

Engineering

Land/Site
Development
Municipal
Infrastructure
Environmental/
Water Resources
Traffic/
Transportation
Recreational

Planning

Land/Site
Development
Planning Application
Management
Municipal Planning
Urban Design
Expert Witness
(LPAT)
Wireless Industry

Landscape Architecture

Streetscapes &
Public Amenities
Open Space, Parks &
Recreation
Community &
Residential
Commercial &
Institutional
Environmental
Restoration

Site Servicing Brief Greystone Village Forecourt Townhomes

295 & 355 Deschâtelets Avenue

Prepared for: Greystone Village Inc.

**Greystone Village Forecourt Townhomes
295 & 355 Deschâtelets Avenue
Site Servicing Brief**

Prepared For:

Greystone Village Inc.

Prepared By:

NOVATECH

Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

Prepared: August 14, 2024

Revised October 17, 2024

Novatech File: 114025

Ref: R-2024-097

October 17, 2024

City of Ottawa
Planning, Infrastructure and Economic Development Department
Infrastructure Approvals Division,
110 Laurier Avenue West, 4th Floor
Ottawa, ON K1P 1J1

Attention: Vincent Duquette

**Reference: Greystone Village Forecourt Townhomes – 295 & 355 Deschâtelets Avenue
Site Servicing Brief
Novatech File No.: 114025**

Please find enclosed a copy of the revised Site Servicing Brief for the Greystone Village Forecourt Townhomes, located at 295 and 355 Deschâtelets Avenue in Old Ottawa East, east of Main Street/Deschâtelets Avenue, south of des Oblats Avenue, west of Scholastic Drive and north of Deschâtelets Avenue within the City of Ottawa. The report demonstrates how the proposed site will be serviced with storm, sanitary, watermain, utilities, and stormwater management and is submitted for your review and approval.

This report is supplementary to the following reports to provide specifics related to the Greystone Village Forecourt Townhome buildings which are part of the overall Greystone Village subdivision development:

- *“Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief” dated February 24, 2016*
- *“Greystone Village - 175 Main Street: Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief (Phase 2 and 3), R-2017-089”, dated May 26, 2017*
- *“Greystone Village - 175 Main Street: Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief - Phase 2 and 3 (Master Servicing Study Update), R 2017 089”, dated August 7, 2024.*

If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

NOVATECH



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

TABLE OF CONTENTS

| | | |
|------------|---|-----------|
| 1.0 | INTRODUCTION | 1 |
| 1.1 | GEOTECHNICAL INVESTIGATION..... | 1 |
| 1.2 | ADDITIONAL REPORTS | 1 |
| 1.3 | APPROVALS | 2 |
| 2.0 | SANITARY SERVICING | 2 |
| 2.1 | DESIGN CRITERIA | 2 |
| 2.1.1 | <i>Proposed System</i> | 2 |
| 2.2 | PROPOSED SANITARY DESIGN – FORECOURT TOWNHOMES..... | 3 |
| 2.2.1 | <i>Proposed System</i> | 3 |
| 2.3 | SANITARY CONCLUSION..... | 3 |
| 3.0 | WATERMAIN | 3 |
| 3.1 | DESIGN CRITERIA | 4 |
| 3.1.1 | <i>Previous Studies</i> | 4 |
| 3.1.2 | <i>Proposed System</i> | 4 |
| 3.2 | PROPOSED WATERMAIN DESIGN | 5 |
| 3.3 | WATERMAIN CONCLUSION | 6 |
| 4.0 | STORMWATER MANAGEMENT | 6 |
| 4.1 | STORMWATER MANAGEMENT CRITERIA | 7 |
| 4.1.1 | <i>Minor System (Storm Sewers)</i> | 7 |
| 4.1.2 | <i>Major System (Emergency Overland Flow)</i> | 7 |
| 4.1.3 | <i>Water Quality Control</i> | 7 |
| 4.1.4 | <i>Erosion and Sediment Control</i> | 7 |
| 4.2 | STORMWATER MANAGEMENT MODELING | 8 |
| 4.2.1 | <i>Design Storms</i> | 8 |
| 4.2.2 | <i>Modelling Parameters</i> | 8 |
| 4.3 | PROPOSED STORMWATER SYSTEM | 9 |
| 4.3.1 | <i>Previous Studies (2017 MSS)</i> | 9 |
| 4.3.2 | <i>Storm System</i> | 10 |
| 4.4 | RESULTS | 10 |
| 4.4.1 | <i>Storm Flows – Forecourt Townhomes</i> | 10 |
| 4.4.2 | <i>HGL Check</i> | 11 |
| 4.4.3 | <i>Inlet Control Devices</i> | 12 |
| 4.4.4 | <i>Major System Flows</i> | 12 |
| | <i>Direct Runoff Areas</i> | 12 |
| | <i>Overland Flow From Controlled Areas</i> | 13 |
| 4.5 | LID FEATURES | 13 |
| 5.0 | SITE GRADING | 14 |
| 5.1 | EXISTING CONDITIONS | 14 |
| 5.2 | PROPOSED CONDITIONS | 14 |
| 5.3 | EMERGENCY OVERLAND FLOW ROUTE | 14 |
| 6.0 | NOISE | 15 |
| 7.0 | UTILITIES | 15 |

| | | |
|------------|---|-----------|
| 8.0 | EROSION AND SEDIMENT CONTROL | 15 |
| 9.0 | CONCLUSIONS..... | 16 |

LIST OF TABLES

| |
|--|
| Table 2.1: Forecourt Townhome - Proposed Sanitary Flow Summary |
| Table 3.1: Water Operating Conditions |
| Table 3.2: Available Fire Flows |
| Table 4.1: Storm Flows – Forecourt Townhomes |
| Table 4.2: Hydraulic Grade Line Elevations and USF Clearance |
| Table 4.3: Inlet Control Devices & Ponding Depths |
| Table 4.4: Summary of Flows to Major System from Forecourt Townhomes |

LIST OF FIGURES

| |
|---|
| Figure 1: Key Plan |
| Figure 2: Existing Conditions – Block 28 and Block 29 |
| Figure 3: Concept Plan – Block 28 and Block 29 |
| Figure 4: Sanitary Drainage Area Plan – Block 29 |
| Figure 5: Sanitary Drainage Area Plan – Block 28 |
| Figure 6: Watermain Layout and Nodes – Block 29 |
| Figure 7: Watermain Layout and Nodes – Block 28 |
| Figure 8: Hydrant Coverage |
| Figure 9: Storm Drainage Area Plan – Block 29 |
| Figure 10: Storm Drainage Area Plan – Block 28 |

LIST OF APPENDICES

| |
|---|
| Appendix A – Sanitary Sewer Design |
| Appendix B – Water Boundary Conditions & Hydraulic Calculations |
| Appendix C – Stormwater Management Design |
| Appendix D – Existing Approvals |
| Appendix E – Drawings |

LIST OF DRAWINGS (APPENDIX E)

| |
|--|
| 114025-FT-ESC1 - Erosion and Sediment Control & Removals Plan – Block 29 |
| 114025-FT-ESC2 - Erosion and Sediment Control & Removals Plan – Block 28 |
| 114025-FT-GP1 - General Plans of Services – Block 29 |
| 114025-FT-GP2 - General Plans of Services – Block 28 |
| 114025-FT-GR1 - Grading Plan – Block 29 |
| 114025-FT-GR2 - Grading Plan – Block 28 |

1.0 INTRODUCTION

Novatech has been retained by Greystone Village Inc. to prepare this Site Servicing Brief in support of the site plan application of the Greystone Village Forecourt Townhomes at 295 Deschâtelets Avenue (Block 29) and 355 Deschâtelets Avenue (Block 28) in Old Ottawa East, located within the Greystone Village plan of subdivision limits. The key plan (**Figure 1**) highlights the Greystone Village subdivision limits and the Forecourt Townhome site locations (the Subject Property).

The Subject Property is comprised of two development blocks (Block 28 and Block 29) separated by a landscaped pedestrian connection through the heritage designated grand allée between Deschâtelets Avenue and the proposed Forecourt Park. The property is currently vacant. The subject property was historically grassed, with mature trees located on the adjacent lands to the east. The topsoil has been stripped from the majority of the subject property and granular material placed for temporary construction use, as shown on the existing conditions plan (**Figure 2**).

It is proposed to construct a total of 18 semi-detached dwellings and 12 townhouse dwellings on the Subject Property. Refer to **Figure 3 – Concept Plan – Forecourt Townhomes** for proposed site layout. This Site Servicing Brief will confirm how the property will be serviced by sanitary, water, stormwater management, and utilities.

1.1 Geotechnical Investigation

Refer to Paterson's geotechnical report (*Geotechnical Investigation – Proposed Residential Development – 295 & 355 Deschatelets Avenue – Ottawa, Ontario*, PG6948-1, dated February 1, 2024) and the subsequent memorandums (*Geotechnical Tree Planting Recommendations within 4.5m Setback – Proposed Residential Development – 295 & 355 Deschatelets Avenue – Ottawa, Ontario*, PG6948-MEMO.01, dated April 29, 2024 & *Geotechnical Response to City Comment – Proposed Residential Development – 295 & 355 Deschatelets Avenue – Ottawa, Ontario*; PG6948-MEMO.02, dated October 7, 2024) for geotechnical considerations.

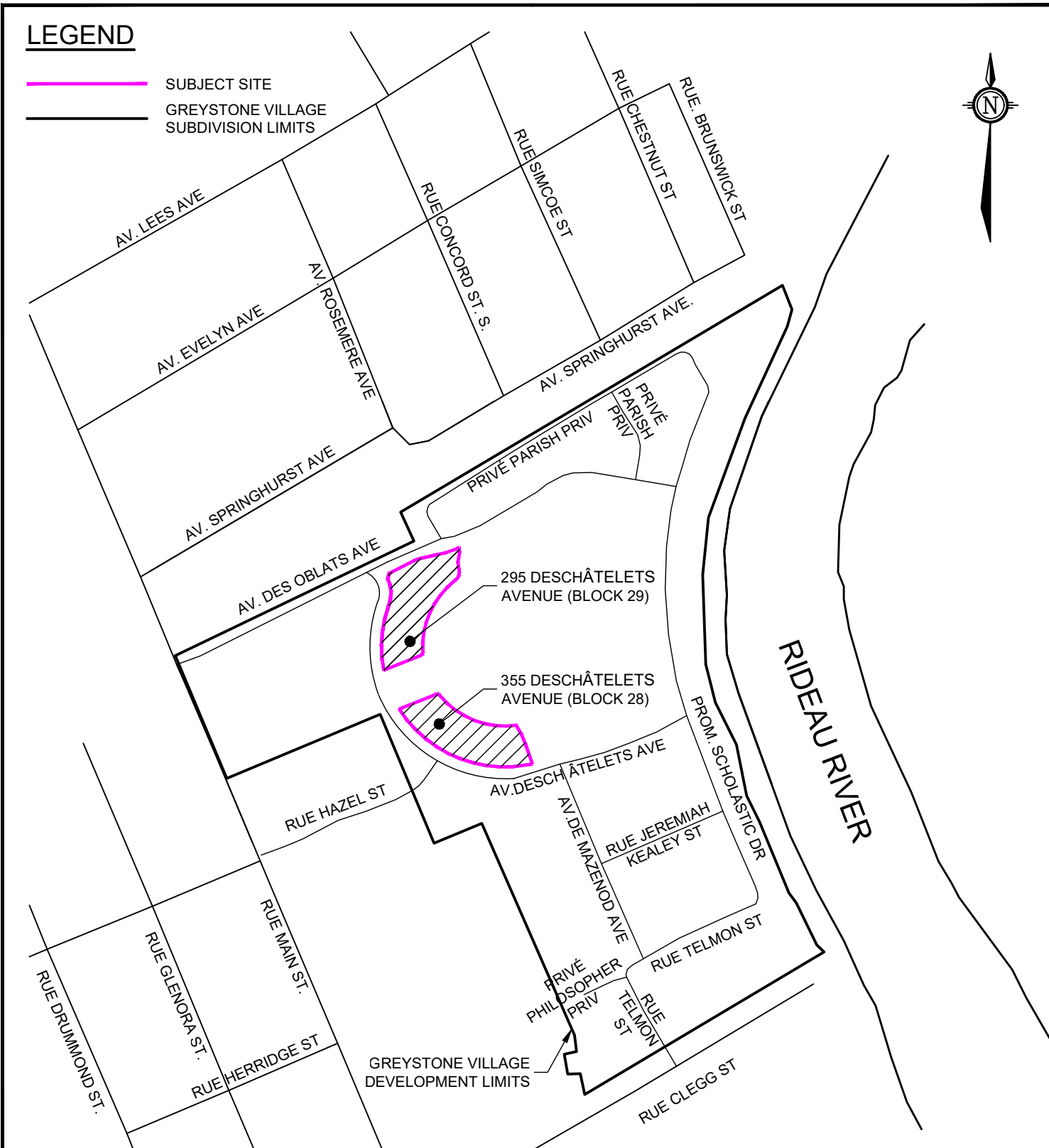
1.2 Additional Reports

This report provides information on the considerations and approach by which Novatech has designed and evaluated the proposed servicing for the Greystone Village Forecourt Townhomes. This report should be read in conjunction with the following:

