AS SPECIFIED.

REARYARD TYPICAL CROSS SECTION 'A'
PERFORATED PIPE INSTALLATION FOR REARYARD AND LANDSCAPING APPLICATIONS, EXERNAL PROPERTY LINES AND SIDE YARD PROPERTY LINES
N.T.S.



NOTES:

1. SIDE SLOPE OF SWALE - MIN. 1.5%, MAX 3:1
2. LONGITUDINAL SLOPE OF SWALE WITHOUT PERFORATED PIPE 1.5% MIN.
3. LONGITUDINAL SLOPE OF SWALE WITH PERFORATED PIPE 0.5% MIN. WITH 1% OR GREATER PREFERRED.
4. UNDER DRIVEWAYS NON PERFORATED PIPE TO BE USED WITH 75mm BEDDING AND BACKFILLED WITH APPROVED NATIVE MATERIAL.
5. GEOTEXTILE SHALL BE APPROVED NON-WOVEN CLASS 1 OR AS SPECIFIED.
6. MAXIMUM REAR YARD WATER DEPTH IS 400mm.
7. A STANDARD CATCHBASIN NO DEEPER THAN 2.4m OR A CATCHBASIN MAINTENANCE HOLE. STANDARD FRAMES C/W PERFORATED OR SOLID COVER AS SPECIFIED. STANDARD ICD'S AS SPECIFIED.

REARYARD TYPICAL CROSS SECTION 'B'
PERFORATED PIPE INSTALLATION FOR REAR YARD AND LANDSCAPING APPLICATIONS, INTERNAL PROPERTY LINES (REAR YARD TO REAR YARD)
N.T.S.

NOTES:
1. BARRIER CURB TO BE INSTALLED.
2. CATCH BASINS TO BE CURB INLET TYPE ON WATERMAIN SIDE AND SURFACE INLET ON STORM SEWER SIDE (TYPICAL). REFER TO GENERAL PLAN OF SERVICES (117155-GP5B).
3. HYDRO EASEMENTS AT TRANSFORMER LOCATIONS ONLY.
4. UTILITY EASEMENTS LOCATED WHERE REQUIRED. REFER TO LEGAL PLANS.
5. TRANSFORMERS TO BE LOCATED ON THE OPPOSITE SIDE OF SIDEWALKS WHENEVER POSSIBLE.
6. ALL DIMENSIONS IN METERS UNLESS OTHERWISE INDICATED.

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES, TABLES & LEGEND

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
2.	ISSUED FOR REVIEW	OCT 14/25	TJM
1.	ISSUED FOR UTILITY COORDINATION	AUG 21/25	TJM

SCALE

DESIGN SAB
CHECKED TJM
DRAWN MA
CHECKED TJM
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
CROSS SECTIONS

PROJECT No. 117155-00
REV REV # 2
DRAWING No. 117155-XS5B

D07-16-18-0021

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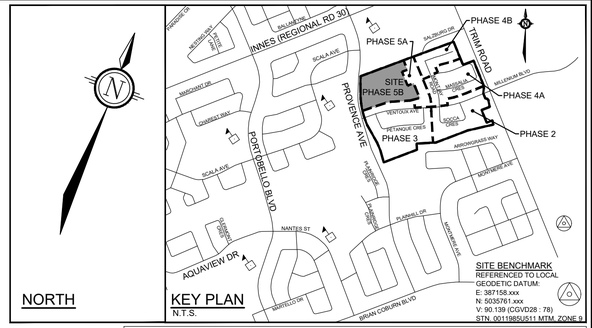


SOURCE REFERENCE:

LEGAL INFORMATION:

1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:

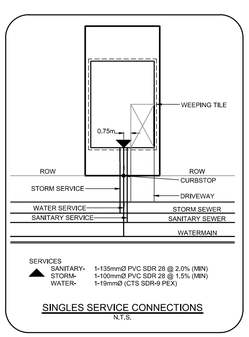
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9

VERTICAL DATUM: CGVD 28:78

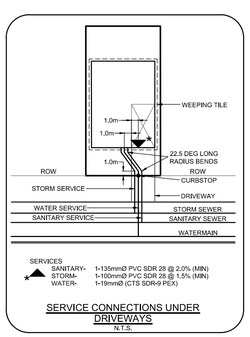
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

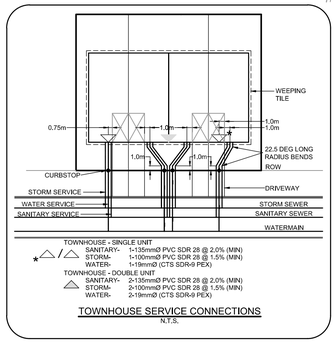
- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PHASING BOUNDARY
- D.C. PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED TOWNHOUSE SERVICE LOCATION
- PROPOSED SERVICE LOCATION IN DRIVEWAY
- PROPOSED DIRECTION OF FLOW
- PROPOSED SANITARY MAINTENANCE HOLE & SEWER
- PROPOSED STORM MAINTENANCE HOLE & SEWER
- PROPOSED CATCHBASIN & LEAD
- PROPOSED CATCHBASIN MAINTENANCE HOLE & LEAD
- PROPOSED DITCH INLET CATCHBASIN & LEAD
- PROPOSED REAR YARD ELBOW & PERFORATED PIPE
- PROPOSED REAR YARD TEE & PERFORATED PIPE
- PROPOSED REAR YARD ACCESS POINT & PERFORATED PIPE
- 200mmØ PROPOSED WATERMAIN
- VVB PROPOSED VALVE & VALVE BOX LOCATION
- HYD PROPOSED FIRE HYDRANT C/W LEAD
- 45° PROPOSED WATERMAIN HORIZONTAL BEND
- 3m BUILDING SEPARATION OR 2 HOUR FIREWALL REQUIRED (BY BUILDER)
- PROPOSED STREETLIGHT
- *EXISTING DEPRESSED CURB*
- *EXISTING CURB*
- *EXISTING TACTILE WALKING SURFACE INDICATOR (TWSI)*
- *EXISTING STREETLIGHT*
- *EXISTING WIRE FENCE*
- *EXISTING SANITARY MAINTENANCE HOLE & SEWER*
- *EXISTING STORM MAINTENANCE HOLE & SEWER*
- *EXISTING CAP*
- *EXISTING CATCHBASIN & LEAD*
- *EXISTING DITCH INLET CATCHBASIN & LEAD*
- *EXISTING LANDSCAPE CATCHBASIN & PERFORATED PIPE*
- *EXISTING TOP OF GRATE*
- *EXISTING WATERMAIN*
- *EXISTING FIRE HYDRANT C/W LEAD*
- *EXISTING VALVE & VALVE BOX LOCATION*
- *EXISTING HYDRO TRANSFORMER*
- *EXISTING 3 PHASE PAD-MOUNTED SF6 SWITCHGEAR*
- *EXISTING BELL GRADE LEVEL BOX*
- *EXISTING ROGERS NODE AND PEDESTAL*
- *EXISTING LCP ROGERS PEDESTAL*



SINGLES SERVICE CONNECTIONS
N.T.S.



SERVICE CONNECTIONS UNDER DRIVEWAYS
N.T.S.



TOWNHOUSE SERVICE CONNECTIONS
N.T.S.

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES, TABLES & LEGEND

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE 1:500

1:500
0 5 10 15 20

DESIGN SAB
CHECKED TJM
DRAWN MA
CHECKED TJM
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
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Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
GENERAL PLAN OF SERVICES

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-GP5B

D07-16-18-0021

#18004

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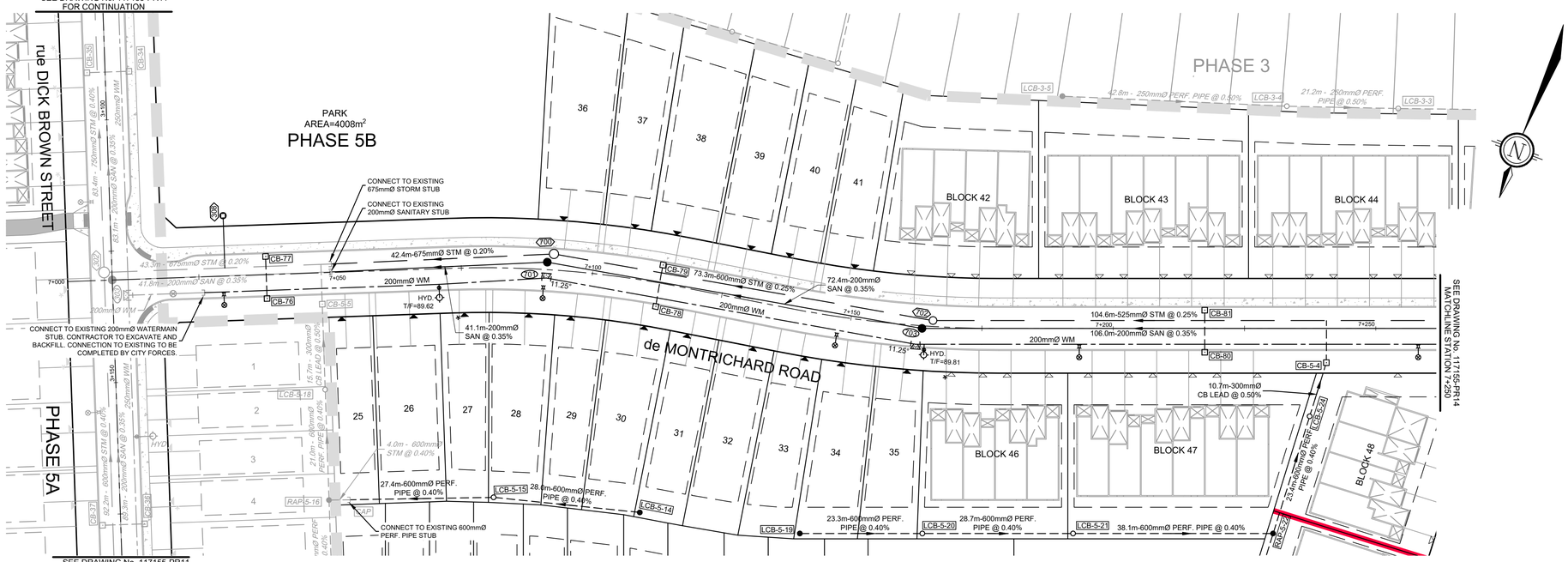
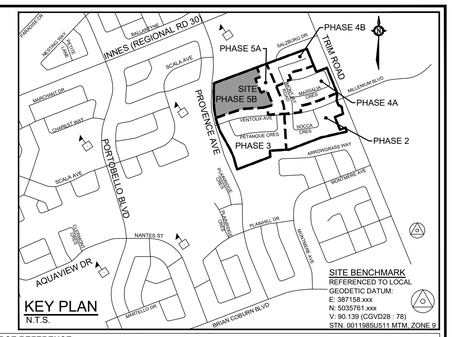
PLAN117.DWG - M.brown/sbennett



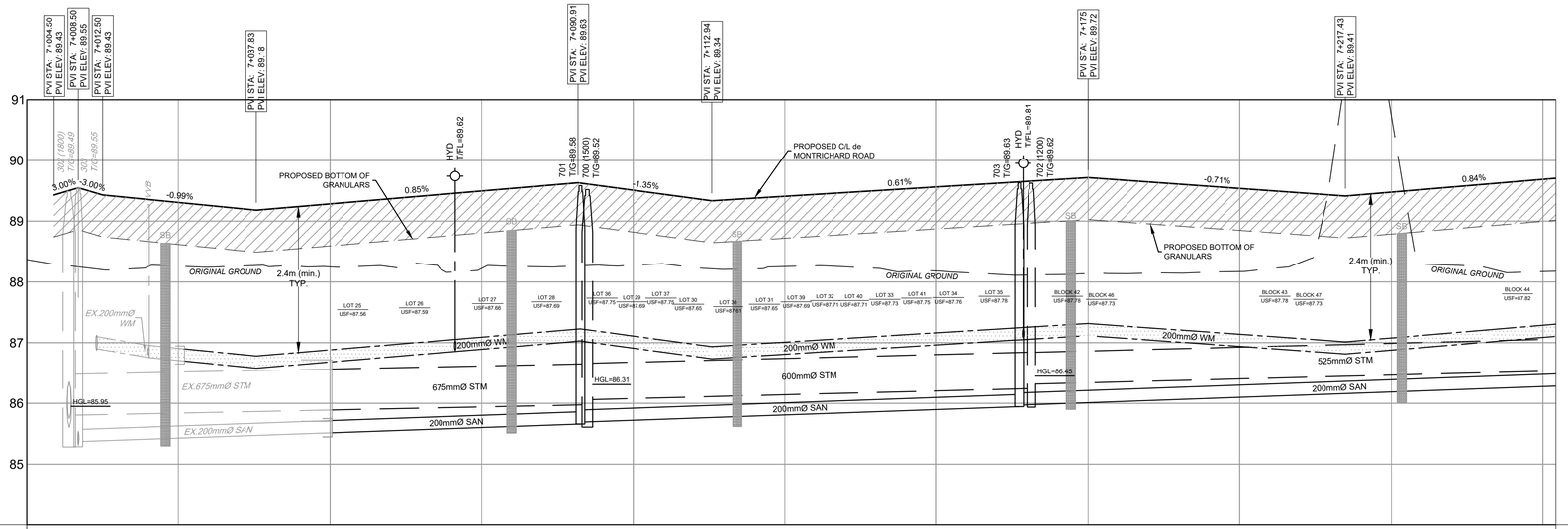


SOURCE REFERENCE:
LEGAL INFORMATION:
1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PHASING BOUNDARY
- PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CONCRETE SIDEWALK
- 3m BUILDING SEPARATION OR 2 HOUR FIREWALL REQUIRED (BY BUILDER)
- PROPOSED TOWNHOUSE SERVICE LOCATION
- PROPOSED SERVICE LOCATION IN DRIVEWAY
- PROPOSED SINGLE HOUSE SERVICE LOCATION
- PROPOSED DIRECTION OF FLOW
- 101 PROPOSED SANITARY MAINTENANCE HOLE & SEWER
- 100 PROPOSED STORM MAINTENANCE HOLE & SEWER
- CB-2 PROPOSED CATCHBASIN & LEAD
- CBMH-2 PROPOSED CATCHBASIN MAINTENANCE HOLE & LEAD
- DICB-2 PROPOSED DITCH INLET CATCHBASIN & LEAD
- LCB-2-1 PROPOSED REAR YARD ELBOW & PERFORATED PIPE
- LCB-2-2 PROPOSED REAR YARD TEE & PERFORATED PIPE
- RAP-4-10 PROPOSED REAR YARD ACCESS POINT & PERFORATED PIPE
- 200mmØ PROPOSED WATERMAIN
- VVB PROPOSED VALVE AND VALVE BOX LOCATION
- HYD PROPOSED FIRE HYDRANT C/W LEAD
- 45° PROPOSED WATERMAIN HORIZONTAL BEND
- SB CLAY SEEPAGE BARRIER
- PROPOSED STREETLIGHT
- *EXISTING TACTILE WALKING SURFACE INDICATOR (TWSI)*
- *EXISTING STREETLIGHT*
- *EXISTING DEPRESSED CURB*
- *EXISTING CURB*
- *EXISTING SERVICE LOCATION IN DRIVEWAY*
- *EXISTING SINGLE HOUSE SERVICE LOCATION*
- *101 450mmØ EXISTING SANITARY MAINTENANCE HOLE & SEWER*
- *100 450mmØ EXISTING STORM MAINTENANCE HOLE & SEWER*
- *CAP EXISTING CAP*
- *EXISTING STORM BOX MAINTENANCE HOLE*
- *CB EXISTING CATCHBASIN & LEAD*
- *LCB-2-1 PROPOSED REAR YARD ELBOW & PERFORATED PIPE*
- *LCB-2-2 PROPOSED REAR YARD TEE & PERFORATED PIPE*
- *300mmØ EXISTING WATERMAIN*
- *HYD EXISTING FIRE HYDRANT C/W LEAD*
- *V&VB EXISTING VALVE & VALVE BOX LOCATION*
- *EXISTING UTILITY POLE*



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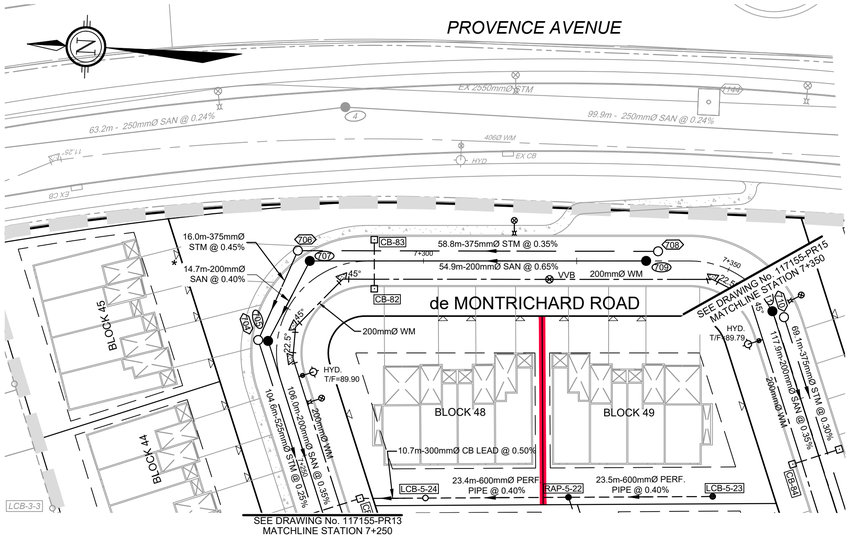
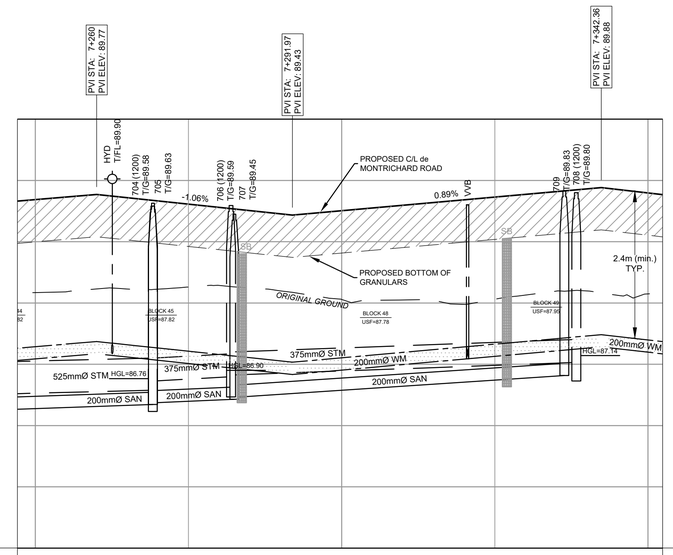
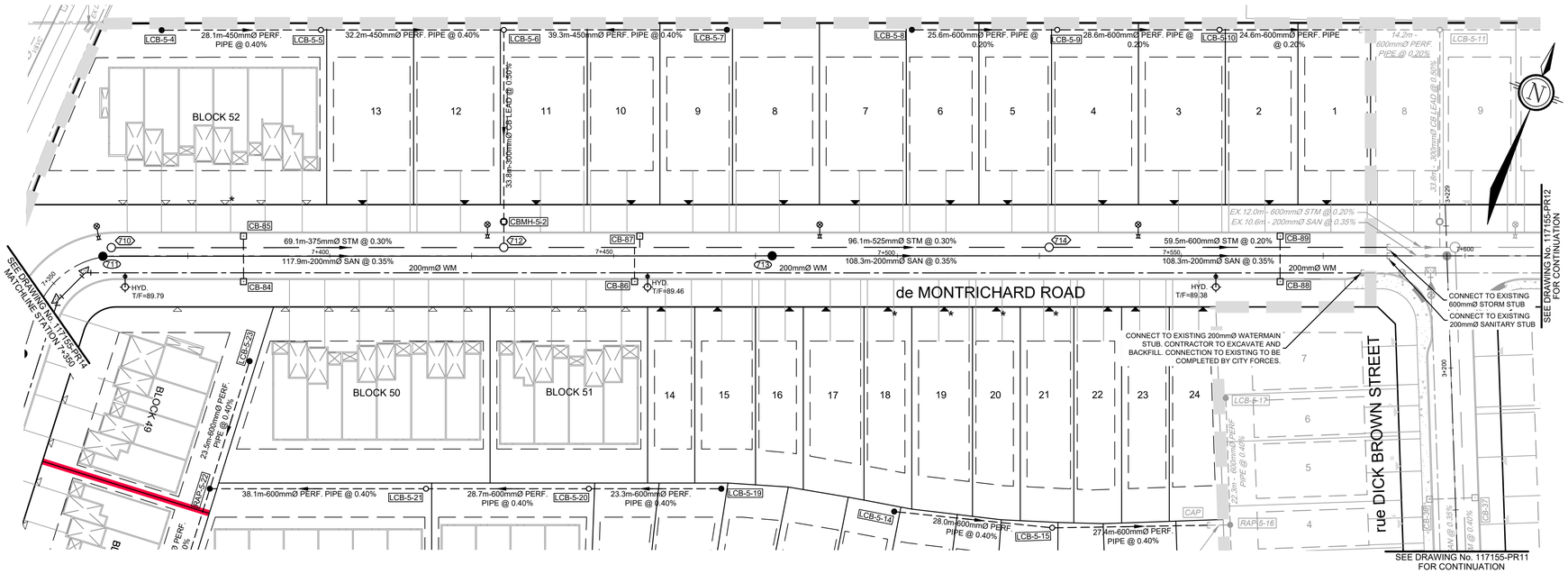
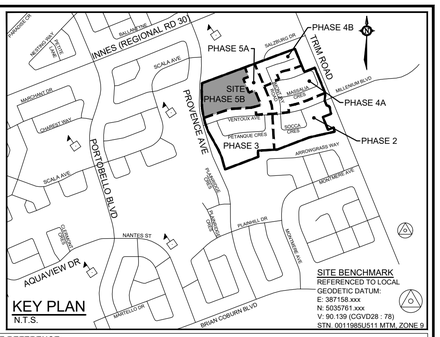