- *Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief, dated February 24, 2016 (Referred to as Master Servicing Study 2016);*
- *Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief – Phase 2 and 3, dated May 26, 2017 (Referred to as Master Servicing Study 2017);*
- *Greystone Village Phase 3 Condos 375 Deschâtelets Avenue Site Servicing Brief (dated February 10, 2023).*
- *Greystone Village - 175 Main Street: Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief - Phase 2 and 3 (Master Servicing Study Update), R 2017-089", dated August 7, 2024.*

LEGEND

- SUBJECT SITE
- GREYSTONE VILLAGE SUBDIVISION LIMITS



M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure1-FT-KP.dwg, FIG-FT-KP, Oct 16, 2024 - 2:35pm, mabdlul



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

GREYSTONE VILLAGE FORECOURT TOWNS

KEY PLAN

N.T.S.

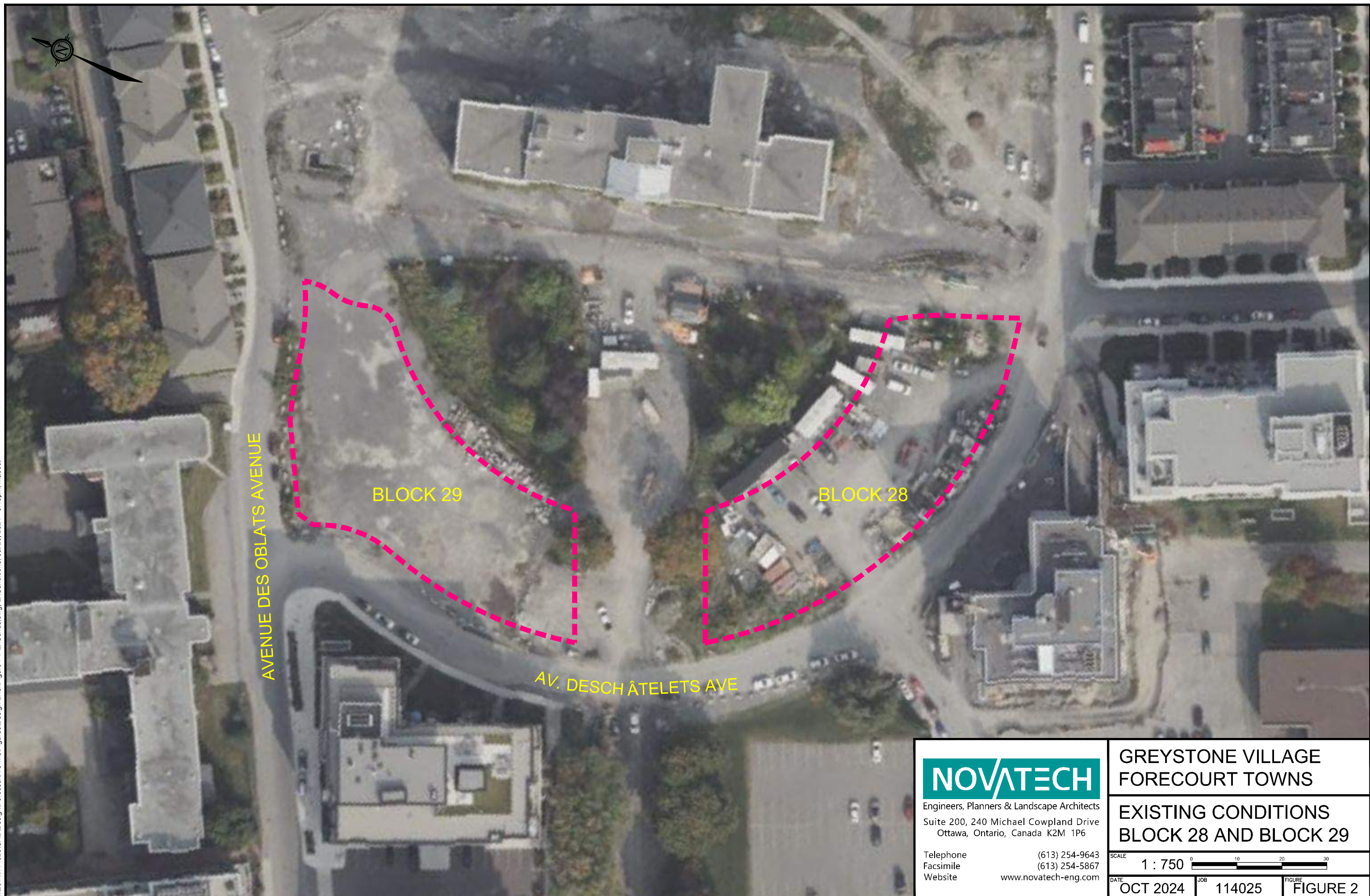
OCT 2024

114025

FIGURE 1



M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-ExConds.dwg, ExConditions, Jul 26, 2024 - 3:48pm, mabdu



AVENUE DES OBLATS AVENUE

BLOCK 29

BLOCK 28

AV. DESCHÂTELETS AVE

NOVATECH

Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

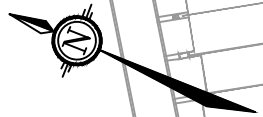
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

GREYSTONE VILLAGE
FORECOURT TOWNS

EXISTING CONDITIONS
BLOCK 28 AND BLOCK 29

SCALE 1 : 750

DATE OCT 2024 JOB 114025 FIGURE FIGURE 2



VAULT

BLOCK 30

BLOCK 29

BLOCK 28

AV. des OBLATS AVE

AV. DESCHÂTELETS AVE

RUE HAZEL ST

LEGEND

 BLOCK 28 & BLOCK 29 PROPERTY LINE

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brien\Figure-FT-CP.dwg, FT-CP, Oct 16, 2024 - 4:20pm, matdul



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

**GREYSTONE VILLAGE
FORECOURT TOWNS**

**CONCEPT PLAN
BLOCK 28 & 29**

SCALE 1 : 750 

DATE OCT 2024 JOB 114025 FIGURE FIGURE 3

1.3 Approvals

The Greystone Village subdivision has received approvals by the Rideau Valley Conservation Authority and the Ministry of the Environment, Conservation and Parks and the City of Ottawa, for the right of way pipes and storm sewer outlets which will service the development blocks (Block 28 & Block 29). Relevant approvals are as follows. Refer to **Appendix D** for details.

MECP

- ECA Number 4082-AAZQ6P – Storm and Sanitary Sewers within Phase 1;
- ECA Number 8946-ACUP7W – Stormwater Outfall and Oil / Grit Separator within Phase 1;
- ECA Number 0292-AP6PWR – Storm and Sanitary Sewers within Phase 2 & 3;
- ECA Number 3454-APEHFQ – Stormwater Outfall and Oil / Grit Separator within Phase 2 & 3;

RVCA

- File Number RV3-34/16 – Phase 1 Stormwater Outlet
- File Number RV3-08/17 – Phase 2 Stormwater Outlet

An amendment to the above noted Environmental Compliance Approvals (ECA's) is in the process of being filed to amend the existing ECA's to reflect the changes in stormwater design flows from the overall development as detailed in the Master Servicing Study Update (MSSU).

2.0 SANITARY SERVICING

Each car court will be serviced by 200mm dia. sanitary sewers within the property, connecting to a maintenance hole at the property line and a 250mm diameter sanitary sewer within the city right-of-way which connects to the existing 250mm diameter sanitary sewers on Oblats Avenue and Deschâtelets Avenue respectively. Each townhome unit will be serviced individually with 135mm diameter sanitary services, complete with backwater valves, and will be connected to the proposed 200mm diameter sanitary sewer located in the adjacent car court. Refer to **Figure 4** – Sanitary Drainage Area Plan – Block 29 and **Figure 5** – Sanitary Drainage Area Plan – Block 28 for proposed sanitary sewer locations and drainage area boundaries.

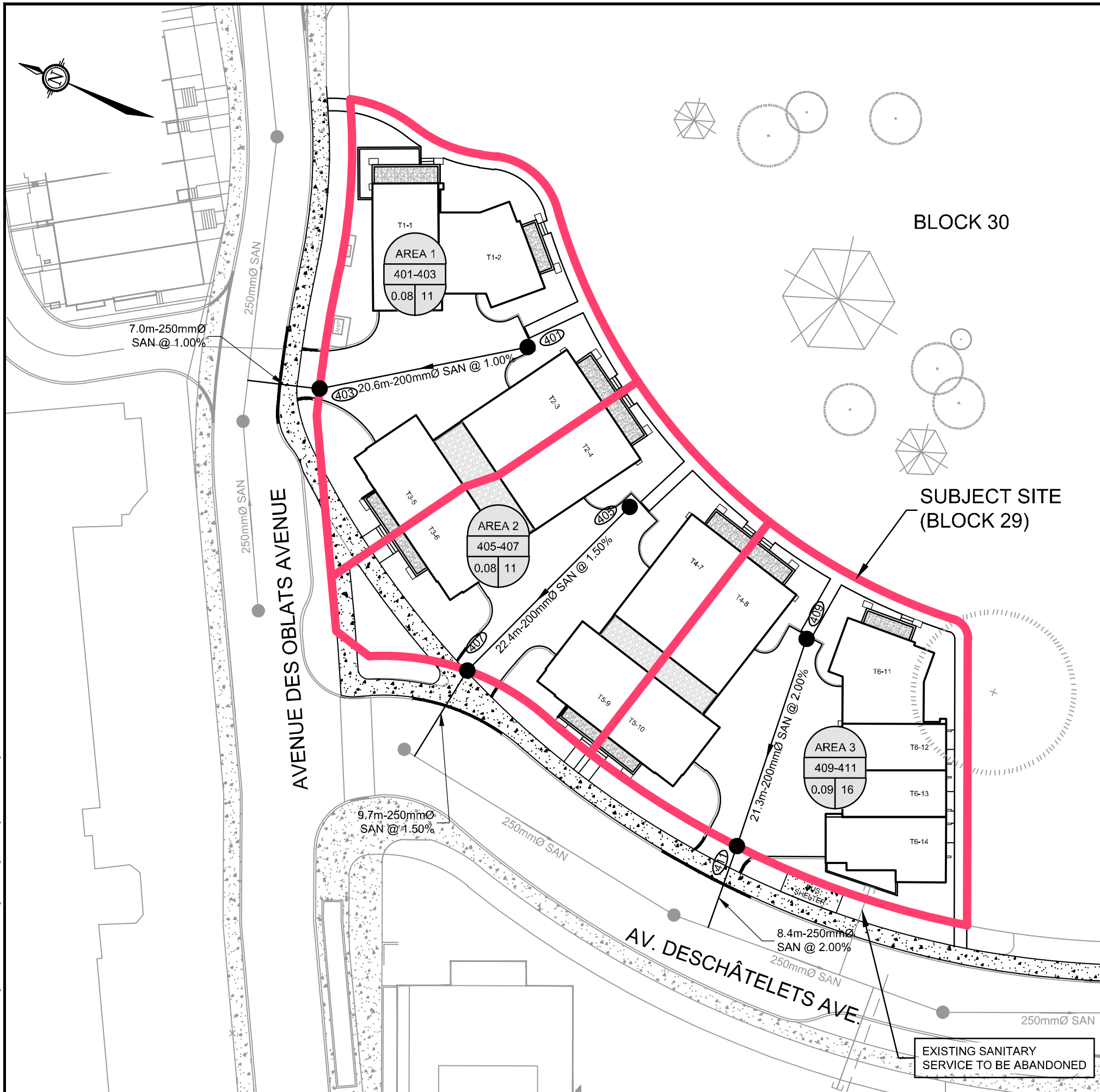
2.1 Design Criteria

2.1.1 *Proposed System*

The current sanitary design is based on design criteria outlined in the City of Ottawa's Technical Bulletin ISTB 2018-01 and are as follows:

- Residential Average Sewage Flow = 280 L/capita/day
- Residential Peaking Factor = Harmon Equation
- Max Peaking Factor = 4.0
- Infiltration Allowance = 0.33 L/s/ha
- Population Density:
 - 2.7/unit (Towns)
- Minimum Pipe Slope (200mm) = 0.32%
- Minimum Full Flow Velocity = 0.6m/s
- Maximum Full Flow Velocity = 3.0m/s

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-SAN.dwg, FT-SAN-BLK29-1-400, Oct 17, 2024 - 10:35am, mabdu



LEGEND

- AREA ID
- MAINTENANCE HOLE TO MAINTENANCE HOLE
- POPULATION
- AREA (IN HECTARES)
- SANITARY DRAINAGE AREA BOUNDARY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER

BLOCK 30

SUBJECT SITE
(BLOCK 29)

AVENUE DES OBLATS AVENUE

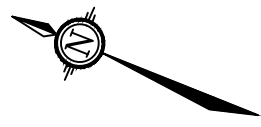
AV. DESCHÂTELETS AVE.

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

GREYSTONE VILLAGE
FORECOURT TOWNS

SANITARY DRAINAGE
AREA PLAN - BLOCK 29

| | | |
|-------|----------|----------|
| SCALE | 1 : 400 | |
| DATE | OCT 2024 | FIGURE 4 |
| JOB | 114025 | |



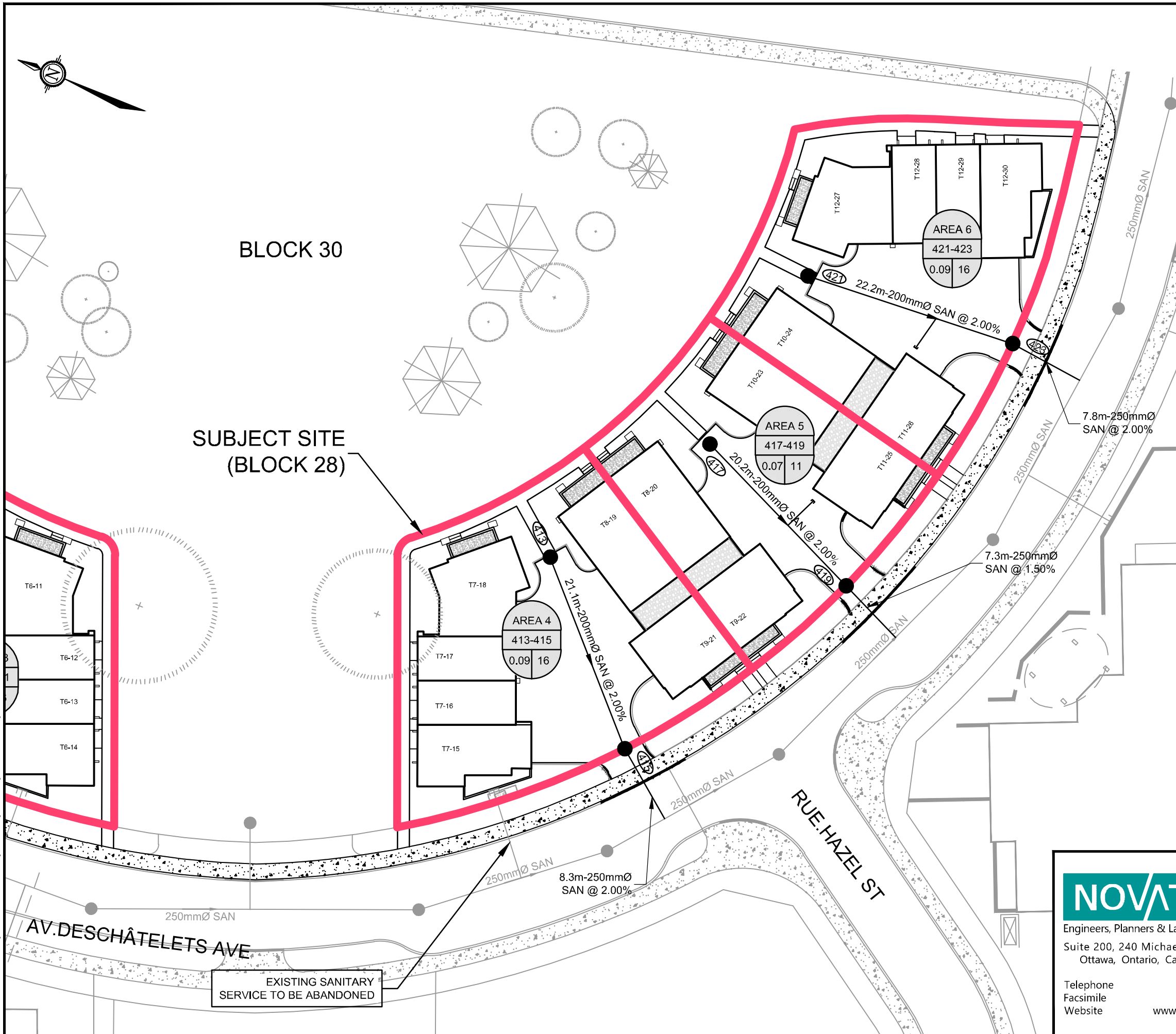
LEGEND

- AREA ID
721-719
0.73 62
AREA (IN HECTARES)
- SANITARY DRAINAGE AREA BOUNDARY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER

BLOCK 30

SUBJECT SITE
(BLOCK 28)

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-SAN.dwg, FT-SAN-BLK28-1-400, Oct 16, 2024 - 4:13pm, mabdu



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

**GREYSTONE VILLAGE
FORECOURT TOWNS**

**SANITARY DRAINAGE
AREA PLAN - BLOCK 28**

SCALE 1 : 400

DATE OCT 2024 JOB 114025 FIGURE FIGURE 5

2.2 Proposed Sanitary Design – Forecourt Townhomes

2.2.1 Proposed System

The peak sanitary flows are summarized below in **Table 2.2**. Refer to **Appendix A** for proposed Sanitary Design Sheets and to the Sanitary Drainage Areas Plans **Figure 4** & **Figure 5** for additional information.

Table 2.1: Forecourt Townhome - Proposed Sanitary Flow Summary

| Development Condition | Population | Peak Res. Flow (L/s) | Peak Ext. Flow (L/s) | Peak Design Flow (L/s) |
|---|------------|----------------------|----------------------|------------------------|
| Total Flow Outlet 1 | 11 | 0.13 | 0.03 | 0.16 |
| Total Flow Outlet 2 | 70 | 0.83 | 0.14 | 0.97 |
| Total Flow to Rideau River Interceptor from Blocks 28 & 29 | | | | 1.13 |

The original MSS (2017) contemplated the site plan design for the Forecourt Townhome blocks to direct all sanitary sewer flows to the Phase 1 sanitary sewer outlet via Deschâtelets Avenue. The proposed site plan necessitates a portion of the sanitary sewer flows from 295 Deschâtelets Avenue (Block 29) to be directed to the Phase 2 sanitary sewer.

The original MSS (2017) contemplated sanitary sewer flows of 1.98L/s from these Block (refer to **Appendix A** for MSS design sheet and drainage area plan). The MSSU (2024) has been updated to reflect the updated proposal, resulting in a net decrease of sanitary sewer flows from these two areas of 0.85L/s. The overall decrease is due to a reduction in the number of proposed units (30 instead of 42) and the change in the City of Ottawa design criteria (280L/capita/day instead of 350L/capita/day).

There is a slight increase in flow (+/- 0.16L/s) to the Phase 2 sanitary sewer system on Oblats Avenue from the MSS (2017), however the MSSU (2024) demonstrates that this increase has a negligible impact on sewer, which ultimately outlets to the same trunk sewer as Phase 1.

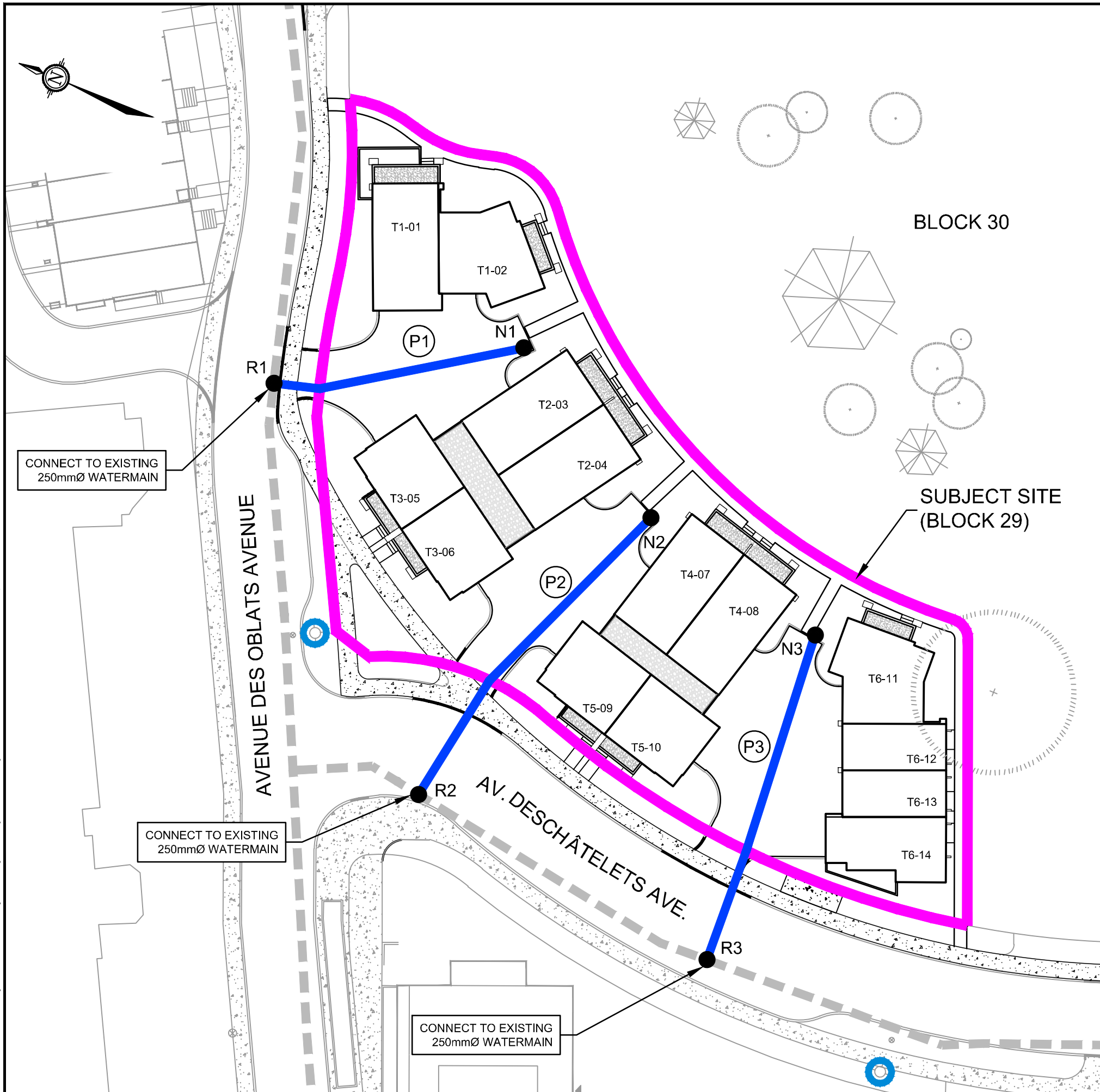
2.3 Sanitary Conclusion

For the proposed Forecourt Townhome site there is a net decrease of 0.85 L/s to the peak sanitary flow contributing to the Greystone Village subdivision sewer system, compared to the sanitary flows accounted for in the original Master Servicing Studies (2016 & 2017). As confirmed by the MSSU (2024), the downstream sanitary sewers have adequate capacity to accommodate the flows from this development.