PROVENCE AVENUE
EX 2550mmØ STM
63.2m - 250mmØ SAN @ 0.24%
99.9m - 250mmØ SAN @ 0.24%
409Ø WM
HYD
EX CB
16.0m-375mmØ STM @ 0.45%
14.7m-200mmØ SAN @ 0.40%
CB-83
58.8m-375mmØ STM @ 0.35%
54.9m-200mmØ SAN @ 0.65%
VVB
200mmØ WM
CB-82
de MONTRICHARD ROAD
200mmØ WM
HYD. T/F=89.90
HYD. T/F=89.79
BLOCK 45
BLOCK 44
BLOCK 48
BLOCK 49
10.7m-300mmØ CB LEAD @ 0.50%
23.4m-600mmØ PERF. PIPE @ 0.40%
23.5m-600mmØ PERF. PIPE @ 0.40%
LCB-5-24
RAP-5-22
LCB-5-23
LCB-5-21
LCB-3-3
SEE DRAWING No. 117155-PR13 MATCHLINE STATION 7+250
SEE DRAWING No. 117155-PR15 MATCHLINE STATION 7+350
111.39m-200mmØ SAN @ 0.65%
89.1m-375mmØ STM @ 0.30%
104.6m-525mmØ STM @ 0.25%
106.0m-200mmØ SAN @ 0.35%
200mmØ WM


PVI STA.: 7+260
PVI ELEV.: 89.77
PVI STA.: 7+291.97
PVI ELEV.: 89.43
PVI STA.: 7+342.36
PVI ELEV.: 89.88
HYD T/FL=89.90
704 (1200) T/G=89.58
705 T/G=89.63
706 (1200) T/G=89.59
707 T/G=89.45
708 (1200) T/G=89.60
709 T/G=89.83
-1.06%
0.89%
VVB
PROPOSED C/L de MONTRICHARD ROAD
PROPOSED BOTTOM OF GRANULARS
ORIGINAL GROUND
2.4m (min.) TYP.
525mmØ STM HGL=86.76
375mmØ STM HGL=86.90
375mmØ STM
200mmØ WM
200mmØ SAN
HGL=87.71
BLOCK 45 USF=87.82
BLOCK 48 USF=87.78
BLOCK 49 USF=87.92

| | | |





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LEGEND

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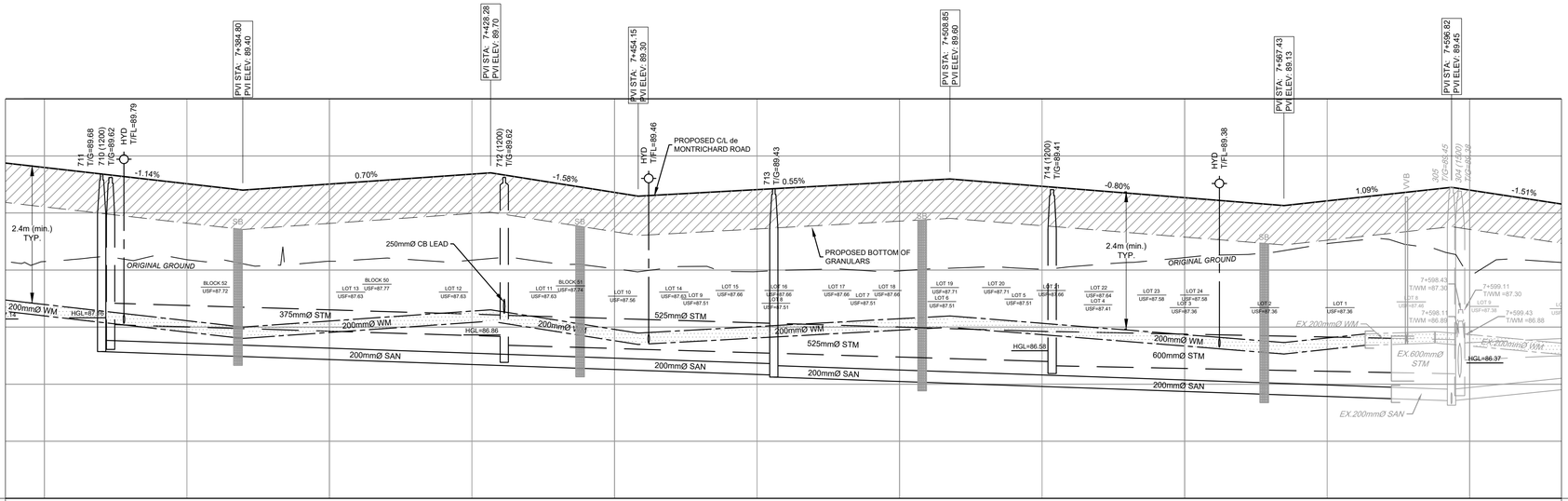
- *EXISTING CURB*
- *EXISTING SERVICE LOCATION IN DRIVEWAY*
- *EXISTING SINGLE HOUSE SERVICE LOCATION*
- 101 *450mmØ EXISTING SANITARY MAINTENANCE HOLE & SEWER*
- 100 *450mmØ EXISTING STORM MAINTENANCE HOLE & SEWER*
- *EXISTING CAP*
- *EXISTING STORM BOX MAINTENANCE HOLE*
- CB *EXISTING CATCHBASIN & LEAD*
- LCB-2-1 *PROPOSED REAR YARD ELBOW & PERFORATED PIPE*
- LCB-2-2 *PROPOSED REAR YARD TEE & PERFORATED PIPE*
- *300mmØ EXISTING WATERMAIN*
- HYD *EXISTING FIRE HYDRANT C/W LEAD*
- V&VB *EXISTING VALVE & VALVE BOX LOCATION*
- *EXISTING UTILITY POLE*



PROPOSED ELEVATION	89.80			89.51	89.40		89.51		89.68	89.70			89.36	89.30		89.41			89.55	89.60		89.47			89.27			89.13	89.21			89.45	89.40	PROPOSED ELEVATION
TOP OF WM ELEVATION	87.40		87.22	87.11	87.00		87.11		87.28	87.30			86.95	86.89 86.88		87.00			87.15	87.20		87.07			86.87	86.80		86.79		86.90		86.82 86.92	86.89 87.40 86.88	TOP OF WM ELEVATION
STORM SEWER INVERTS		E=87.04		69.12m - 375mmØ PVC DR 35 STM @ 0.30%					W=86.84 E=86.68 N=87.24			96.09m - 525mmØ CONC 100D STM @ 0.30%									W=86.40 E=86.32			59.50m - 600mmØ CONC 100D STM @ 0.20%						E=86.20 W=86.20 12.00m - 600mmØ STM @ 0.20%		S=86.12 E=86.12		STORM SEWER INVERTS
SANITARY SEWER INVERTS		E=86.57		117.91m - 200mmØ PVC DR 35 SAN @ 0.35%												W=86.16 E=86.13								108.31m - 200mmØ PVC DR 35 SAN @ 0.35%						E=85.75 10.55m - 200mmØ PVC DR 35 SAN @ 0.35%		S=85.71 W=85.71 E=85.71			SANITARY SEWER INVERTS
EXISTING ELEVATION	*89.80*			*89.51*			*89.51*		*89.68*				*89.36*			*89.41*			*89.55*			*89.47*			*89.27*			*89.21*				*89.40*	EXISTING ELEVATION
CHAINAGE	7+350	7+360.04 SANMH 7+361.61 STMMH	7+363.98 HYD	7+375			7+400		7+425	7+430.66 STMMH			7+450	7+456 HYD		7+475 7+477.95 SANMH			7+500			7+525 7+526.76 STMMH			7+550	7+556.10 HYD		7+575		7+591.68 WM CAP	7+596.26 CAP 7+596.26 CAP 7+598.91 VVB	7+593.91 200X200 TEE	7+598.81 SANMH 7+598.81 STMMH	7+600	CHAINAGE

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES, TABLES & LEGEND

NOTE:
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PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE
1:500
0 5 10 15 20
HORIZONTAL
1:50
0 0.5 1.0 1.5 2.0
VERTICAL

DESIGN SAB
CHECKED TJM
DRAWN SAB
CHECKED TJM
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
PLAN AND PROFILE
de MONTRICHARD ROAD
STA. 7+350 TO STA. 7+600

PROJECT No. 117155
REV # 1
DRAWING No. 117155-PR15

D07-16-18-0021
#18004

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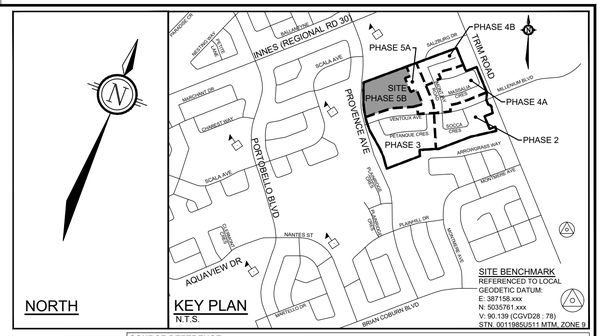
PLAN&PROFILE - 84 hrs/24x36



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LEGEND

- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PROPOSED CURB
- PROPOSED CONCRETE SIDEWALK
- PROPOSED LANDSCAPE RETAINING WALL (HEIGHT < 0.6m)
- PROPOSED 2.5m NOISE BARRIER
- PROPOSED 2.2m NOISE BARRIER
- PROPOSED TOWNHOUSE SERVICE LOCATION
- PROPOSED SERVICE LOCATION IN DRIVEWAY
- PROPOSED SINGLE HOUSE SERVICE LOCATION
- PROPOSED DIRECTION OF FLOW
- (104) PROPOSED SANITARY MAINTENANCE HOLE
- (100) PROPOSED STORM MAINTENANCE HOLE
- CB-2 PROPOSED CATCHBASIN
- CBMH-2 PROPOSED CATCHBASIN MAINTENANCE HOLE
- LCB-2-1 PROPOSED LANDSSCAPE CATCHBASIN ELBOW
- LCB-2-2 PROPOSED LANDSCAPE CATCHBASIN TEE
- RYAP-4-14 PROPOSED REAR YARD ACCESS POINT
- V&VB PROPOSED VALVE & VALVE BOX LOCATION
- HYD PROPOSED FIRE HYDRANT
- 104.62 PROPOSED ELEVATION
- 104.62VPI PROPOSED VERTICAL POINT OF INTERSECTION
- 103.31TW PROPOSED TOP OF WALL ELEVATION
- 103.11BW PROPOSED BOTTOM OF WALL ELEVATION
- 103.31TF PROPOSED TOP OF NOISE BARRIER ELEVATION
- 103.11BF PROPOSED BOTTOM OF NOISE BARRIER ELEVATION
- 104.00(S) PROPOSED SWALE ELEVATION
- 104.00(S)TG PROPOSED SWALE/ TOP OF GRATE ELEVATION
- 104.00(S)HP PROPOSED SWALE HIGH POINT
- 101.00 EXISTING ELEVATION
- 102.76 PROPOSED TERRACE ELEVATION
- PROPOSED TERRACING (MAXIMUM 3:1 SLOPE)
- 1.3% PROPOSED SLOPE
- FF PROPOSED FINISHED FLOOR ELEVATION
- TF PROPOSED TOP OF FOUNDATION
- USF PROPOSED UNDERSIDE OF FOOTING
- MUSF PROPOSED MINIMUM SERVICEABLE UNDERSIDE OF FOOTING
- DE PROPOSED DROPPED ENTRY UNIT TYPE
- PROPOSED SWALE
- PROPOSED BOTTOM OF SLOPE
- PROPOSED TOP OF SLOPE
- MAJOR OVERLAND FLOW DIRECTION
- PROPOSED STREETLIGHT
- *EXISTING TACTILE WALKING SURFACE INDICATOR (TWSI)*
- *EXISTING DEPRESSED CURB*
- *EXISTING CURB*
- *EXISTING STREETLIGHT*
- *EXISTING WIRE FENCE*
- *EXISTING 2.5m NOISE BARRIER*
- *EXISTING TOWNHOUSE DUAL SERVICE LOCATION*
- *EXISTING SERVICE LOCATION C/W SLEEVE*
- *EX 450MH EXISTING SANITARY MAINTENANCE HOLE*
- *EX 675MH EXISTING STORM MAINTENANCE HOLE*
- *EXISTING STORM BOX MAINTENANCE HOLE*
- *V&VB EXISTING VALVE AND VALVE BOX*
- *EXISTING FIRE HYDRANT*
- *EX CB EXISTING CATCHBASIN*
- *EXISTING HYDRO TRANSFORMER*
- *EXISTING TREES*

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES & LEGEND. REFER TO 117155-L5B FOR FENCE LOCATIONS. REFER TO 117155-GP5B FOR LOT SERVICING DETAILS.

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No.	REVISION	DATE	BY
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SCALE 1:500

1:500
0 5 10 15 20

DESIGN SAB
CHECKED TJM
DRAWN SAB
CHECKED TJM
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
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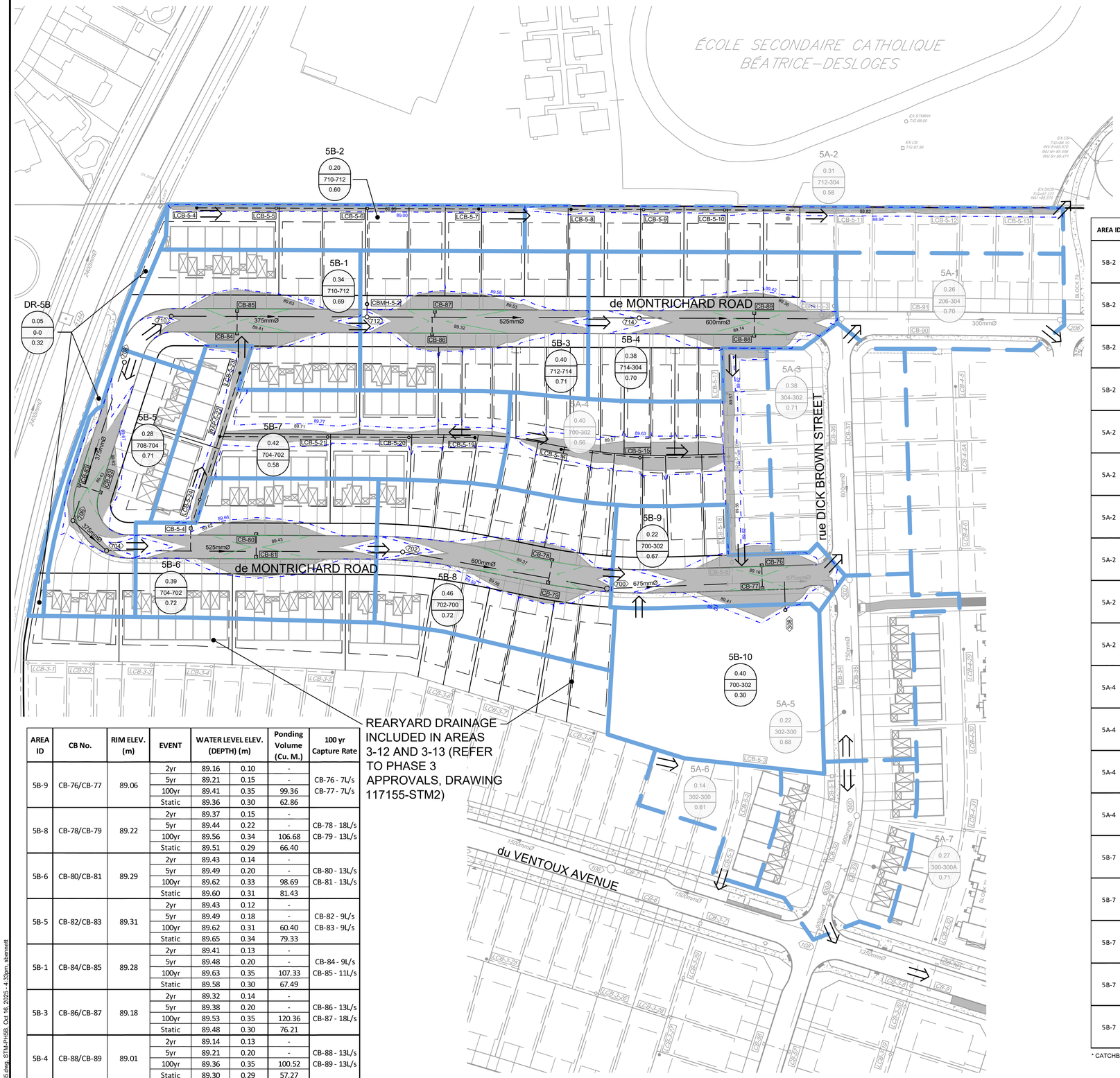
LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
GRADING PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-GR5B

M:\2017\117155\CAD\Design\PH5\117155-GR5.dwg, GR5B, Oct 17, 2025 - 9:54am, sbennett
PLAN/A1.DWG - 84 trees/384m²



AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		Ponding Volume (Cu. M.)	100 yr Capture Rate
5B-9	CB-76/CB-77	89.06	2yr	89.16	0.10	-	
			5yr	89.21	0.15	-	CB-76 - 7L/s
			100yr	89.41	0.35	99.36	CB-77 - 7L/s
			Static	89.36	0.30	62.86	
5B-8	CB-78/CB-79	89.22	2yr	89.37	0.15	-	
			5yr	89.44	0.22	-	CB-78 - 18L/s
			100yr	89.56	0.34	106.68	CB-79 - 13L/s
			Static	89.51	0.29	66.40	
5B-6	CB-80/CB-81	89.29	2yr	89.43	0.14	-	
			5yr	89.49	0.20	-	CB-80 - 13L/s
			100yr	89.62	0.33	98.69	CB-81 - 13L/s
			Static	89.60	0.31	81.43	
5B-5	CB-82/CB-83	89.31	2yr	89.43	0.12	-	
			5yr	89.49	0.18	-	CB-82 - 9L/s
			100yr	89.62	0.31	60.40	CB-83 - 9L/s
			Static	89.65	0.34	79.33	
5B-1	CB-84/CB-85	89.28	2yr	89.41	0.13	-	
			5yr	89.48	0.20	-	CB-84 - 9L/s
			100yr	89.63	0.35	107.33	CB-85 - 11L/s
			Static	89.58	0.30	67.49	
5B-3	CB-86/CB-87	89.18	2yr	89.32	0.14	-	
			5yr	89.38	0.20	-	CB-86 - 13L/s
			100yr	89.53	0.35	120.36	CB-87 - 18L/s
			Static	89.48	0.30	76.21	
5B-4	CB-88/CB-89	89.01	2yr	89.14	0.13	-	
			5yr	89.21	0.20	-	CB-88 - 13L/s
			100yr	89.36	0.35	100.52	CB-89 - 13L/s
			Static	89.30	0.29	57.27	

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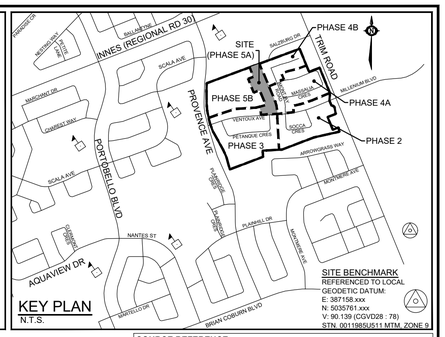
PROVENCE ORLÉANS

NORTH



KEY PLAN
N.T.S.

SITE BENCHMARK
REFERENCED TO LOCAL GEODETIC DATUM:
E: 387158.xxx
N: 5035761.xxx
V: 90.139 (CGVD28 : 78)
STN_0011985U511 MTM_ZONE 9

SOURCE REFERENCE:
LEGAL INFORMATION:
1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

AREA ID	CB No.	RIM ELEV. (m)	EVENT	WATER LEVEL ELEV. (DEPTH) (m)		Ponding Volume (Cu. M.)
5B-2	LCB-5-4	88.60	2yr	87.96	-	Includes 5-4, 5-5, 5-6, 5-7
			5yr	88.48	-	
			100yr	88.95	0.35	29.20
			Static	88.95	0.35	-
5B-2	LCB-5-5	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5B-2	LCB-5-6	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5B-2	LCB-5-7	88.60	2yr	87.96	-	-
			5yr	88.48	-	-
			100yr	88.95	0.35	-
			Static	88.95	0.35	-
5A-2	LCB-5-8	88.50	2yr	87.60	-	Includes 5-8, 5-9, 5-10, 5-11*, 5-12*, 5-13*
			5yr	87.84	-	
			100yr	88.82	0.32	35.76
			Static	88.85	0.35	-
5A-2	LCB-5-9	88.50	2yr	87.60	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-10	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-11	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-12	88.50	2yr	87.59	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-2	LCB-5-13	88.50	2yr	87.60	-	-
			5yr	87.84	-	-
			100yr	88.82	0.32	-
			Static	88.85	0.35	-
5A-4	LCB-5-14	89.18	2yr	88.23	-	Includes 5-14, 5-15, 5-17*, 5-18*
			5yr	88.97	-	
			100yr	89.57	0.39	77.36
			Static	88.54	0.36	-
5A-4	LCB-5-15	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.57	0.39	-
			Static	88.54	0.36	-
5A-4	LCB-5-17	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.57	0.39	-
			Static	88.54	0.36	-
5A-4	LCB-5-18	89.18	2yr	88.23	-	-
			5yr	88.97	-	-
			100yr	89.56	0.38	-
			Static	88.54	0.36	-
5B-7	LCB-5-19	89.31	2yr	88.56	-	Includes 5-19, 5-20, 5-21, 5-23, 5-24
			5yr	89.48	-	
			100yr	89.71	0.40	62.54
			Static	86.69	0.38	-
5B-7	LCB-5-20	89.31	2yr	88.55	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-21	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-23	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-
5B-7	LCB-5-24	89.31	2yr	88.56	-	-
			5yr	89.48	-	-
			100yr	89.71	0.40	-
			Static	86.69	0.38	-

* CATCHBASIN LOCATED IN PHASE 5A

LEGEND

- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED VORTECHS (9000)
- PROPOSED CATCHBASIN & LEAD
- PROPOSED CATCHBASIN MAINTENANCE HOLE & LEAD
- PROPOSED REAR YARD ACCESS POINT & PERFORATED PIPE
- PROPOSED REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- PROPOSED REAR YARD TEE & 450mmØ PERFORATED PIPE
- EXISTING STORM SEWER AND MAINTENANCE HOLE
- EXISTING VORTECHS (11000)
- EXISTING CATCHBASIN & LEAD
- EXISTING CATCHBASIN MAINTENANCE HOLE & LEAD
- EXISTING REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- EXISTING REAR YARD TEE & 450mmØ PERFORATED PIPE
- PREVIOUSLY APPROVED STORM SEWER AND MAINTENANCE HOLE
- PREVIOUSLY APPROVED CATCHBASIN & LEAD
- PREVIOUSLY APPROVED CATCHBASIN MAINTENANCE HOLE & LEAD
- PREVIOUSLY APPROVED REAR YARD ACCESS POINT & PERFORATED PIPE
- PREVIOUSLY APPROVED REAR YARD ELBOW & 450mmØ PERFORATED PIPE
- PREVIOUSLY APPROVED REAR YARD TEE & 450mmØ PERFORATED PIPE
- DRAINAGE AREA BOUNDARY - PHASE 5B
- DRAINAGE AREA BOUNDARY - PHASE 5A (PREVIOUSLY APPROVED)
- 5B-2 — AREA ID
- 0.31 / 712-304 / 0.58 — CATCHMENT AREA / MAINTENANCE HOLE TO MAINTENANCE HOLE / RUNOFF COEFFICIENT
- 5A-1 — AREA ID - PHASE 5A (PREVIOUSLY APPROVED)
- 0.31 / 712-304 / 0.58 — CATCHMENT AREA / MAINTENANCE HOLE TO MAINTENANCE HOLE / RUNOFF COEFFICIENT
- MAJOR OVERLAND FLOW DIRECTION
- 96.72 — 1:2yr PONDING AREA AND ELEVATION
- 96.96 — 1:100yr PONDING AREA AND ELEVATION
- 96.96 — 1:100yr + 20% PONDING AREA AND ELEVATION

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE
1:750
1:750
0 10 20 30

DESIGN SAB
CHECKED TJM
DRAWN BM
CHECKED SAB
APPROVED TJM

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
STORM DRAINAGE AREA PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-STM5B

D07-16-18-0021

#18004

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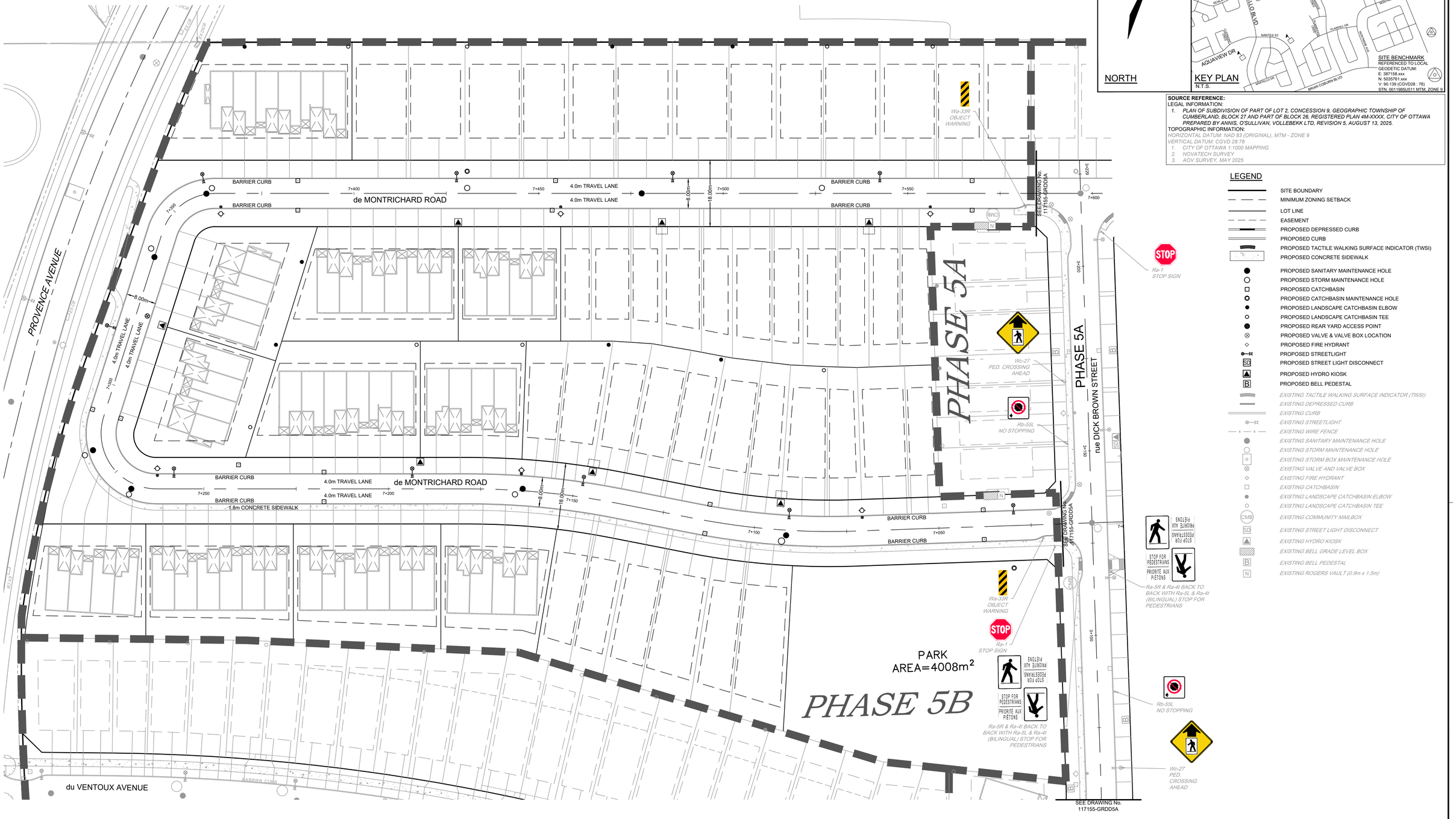
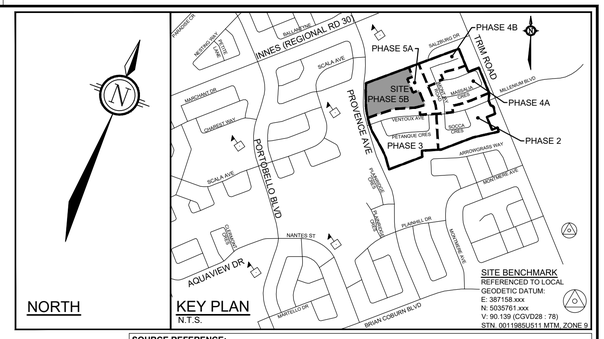
PLAN&T.DWG - PA Version/Version





SOURCE REFERENCE:

LEGAL INFORMATION:

1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:

HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9

VERTICAL DATUM: CGVD 28:78

1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED SANITARY MAINTENANCE HOLE
- PROPOSED STORM MAINTENANCE HOLE
- PROPOSED CATCHBASIN
- PROPOSED CATCHBASIN MAINTENANCE HOLE
- PROPOSED LANDSCAPE CATCHBASIN ELBOW
- PROPOSED LANDSCAPE CATCHBASIN TEE
- PROPOSED REAR YARD ACCESS POINT
- PROPOSED VALVE & VALVE BOX LOCATION
- PROPOSED FIRE HYDRANT
- PROPOSED STREETLIGHT
- PROPOSED STREET LIGHT DISCONNECT
- PROPOSED HYDRO KIOSK
- PROPOSED BELL PEDESTAL
- *EXISTING TACTILE WALKING SURFACE INDICATOR (TWSI)*
- *EXISTING DEPRESSED CURB*
- *EXISTING CURB*
- *EXISTING STREETLIGHT*
- *EXISTING WIRE FENCE*
- *EXISTING SANITARY MAINTENANCE HOLE*
- *EXISTING STORM MAINTENANCE HOLE*
- *EXISTING STORM BOX MAINTENANCE HOLE*
- *EXISTING VALVE AND VALVE BOX*
- *EXISTING FIRE HYDRANT*
- *EXISTING CATCHBASIN*
- *EXISTING LANDSCAPE CATCHBASIN ELBOW*
- *EXISTING LANDSCAPE CATCHBASIN TEE*
- *EXISTING COMMUNITY MAILBOX*
- *EXISTING STREET LIGHT DISCONNECT*
- *EXISTING HYDRO KIOSK*
- *EXISTING BELL GRADE LEVEL BOX*
- *EXISTING BELL PEDESTAL*
- *EXISTING ROGERS VAULT (0.9m x 1.5m)*

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE: 1:500

1:500
0 5 10 15 20

DESIGN: SAB
CHECKED: TJM
DRAWN: SAB
CHECKED: TJM
APPROVED: JLL

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
GEOMETRIC ROADWAY
DESIGN DRAWING

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-GRDD5B

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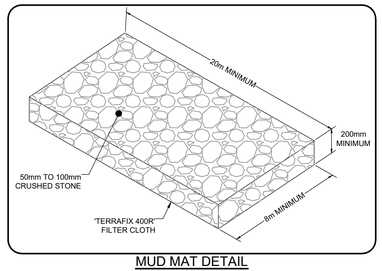
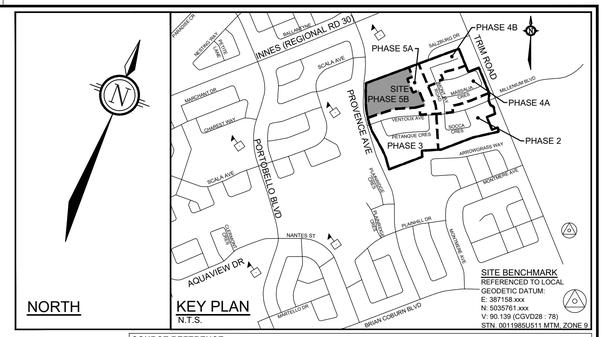
PLAN1.DWG - Bennett5Mm

Minimum Erosion and Sediment Control Responsibilities:

	ESC Measure	Symbol	OPSD No.	During Construction: Installation Responsibility	During Construction: Inspection Responsibility	After Construction Prior to Final Acceptance: Inspection/Maintenance Responsibility	After Construction Prior to Final Acceptance: Removal Responsibility	After Final Acceptance: Inspection/Maintenance Responsibility
Temporary Measures	Inlet Protection Measures	N/A See Note 2	Erosion and Sediment Control Notes & Detail	Developer's Contractor	Developer's Contractor	Developer's Contractor	Developer's Contractor	N/A
	Silt Fence		219.110	Developer's Contractor	Developer's Contractor	Developer	Developer	N/A
	Rock Check Dam		219.210	Developer's Contractor	Developer's Contractor	Developer	Developer	N/A
	Mud Mat		N/A	Developer's Contractor	Developer's Contractor	N/A	N/A	N/A



MUD MAT DETAIL



SOURCE REFERENCE:

LEGAL INFORMATION:

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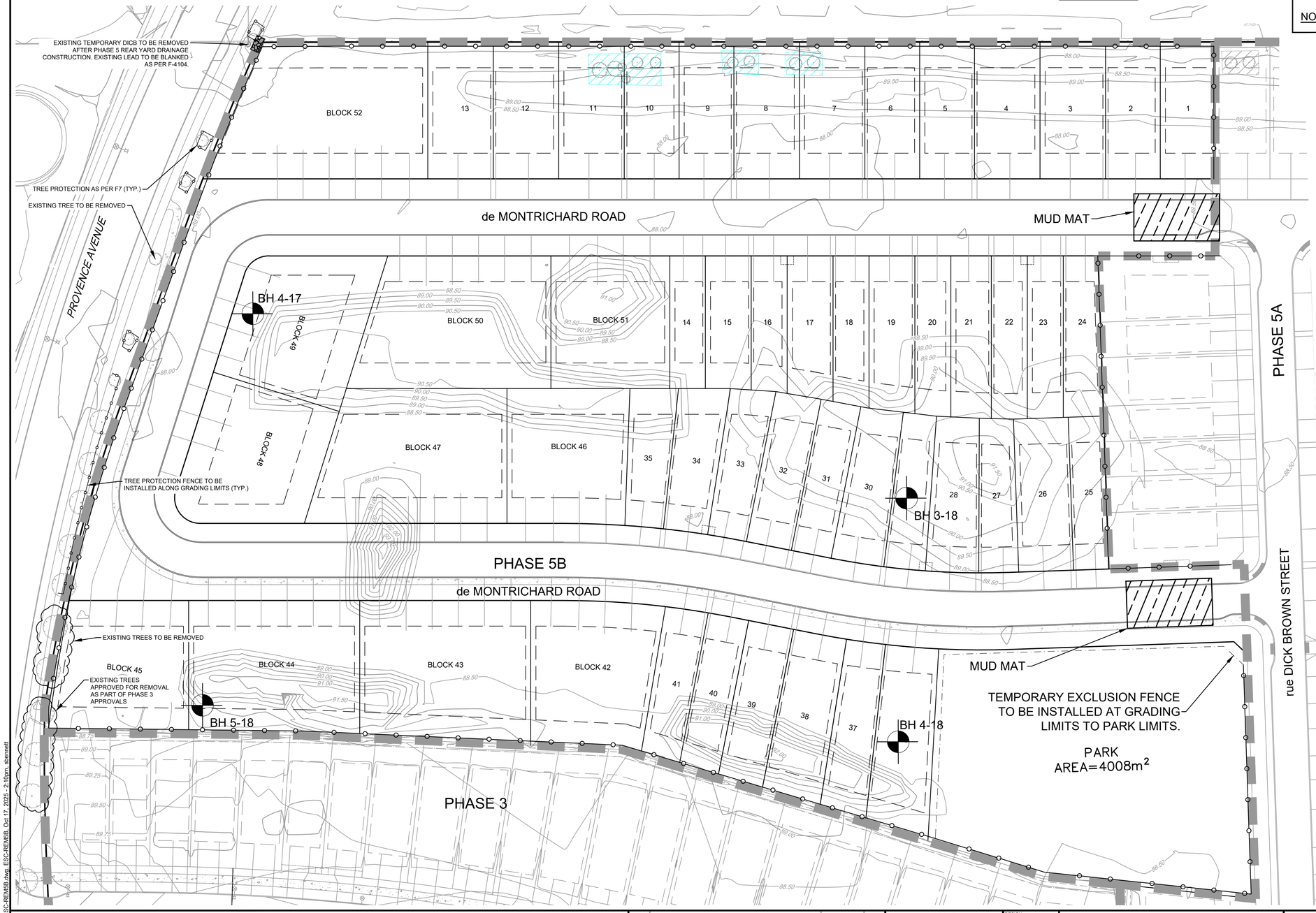
TOPOGRAPHIC INFORMATION:

HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9

VERTICAL DATUM: CGVD 28:78

1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*



LEGEND

- SITE BOUNDARY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PHASING BOUNDARY
- PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED CONCRETE SIDEWALK
- BOREHOLE
- TREE PROTECTION FENCE
- AREA TO BE CLEARED
- ROCK CHECK DAM
- PREVIOUSLY APPROVED GRADING
- *EXISTING ELEVATION*
- *EXISTING CENTERLINE OF DITCH ELEVATION*
- *EXISTING TREES*
- *EXISTING WIRE FENCE*
- *EXISTING STREET LIGHT*

EROSION AND SEDIMENT CONTROL NOTES:

1) THE CONTRACTOR SHALL PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE MUNICIPALITY, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL.
2) THE CONTRACTOR SHALL PROVIDE APPROPRIATE INLET PROTECTION MEASURES ON ALL INSTALLED AND EXISTING CATCHBASINS AND CATCHBASIN MAINTENANCE HOLES FOR THE DURATION OF CONSTRUCTION AND WILL REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION. PROPOSED INLET PROTECTION MEASURES ARE TO BE APPROVED BY CONTRACT ADMINISTRATOR PRIOR TO IMPLIMENTATION.
3) SILT FENCING, AS REQUIRED FOR THE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION. SILT FENCING IS TO BE ESTABLISHED AT THE GRADING LIMITS AS PER THE APPROVED GRADING PLAN. EXACT LIMITS TO BE DETERMINED AT THE TIME OF CONSTRUCTION BASED ON STATUS OF ADJACENT DEVELOPMENT.
4) THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
5) CONTRACTOR TO INSPECT ALL EROSION AND SEDIMENT CONTROL MEASURES DAILY AND IMMEDIATELY AFTER EVERY RAINFALL EVENT AND REPAIR ANY DAMAGED OR NON FUNCTIONING MEASURES IMMEDIATELY.
6) THIS PLAN IS TO BE CONSIDERED A 'LIVING DOCUMENT' WHICH MAY BE MODIFIED IN THE EVENT THE EROSION AND SEDIMENT CONTROL MEASURES ARE INSUFFICIENT.

REFER TO 117155-N&L5B FOR ADDITIONAL NOTES, TABLES AND LEGEND

* INFORMATION FROM: GEOTECHNICAL INVESTIGATION, PREPARED BY PATERSON GROUP INC., DATED SEPTEMBER 22, 2022 (PG4278-1, REV.5)

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE: 1:500 (1:500 0 5 10 15 20)

DESIGN: SAB
CHECKED: TJM
DRAWN: MA
CHECKED: TJM
APPROVED: TJM

LICENSED PROFESSIONAL ENGINEER — T. J. MCKAY 100195434 — October 17, 2025 — PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
EROSION AND SEDIMENT CONTROL AND REMOVALS PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-ESC5B

D07-16-18-0021

#18004

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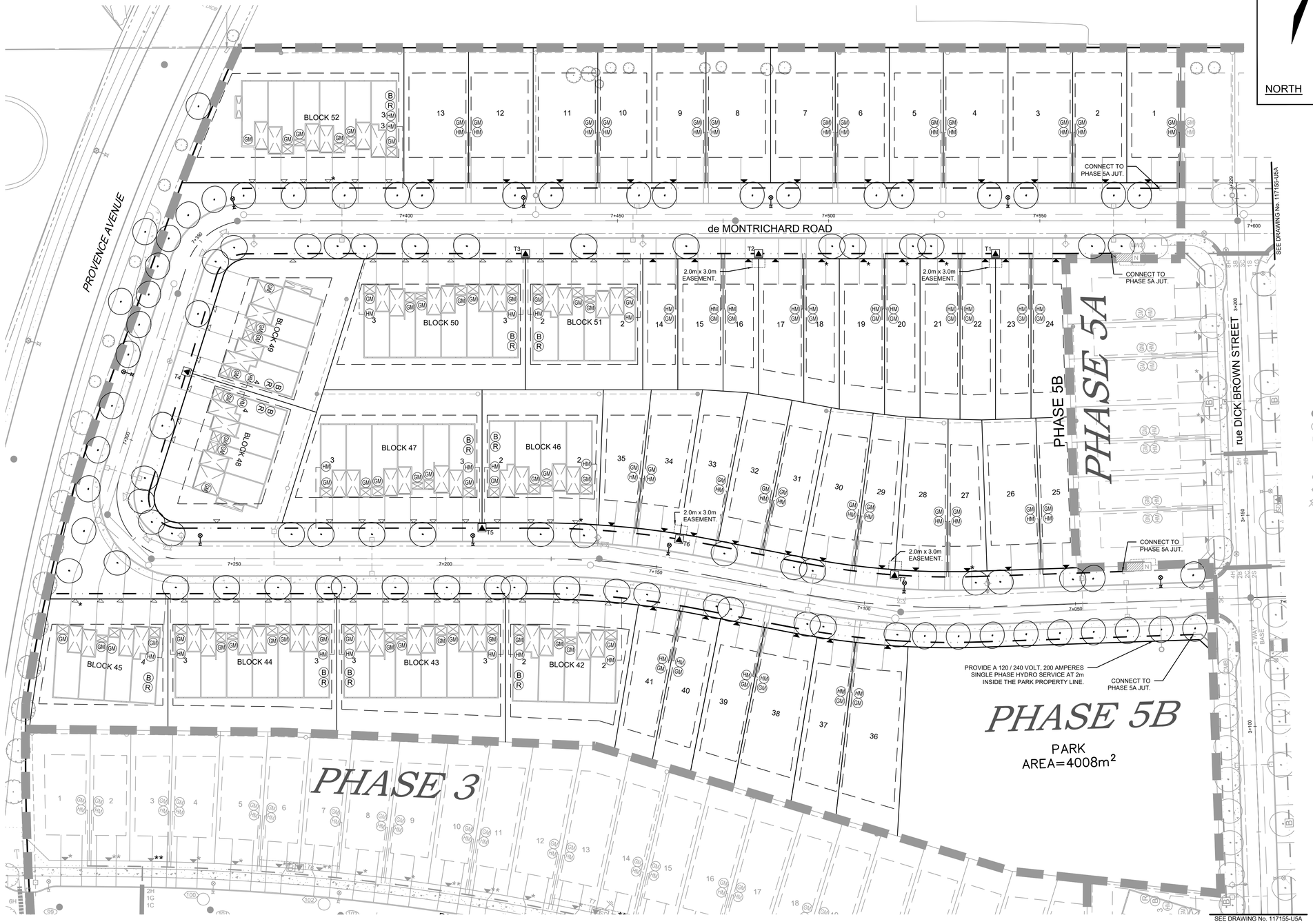

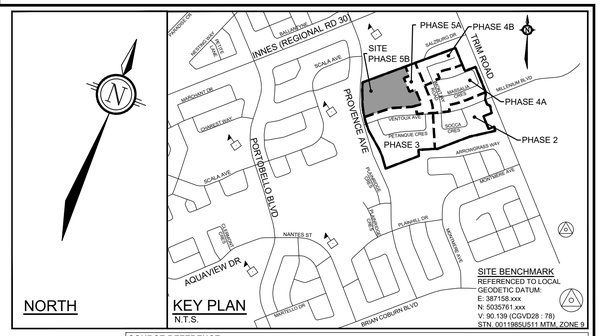

SOURCE REFERENCE:

LEGAL INFORMATION:

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TOPOGRAPHIC INFORMATION:

HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78

1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

- RIGHT OF WAY
- MINIMUM ZONING SETBACK
- LOT LINE
- EASEMENT
- PHASING BOUNDARY
- PROPOSED DEPRESSED CURB
- PROPOSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED TOWNHOUSE SERVICE LOCATION
- PROPOSED SERVICE LOCATION IN DRIVEWAY
- PROPOSED TOWNHOUSE DUAL SERVICE LOCATION
- PROPOSED SINGLE HOUSE SERVICE LOCATION
- SANITARY MAINTENANCE HOLE & SEWER
- STORM MAINTENANCE HOLE & SEWER
- CATCHBASIN & LEAD
- WATERMAIN
- WATERMAIN CAP
- VALVE & VALVE BOX LOCATION
- FIRE HYDRANT C/W LEAD
- WATERMAIN HORIZONTAL BEND
- PROPOSED STREETLIGHT
- PROPOSED STREETLIGHT WITH GROUNDING
- PROPOSED HYDRO ONE TRANSFORMER AND BASE
- PROPOSED STREET LIGHT DISCONNECT
- BELL GRADE LEVEL BOX
- PROPOSED BELL PEDESTAL
- PROPOSED ROGERS VAULT (0.9m x 1.5m)
- PROPOSED GAS METER LOCATION
- PROPOSED INDIVIDUAL HYDRO METER LOCATION
- PROPOSED MULTI UNIT HYDRO METER LOCATION NUMBER INDICATES THE AMOUNT OF UNITS CONNECTED
- PROPOSED BELL END WALL PANEL
- PROPOSED ROGERS END WALL PANEL
- PROPOSED PRIMARY JOINT UTILITY TRENCH (JUT)
- PROPOSED HYDRO DUCT
- PROPOSED STREET LIGHT CONDUIT
- PROPOSED COMMUNITY MAIL BOX
- PROPOSED ROAD CROSSING
- 2H HYDRO (2 DUCTS)
- 1C CABLE TELEVISION (1 DUCT)
- 1SL STREETLIGHT (1 DUCT)
- 1B BELL (1 DUCT)
- 2S SPARE (2 DUCT)
- PROPOSED DECIDUOUS TREE

NOTE:
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PROVENCE ORLÉANS

No.	REVISION	DATE	BY
2.	ISSUED FOR REVIEW	OCT 14/25	TJM
1.	ISSUED FOR UTILITY COORDINATION	AUG 21/25	TJM

SCALE: 1:500 (1:500, 0 5 10 15 20)

DESIGN: MWB
CHECKED: TJM
DRAWN: MA
CHECKED: TJM
APPROVED: MWB

LICENSED PROFESSIONAL ENGINEER — T. J. MCKAY — 100195434 — October 17, 2025 — PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
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Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
COMPOSITE UTILITY PLAN

PROJECT No. 117155
REV REV # 2
DRAWING No. 117155-U5B

D07-16-18-0021

#18004

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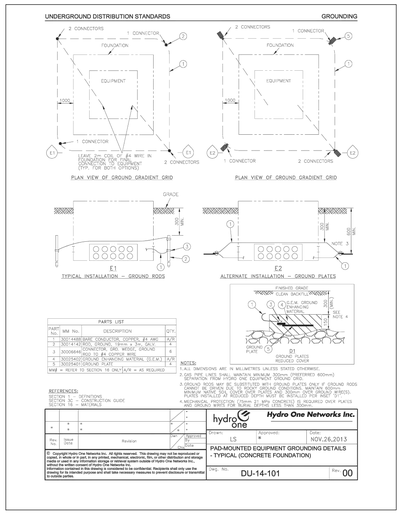
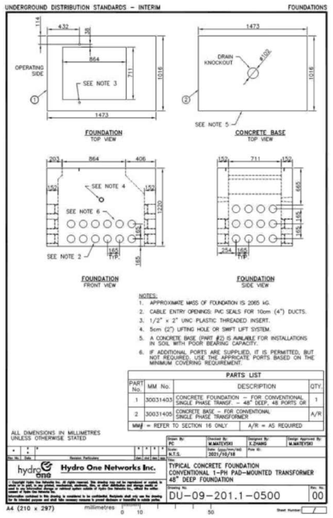
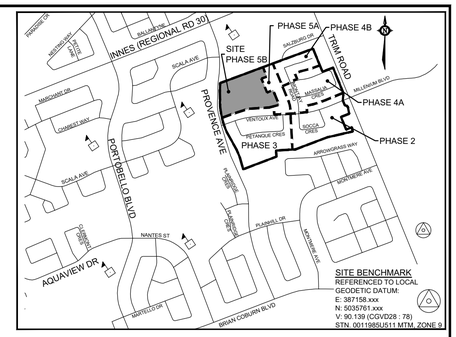
PLAN&T.DWG - 24 x 36 Portrait

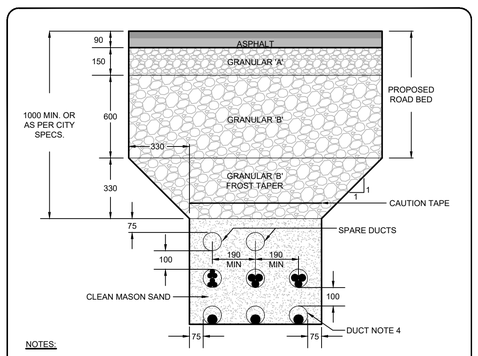






NOTES:

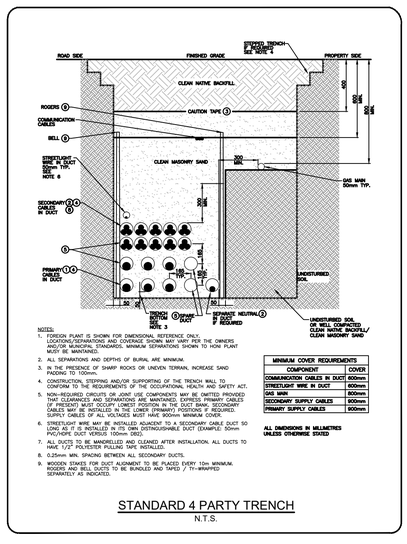
1. ALL PEDESTALS, TRANSFORMERS, AND ALL OTHER UTILITY FURNITURE ARE TO BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF OTTAWA'S "GUIDELINES FOR UTILITY PEDESTALS WITHIN THE RIGHT-OF-WAY".
2. REFER TO 117155-XS5B FOR TYPICAL CROSS SECTIONS.



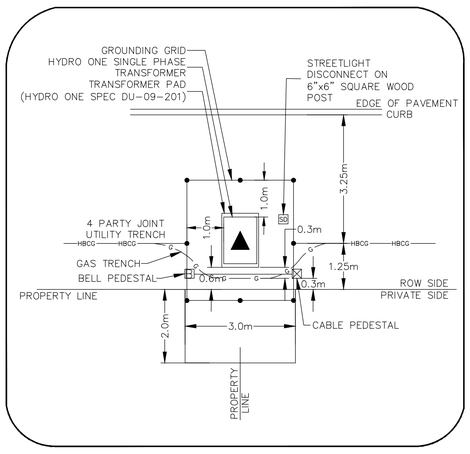
NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
2. ALL SEPARATIONS AND DEPTHS OF BURIAL ARE MINIMUM.
3. IF MINIMUM DEPTH OF COVER AS NOTED IN THE ABOVE TRENCH PROFILES IS EXCEEDED, SLOPING OF TRENCH WALLS AND/OR SHORING SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THE OCCUPATIONAL HEALTH AND SAFETY ACT.

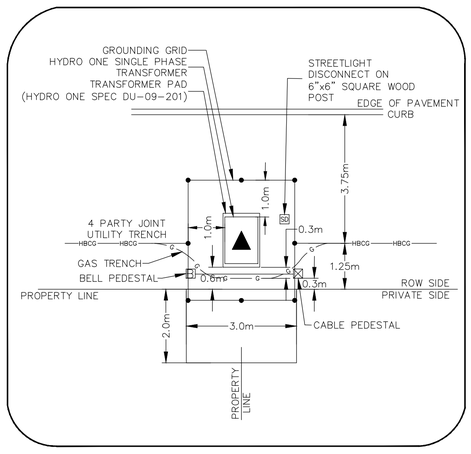
STANDARD STREET CROSSING
LOCAL ROADWAY
N.T.S.



STANDARD 4 PARTY TRENCH
N.T.S.



TYPICAL PLAN VIEW OF SINGLE PHASE TRANSFORMER IN 18m de MONTRICHARD ROAD ROW (STA. 7+020 to 7+265)
N.T.S.



TYPICAL PLAN VIEW OF SINGLE PHASE TRANSFORMER IN 16.5m - 18.0m de MONTRICHARD ROAD ROW (STA. 7+265 to 7+600)
N.T.S.