3.0 WATERMAIN

The two (2) proposed development blocks will have a number of townhomes accessed from one of 3 communal car courts per block. Each car court will be serviced by a 50mm diameter watermain, connecting to the existing 250mm diameter watermains on Oblats Avenue and Deschâtelets Avenue respectively. Each townhome unit will be serviced individually with 19mm diameter water services, complete with curb stops and standposts located 2m from the foundations. Refer to **Figure 6** – Watermain Layout and Nodes – Block 29 and **Figure 7** – Watermain Layout and Nodes – Block 28 and for proposed watermain locations. Fire flows for the development blocks are to be provided by the hydrant network located within the existing right-of-ways (ROW). Refer to **Figure 8** - Hydrant Coverage for the location of the existing hydrants.

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-WM.dwg, FT-WM-BLK29-1-400, Oct 16, 2024 - 4:23pm, maboul



LEGEND

- SITE BOUNDARY
- PROPOSED 50mmØ WATERMAIN
- - - EXISTING 250mmØ WATERMAIN
- N1 PROPOSED WATERMAIN NODE
- P1 PROPOSED WATERMAIN PIPE NUMBER
- LOCATION OF EXISTING FIRE HYDRANT



Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

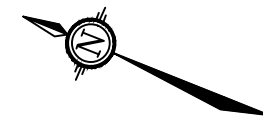
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

GREYSTONE VILLAGE FORECOURT TOWNS

WATERMAIN LAYOUT AND NODES - BLOCK 29

SCALE 1 : 400

DATE OCT 2024 JOB 114025 FIGURE FIGURE 6



LEGEND

- SITE BOUNDARY
- PROPOSED 50mmØ WATERMAIN
- EXISTING 250mmØ WATERMAIN
- PROPOSED WATERMAIN NODE
- P1 PROPOSED WATERMAIN PIPE NUMBER
- LOCATION OF EXISTING FIRE HYDRANT

BLOCK 30

SUBJECT SITE
(BLOCK 28)

T6-11
T6-12
T6-13
T6-14

T7-18
T7-17
T7-16
T7-15

T8-20
T8-19
T9-22
T9-21

T10-24
T10-23
T11-26
T11-25

T12-27
T12-28
T12-29
T12-30

CONNECT TO EXISTING
250mmØ WATERMAIN

CONNECT TO EXISTING
250mmØ WATERMAIN

CONNECT TO EXISTING
250mmØ WATERMAIN

AV. DESCHÂTELETS AVE

RUE HAZEL ST

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

GREYSTONE VILLAGE
FORECOURT TOWNS

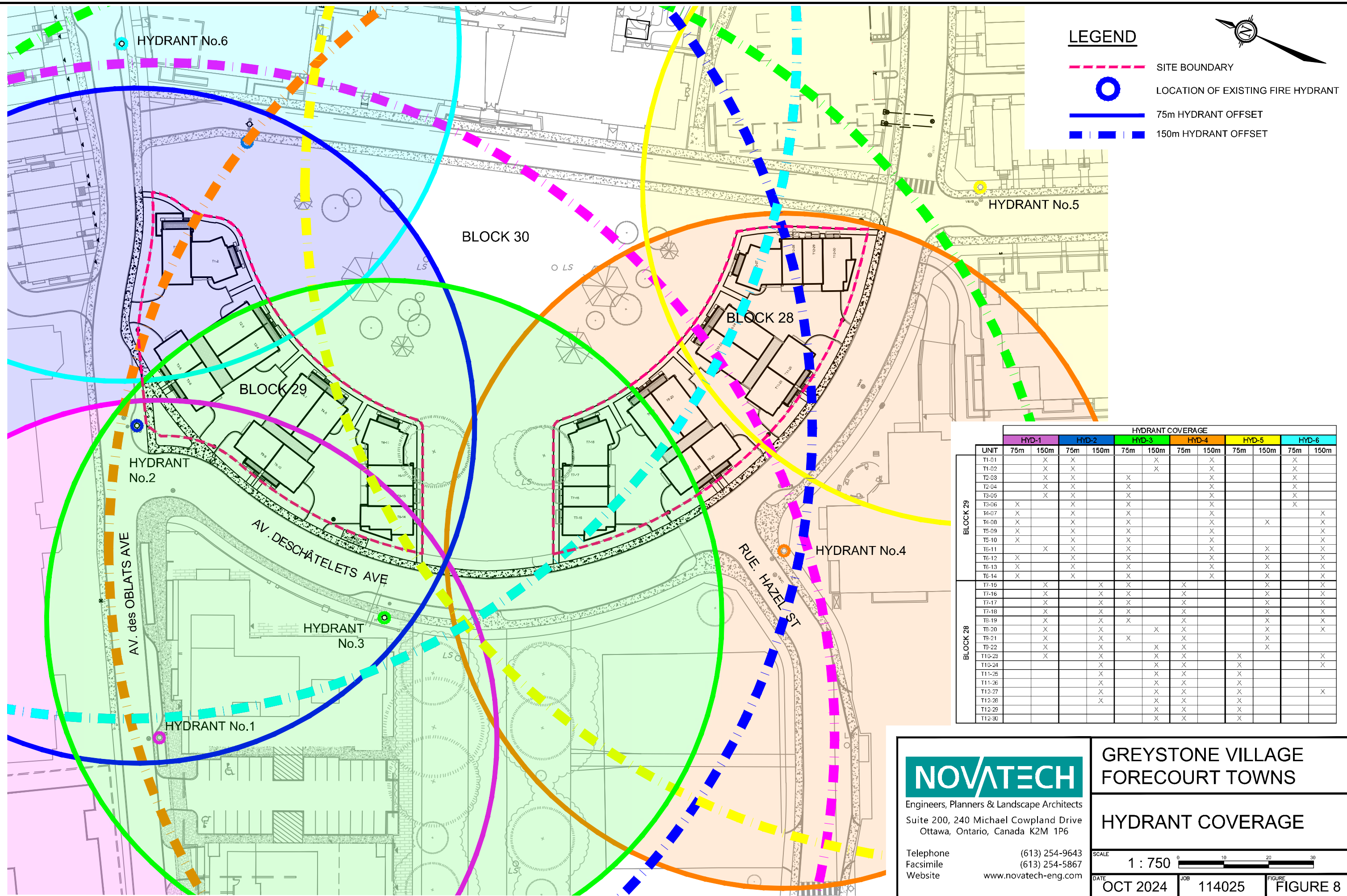
WATERMAIN LAYOUT
AND NODES - BLOCK 28

SCALE 1 : 400

DATE OCT 2024 JOB 114025 FIGURE 7

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-WM.dwg, FT-STM-BLK28-1-400, Oct 16, 2024 - 4:23pm, mabdul

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brien\Figure-FT-Hyd-Cov.dwg, Oct 17, 2024 - 9:35am, mabcul



LEGEND

- SITE BOUNDARY
- LOCATION OF EXISTING FIRE HYDRANT
- 75m HYDRANT OFFSET
- 150m HYDRANT OFFSET

| | | HYDRANT COVERAGE | | | | | | | | | | | |
|-----------------|--|------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | | HYD-1 | | HYD-2 | | HYD-3 | | HYD-4 | | HYD-5 | | HYD-6 | |
| UNIT | | 75m | 150m | 75m | 150m | 75m | 150m | 75m | 150m | 75m | 150m | 75m | 150m |
| BLOCK 29 | | | | | | | | | | | | | |
| T1-01 | | | X | | | | X | | | | | | X |
| T1-02 | | | X | | | | X | | | | | | X |
| T2-03 | | | X | | | | X | | | | | | X |
| T2-04 | | | X | | | | X | | | | | | X |
| T3-05 | | | X | | | | X | | | | | | X |
| T3-06 | | X | | | | | X | | | | | | X |
| T4-07 | | X | | | | | X | | | | | | X |
| T4-08 | | X | | | | | X | | | | | | X |
| T5-09 | | X | | | | | X | | | | | X | |
| T5-10 | | X | | | | | X | | | | | X | |
| T6-11 | | | X | | | | X | | | | | X | |
| T6-12 | | X | | | | | X | | | | | X | |
| T6-13 | | X | | | | | X | | | | | X | |
| T6-14 | | X | | | | | X | | | | | X | |
| BLOCK 28 | | | | | | | | | | | | | |
| T7-15 | | | X | | | | X | | | | | X | |
| T7-16 | | | X | | | | X | | | | | X | |
| T7-17 | | | X | | | | X | | | | | X | |
| T7-18 | | | X | | | | X | | | | | X | |
| T8-19 | | | X | | | | X | | | | | X | |
| T8-20 | | | X | | | | X | | | | | X | |
| T9-21 | | | X | | | | X | | | | | X | |
| T9-22 | | | X | | | | X | | | | | X | |
| T10-23 | | | X | | | | X | | | | | X | |
| T10-24 | | | X | | | | X | | | | | X | |
| T11-25 | | | X | | | | X | | | | | X | |
| T11-26 | | | X | | | | X | | | | | X | |
| T12-27 | | | X | | | | X | | | | | X | |
| T12-28 | | | X | | | | X | | | | | X | |
| T12-29 | | | X | | | | X | | | | | X | |
| T12-30 | | | X | | | | X | | | | | X | |

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

**GREYSTONE VILLAGE
 FORECOURT TOWNS**

HYDRANT COVERAGE

SCALE 1 : 750

DATE OCT 2024 JOB 114025 FIGURE 8

3.1 Design Criteria

3.1.1 Previous Studies

The Master Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Briefs (2016 & 2017) as listed above were completed prior to the City of Ottawa issuing Technical Bulletin ISTB 2018-01 & ISTB-2021-03. Therefore, the master servicing studies for Greystone Village were based on the following City of Ottawa design criteria:

Demands:

- Average Daily Demand = 350L/capita/day
- Maximum Daily Demand = 2.5 x Average Daily Demand
- Peak Hour Demand = 2.2 x Maximum Daily Demand

Residential

- Population Density:
 - 3.4/unit (Singles)
 - 2.7/unit (Towns)
 - 2.1/unit (Apartment)

System Requirements

- Maximum Pressure (System) = 100psi (690 kPa)
- Maximum Pressure (Service) = 80psi (552kPa)
- Minimum Allowable Pressure (excluding fire flow conditions) = 40psi (276 kPa)
- Minimum Allowable Pressure (including fire flow conditions) = 20psi (138 kPa)

Friction Factors:

| Watermain Size: | C-Factor: |
|--------------------------|-----------|
| 300mm diameter | 120 |
| 200mm and 250mm diameter | 110 |
| 150mm to 50mm diameter | 100 |

The water distribution network included with the MSS (2017) provided adequate system pressures during all scenarios within the development. The conclusions of the report, with respect to watermain, remain valid, and were substantiated by the MSSU (2024).

3.1.2 Proposed System

The current design is based on design criteria outlined in the City of Ottawa's Technical Bulletin ISTB 2018-01 & ISTB 2021-03. The development population is less than 500 people, therefore peaking factors have been based on Table 3-3 of the MOE Guidelines.

Demands:

- Average Daily Demand = 280L/capita/day
- Maximum Daily Demand = 9.5 x Average Daily Demand
- Peak Hour Demand = 14.3 x Average Daily Demand

Population densities, system requirements and friction factors are consistent with the design criteria utilized for the previous studies. Refer to **Appendix B** for the residential demand calculations.