REFER TO 117155-XS5B FOR TYPICAL CROSS SECTIONS

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE
ORLÉANS

No.	REVISION	DATE	BY
2.	ISSUED FOR REVIEW	OCT 14/25	TJM
1.	ISSUED FOR UTILITY COORDINATION	AUG 21/25	TJM

SCALE: AS SHOWN

DESIGN: MWB
CHECKED: TJM
DRAWN: MA
CHECKED: TJM
APPROVED: MWB

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
COMPOSITE UTILITY PLAN DETAILS

PROJECT No. 117155
REV REV # 2
DRAWING No. 117155-U5BD

D07-16-18-0021

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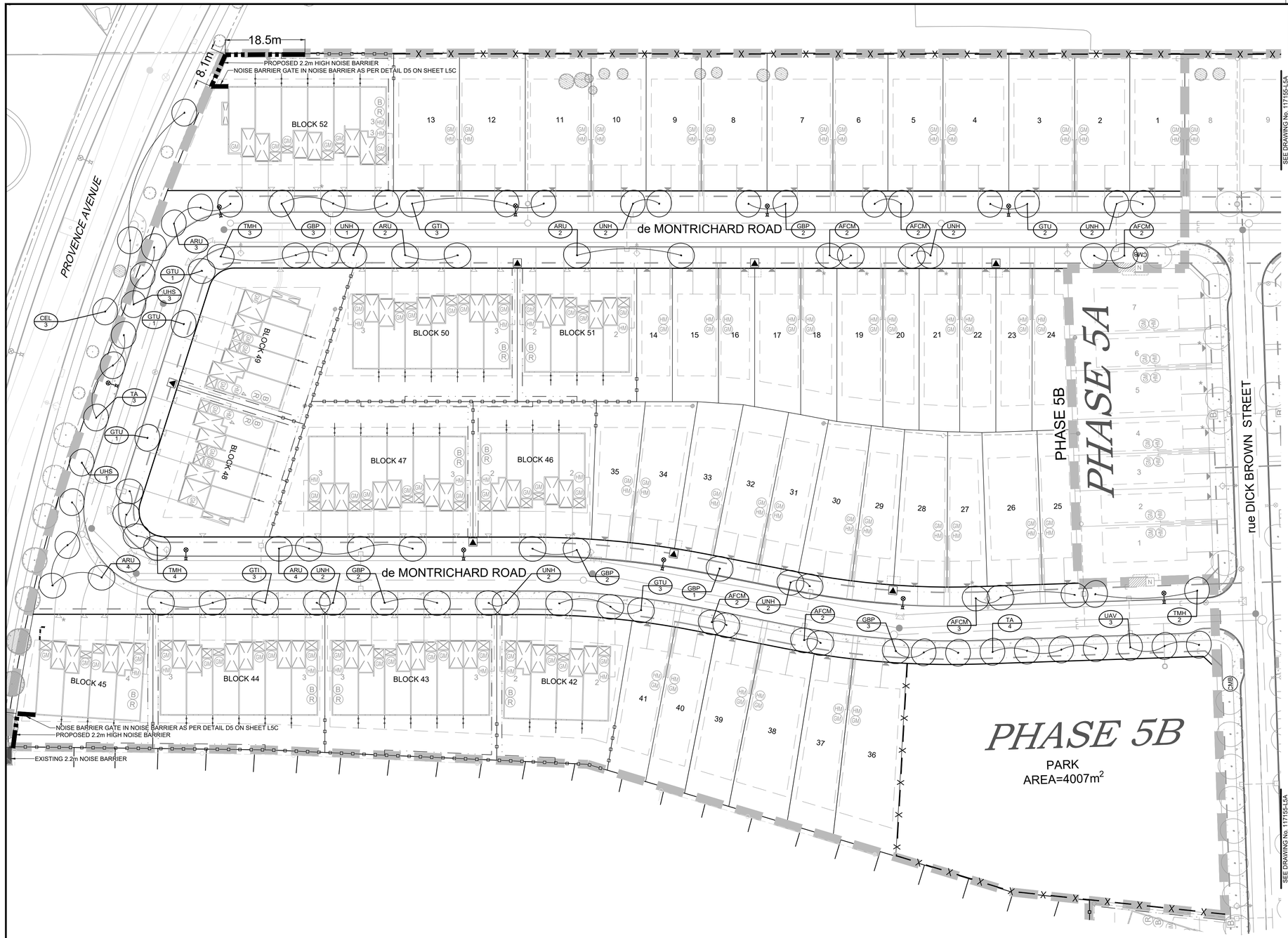
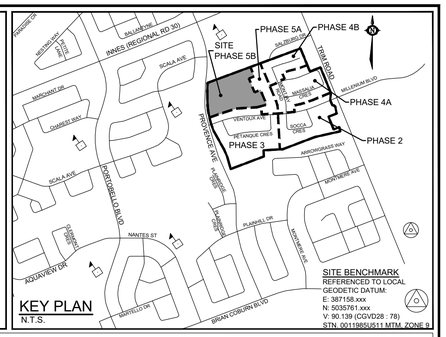
PLEASE CHANGE REFERENCE TO #18004



NORTH



KEY PLAN
N.T.S.

SOURCE REFERENCE:
LEGAL INFORMATION:
1. *PLAN OF SUBDIVISION OF PART OF LOT 2, CONCESSION 9, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, BLOCK 27 AND PART OF BLOCK 26, REGISTERED PLAN 4M-XXXX, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, REVISION 5, AUGUST 13, 2025.*

TOPOGRAPHIC INFORMATION:
HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
VERTICAL DATUM: CGVD 28:78
1. *CITY OF OTTAWA 1:1000 MAPPING*
2. *NOVATECH SURVEY*
3. *AOV SURVEY, MAY 2025*

LEGEND

- PHASING LINE
- PROPOSED DECIDUOUS TREE
- SPECIES (SEE PLANT LIST)
- KEY ##
- QUANTITY
- PROPOSED 1.5m BLACK VINYL CHAINLINK FENCE
- PROPOSED 1.8m WOOD PRIVACY FENCE
- PROPOSED 2.2m HIGH NOISE BARRIER
- EXISTING 2.2m HIGH NOISE BARRIER
- PROPOSED LANDSCAPE RETAINING WALL (<0.6m HT.)
- ACCESS EASEMENT
- CMB — COMMUNITY MAILBOX
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED

NOVATECH DETAILS

Found on Sheet 117155-L5C.
D1. Standard Deciduous Tree Planting
D2. Wood Screen

CITY DETAILS

Related details from City of Ottawa Standard Tender Documents Volume No. 2 Standard Detail Drawings.
D3. Chain Link Fence

DETAILS BY OTHERS

Found on Sheet 117155-L5C.
D4. Noise Barrier
D5. Noise Barrier Gate DP2

TREE PLANTING IN SENSITIVE CLAY

The landscape plans have been developed in accordance with the Geotechnical Investigation (Report #PG4278-1, Revision 5, Paterson Group Inc, September 22, 2022) which includes the letter/memo, and map (Test Hole Location Plan, December 2017) that confirms the categories and locations of clay soils.

1. The following City of Ottawa clay soils guideline applies: Guidelines for Tree Planting in Sensitive Marine Clay Soils (2017).
2. The soil volumes provided are sufficient for a reasonable chance of tree survival. Unless otherwise noted, all new trees on City property meet the minimum soil volume requirements of the following, based on a depth of 1.5m below finished grade, and subtracting the volume of utility trenches.

a. Small tree (mature height up to 7.5m) - 25m3/ minimum soil volume provided.
b. Medium tree (mature height 7.5-14m) - 30m3/ minimum soil volume provided.

Where trees share a continuous greenspace:

c. Two (2) small trees - 15m3/ minimum soil volume provided per tree.
d. Two (2) medium trees - 18m3/ minimum soil volume provided per tree.

GENERAL

1. Read and interpret this drawing/ drawing set in conjunction with all the contract details and specifications, including related civil, utility, structural, architectural, mechanical, electrical, environmental, geotechnical, and survey information.
2. The Contractor is to determine the exact location, size, material, and elevation of all existing utilities prior to commencing construction. Protect and assume responsibility for all existing utilities regardless of being shown on the drawings.
3. It is essential to use the plans and details in conjunction with the specifications and notes.
4. Do not scale drawings. Work to dimensions only.
5. Protect all existing and retained vegetation for the duration of construction according to the contract details and specifications.
6. Reinstate all areas and items damaged or disturbed, beyond the Limit of Work, because of construction activities, including but not limited to construction staging areas, haul roads, stockpile areas, etc. to the satisfaction of the Consultant. Unless otherwise noted, Contractor is to reinstate all areas to pre-construction condition or better to the satisfaction of the Contract Administrator.

PLANTING

1. Plant material to be No. 1 Grade and is to comply with Canadian Standards for Nursery Stock (latest edition) published by the Canadian Nursery Landscape Association.
2. Use structurally sound plant material with strong fibrous root system free of disease, defects, and injuries. Use trees with straight trunks, well and characteristically branched for species. Obtain approval from consultant of plant material at source prior to digging. All trees and shrubs to be container grown, potted, W/B or B/B, as indicated on Plant List. Bare root plants are only acceptable for certain species and as approved by the Landscape Architect.
3. Plant material substitutions are not be permitted without the written approval from the Consultant, **with 48 hours notice**, prior to shipping plant material.
4. Plant locations are schematic / approximate only. **Contractor is to stake out locations on site for approval by the Landscape Architect prior to installation.**
5. The illustrated number of plants shown in the Planting Plan supersedes the estimated number in the Plant List. Contractor to report any discrepancies to the Landscape Architect prior to installation. Contractor will assume full responsibility if the Landscape Architect is not notified.
6. Ensure trees are thoroughly watered following planting. Monitor material and ensure adequate moisture until acceptance.
7. In heavy clay or poorly drained soils, set root ball with root collar 75-100mm higher than finished grade.
8. Approved topsoil depths are as follows:
   a. Plant Beds - **450mm** continuous depth. Applies to shrubs, perennials, vines, and groundcovers.
   b. Sod/ Seed Areas - **100mm** depth.
   c. Reforestation - **300mm** depth.
9. Sod to be No. 1 Kentucky Bluegrass Sod grown from minimum mixture of 3 Kentucky Bluegrass cultivars. Quality and source are to comply with Canadian Standards for Nursery Stock, Section 17, (latest edition) published by the Canadian Nursery Landscape Nursery Landscape Association.
10. Apply the following mineral fertilizer unless soil tests show other requirements:
    a. Plant Beds - (8-32-16), i.e. 8% Nitrogen, 32% Phosphorus, 16% Potash per manufacturer specifications.
    b. Sod Areas - (8-32-16), i.e. 8% Nitrogen, 32% Phosphorus, 16% Potash at a rate of 350kg/ha.
11. Where applicable, for any plant areas with a mix of species/ cultivars notes, Contractor is to cluster like plants in groups of 3-5 and evenly distribute these in the noted area.

TREE QUANTITY NOTES

PHASE 5B UNITS = 95
PHASE 5B END UNITS = 2
OF EXISTING ROW TREES TO BE REMOVED (2:1 COMPENSATION) = 3

TOTAL TREES REQUIRED FOR PHASE 5B = 103
TOTAL TREES PROVIDED IN PHASE 5B = 94*

*THE TREE TOTAL IS 2 LESS THAN THE REQUIRED TOTAL NUMBER OF TREES GIVEN THE CITY'S PRIORITY TO SUBSTITUTE 1 MEDIUM TREE FOR 2 SMALL TREES (7 INSTANCES). THE 2 ADDITIONAL TREES WILL BE PLANTED WITHIN THE PARK BLOCK BY THE DEVELOPER.

PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	COND	SPACING
Deciduous Trees						
ARU	15	*Acer rubrum 'Autumn Radiance'*	Autumn Radiance Red Maple	50mm Cal	WB	As Shown
AFCM	13	*Acer x freemanii 'Celtzam'*	Celebration Maple	50mm Cal	WB	As Shown
CEL	3	*Celtis occidentalis*	Hackberry	50mm Cal	WB	As Shown
GBP	13	*Ginkgo biloba 'Princeton Sentry'*	Princeton Sentry Ginkgo	50mm Cal	WB	As Shown
GTI	6	*Gleditsia triacanthos var. inermis 'Imcole'*	Imperial Honeylocust	50mm Cal	WB	As Shown
GTU	8	*Gleditsia triacanthos var. inermis 'Sunburst'*	Sunburst Honeylocust	50mm Cal	WB	As Shown
TA	7	*Tilia americana*	Basswood	50mm Cal	WB	As Shown
TMH	9	*Tilia cordata x mongolica 'Harvest Gold'*	Harvest Gold Linden	50mm Cal	WB	As Shown
UAV	3	*Ulmus americana 'Valley Forge'*	Valley Forge Elm	50mm Cal	WB	As Shown
UHS	4	*Ulmus x 'Homestead'*	Homestead Elm	50mm Cal	WB	As Shown
UNH	13	*Ulmus x 'New Horizon'*	New Horizon Elm	50mm Cal	WB	As Shown

NOTE:
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PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	SC

SCALE
1:500
1:500
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DESIGN MEL
CHECKED SC
DRAWN MEL
CHECKED SC
APPROVED SC

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
CARA
Oct 14, 2025
MEMBER

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
LANDSCAPE PLAN

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-L5B

D07-16-18-0021

#18004

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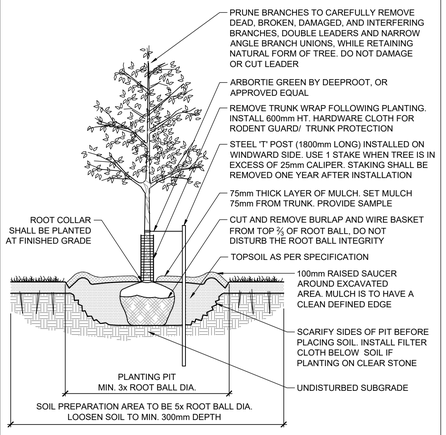
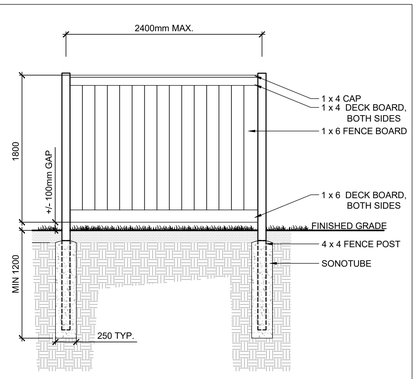
PLAN1.DWG - Mar 2008 Edition

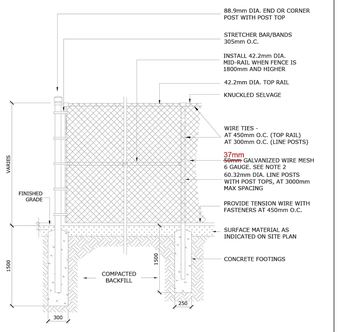


STANDARD DECIDUOUS TREE PLANTING — D1



NOTE:
1. ALL WOOD TO BE PRESSURE TREATED SPF OR WESTERN RED CEDAR
2. FASTEN WOOD MEMBERS WITH GALVANIZED SCREWS.
3. ALL CONCRETE TO BE C1 EXPOSURE, 35MPa @28 DAYS, INCLUDING 5-8% AIR ENTRAINMENT.

WOOD SCREEN DETAIL — D2



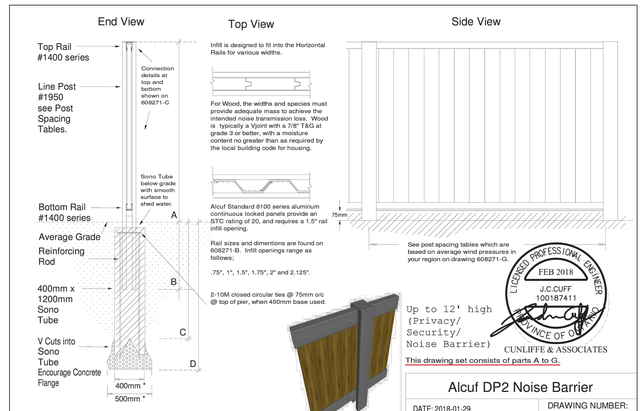
NOTES:
1. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
2. IF FENCE IS TO BE BLACK VINYL, THE FENCE SHOULD BE 9 GAUGE GALVANIZED WIRE CORE WITH BLACK VINYL COATING TO PROVIDE A TOTAL OF 6 GAUGE THICKNESS
3. POSTS, RAILS AND ALL OTHER HARDWARE SHOULD BE ELECTROSTATIC PAINTED
4. CONCRETE FOOTING SHALL BE CSA 30MPa CLASS F-1

Ottawa

TITLE: CHAINLINK FENCE

DATE: FEB 2013
REV:
DWG No: F9

CHAINLINK FENCE — D3



FENCE HEIGHT (mm)	POST DEPTH IN FOOTING (mm)	TOP OF FOOTING (mm)	FOOTING DEPTH (mm)
"A" 1800 (6'-0")	"B" 750	"C" 1500	"D" 1800
"A" 2400 (8'-0")	"B" 800	"C" 1500	"D" 1800
"A" 3048 (10'-0")	"B" 800	"C" 1500	"D" 1800

* Footing dimensions shown are a minumum typical size for optimum Eastern Canadian soil conditions.
* Consult the Geotechnical Engineer for your specific site for confirmation, or specific requirements.

NOTES:
Concrete strength @ 28 days: F'cs=32 MPa - Class C2 Exposure 6% +/-1% Air Entrainment.
Reinforcing Steel: G30.18M - Grade 400
The Cuniffe stamp is for aluminum structure only, consult Geotechnical Engineer for site specific foundation design.

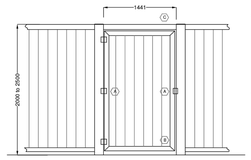
LICENSED PROFESSIONAL ENGINEER
J.C.CUFF
100187411
FEB 2018
PROVINCE OF ONTARIO
CUNLIFFE & ASSOCIATES

This drawing set consists of parts A to G.

Alcuf DP2 Noise Barrier

DATE: 2018-01-29		DRAWING NUMBER:
REV: 3.0	SCALE: none	608271-A
alcuf Alcuf International Inc. Ottawa, Ontario, Canada www.alcuf.com		DRAWN BY: designs@alcuf.com

NOISE BARRIER — D4

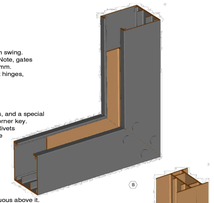


A Gate Hardware

Gate Latch hardware to be padlockable (closed).
Gate Hinge hardware will open one way.
Gate hardware must provide for a 90 degree minimum swing.
Gate will be flush mounted on outside wall of posts. Note, gates will be offset from the top rail (or panel) by approx 25mm.
Space between gate and frame will be approx 1cm at hinges, 15mm at latch, 25mm under gate.

B Gate Corner Inserts

Gate Frames are constructed with standard DP2 rails, and a special rail insert. Each insert has a solid 4" x 4" x 2" x 1" corner key. All 4 corners of each gate frame will have 8 HD SS Rivets joining the rail to the insert, and 2 SS Rivets joining the insert to the solid corner key to prevent twist.



C Above Gate Frame

If the gate is 2000mm high, the top rail shall be continuous above it.
If the gate is shorter, the top rail shall terminate at the gate posts.
If the gate is higher than 2000mm, options can be a panel above 2000mm to the full height of the fence, or a taller gate to a max of 2500mm.
When the top rail is continuous above a gate, it needs to be pinned to the Top Cap on each gate post using 3 SS Rivets. This is to prevent normal expansion in the opening of the gate.

D Optional Sound Seal

Optional Sound Seals may be required to seal gaps under the barrier depending on terrain, and surface conditions. Gates will need a clearance to operate properly, but this will be kept as small as practical.

A

Typical Hinge and Latch hardware by D&D Technologies, Australia (or equivalent). The gate hardware must be an engineered product rated for a 260 lb load (wet gate).

Through bolts will be used to mount hinge and latch hardware to posts.
Acorn nuts will be used to protect sharp edges of through bolts.

alcuf alcuf.com	Alcuf DP2 Noise Barrier Gate	
	DATE: Sept 10, 2024	DRAWING NUMBER: C021001
	REV: 2 SCALE: none	
	ALCUF INTERNATIONAL INC. Ottawa, Ontario, Canada Email: design@alcuf.com	DRAWN BY: design@alcuf.com

NOISE BARRIER GATE - DP2 — D5

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	SC

SCALE

DESIGN MEL
CHECKED SC
DRAWN MEL
CHECKED SC
APPROVED SC

LICENSED PROFESSIONAL ENGINEER
S. CHAMPAGNE
100187411
PROVINCE OF ONTARIO
Oct 14, 2025
MEMBER

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVISION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
LANDSCAPE DETAILS

PROJECT No. 117155-00
REV REV # 1
DRAWING No. 117155-L5C

D07-16-18-0021

PLANAT.DWG Plotted: Oct 21, 2025 - 2:54pm

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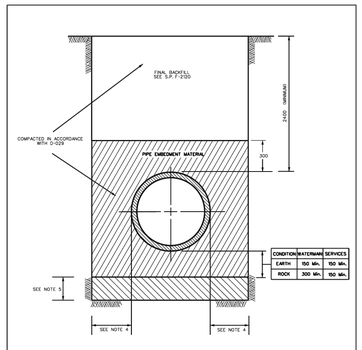


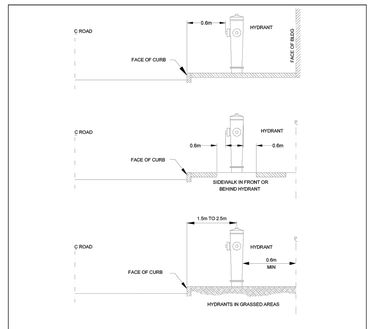
NOTES:

1. PIPE EMBEDMENT MATERIAL - GRANULAR 'A'.
2. FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH F-2120
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4.

OUTSIDE DIA.	CLEARANCE
800 or LESS	450
OVER 800	500

5. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, POOR SOILS SHALL BE EXCAVATED TO CREATE A FOUNDATION THAT SHALL BE FILLED TO THE BEDDING WITH GRANULAR 'B'.

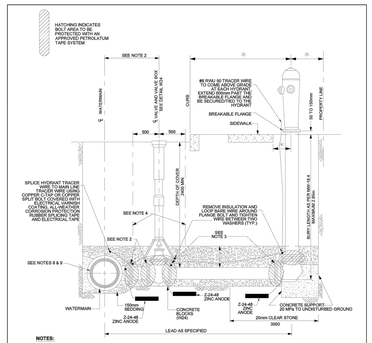
Ottawa | STANDARD TRENCH DETAIL | DATE: MAY 2001 | REV. DATE: MARCH 2016 | DWG. No.: W17



NOTES:

1. REFER TO CONSTRUCTION SPECIFICATION F-4414

Ottawa | TITLE: HYDRANT LOCATION | DATE: FEB 2013 | REV: FEB 2025 | DWG No: W18



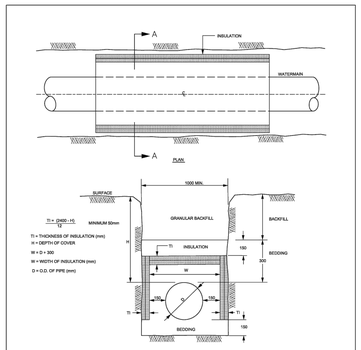
NOTES:

FOR ALL WATERMAINS

1. SEE DETAIL W25 FOR HYDRANTS IN DITCH AREAS
2. FOR WATERMAINS 400mm AND UNDER, LOCATE VALVE WITHIN 1.0m OF CENTRELINE. RETAINING/RESTRAINING DEVICES TO BE UTILIZED. FOR WATERMAINS 600mm AND OVER, BOLT VALVE WITH FLANGED END DIRECTLY TO FLANGED TEE
3. RETAINING/RESTRAINING DEVICES TO BE UTILIZED
4. THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED SOIL ESTABLISHED PRIOR TO INSTALLATION. REFER TO MW-19.4 AND F-4414
5. SEE SPF-2120 FOR BACKFILL REQUIREMENTS IN THIS AREA.
6. SEE F-4414 FOR HYDRANT LOCATION REQUIREMENTS
7. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
8. FOR ALL 300mm WATERMAINS USE A 300 x 150 TANGENTIAL TEE WITH THE 150mm OUTLET ON TOP
9. FOR ALL 400mm WATERMAINS USE A 400 x 150 TANGENTIAL TEE WITH THE 150mm OUTLET ON TOP
10. "DUCTILE IRON ONLY" THERMITE WELD TWO #6 RWU60 CABLES ACROSS EACH PIPE/FITTING JOINT OR CONNECTION TO ENSURE ELECTRICAL CONTINUITY OF ALL METALLIC COMPONENTS.
11. ALL MATERIALS SHALL BE IN ACCORDANCE WITH MW1-16.15
12. TRACER WIRE BOLT CONNECTIONS TO BE COMPLETED PER W55
13. TRACER WIRE SPLICES TO BE COMPLETED PER W47
14. WHERE THE WATERMAIN IS LOCATED WITHIN THE ROADWAY (EXISTING ASPHALT) LIMITS, THE CONTRACTOR SHALL LOCATE THE VALVE WITHIN THE BOUNDARIES IDENTIFIED TO CONFINE TO THE TRE OF INSTALLATION THE VALVE IS NOT LOCATED WITHIN THE PROPOSED CURB LINE

MODIFIED

Ottawa | TITLE: HYDRANT INSTALLATION - NEW CONSTRUCTION | DATE: MAY 2001 | REV: MAR 2023 | DWG No: W19



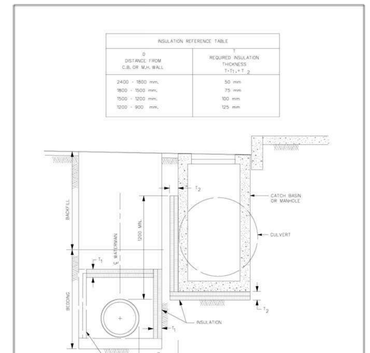
SECTION A - A

NOTES

FOR 150 - 600mm (NOMINAL DIAMETER) WATERMAINS, WHERE THE DEPTH OF COVER IS LESS THAN 2400mm

1. INCREMENTS OF THICKNESS SHALL BE ADJUSTABLE TO 25mm.
2. IN PROXIMITY OF MAINTENANCE HOLES, CULVERTS, CATCHBASINS, ETC., INSULATION SHALL BE PLACED PER DETAIL W23
3. DEPTH OF COVER LESS THAN 1200mm REQUIRES SPECIAL DESIGN
4. STAGGER JOINTS OF MULTIPLE SHEETS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

Ottawa | THERMAL INSULATION FOR WATERMAINS IN SHALLOW TRENCHES | DATE: MAY 2001 | REV. DATE: MARCH 2013 | DWG. No.: W22

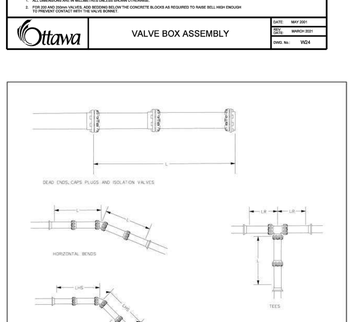


NOTES

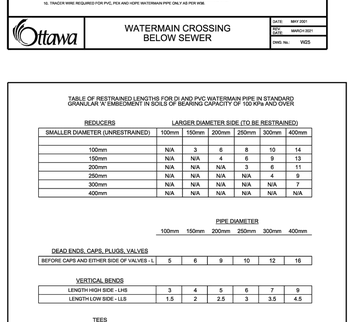
FOR WATERMAINS & SERVICES IN PROXIMITY TO CATCHBASINS, MAINTENANCE HOLES, CULVERTS, ETC.

1. INSULATION SHALL EXTEND 1000 mm. EACH WAY FROM THE ENDS OF THE STRUCTURE, PARALLELED TO THE WATERMAIN.
2. STAGGER JOINTS OF MULTIPLE SHEETS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4. INSULATION CAN BE AT EITHER LOCATION OR BOTH.

Ottawa | THERMAL INSULATION OF WATER-MAINS AT OPEN STRUCTURES | DATE: MAY 2001 | REV. DATE: FEB 2004 | DWG. No.: W23



Ottawa | VALVE BOX ASSEMBLY | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W24



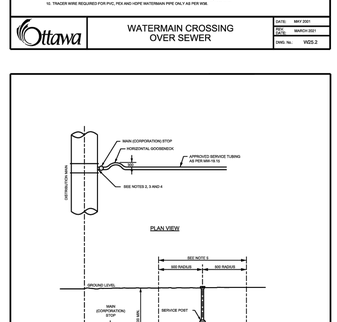
SECTION A - A

NOTES

FOR WATERMAIN 100mm (NOMINAL) TO 400mm (NOMINAL)

1. BARREL TO BARREL SEPARATION (D) SHALL BE 200mm MINIMUM.
2. THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
3. FOR 300mm (NOMINAL) AND 400mm (NOMINAL) MAINS, BENDS SHALL BE MAX. 22 1/2°.
4. CONCRETE FOR THRUST BLOCKS SHALL BE 20 MPa.
5. REFER TO W55.6 FOR RESTRAINED LENGTH REQUIREMENTS.
6. SEE SPF-2120 FOR BACKFILL REQUIREMENTS IN THIS AREA.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
8. DESIGNED TO MEET THE INTENT OF THE MOE WATERMAIN DESIGN CRITERIA JUNE 2012.
9. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
10. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W56.

Ottawa | WATERMAIN CROSSING BELOW SEWER | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W25



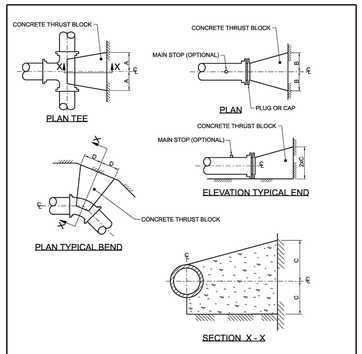
SECTION A-A

NOTES

FOR WATERMAIN 100mm (NOMINAL) TO 400mm (NOMINAL)

1. BARREL TO BARREL SEPARATION (D) SHALL BE 200mm MINIMUM.
2. THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
3. FOR 300mm (NOMINAL) AND 400mm (NOMINAL) MAINS, BENDS SHALL BE MAX. 22 1/2°.
4. CONCRETE FOR THRUST BLOCKS SHALL BE 20 MPa.
5. REFER TO W55.6 FOR RESTRAINED LENGTH REQUIREMENTS.
6. SEE SPF-2120 FOR BACKFILL REQUIREMENTS IN THIS AREA.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
8. DESIGNED TO MEET THE INTENT OF THE MOE WATERMAIN DESIGN CRITERIA JUNE 2012.
9. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
10. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W56.

Ottawa | WATERMAIN CROSSING OVER SEWER | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W25.2

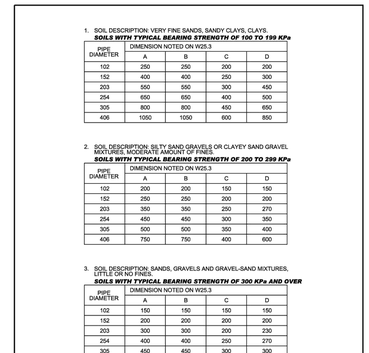


NOTES:

1. CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL
2. BOND BREAKER TO BE USED BETWEEN CONCRETE AND FITTINGS.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
4. REFER TO W25.4 FOR ADDITIONAL REQUIREMENTS.
5. THRUST BLOCKS SHALL BE 20 MPa. CONCRETE AND AS SHOWN ON ABOVE DRAWINGS UNLESS OTHER DIRECTED BY THE CONTRACT ADMINISTRATOR. THE BLOCK SHALL BE CENTERED ON THE THRUST FORCE AND SHALL BE OF SUCH SHAPE AS TO PROVIDE SUFFICIENT BEARING AREA.
6. THE CONCRETE WHERE POSSIBLE SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE TRENCH. WHERE THRUST BLOCKS CAN NOT BE POURED TO UNDISTURBED SOIL, OR WHERE IT WOULD CONFLICT WITH EXISTING OR FUTURE INFRASTRUCTURE, THE THRUST BLOCK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.
7. EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME PREMIXED FROM A CERTIFIED CONCRETE PLANT. NO CONCRETE SHALL BE MIXED ON-SITE MIXING OF CEMENT, SAND AND AGGREGATE ETC. BY THE CONTRACTOR FOR THE PURPOSE OF MAKING CONCRETE THRUST BLOCKS/ ANCHORS WILL NOT BE ACCEPTED.

N.T.S.

Ottawa | CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2022 | DWG. No.: W25.3



1. SOIL DESCRIPTION: VERY FINE SANDS, SANDY CLAYS, CLAYS.
SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	250	250	200	200
152	400	400	250	300
203	550	550	300	450
254	650	650	400	500
305	800	800	450	650
406	1050	1050	600	850

2. SOIL DESCRIPTION: SILTY SAND, GRAVELS OR CLAYEY SAND, GRAVEL MIXTURES, MODERATE AMOUNT OF FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	200	200	150	150
152	250	250	200	200
203	350	350	250	270
254	450	450	300	350
305	500	500	350	400
406	750	750	400	600

3. SOIL DESCRIPTION: SANDS, GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 300 KPa AND OVER

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	150	150	150	150
152	200	200	200	200
203	300	300	200	230
254	400	400	250	270
305	450	450	300	300
406	650	650	350	450

NOTES:

1. THE ABOVE THRUST BLOCK DIMENSIONS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT.
2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
   a) MAXIMUM OPERATING PRESSURE OF 100 psi
   b) MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 3.6 m/s
   OF 115 psi (115 psi FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 35 psi)
3. THE TABLES ARE APLY TO BOTH DUCTILE IRON AND PVC. WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
4. DIMENSIONS MAY BE ADJUSTED SO LONG AS THE BEARING SURFACE AREA OF THE THRUST BLOCK IS NOT REDUCED.
5. 70 MC USED IN CONJUNCTION WITH W39.3.

Ottawa | THRUST BLOCK DIMENSION TABLES FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2011 | DWG. No.: W25.4

NOTES:

1. ANY JOINT THAT FALLS WITHIN THE RECOMMENDED LENGTH (L) SHALL BE RESTRAINED. SEE DRAWING W25.6
2. TO REDUCE THE NUMBER OF RESTRAINERS REQUIRED THE USE OF FULL PIPE LENGTHS IS RECOMMENDED IN THESE AREAS:

Ottawa | RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: NONE | DWG. No.: W25.5

TABLE OF RESTRAINED LENGTHS FOR DI AND PVC WATERMAIN PIPE IN STANDARD GRANULAR 'A' EMBEDMENT IN SOILS OF BEARING CAPACITY OF 100 KPA AND OVER

REDUCERS	LARGER DIAMETER SIDE (TO BE RESTRAINED)					
SMALLER DIAMETER (UNRESTRAINED)	100mm	150mm	200mm	250mm	300mm	400mm
100mm	N/A	3	6	8	10	14
150mm	N/A	N/A	4	6	9	13
200mm	N/A	N/A	N/A	3	6	11
250mm	N/A	N/A	N/A	N/A	4	9
300mm	N/A	N/A	N/A	N/A	N/A	7
400mm	N/A	N/A	N/A	N/A	N/A	N/A

	PIPE DIAMETER					
	100mm	150mm	200mm	250mm	300mm	400mm
DEAD ENDS, CAPS, PLUGS, VALVES						
BEFORE CAPS AND EITHER SIDE OF VALVES - L	5	6	9	10	12	16
VERTICAL BENDS						
LENGTH HIGH SIDE - LHS	3	4	5	6	7	9
LENGTH LOW SIDE - LLS	1.5	2	2.5	3	3.5	4.5
TEES						
LENGTH ALONG THE BRANCH - L	1	1	1	1	1	1
LENGTH ALONG THE RUN - Lr	3	3	3	3	3	3
HORIZONTAL BENDS						
11.25, 22.5, AND 45 DEGREE BENDS	1	1.5	1.5	2	2	2.5

NOTES:

1. THE ABOVE RESTRAINED LENGTHS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT.
2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
   a) MAXIMUM OPERATING PRESSURE OF 100 psi
   b) MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.6 m/s
   OF 115 psi (115 psi FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 35 psi)
3. FOR SOFTWARE CALCULATIONS A TEST PRESSURE OF 150 psi AND A SAFETY FACTOR OF 1.5 WAS USED WHICH RESULTS IN 225 psi MAXIMUM PRESSURE.
4. TYPE S TRENCH.
5. DEPTH TO IS ANY 2.4 METRES EXCEPT FOR VERTICAL BENDS WHERE THE HIGH SIDE IS AT 1.8 METRES.
6. EMBEDMENT MATERIAL GRANULAR 'A' WITH CHARACTERISTICS OF ASTM D2487 GP.
7. GP SOILS ARE DESCRIBED AS POORLY GRADED GRAVEL AND SAND GRAVELS, MIXES WITH LITTLE OR NO FINES.
8. (L) MUST BE OF SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC.
9. THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC. WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
10. RESTRAINED LENGTHS ARE IN METRES.

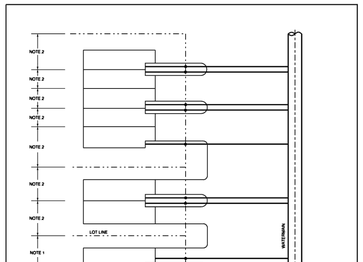
Ottawa | TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2011 | DWG. No.: W25.6

NOTES

FOR WATER SERVICE CONNECTIONS

1. FOR TRENCH DETAIL SEE S11.3. IF CLEARANCE IS AVAILABLE SWING PEX ACROSS THE BOTTOM OF THE TRENCH TO ACCOMODATE THERMAL EXPANSION.
2. DIRECT TAP D.I. PIPE WITH APPROVED TOOL WITH STANDARD 49MM INLET THREAD.
3. SERVICE SADDLES SHALL BE STAINLESS STEEL WITH "NUT" OR "BOLT" USING APPROVED SHELL TYPE CUTTER, NO DIRECT TAPS TO MAIN.
4. SEE SP F-2120 FOR BACKFILL REQUIREMENTS IN THIS AREA.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
7. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W56.

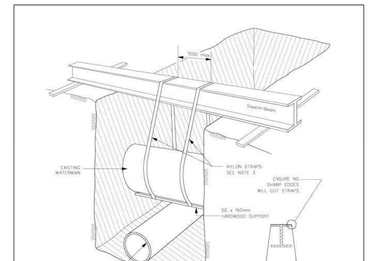
Ottawa | TYPICAL SERVICE LINE 19 & 25mm (NOMINAL) DIAMETER | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W25



NOTES

1. **FOR 0.5m AND UNDER. LOCATING SERVICES UNDER THE DRIVEWAY TO BE DONE ON A CASE BY CASE ONLY BASIS.**
2. **FOR OVER 0.5m. LOCATE SERVICES IN LANDSCAPED AREA.**
3. **LOCATION OF WATER SERVICES SHALL BE COORDINATED WITH UTILITIES & LANDSCAPE FURNITURE TO AVOID CONFLICTS.**
4. **TO AVOID CONFLICTS WITH OTHER UTILITIES, SERVICE POST CAN BE LOCATED IN THE DRIVEWAY SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR**
5. **ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.**

Ottawa | LOCATION OF SERVICES OPEN CUT | DATE: MAY 2001 | REV. DATE: MARCH 2008 | DWG No.: W27



NOTES

FOR WATERMAINS 400mm DIA.OR LESS.

1. THE UNSUPPORTED LENGTH OF THE WATERMAIN SHALL NOT EXCEED 1000mm.
2. TEMPORARY SUPPORT FOR WATERMAINS 600mm DIA.AND GREATER REQUIRE SPECIAL DESIGN.
3. STRAPS MUST MEET THE REQUIREMENTS OF THE O.H.S.A. CHAINS ARE NOT PERMITTED.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

Ottawa | TEMPORARY SUPPORT FOR EXISTING WATERMAIN | DATE: MAY 2001 | REV. DATE: NONE | DWG.No.: W28

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE: N.T.S.