3.2 Proposed Watermain Design

High pressure and maximum age (average day demand) checks; and minimum pressure (peak hour demand) checks were completed for the proposed watermain. Hydraulic modeling was completed using EPANet, Version 2.2, based on the boundary conditions provided by the City of Ottawa (refer to **Appendix B**). The results are listed in **Table 3.1** below:

Table 3.1: Water Operating Conditions

| Connection | Average Daily | | | Peak Hour | |
|------------|---------------|----------------------|-----------|--------------|----------------------|
| | Demand (L/s) | Pressure (kPa / psi) | Age (hrs) | Demand (L/s) | Pressure (kPa / psi) |
| 1 | 0.035 | 492.3 / 71.4 | 0.38 | 0.50 | 395.1 / 57.3 |
| 2 | 0.035 | 488.8 / 70.9 | 0.52 | 0.50 | 390.9 / 56.7 |
| 3 | 0.052 | 489.5 / 71.0 | 0.38 | 0.75 | 390.2 / 56.6 |
| 4 | 0.052 | 493.7 / 71.6 | 0.36 | 0.75 | 394.4 / 57.2 |
| 5 | 0.035 | 495.7 / 71.9 | 0.44 | 0.50 | 397.8 / 57.7 |
| 6 | 0.052 | 499.2 / 72.9 | 0.34 | 0.75 | 400.6 / 58.1 |

Refer to **Figure 6** and **Figure 7** for the location of the connection points and the layout of the proposed development blocks. Based on the results listed in **Table 3.1**, the proposed development blocks can be serviced with 50mm watermain from the existing Oblats Avenue and Deschatelets Avenue watermain. In addition, the pipe properties were also reviewed to ensure that hydraulic losses within the 50mm pipe were acceptable. Refer to **Appendix C** for complete hydraulic analysis results.

The required fire flows for the proposed units vary between 8000L/min and 11000L/min (refer to fire flow calculations in **Appendix C**). The boundary conditions provided by the City of Ottawa confirmed that pressures within the existing watermain network were greater than 20psi at the maximum requested fire flows (minimum head of 103.5m available at the property limits during fire flow conditions). City of Ottawa guidelines (ISTB-2021-03, August 2021) note that Class AA hydrants can supply 5700L/min of fire flow if located within 75m of the unit and 3800L/min if located within 75-150m of the location. Refer to **Table 3.2** for verification that there is sufficient hydrant coverage within the existing ROW to supply the fire flow demand for the proposed development.

Table 3.2: Available Fire Flows

| Housing Block | Required Fire Flow (L/min) | Hydrants <75m | Hydrants 75m-150m | Maximum Available Fire Flow* (L/min) |
|---------------|----------------------------|---------------|-------------------|--------------------------------------|
| 1 | 8000 | 2 | 3 | 22800 |
| 2 | 10000 | 3 | 2 | 24700 |
| 3 | 9000 | 3 | 2 | 24700 |
| 4 | 10000 | 3 | 2 | 24700 |
| 5 | 9000 | 3 | 2 | 24700 |

| Housing Block | Required Fire Flow (L/min) | Hydrants <75m | Hydrants 75m-150m | Maximum Available Fire Flow* (L/min) |
|---------------|----------------------------|---------------|-------------------|--------------------------------------|
| 6 | 10000 | 2 | 4 | 26600 |
| 7 | 10000 | 2 | 4 | 26600 |
| 8 | 10000 | 1 | 5 | 24700 |
| 9 | 9000 | 1 | 4 | 21000 |
| 10 | 10000 | 2 | 3 | 22800 |
| 11 | 9000 | 2 | 2 | 19000 |
| 12 | 11000 | 2 | 1 | 15200 |

* - Theoretical maximum fire flow that could be supplied based on Class AA hydrants with no system constraints.

Based on the results listed in **Table 3.2**, the existing hydrants located on existing Oblats Avenue, Deschâtelets Avenue, De Mazenod Avenue and Hazel Street allow for adequate coverage to provide fire flows in excess of the demands for the proposed units.

3.3 Watermain Conclusion

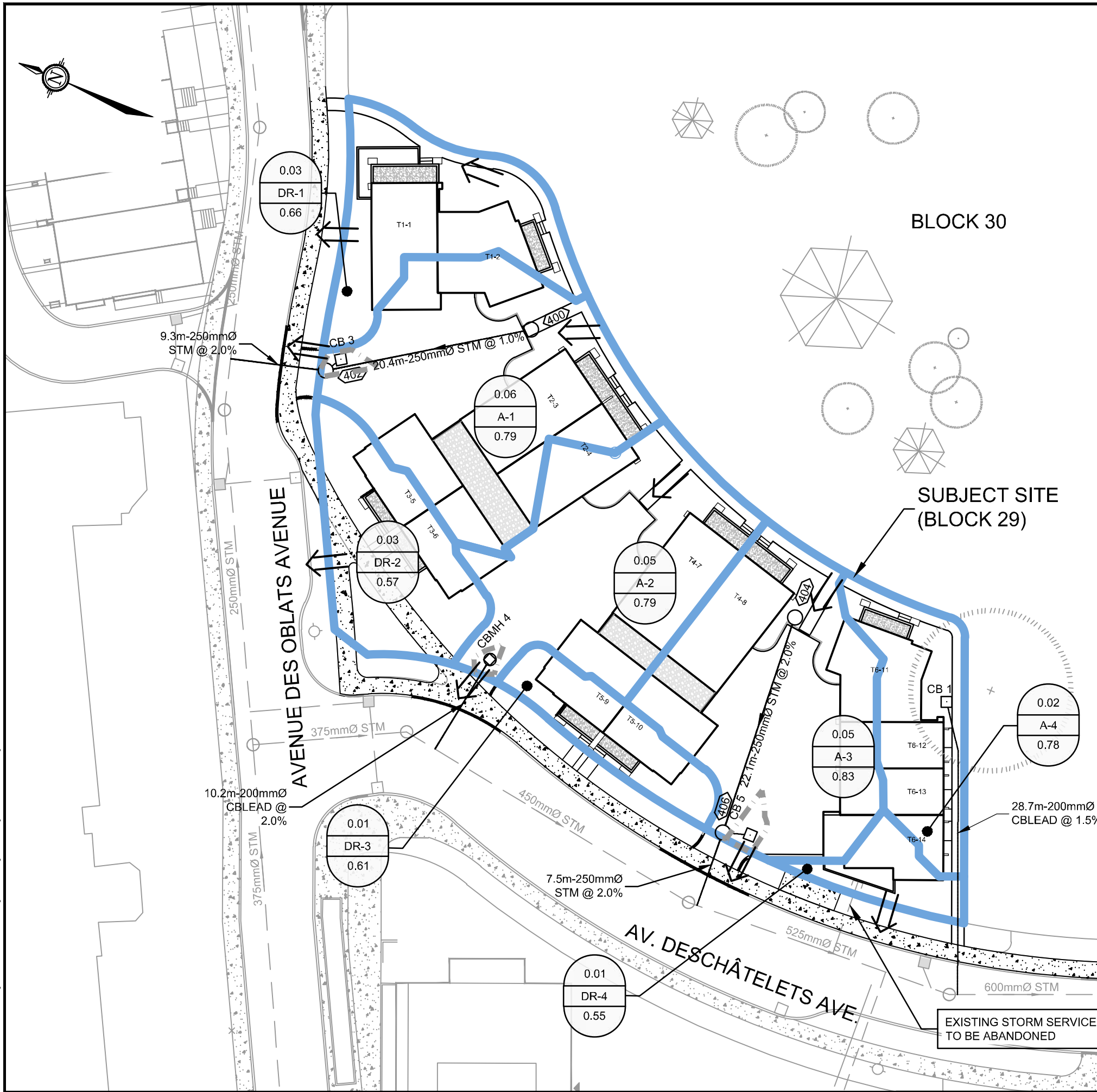
The existing 250mm dia. Deschâtelets Avenue and Oblats Avenue watermains provide adequate pressures to service the proposed development blocks. The proposed 50mm private mains are sufficient to meet the residential demand flows. The existing Oblats Avenue, Deschâtelets Avenue, De Mazenod Avenue and Hazel Street hydrants provide adequate fire protection to the proposed development.

4.0 STORMWATER MANAGEMENT

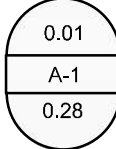
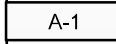
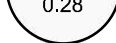

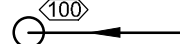

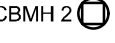







The storm drainage design for the Greystone Village Forecourt Townhomes is shown on the Storm Drainage Area Plans provided as **Figure 9** (Block 29) and **Figure 10** (Block 28). Each block consists of four clusters of townhomes separated by three car courts:

- The two outer car courts for both Block 28 and Block 29 will have 250mm storm sewers to collect foundation drainage from the Forecourt Townhomes.
- Each townhome block will be serviced with at least one 100mm diameter storm service for foundation drainage with backwater valves for flood protection.
- Surface drainage from the Forecourt Townhomes will be collected by catchbasins (CBs) and catchbasin maintenance holes (CBMHs). The locations of the storm sewer inlets are shown on Figures 9 and 10.
- The proposed 250mm storm sewer in the northwest car court of Block 29 will outlet to the existing storm sewer on Oblats Avenue. The remaining storm sewers and CB leads for the Forecourt Townhomes will outlet to the existing storm sewer on Deschatelets Avenue.
- There will be some direct runoff from front and side yard areas adjacent to Oblats Avenue and Deschatelets Avenue. The direct runoff areas are identified on the Storm Drainage Area Plans.

M:\2014\114025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-STM2.dwg, FT-STM-BLK29-1-400, Oct 17, 2024 - 10:31am, mabdul




LEGEND

-  0.01 — CATCHMENT AREA (HECTARES)
-  A-1 — AREA ID
-  0.28 — RUNOFF COEFFICIENT
-  DRAINAGE BOUNDARY AREA
-  PROPOSED STORM MAINTENANCE HOLE & SEWER WITH DIRECTION OF FLOW
-  EXISTING STORM MAINTENANCE HOLE & SEWER WITH DIRECTION OF FLOW
-  CBMH 2  PROPOSED CATCHBASIN MAINTENANCE HOLE
-  EXISTING CATCHBASIN MAINTENANCE HOLE
-  CB 8  PROPOSED CATCHBASIN
-  EXISTING CATCHBASIN
-  MAJOR OVERLAND FLOW DIRECTION
-  1:100yr PONDING AREA

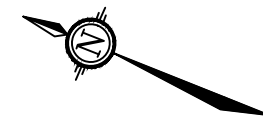
NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6
 Telephone (613) 254-9643
 Facsimile (613) 254-5867
 Website www.novatech-eng.com

**GREYSTONE VILLAGE
 FORECOURT TOWNS**

**STORM DRAINAGE
 AREA PLAN - BLOCK 29**

SCALE 1 : 400 

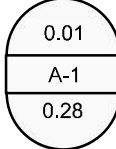
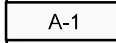
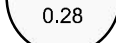