DESIGN | CHECKED | DRAWN | CHECKED | APPROVED

LICENSED PROFESSIONAL ENGINEER — T. J. MCKAY — 100195434 — October 17, 2025 — PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
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Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVSION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
DETAIL SHEET

PROJECT No. 117155
REV # 1
DRAWING No. 117155-D20

D07-16-18-0021

#18004

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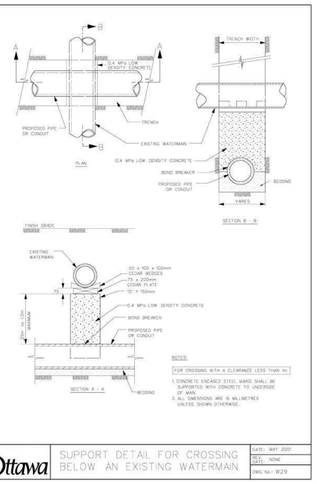
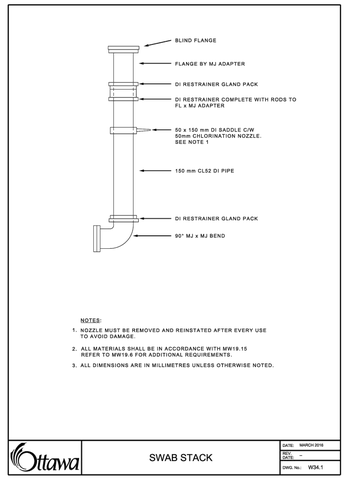
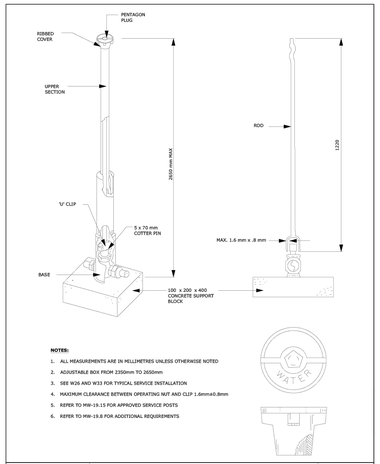
PLAN&T.DWG - All Innovations



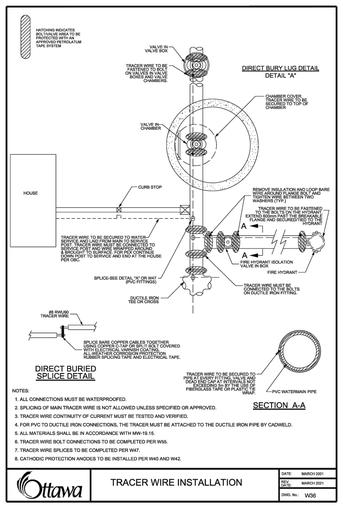
Ottawa | SUPPORT DETAIL FOR CROSSING BELOW AN EXISTING WATERMAIN | DATE: MAY 2001 | REV. NO.: NONE | DWG No.: W29



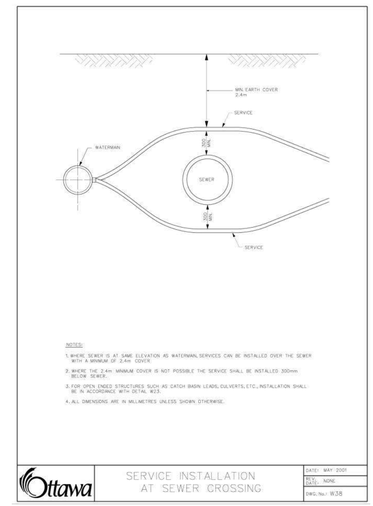
Ottawa | SWAB STACK | DATE: MARCH 2016 | REV. NO.: – | DWG No.: W34.1



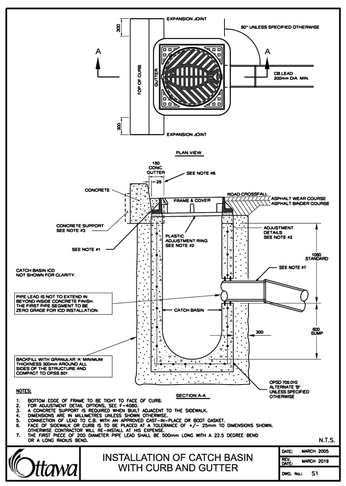
Ottawa | TITLE: SERVICE POST ASSEMBLY FOR SERVICES UP TO 50mm | DATE: MAY 2001 | REV.: MAR 2021 | DWG No.: W35



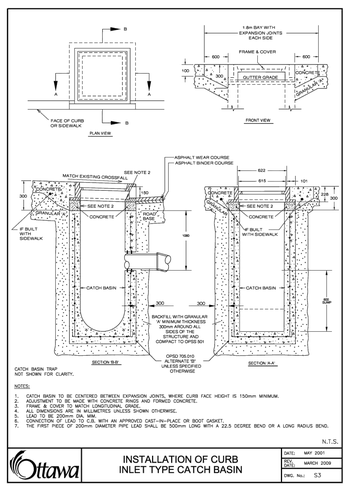
Ottawa | TRACER WIRE INSTALLATION | DATE: MARCH 2021 | REV. NO.: MARCH 2021 | DWG No.: W56



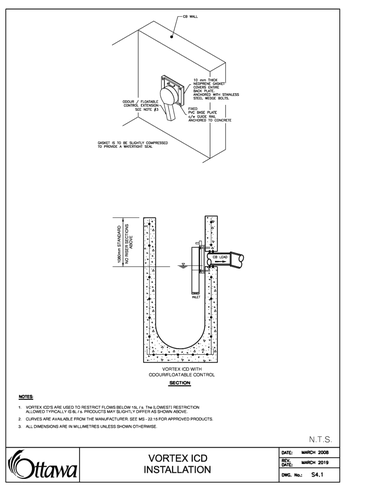
Ottawa | SERVICE INSTALLATION AT SEWER CROSSING | DATE: MAY 2005 | REV. NO.: NONE | DWG No.: W38



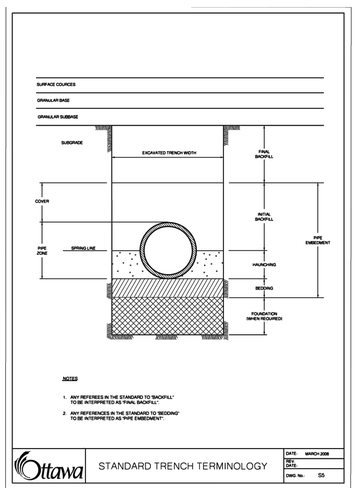
Ottawa | CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS | DATE: MAY 2001 | REV. NO.: MARCH 2021 | DWG. No.: W40



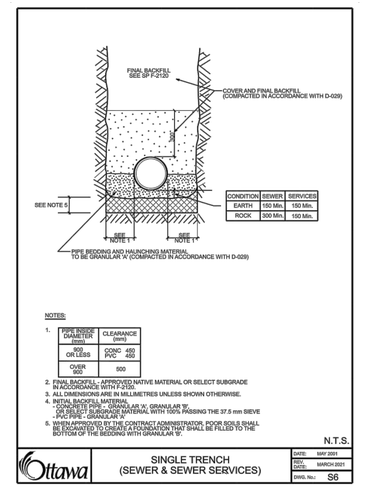
Ottawa | TYPICAL ANODE INSTALLATION PVC WATERMAIN | DATE: MAY 2001 | REV. NO.: MARCH 2021 | DWG. No.: W42



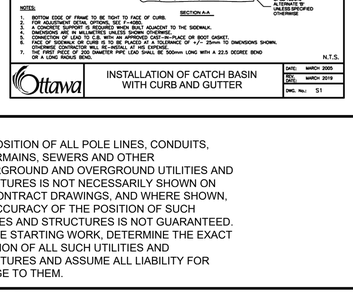
Ottawa | TYPICAL CHLORINATION NOZZLE LOCATIONS | DATE: MAY 2007 | REV. DATE: MARCH 2019 | DWG. No.: W46



Ottawa | WATERPROOFING OF SPLICES | DATE: MARCH 2008 | REV. NO.: MARCH 2021 | DWG No.: W47

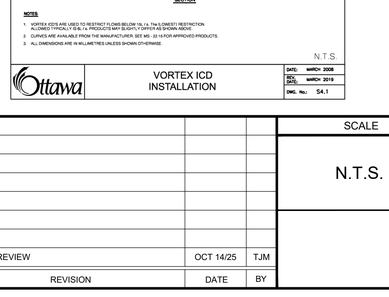


Ottawa | CONNECTION BETWEEN TRACER WIRE AND FITTING BOLT | DATE: MARCH 2021 | REV. NO.: | DWG. No.: W55



Ottawa | INSTALLATION OF CATCH BASIN WITH CURB AND GUTTER | DATE: MARCH 2005 | REV. NO.: MARCH 2019 | DWG. No.: S1

Ottawa | INSTALLATION OF CATCH BASIN INLET TYPE CATCH BASIN | DATE: MAY 2001 | REV. NO.: MARCH 2009 | DWG. No.: S3



Ottawa | VORTEX ICD INSTALLATION | DATE: MARCH 2008 | REV. DATE: MARCH 2019 | DWG. No.: S4.1

Ottawa | STANDARD TRENCH TERMINOLOGY | DATE: MARCH 2008 | REV. DATE: | DWG No.: S5

Ottawa | SINGLE TRENCH (SEWER & SEWER SERVICES) | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: S6

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE: N.T.S.

DESIGN | CHECKED | DRAWN | CHECKED | APPROVED

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

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LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVSION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
DETAIL SHEET

PROJECT No.: 117155
REV: REV # 1
DRAWING No.: 117155-D21

D07-16-18-0021

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PLANAT.DWG LBA Corporation

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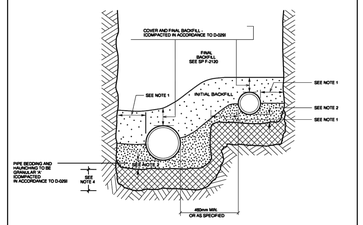


NOTES:

1.

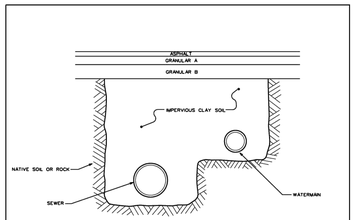
PIPE INSIDE DIAMETER (mm)	CLEARANCE (mm)
150 TO 900	CONC ±50 PVC ±100
OVER 900	100

2.

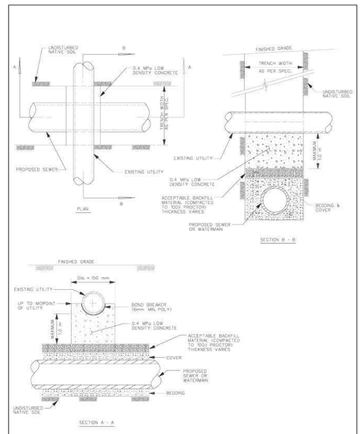
CONDITION	SEWER	SERVICES
EARTH	150 Min	150 Min
ROCK	300 Min	150 Min

3. FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH P-2130.
4. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, POOR SOILS SHALL BE REMOVED AND THE TRENCH SHALL BE FILLED TO THE BOTTOM OF THE BEDDING WITH GRANULAR 'B'.
5. SEE S11.3 FOR TYPICAL SINGLE, SEMI-DETACHED AND TOWNHOUSE LOT SERVICING
6. INITIAL BACKFILL: CONCRETE PIPE - GRANULAR 'A' OR GRANULAR 'B' WITH 100% PASSING THE 37.5mm SIEVE
PVC PIPE - GRANULAR 'A'

Ottawa	COMBINED TRENCH (SEWERS & SEWER SERVICES)	DATE: MAY 2021 REV. DATE: MARCH 2019 DWG No.: S7



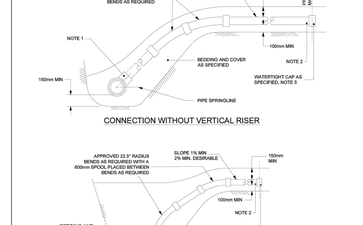
Ottawa	CLAY SEAL FOR PIPE TRENCHES	DATE: MAY 2007 REV. DATE: MARCH 2006 DWG. No.: S8



NOTES:

1. CLAY SEAL TO EXTEND FROM BOTTOM OF TRENCH EXCAVATION TO UNDERSIDE OF ROAD STRUCTURE.
2. CLAY SEAL TO EXTEND FULL TRENCH WIDTH TO EXISTING NATIVE SOILS WITH A MINIMUM THICKNESS OF 1.0m ALONG PIPES.
3. CLAY SEAL TO BE LOCATED SO THAT NO PIPE JOINTS ARE WITHIN THE CLAY SEAL MATERIAL.

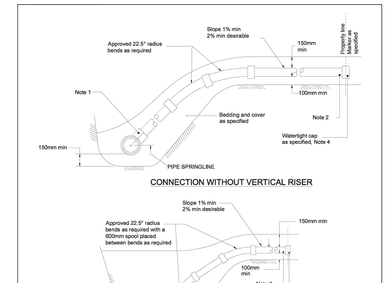
Ottawa	SUPPORT DETAIL FOR EXISTING UTILITY CROSSING SEWER OR WATERMAIN TRENCH	DATE: MAY 2007 REV. DATE: NONE DWG No.: S10



NOTES:

1. DIAMETER OF SERVICES CONNECTIONS SHALL BE NO GREATER THAN 50% OF THE DIAMETER OF THE RIGID SEWER MAIN. DIAMETER, THE CONNECTION SHALL BE MADE USING A BELL END INSERT PER S11.2 OR AN APPROVED RUBBER GASKETED INSERT. INVERT OF SERVICE CONNECTION SHALL BE AT THE SAME ELEVATION OR GREATER THAN THE ELEVATION OF THE SPRINGLINE OF THE SEWER MAIN
2. SANITARY SERVICES TO BE 150mm AND STORM SERVICES TO BE 150mm FOR NEW RESIDENCES UNLESS SPECIFIED
3. APPROVED CONTROLLED SETTLEMENT JOINTS OPTIONAL FOR SERVICE CONNECTIONS TO MAIN SEWER UP TO 5m DEEP. WHERE APPROVED, CONNECTIONS TO SEWERS OVER 5m DEEP REQUIRE APPROVED CONTROLLED SETTLEMENT JOINTS
4. VERTICAL RISER SHALL BE SAME AS SERVICE PIPE UNLESS OTHERWISE SPECIFIED
5. CAP AT THE PROPERTY LINE SHALL BE ADEQUATELY BRACED TO WITHSTAND TESTING PRESSURE
6. CAP AT THE PROPERTY LINE SHALL BE ADEQUATELY BRACED TO THE MAIN PIPE BEFORE THAT PIPE IS LAID. FOR SERVICES/BRANCHES 375mm DIA. OR LESS, APPROVED TORED TEEP MAY BE USED.
7. APPROVED OUT-IN TOOL MUST BE USED FOR FIELD MADE CONNECTIONS
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
9. RADIUS BENDS GREATER THAN 22.5° ARE NOT ALLOWED

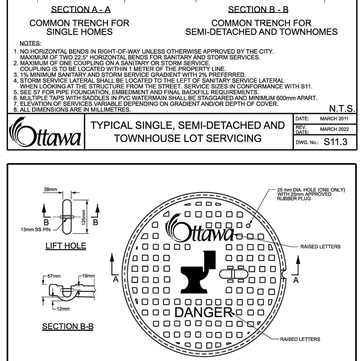
Ottawa	TITLE: SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE (MODIFIED OPSD-1006.010)	DATE: MAR 2006 REV: MAR 2024 DWG No: S11



NOTES:

1. DIAMETER OF SERVICE CONNECTIONS SHALL BE NO GREATER THAN 50% OF THE DIAMETER OF THE FLEXIBLE SEWER MAIN. DIAMETER, THE CONNECTION SHALL BE MADE USING A BELL END INSERT OR AN APPROVED RUBBER GASKETED INSERT. INVERT OF SERVICE CONNECTION SHALL BE AT THE SAME ELEVATION OR GREATER THAN THE ELEVATION OF THE SPRINGLINE OF THE SEWER MAIN.
2. SANITARY SERVICES TO BE 150mm AND STORM SERVICES TO BE 100mm FOR NEW RESIDENCES UNLESS SPECIFIED OTHERWISE. SERVICE PIPE SHALL BE SAME AS SERVICE PIPE UNLESS OTHERWISE SPECIFIED. SERVICE CONNECTIONS TO BE PERPENDICULAR TO MAIN.
3. APPROVED CONTROLLED SETTLEMENT JOINTS OPTIONAL FOR SERVICE CONNECTIONS TO MAIN SEWERS UP TO 5m DEEP. WHERE APPROVED, CONNECTIONS TO SEWERS OVER 5m DEEP REQUIRE APPROVED CONTROLLED SETTLEMENT JOINTS
4. CAP AT THE PROPERTY LINE SHALL BE ADEQUATELY BRACED TO WITHSTAND TESTING PRESSURE
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. RADIUS BENDS GREATER THAN 22.5° ARE NOT ALLOWED

Ottawa	TITLE: SEWER SERVICE CONNECTIONS FOR FLEXIBLE MAIN SEWER PIPE	DATE: MAR 2006 REV.: MAR 2024 DWG No: S11.1



SECTION A - A
COMMON TRENCH FOR SINGLE HOMES

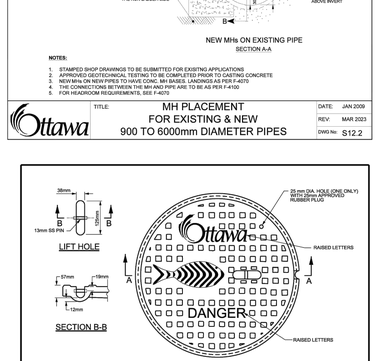
SECTION B - B
COMMON TRENCH FOR SEMI-DETACHED AND TOWNHOMES

NOTES:

1. NO HORIZONTAL BENDS IN RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY THE CITY. MAXIMUM OF TWO 22.5° HORIZONTAL BENDS FOR SANITARY AND STORM SERVICES.
2. MAXIMUM OF ONE COUPLING ON A SANITARY OR STORM SERVICE. COUPLING IS TO BE LOCATED WITHIN 1 METER OF THE PROPERTY LINE
3. 1% MINIMUM SANITARY AND STORM SERVICE GRADIENT WITH 2% PREFERRED.
4. SEE SERVICE CONNECTIONS DETAIL S11 FOR TYPICAL SANITARY SERVICE LATERAL WHEN LOOKING AT THE STRUCTURE FROM THE STREET, SERVICE SIZES IN CONFORMANCE WITH S11.
5. SEE S7 FOR PIPE FOUNDATION, EMBEDMENT AND FINAL BACKFILL REQUIREMENTS.
6. MULTIPLE TAPS WITH SADDLES IN PVC WATERMAIN SHALL BE STAGGERED AND MINIMUM 600mm APART.
7. ELEVATION OF SERVICES VARIABLE DEPENDING ON GRADIENT AND/OR DEPTH OF COVER.
8. ALL DIMENSIONS ARE IN MILLIMETRES.