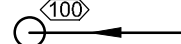

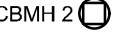

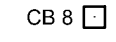



DATE OCT 2024 JOB 114025 FIGURE 9



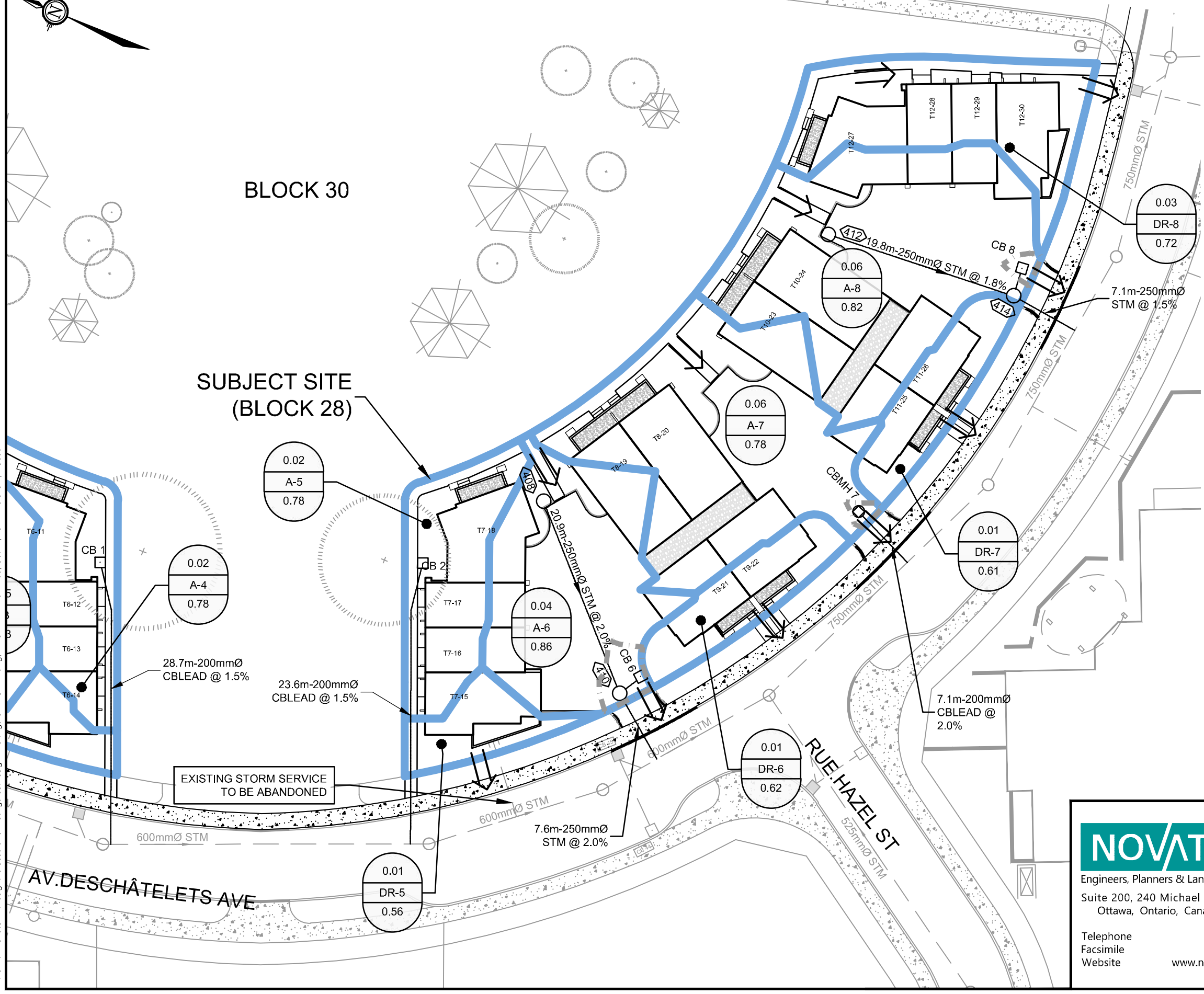
BLOCK 30

SUBJECT SITE
(BLOCK 28)

LEGEND

-  CATCHMENT AREA (HECTARES)
-  AREA ID
-  RUNOFF COEFFICIENT
-  DRAINAGE BOUNDARY AREA
-  PROPOSED STORM MAINTENANCE HOLE & SEWER WITH DIRECTION OF FLOW
-  EXISTING STORM MAINTENANCE HOLE & SEWER WITH DIRECTION OF FLOW
-  PROPOSED CATCHBASIN MAINTENANCE HOLE
-  EXISTING CATCHBASIN MAINTENANCE HOLE
-  PROPOSED CATCHBASIN
-  EXISTING CATCHBASIN
-  MAJOR OVERLAND FLOW DIRECTION
-  1:100yr PONDING AREA

M:\2014\1142025\CAD\Design\Forecourt Towns\Figures\Design Brief\Figure-FT-STM2.dwg, FT-STM-BLK28-1-400, Oct 17, 2024 - 10:31am, mabdul



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

GREYSTONE VILLAGE
FORECOURT TOWNS

STORM DRAINAGE
AREA PLAN - BLOCK 28

SCALE 1 : 400

DATE OCT 2024 JOB 114025 FIGURE FIGURE 10

4.1 Stormwater Management Criteria

The stormwater management criteria used in the design of the Greystone Village Forecourts Townhomes have been based on the following:

- Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief – Phase 2 and 3 dated May 26, 2017, (Novatech, May 2017/Ref. # R-2017-089).
 - This report outlined the design criteria for all future development within Greystone Village, including the Forecourt Townhome Blocks.
 - Master Servicing Study Update (MSSU) dated August 7, 2024, includes the same stormwater management criteria as the 2017 MSS report.
- City of Ottawa Sewer Design Guidelines (October 2012).

4.1.1 Minor System (Storm Sewers)

- Storm sewers are to be sized to convey the post-development 1:5-year peak flow.
- Provide additional storage (if necessary) to control the total site runoff to the allowable minor system release rate (5-year storm) for all storms up to the 100-year event.
- Ensure 100-year controlled flow rates do not exceed or have adverse effects on the existing storm system.
- Inlet control device (ICD) flow rates are to be calculated for each drainage area to ensure that the following stormwater management (SWM) objectives are satisfied:
- Surface water accumulation at street low points shall not be present for storm events up to and including the 1:5-year event.
- Ponding depths shall not exceed 0.30 m and shall not be within 0.30 m (vertical) of the nearest building opening.

4.1.2 Major System (Emergency Overland Flow)

- Runoff that exceeds the 100-year storm event is to be conveyed overland to Deschâtelets Avenue and Oblats Avenue.

4.1.3 Water Quality Control

- Water quality control will be provided via two existing Vortechnic hydrodynamic separators at the storm outlets to the Rideau River. These Vortechnic units have been designed to provide an Enhanced level of water quality treatment for the entire Greystone Village development, including the Forecourt Townhome blocks. No additional water quality treatment measures are proposed.

4.1.4 Erosion and Sediment Control

- A qualified inspector should conduct daily visits during construction to ensure that the contractor is working in accord with the design drawings and that mitigation measures are being implemented as specified;
- Inserts and filter fabric are to be placed under all proposed and existing catchbasins and storm manhole covers;

- After complete build-out, all sewers are to be inspected and cleaned and all sediment and construction fencing is to be removed.

4.2 Stormwater Management Modeling

The City of Ottawa Sewer Design Guidelines (October 2012) requires hydrologic / hydraulic modeling for all dual drainage systems. The performance of the proposed storm drainage system was originally evaluated using the PCSWMM model as part of the Master Servicing Study (MSS 2017). The MSS PCSWMM model has been updated using available as-built information for the storm drainage infrastructure in Greystone Village and all current development proposals as part of the Master Servicing Study Update (MSSU August 7, 2024). The results of the analysis were used to:

- Calculate the total post-development runoff from Forecourt Townhomes.
- Calculate the storm sewer hydraulic grade line for 100-year event.

A PCSWMM model version has been prepared as part of this design submission. Model schematics and output files are provided in **Appendix C**. The MSSU (2024) has been submitted under a separate cover.

4.2.1 Design Storms

The hydrologic / hydraulic analysis was completed using the following synthetic design storms and historical storms. The IDF parameters used to generate the design storms were taken from the City of Ottawa Sewer Design Guidelines (October 2012).

3 Hour Chicago Storms:

5-year 3hr Chicago storm
100-year 3hr Chicago storm
100-year+20% 3hr Chicago storm

24 Hour Chicago Storms:

100-year 24hr Chicago storm

12 Hour SCS Type II Storms:

5-year 24-hour SCS Type II storm
100-year 24-hour SCS Type II storm

Historical Storms:

July 1, 1979 storm
August 4, 1988 storm
August 8, 1996 storm

The 3-hour Chicago distribution generates the highest peak flows for both the minor and major systems and was determined to be the critical storm distribution for the design of the storm drainage system.

The proposed drainage system has also 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. This storm distribution is provided in **Appendix C**.

4.2.2 Modelling Parameters

The hydrologic parameters for each subcatchment were developed based on the proposed land use and grading. Subcatchments were modeled using the standard SWMM5 runoff module with Horton's Equation for infiltration.

Infiltration

Infiltration losses for all subcatchments were modeled using Horton's infiltration equation, which defines the infiltration capacity of 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: | Initial infiltration rate: $f_o = 76.2$ mm/hr |
| $f(t) = f_c + (f_o - f_c)e^{-k(t)}$ | Final infiltration rate: $f_c = 13.2$ mm/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. Rooftops were assumed to provide no depression storage (zero-impervious parameter).

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

Equivalent Width

'Equivalent Width' refers to the width of the subcatchment flow path. This parameter is calculated as described in Section 5.4.5.6 of the *City of Ottawa Sewer Design Guidelines* (October 2012).

Impervious Values

Runoff coefficients for each subcatchment were determined based on the proposed site plan. Percent impervious values were calculated using the following equation:

$$\%imp = (C - 0.20) / 0.70$$

A table with the subcatchment parameters for each of the Forecourt Townhomes drainage areas and their previously used areas (A3 and A7 in 2017 MSS) are provided in **Appendix C**.

Boundary Condition

The existing storm sewers outlet to the Rideau River in two locations, which has a 100-year flood elevation of 57.85m adjacent the site. Outlet 1 is located in the southeast corner of Phase 1 of the subdivision development, east of the Telmon Street and Scholastic Drive intersection. Outlet 2 is in the eastern portion of Phase 2, directly east of the Oblats Avenue and Scholastic Drive intersection. Refer to **Appendix C** for model schematics and outlet locations.

4.3 Proposed Stormwater System

4.3.1 Previous Studies (2017 MSS)

The existing sewers on Oblates Avenue and Deschâtelets Avenue were sized using the Rational Method based on a 5-year level of service, using the drainage areas and runoff coefficients from the Master Servicing Study (MSS 2017). Stormwater flows from the Forecourt Townhome blocks were allocated to discharge to the Rideau River via the following outlets.

- Outlet 1 - Located within Phase 1 of the Greystone Village development.
 - All of Block 28 and the majority of Block 29.
- Outlet 2 - Located within Phase 2-3 of the Greystone Village development.
 - The northeast portion of Block 29.

Updates to MSS (2017)

The drainage patterns and outlets for the Forecourt Townhomes site are generally consistent with the drainage patterns considered in the MSS (2017), but there have been some changes to drainage patterns and release rates from some of the other development areas within the MSS study limits. The overall storm drainage model from the MSS (2017) has been updated (MSSU, 2024) to reflect the proposed storm drainage system for the Forecourt Townhomes, along with the other development blocks within the study area. The Subcatchment area updates to reflect the Forecourt Townhomes have required some adjustments to the Subcatchment boundaries for adjacent areas. For details of the changes refer to MSSU (2024).

Areas A3 & A7 (2017 MSS)

In the storm drainage model prepared for the MSS (2017), the Forecourt Townhomes were represented by two catchment areas (Areas A3 and A7). These catchments have been updated and discretized into sixteen (16) smaller subcatchment areas to reflect the detailed grading design for the Forecourt Townhomes as shown on **Figure 9** and **Figure 10**.

4.3.2 Storm System

Runoff from the proposed site will be captured by a combination of onsite catchbasins and catchbasin maintenance holes, with some limited direct runoff to Deschâtelets Avenue and Oblats Avenue which will be captured by the existing catchbasins in the ROW. Refer to **Figure 9** – Storm Drainage Area Plan – Block 29 and **Figure 10** – Storm Drainage Area Plan – Block 28.

Inlet Control Devices

Inlet control devices (ICDs) are to be installed within the proposed catchbasins and CBMHs in the Forecourt Townhome blocks to limit the inflows to the minor system during larger events. The ICDs have been sized based on the City of Ottawa standard orifice style ICD sizes (i.e. 83, 94, 102, 108, 127, 157, & 178mm) or low flow IPEX Tempest as required. ICD discharge curves for all proposed sizes are provided in **Appendix C**.

The ICDs have been sized to provide a 5-year inlet capture rate to prevent surface ponding during a 5-year storm event; and to ensure that during the 100-year storm event surface ponding does not exceed 0.30m.

4.4 Results

To capture the Forecourt Townhomes design and other updates within Greystone Village development, a Master Servicing Study Update (MSSU 2024) has been prepared and submitted under a separate cover. The results of this report are consistent with the MSSU (2024) and the same PCSWMM model has been used.

4.4.1 Storm Flows – Forecourt Townhomes

Storm flows from the Forecourt Townhomes site will be captured by a combination of catchbasins and catchbasin maintenance holes within the proposed site and some overland drainage to existing catchbasins on Oblats Avenue and Deschâtelets Avenue. A summary of the flows in comparison with Areas A3 and A7 of MSS 2017 (previously assumed condition) is provided in **Table 4.1**. Refer to the Model Schematics in **Appendix C** for Subcatchment locations.

Table 4.1: Storm Flows – Forecourt Townhomes

| Subcatchment ID | Outlet | System | Approaching Flow Rate (L/s) | | Captured Flow Rate (L/s) | |
|--------------------------------------|-------------------|--------------|-----------------------------|-------|--------------------------|-------|
| | | | 5yr | 100yr | 5yr | 100yr |
| Proposed Condition | | | | | | |
| A3-A-1 | CB3 | Minor System | 16.2 | 29.0 | 14.9 | 15.9 |
| A3-A-2 | CBMH4 | Minor System | 13.6 | 24.2 | 12.7 | 15.5 |
| A3-A-3 | CB5 | Minor System | 14.0 | 24.5 | 13.3 | 16.2 |
| A3-A-4 | CB1 | Minor System | 5.4 | 9.7 | 3.4 | 3.7 |
| A3-DR1 | Oblats Ave. | Overland | 6.8 | 13.7 | - | - |
| A3-DR2 | Oblats Ave. | Overland | 4.3 | 11.0 | - | - |
| A3-DR3 | Deschâtelets Ave. | Overland | 1.9 | 4.2 | - | - |
| A3-DR4 | Deschâtelets Ave. | Minor System | 1.8 | 4.2 | - | - |
| A7-A-5 | CB2 | Minor System | 5.5 | 9.7 | 3.5 | 3.9 |
| A7-A-6 | CB6 | Minor System | 11.4 | 19.7 | 10.3 | 12.1 |
| A7-A-7 | CBMH7 | Minor System | 16.1 | 28.9 | 14.8 | 16.6 |
| A7-A-8 | CB8 | Minor System | 16.8 | 29.3 | 15.6 | 16.2 |
| A7-DR5 | Deschâtelets Ave. | Overland | 1.8 | 4.2 | - | - |
| A7-DR6 | Deschâtelets Ave. | Overland | 1.9 | 4.3 | - | - |
| A7-DR7 | Deschâtelets Ave. | Overland | 1.9 | 4.2 | - | - |
| A7-DR8 | Deschâtelets Ave. | Overland | 7.5 | 14.1 | - | - |
| Previous Condition (MSS 2017) | | | | | | |
| A3 | Deschâtelets Ave. | Overland | 69 | 40 | - | - |
| A7 | Deschâtelets Ave. | Overland | 69 | 40 | - | - |

4.4.2 HGL Check

The hydraulic grade line (HGL) in the proposed storm sewers was evaluated using the PCSWMM model. The HGL is provided in **Table 4.2**. It provides the estimated HGL elevations for the 100-year storm event and proposed underside-of-footing (USF) elevations. In addition, this table includes the resulting HGL elevations from the 'stress test' event; using a 3-hour Chicago design storm that has a 20% higher intensity and total volume compared to the 100-year event.

The results of the HGL analysis demonstrate that the proposed storm sewers have sufficient capacity to convey the controlled minor system flows during the 100-year design event.

Table 4.2 – Hydraulic Grade Line Elevations and USF Clearance

| MH ID | Obvert Elev (m) | T/G Elev (m) | 100yr HGL Elev(m) | 100yr+20% HGL Elev(m) | Min USF (m) | Design USF (m) | Clearance (m) | |
|-------|-----------------|--------------|-------------------|-----------------------|-------------|----------------|---------------|-----------|
| | | | | | | | 100yr | 100yr+20% |
| MH400 | 63.21 | 65.24 | 62.66 | 62.66 | 63.51 | 63.11 | 0.45 | 0.45 |
| MH402 | 62.87 | 64.88 | 62.71 | 62.71 | 63.17 | 63.11 | 0.40 | 0.40 |
| MH404 | 63.51 | 65.53 | 62.96 | 62.96 | 63.81 | 63.36 | 0.40 | 0.40 |
| MH406 | 63.04 | 65.21 | 62.87 | 62.87 | 63.34 | 63.36 | 0.49 | 0.49 |
| MH408 | 63.51 | 95.15 | 62.96 | 62.96 | 63.81 | 63.21 | 0.25 | 0.25 |
| MH410 | 62.78 | 64.81 | 62.59 | 62.60 | 63.08 | 62.96 | 0.37 | 0.36 |
| MH412 | 62.53 | 64.53 | 62.28 | 62.28 | 62.83 | 62.61 | 0.33 | 0.33 |
| MH414 | 62.15 | 64.16 | 62.05 | 62.18 | 62.45 | 62.61 | 0.56 | 0.43 |

* Results of 3hour Chicago Storm

4.4.3 Inlet Control Devices

Table 4.3 summarizes the ICD sizes, types and heads for the 5-year and 100-year design events for each inlet to the storm sewer. As noted in this table, there is no surface ponding during the 5-year storm event as the simulated hydraulic grade line is below the top of grate elevation of the structure.

Table 4.3 – Inlet Control Devices & Ponding Depths

| ICD Name | Inlet Node | Outlet Node | Inlet Elev. (m) | ICD Type | 5yr | | 100yr | |
|-----------|------------|-------------|-----------------|----------|-------------|----------|-------------|----------|
| | | | | | Ponding (m) | Head (m) | Ponding (m) | Head (m) |
| A3-A1-OR | CB3 | MH402 | 63.70 | 83mm | 0.00 | 1.07 | 0.07 | 1.21 |
| A3-A2-OR | CBMH4 | MH172 | 64.06 | 83mm | 0.00 | 0.79 | 0.05 | 1.14 |
| A3-A3-OR | CB5 | MH406 | 63.93 | 83mm | 0.00 | 0.86 | 0.06 | 1.26 |
| A3-A4-LMF | CB1 | MH168 | 63.70 | LMF 60 | 0.00 | 1.14 | 0.00 | 1.30 |
| A7-A5-LMF | CB2 | MH166 | 63.57 | LMF 60 | 0.00 | 1.20 | 0.00 | 1.42 |
| A7-A6-LMF | CB6 | MH410 | 63.31 | LMF 105 | 0.00 | 1.10 | 0.13 | 1.53 |
| A7-A7-LMF | CBMH7 | MH164 | 63.20 | 83mm | 0.00 | 1.05 | 0.06 | 1.31 |
| A7-A8-OR | CB8 | MH414 | 62.85 | 83mm | 0.00 | 1.16 | 0.06 | 1.25 |

4.4.4 Major System Flows

A portion of the uncontrolled flows from Forecourt Townhomes will flow overland to either Oblats Avenue or Deschâtelets Avenue. The MSSU (2024) checked overland flow depths and velocities using the updated model (the same model used for this submission) to ensure that the results conform to the SWM design criteria. **Table 4.4** shows the summary of major system flows for the 5-year, 100-year and stress test model runs.

Direct Runoff Areas

Based on the detailed grading design for the Forecourt Townhomes, storm runoff from Areas A3-DR1 and A3-DR2 will flow directly to the major system in Oblats Avenue. Storm runoff from Areas A3-DR3, A3-DR4 and A7-DR5, A7-DR6, A7-DR7, A7-DR8 will flow directly to the major system in Deschâtelets Avenue.

Overland Flow From Controlled Areas

Runoff from less frequent storms (greater than the 5-year event) that exceed ICD and minor system capacity, from area A3-A-1 will flow overland towards Oblats Avenue, while excess flows from A3-A-2, A3-A-3, A3-A-4, A7-A-5, A7-A-6, A7-A-7 and A7-A-8 will flow overland towards Deschâtelets Avenue. Based on the model results (refer to MSSU 2024), the Forecourt Townhomes site will have no adverse effects on the major system flows throughout the development.

Table 4.4 – Summary of Flows to Major System from Forecourt Townhomes

| Area | Flow to Major System | | |
|---------------------------|----------------------|----------|-------------|
| | 5-year | 100-year | Stress Test |
| Controlled Areas | | | |
| A3-A1 | 0 | 13 | 19 |
| A3-A2 | 0 | 9 | 14 |
| A3-A3 | 0 | 9 | 13 |
| A3-A4 | 0 | 1 | 3 |
| A7-A5 | 0 | 3 | 7 |
| A7-A6 | 0 | 8 | 12 |
| A7-A7 | 0 | 12 | 18 |
| A7-A8 | 0 | 13 | 19 |
| Uncontrolled Areas | | | |
| A3-DR1 | 7 | 14 | 17 |
| A3-DR2 | 4 | 11 | 14 |
| A3-DR3 | 2 | 4 | 5 |
| A3-DR4 | 2 | 4 | 5 |
| A3-DR5 | 2 | 4 | 5 |
| A7-DR6 | 2 | 4 | 5 |
| A7-DR7 | 2 | 4 | 5 |
| A7-DR8 | 7 | 14 | 17 |

4.5 LID Features

The site design has incorporated permeable surfaces wherever practical (walkways, garbage pads, landscaped areas) to promote infiltration and reduce stormwater runoff. The stormwater design does not account for the presence of these measures on the site based on the previous report, *Greystone Village – 175 Main Street – Potential Low Impact Development Opportunities, Prepared by Novatech, dated November 25, 2015, Ref. R-2015-182*, which indicated that LID features were not feasible for the development given the existing soils.

5.0 SITE GRADING

5.1 Existing Conditions

The site is currently vacant. Both blocks previously had the topsoil removed and granular material placed to provide temporary construction staging area. The current grades are general in line with the original (pre-development) grading of the property which was primarily a grassed area surrounded by mature trees prior to the development works. The site has minimal slopes with the topography slightly higher in the central portions sloping gradually to the northeast and southeast. There are currently no operational drainage structures located within the site limits or on the adjacent park block (Block 30) and surface flows from all three block (Block 28, Block 29 and Block 30) eventually reach the drainage structures located within the Oblats Avenue and Deschâtelets Avenue ROW.

5.2 Proposed Conditions

The design grades will tie into proposed back of sidewalk elevations along Oblats Avenue and Deschâtelets Avenue. Elevations along the eastern boundary of the site are set to direct drainage away from the Block 30 property line. This requires a proposed elevation difference of up to 0.6m from the existing elevations. It is proposed to provide terracing from the property line to the existing ground elevations where required onto the Block 30 property. It is anticipated the maximum extent of the grading impacts onto the adjacent block will be 2m. The terracing would be reviewed to ensure that the terracing did not create any new drainage issues on the adjacent block. For detailed grading refer to the Grading Plans (**114025-FT-GR1 & 114025-FT-GR2, Appendix E**).

The proposed grading will fall within these ranges:

- Landscaped Areas: Minimum 2% - Maximum 6%, Maximum Terracing: 3H:1V
- Driveway and Parking Areas: 0.5% - 5%
- Entrance: 2% maximum

5.3 Emergency Overland Flow Route

In the case of a major rainfall event exceeding the capture capacity of the on-site drainage structures, the site will be graded to provide an overland flow route for the stormwater to leave the site. The major system flow route from the subject site will overflow through the car court entrances to the adjacent ROW (Oblats Avenue and Deschâtelets Avenue), as discussed in **Section 4.4.4**. There are two small drainage areas along the eastern portions of the property, specifically adjacent to the large heritage trees, where major system flows are unable to be directed to the City ROW before outletting to the adjacent park block. This is consistent with the existing drainage conditions and is unavoidable without significant impacts to the critical root zones of the heritage trees. The finished floor elevations of the buildings are a minimum of 0.15m above the major system overflow points along hard surfaced areas and 0.3m in landscaped areas. The emergency overland flow routes are shown on the Storm Drainage Area Plans (**Figure 9 & Figure 10**).

6.0 NOISE

An analysis of the roadway traffic along Mainstreet to the West and Highway 417 to the North indicates that the indoor sound levels for all buildings north of the existing Deschâtelets building will not exceed the maximum allowable limits outlined in the City of Ottawa's Environmental Noise Control Guidelines and therefore noise attenuation measures for the buildings will not be necessary for the Forecourt Townhomes.

The detailed results are included in the Noise Impact Assessment Report. Refer to "Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief – Phase 2 and 3" dated May 26, 2017, by Novatech Engineering.

7.0 UTILITIES

The Forecourt Townhome blocks will be serviced with hydro, gas, Bell and Rogers with connections to Oblats Avenue and Deschâtelets Avenue. Canada Post will service the site with community mailboxes. Site lighting will be provided along roadways, sidewalks and walkways as per City standards.

8.0 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 catch basin/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.

The following erosion and sediment control measures will be implemented during construction. Details are provided on the 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 **(114025-FT-ESC1 & 114025-FT-ESC2, Appendix E)**.

- Catch basin inlet protection measures are to be established for all proposed and existing catch basins and storm sewer 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).