N.T.S.

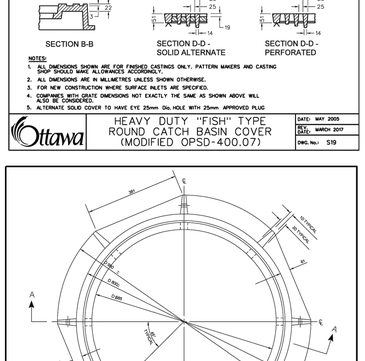
Ottawa	TYPICAL SINGLE, SEMI-DETACHED AND TOWNHOUSE LOT SERVICING	DATE: MARCH 2011 REV.: MARCH 2023 DATE: DWG. No.: S11.3



NOTES:

1. STAMPED SHOP DRAWINGS TO BE SUBMITTED FOR EXISTING APPLICATIONS
2. APPROVED GEOTECHNICAL TESTING TO BE COMPLETED PRIOR TO CASTING CONCRETE
3. SEE S12.1 FOR MH PLACEMENT FOR EXISTING & NEW 900 TO 6000mm DIAMETER PIPES
4. THE CONNECTIONS BETWEEN THE MH AND PIPE ARE TO BE AS PER F-4100
5. FOR HEADROOM REQUIREMENTS, SEE F-4070

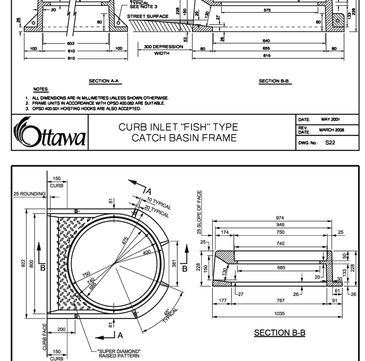
Ottawa	TITLE: MH PLACEMENT FOR EXISTING & NEW 900 TO 6000mm DIAMETER PIPES	DATE: JAN 2009 REV.: MAR 2023 DWG No: S12.2



NOTES:

1. ALL DIMENSIONS SHOWN ARE FOR FINISHED CASTINGS ONLY. PATTERN MAKERS AND CASTING SHOP SHOULD MAKE ALLOWANCES ACCORDINGLY.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
3. FOR NEW CONSTRUCTION WHERE SURFACE INLETS ARE SPECIFIED.
4. COMPLIES WITH GRATE DIMENSIONS NOT EXACTLY THE SAME AS SHOWN ABOVE WILL ALSO BE CONSIDERED.
5. ALTERNATE SOLID COVER TO HAVE EYE 25mm Dia. HOLE WITH 25mm APPROVED PLUG

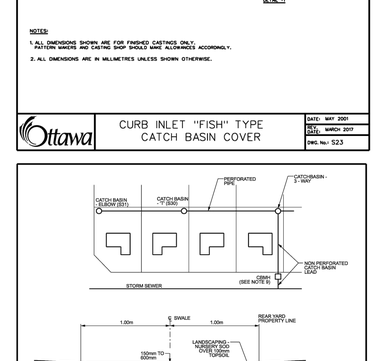
Ottawa	HEAVY DUTY "FISH" TYPE ROUND CATCH BASIN COVER (MODIFIED OPSD-400.07)	DATE: MAY 2005 REV. DATE: MARCH 2017 DWG. No.: S19



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE
2. FRAME UNITS IN ACCORDANCE WITH OPSD-400.040 ARE SUITABLE
3. OPSD 400.021 HOOKING HOPS ARE ALSO ACCEPTED

Ottawa	CURB INLET "FISH" TYPE CATCH BASIN FRAME	DATE: MAY 2021 REV. DATE: MARCH 2008 DWG No. S22



NOTES:

1. ALL DIMENSIONS SHOWN ARE FOR FINISHED CASTINGS ONLY. PATTERN MAKERS AND CASTING SHOP SHOULD MAKE ALLOWANCES ACCORDINGLY.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

Ottawa	CURB INLET "FISH" TYPE CATCH BASIN COVER	DATE: MAY 2001 REV. DATE: MARCH 2017 DWG. No.: S23

Ottawa	STANDARD CIRCULAR SANITARY & COMBINED MAINTENANCE HOLE COVER	DATE: MARCH 2008 REV. DATE: MARCH 2017 DWG. No.: S24

N.T.S.

Ottawa	STANDARD CIRCULAR STORM MAINTENANCE HOLE COVER	DATE: REV. DATE: MARCH 2017 DWG. No.: S24.1

NOTES:

1. MATERIAL - GREY IRON.
2. FOR MAINTENANCE HOLE COVER SEE DWG S24, S24.1, S24.2.
3. OPSD 400.021 HOOKING HOPS ARE ALSO ACCEPTED.
4. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISESHOWN.

Ottawa	STANDARD CIRCULAR FRAME FOR MAINTENANCE HOLES (MODIFIED OPSD-401.020)	DATE: MAY 2021 REV. DATE: MARCH 2019 DWG No. S25

NOTES:

1. ALL DIMENSIONS SHOWN ARE FOR FINISHED CASTINGS ONLY.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
3. ASPHALT DEPRESSION IN FRONT TO MATCH CITY DETAIL S22.

N.T.S.

Ottawa	CURB INLET "FISH" TYPE FRAME AND COVER FOR CBMH	DATE: JANUARY 2009 REV. DATE: MARCH 2017 DWG. No.: S28

NOTES:

1. SIDE SLOPE OF SWALE - MIN. 1.5%, MAX. 3:1.
2. LONGITUDINAL SLOPE OF SWALE WITHOUT PERFORATED PIPE 1.0% MIN.
3. LONGITUDINAL SLOPE OF SWALE WITH PERFORATED PIPE 0.5% MIN. WITH 1% OR GREATER PREFERRED.
4. UNDER DRIVEWAYS NON PERFORATED PIPE TO BE USED WITH 75mm BEDDING AND BACKFILLED WITH APPROVED NATIVE MATERIAL.
5. CB "T" TO BE SPACED ABOUT EVERY 20 TO 25m AND LOCATED 1m OFF REAR YARD AND SIDE YARD PROPERTY LINES.
6. CB ELBOW TO BE AT UPPER ENDS OF PERFORATED PIPE AND LOCATED 1m OFF REAR YARD AND SIDE YARD PROPERTY LINES.
7. GEOTEXTILE SHALL BE APPROVED NON-WOVEN CLASS 1 OR AS SPECIFIED.
8. MAXIMUM REAR YARD WATER DEPTH IS 350mm.
9. A STANDARD CATCHBASIN NO DEEPER THAN 2.4m OR A CATCHBASIN MAINTENANCE HOLE. STANDARD FRAMES C/W PERFORATED OR SOLID COVER AS SPECIFIED. STANDARD CO'S AS SPECIFIED

N.T.S.

Ottawa	PERFORATED PIPE INSTALLATION FOR REAR YARD AND LANDSCAPING APPLICATIONS	DATE: MARCH 2007 REV. DATE: MARCH 2019 DWG. No.: S29

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October 17, 2025
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DETAIL SHEET

PROJECT No. 117155
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DRAWING No. 117155-D22

D07-16-18-0021

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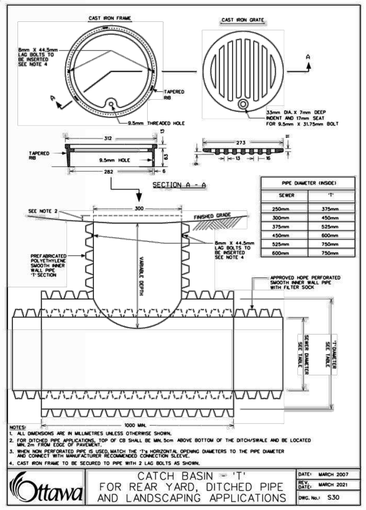

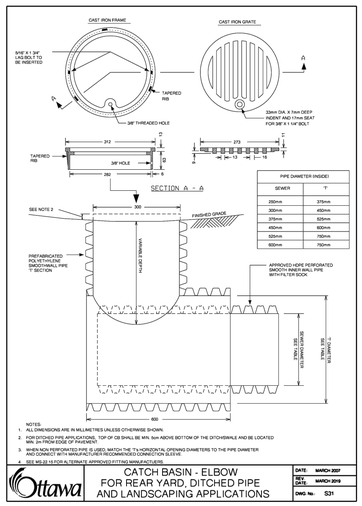

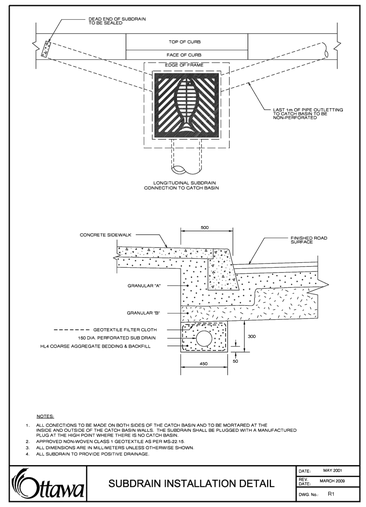

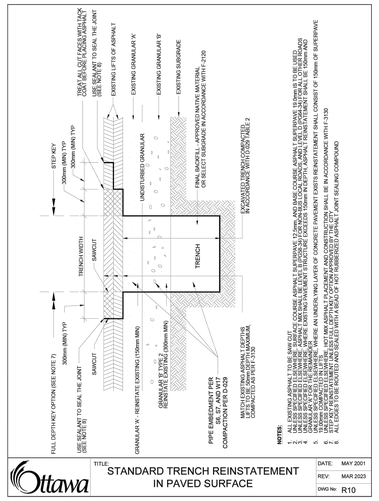

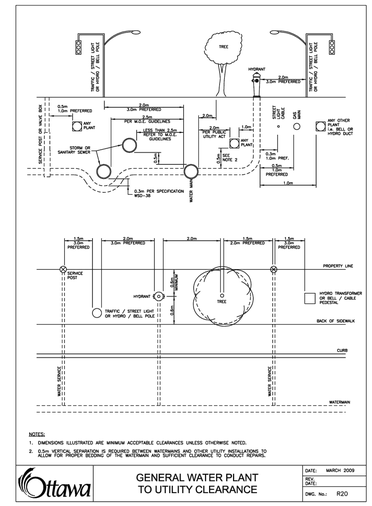

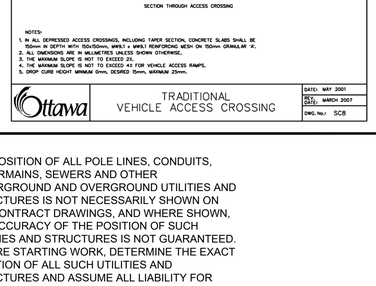

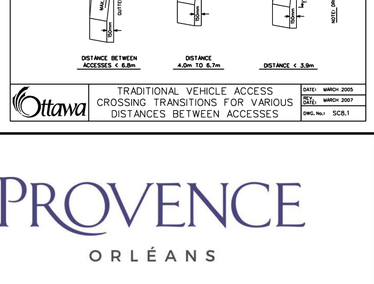

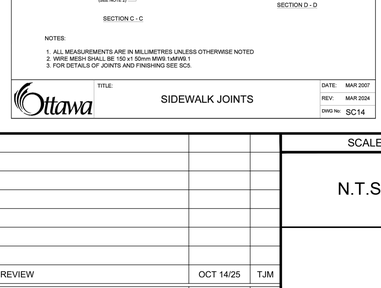

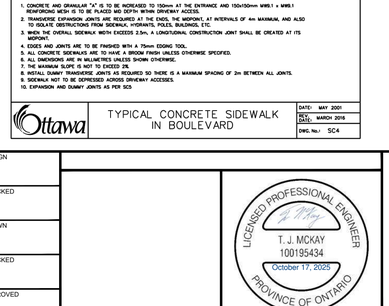

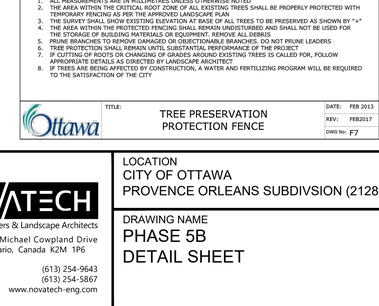

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SCALE: N.T.S.

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CHECKED
APPROVED

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

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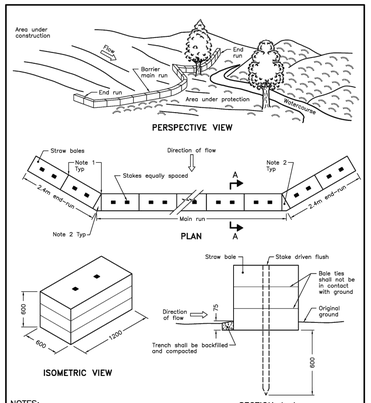
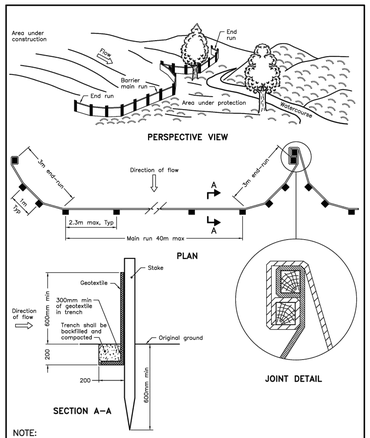


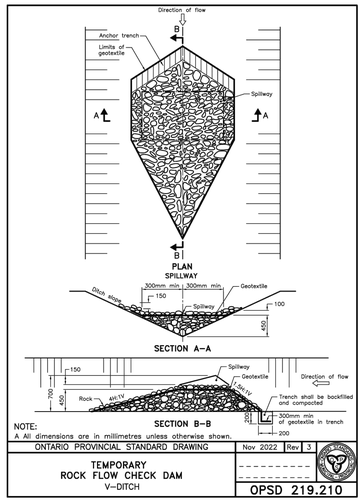
NOTES:
1 Straw bales shall be butted tightly against adjoining bales to prevent sediment flow through barrier.
2 Fill and compact gaps with loose straw.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
LIGHT–DUTY STRAW BALE BARRIER		OPSD 219.100



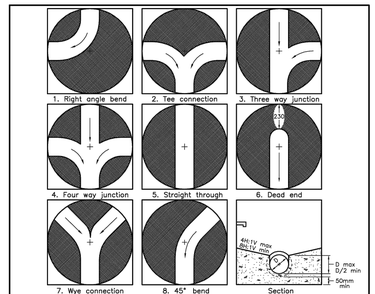
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2022	Rev 3
TEMPORARY ROCK FLOW CHECK DAM V–DITCH		OPSD 219.210

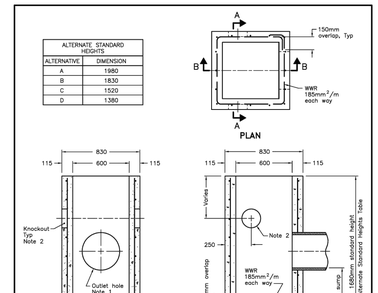


MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No. 7	
				Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

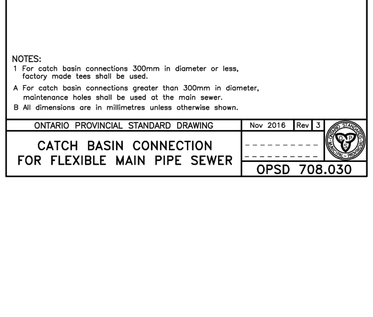
NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		OPSD 701.021



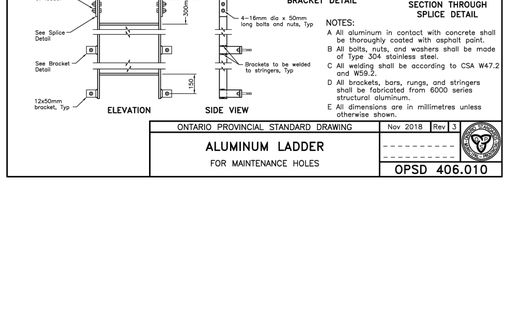
NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls 820mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010



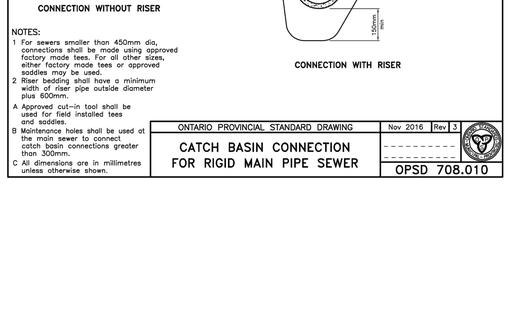
NOTES:
1 For catch basin connections 300mm in diameter or less, factory made tees shall be used.
A For catch basin connections greater than 300mm in diameter, maintenance holes shall be used at the main sewer.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CATCH BASIN CONNECTION FOR FLEXIBLE MAIN PIPE SEWER		OPSD 708.030



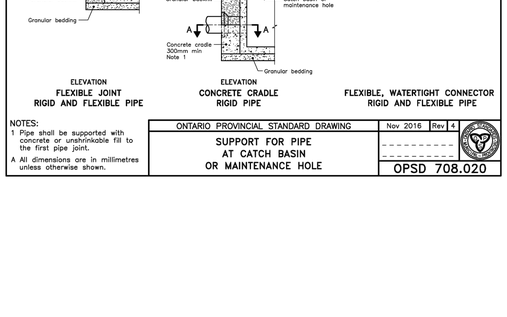
NOTES:
A All aluminum in contact with concrete shall be thoroughly coated with asphalt paint.
B All bolts, nuts, and washers shall be made of Type 304 stainless steel.
C All welding shall be according to CSA W47.2 and W59.2.
D All brackets, bars, rungs, and stringers shall be fabricated from 6000 series structural aluminum.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
ALUMINUM LADDER FOR MAINTENANCE HOLES		OPSD 406.010



NOTES:
1 For sewers smaller than 450mm dia, connections shall be made using approved factory made tees. For all other sizes, either factory made tees or approved saddles may be used.
2 Riser bedding shall have a minimum width of riser pipe outside diameter plus 600mm.
A Approved cut–in tool shall be used for field installed tees and saddles.
B Maintenance holes shall be used at the main sewer to connect catch basin connections greater than 300mm.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CATCH BASIN CONNECTION FOR RIGID MAIN PIPE SEWER		OPSD 708.010



NOTES:
1 Pipe shall be supported with concrete or unshrinkable fill to the first pipe joint.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 4
SUPPORT FOR PIPE AT CATCH BASIN OR MAINTENANCE HOLE		OPSD 708.020

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROVENCE ORLÉANS

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	OCT 14/25	TJM

SCALE: N.T.S.

DESIGN | CHECKED | DRAWN | CHECKED | APPROVED

LICENSED PROFESSIONAL ENGINEER
T. J. MCKAY
100195434
October 17, 2025
PROVINCE OF ONTARIO

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Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
PROVENCE ORLEANS SUBDIVSION (2128 TRIM ROAD)

DRAWING NAME
PHASE 5B
DETAIL SHEET

PROJECT No. 117155
REV REV # 1
DRAWING No. 117155-D24

D07-16-18-0021

#18004

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