9.0 CONCLUSIONS

This report confirms the proposed Greystone Village Forecourt Townhome development can be adequately serviced with storm and sanitary sewers and watermain. The report is summarized below:

Sanitary Servicing

- The sanitary flows have decreased for the Forecourt Townhome site compared to the calculated flows in the Master Servicing Study (MSS 2017) and is consistent with the Master Servicing Study Update (MSSU 2024). There is adequate servicing capacity in the existing sanitary sewer to support the proposed development.

Watermain

- The proposed 50mm dia. watermains are sufficient to provide the required residential water demands for the development.
- The existing hydrants on De Mazenod Avenue, Deschâtelets Avenue, Oblats Avenue and Hazel Street are sufficient to provide the required fire flow demands for the proposed development.

Stormwater Management

- The two (2) proposed development parcels, each consisting of six (6) semi-detached or townhome blocks, are proposed to be serviced by a combination of 250mm diameter storm sewers and 200mm diameter catchbasin leads. Each parcel will require four (4) connections to the existing storm sewers within the Oblats Avenue and Deschâtelets Avenue ROW.
- Runoff from the site will be captured by a combination of catchbasins and catchbasin maintenance holes or will drain overland to Oblats Avenue or Deschâtelets Avenue.
 - There will be no ponding in the 5-year event.

- Ponding depths in the 100-year event will be less than 0.30m.
- The ponding will not touch the building envelopes in the stress test event.
- The impact of the proposed development on the existing sewers (Capacity, HGL, and Overland flow depths and velocities) within the Greystone Subdivision ROW have been analyzed in the MSSU (2024) and found to have no negative impacts on the downstream system.
- Updated ECA approvals will be obtained for the existing storm sewer outlets through the subdivision approvals based on the MSSU (2024).

Noise

- The indoor sound levels for all buildings will not exceed the maximum allowable limits outlined in the City of Ottawa's Environmental Noise Control Guidelines. Further conclusions are provided in the "Greystone Village, 175 Main Street – Site Servicing, Stormwater Management, Noise, Erosion and Sediment Control Brief – Phase 2 and 3" dated May 26, 2017, by Novatech Engineering.

Utilities

- The development will be serviced by hydro (Hydro Ottawa), gas (Enbridge), Bell and Rogers from the existing services on Deschâtelets Avenue, Oblats Avenue and the hydro servicing easement over Block 30.

Erosion and Sediment Control

- Erosion and sediment control measures will be implemented prior to construction and remain in place until vegetation is established.

This report is respectfully submitted for site plan approval. Please contact the undersigned should you have questions or require additional information.

NOVATECH

Prepared by:

Vahid Mehdipour

Vahid Mehdipour, M.Sc.
Engineering Intern | Water Resources

Reviewed by:

T. McKay

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



APPENDIX A

Sanitary Sewer Design

SANITARY SEWER DESIGN SHEET



Novatech Project #: 114025-5
Project Name: Greystone Village - Forecourt Townhomes - Block 28 (355 Deschatelets Avenue)
Date: 10/17/2023
Input By: Mo Abdul
Reviewed By: Trevor McKay
Drawing Reference: Figure 5 - Sanitary Drainage Area Plan (Block 28)

Legend: Design Input by User
 As-Built Input by User
 Cumulative Cell
 Calculated Design Cell Output
Reference: City of Ottawa - Sewer Design Guidelines (2012 and TBs)
 MOE - Design Guidelines for Sewage Works (2008)

| Location | | | | Demand | | | | | | | | | | | | Design Capacity | | | | | | | | |
|--------------------------------|-----------------|---------|--------|------------------|---------------|----------|---------------------------|--------------------------------------|------------------------------------|----------------------------|--|-----------------------------|--|--|---|---|--------------------|-----------------------------|-----------------------|----------------|------------------------|----------------------------|-----------------------------|--------------|
| Street | Area ID | From MH | To MH | Residential Flow | | | | | | | | Extraneous Flow Area Method | | Total Design Flow | Proposed Sewer Pipe Sizing / Design | | | | | | | | | |
| | | | | Singles | Semis / Towns | Apts | Population (in 1000's) | Cumulative Population (in 1000's) | Average Pop. Flow Q(q) (L/s) | Design Peaking Factor M | Peak Design Pop. Flow Q(p) (L/s) | Res. Drainage Area (ha.) | Cumulative Res. Drainage Area (ha.) | Cumulative Extraneous Drainage Area (ha.) | Design Extraneous Flow Q(e) (L/s) | Total Peak Design Flow Q(D) (L/s) | Pipe Length (m) | Pipe Size (mm) and Material | Pipe ID Actual (m) | Roughness n | Design Grade So (%) | Capacity Qfull (L/s) | Full Flow Velocity (m/s) | Q(D) / Qfull |
| Block 28 | A4 | 413 | 415 | | 6 | | 0.016 | 0.016 | 0.05 | 3.71 | 0.19 | 0.088 | 0.088 | 0.088 | 0.03 | 0.22 | 21.1 | 200 PVC | 0.203 | 0.013 | 2.00 | 48.4 | 1.49 | 0.5% |
| Block 28 | | 415 | EX-PH1 | | | | 0.000 | 0.016 | 0.05 | 3.71 | 0.19 | 0.000 | 0.088 | 0.088 | 0.03 | 0.22 | 8.3 | 250 PVC | 0.254 | 0.013 | 2.00 | 87.7 | 1.73 | 0.3% |
| Block 28 | A5 | 417 | 419 | | 4 | | 0.011 | 0.011 | 0.04 | 3.73 | 0.13 | 0.066 | 0.066 | 0.02 | 0.15 | 20.2 | 200 PVC | 0.203 | 0.013 | 2.00 | 48.4 | 1.49 | 0.3% | |
| Block 28 | | 419 | EX-PH1 | | | | 0.000 | 0.011 | 0.04 | 3.73 | 0.13 | 0.000 | 0.066 | 0.066 | 0.02 | 0.15 | 7.3 | 250 PVC | 0.254 | 0.013 | 1.50 | 76.0 | 1.50 | 0.2% |
| Block 28 | A6 | 421 | 423 | | 6 | | 0.016 | 0.016 | 0.05 | 3.71 | 0.19 | 0.088 | 0.088 | 0.03 | 0.22 | 22.2 | 200 PVC | 0.203 | 0.013 | 2.00 | 48.4 | 1.49 | 0.5% | |
| Block 28 | | 423 | EX-PH1 | | | | 0.000 | 0.016 | 0.05 | 3.71 | 0.19 | 0.000 | 0.088 | 0.088 | 0.03 | 0.22 | 7.8 | 250 PVC | 0.254 | 0.013 | 2.00 | 87.7 | 1.73 | 0.3% |
| Total to Phase 1 Sewers | A4+A5+A6 | | | 0 | 16 | 0 | 0.043 | 0.043 | 0.14 | 3.66 | 0.51 | 0.242 | 0.242 | 0.242 | 0.08 | 0.59 | 86.9 | | | | | | | |

Demand Equation / Parameters

- $Q(D) = Q(p) + Q(ici) + Q(e)$
- $Q(p) = (P \times q \times M \times K / 86,400)$
- $q = 280$ L/per person/day (design)
- $M = \text{Harmon Formula (maximum of 4.0)}$
- $K = 0.8$ (design)
- Park flow is considered equivalent to a single unit / ha**
 $\text{Park Demand} = 4$ single unit equivalent / park ha (~ 3,600 L/ha/day)
- $Q(ici) = \text{ICI Area} \times \text{ICI Flow} \times \text{ICI Peak}$
- $Q(e) = 0.33$ L/s/ha (design)

Definitions

Q(D) = Peak Design Flow (L/s)
Q(p) = Peak Design Population Flow (L/s)
Q(q) = Average Population Flow (L/s)

| | | | |
|--|----------------|----------------------|-------------|
| | <u>Singles</u> | <u>Semis / Towns</u> | <u>Apts</u> |
| P = Residential Population = | 3.4 | 2.7 | 2.1 |
| q = Average Capita Flow | | | |
| M = Harmon Formula | | | |
| K = Harmon Correction Factor | | | |
| Q(ici) = Industrial / Commercial / Institutional Flow (L/s) | | | |
| Q(e) = Extraneous Flow (L/s) | | | |

| | | | |
|-------------------|--|-------------------|---|
| | <u>Institutional / Commercial / Industrial</u> | <u>Industrial</u> | <u>Commercial / Institutional</u> |
| Design = | 35000 | 28000 | L/gross ha/day |
| ICI Peak * | | | |
| Design = | 1.0 | 1.5 | * ICI Peak = 1.0 Default, 1.5 if ICI in contributing area is >20% (design only) |

Capacity Equation

$$Q_{full} = 1000 \cdot (1/n) \cdot A_p \cdot R^{2/3} \cdot S_o^{0.5}$$

Definitions

Q full = Capacity (L/s)
n = Manning coefficient of roughness (0.013)
A_p = Pipe flow area (m²)
R = Hydraulic Radius of wetted area (dia./4 for full pipes)
S_o = Pipe slope/gradient



SANITARY SEWER DESIGN SHEET



Novatech Project #: 114025-5
Project Name: Greystone Village - Forecourt Townhomes - Block 29 (295 Deschatelets Avenue)
Date: 10/17/2023
Input By: Mo Abdul
Reviewed By: Trevor McKay
Drawing Reference: Figure 4 - Sanitary Drainage Area Plan (Block 29)

Legend: Design Input by User
 As-Built Input by User
 Cumulative Cell
 Calculated Design Cell Output
Reference: City of Ottawa - Sewer Design Guidelines (2012 and TBs)
 MOE - Design Guidelines for Sewage Works (2008)

| Location | | | | Demand | | | | | | | | | | | | | Design Capacity | | | | | | | |
|--------------------------------|--------------|---------|--------|------------------|---------------|----------|---------------------------|--------------------------------------|------------------------------------|----------------------------|--|-----------------------------|--|--|---|---|--------------------|-----------------------------|-----------------------|----------------|------------------------|----------------------------|-----------------------------|--------------|
| Street | Area ID | From MH | To MH | Residential Flow | | | | | | | | Extraneous Flow Area Method | | Total Design Flow | Proposed Sewer Pipe Sizing / Design | | | | | | | | | |
| | | | | Singles | Semis / Towns | Apts | Population (in 1000's) | Cumulative Population (in 1000's) | Average Pop. Flow Q(q) (L/s) | Design Peaking Factor M | Peak Design Pop. Flow Q(p) (L/s) | Res. Drainage Area (ha.) | Cumulative Res. Drainage Area (ha.) | Cumulative Extraneous Drainage Area (ha.) | Design Extraneous Flow Q(e) (L/s) | Total Peak Design Flow Q(D) (L/s) | Pipe Length (m) | Pipe Size (mm) and Material | Pipe ID Actual (m) | Roughness n | Design Grade So (%) | Capacity Qfull (L/s) | Full Flow Velocity (m/s) | Q(D) / Qfull |
| Block 29 | A1 | 401 | 403 | | 4 | | 0.011 | 0.011 | 0.04 | 3.73 | 0.13 | 0.085 | 0.085 | 0.085 | 0.03 | 0.16 | 20.6 | 200 PVC | 0.203 | 0.013 | 1.00 | 34.2 | 1.06 | 0.5% |
| Block 29 | | 403 | EX-PH2 | | | | 0.000 | 0.011 | 0.04 | 3.73 | 0.13 | 0.000 | 0.085 | 0.085 | 0.03 | 0.16 | 7.0 | 250 PVC | 0.254 | 0.013 | 1.00 | 62.0 | 1.22 | 0.3% |
| Total to Phase 2 Sewers | A1 | | | 0 | 4 | 0 | 0.011 | 0.011 | 0.04 | 3.73 | 0.13 | 0.085 | 0.085 | 0.085 | 0.03 | 0.16 | 27.6 | | | | | | | |
| Block 29 | A2 | 405 | 407 | | 4 | | 0.011 | 0.011 | 0.04 | 3.73 | 0.13 | 0.078 | 0.078 | 0.078 | 0.03 | 0.16 | 22.4 | 200 PVC | 0.203 | 0.013 | 1.50 | 41.9 | 1.29 | 0.4% |
| Block 29 | | 407 | EX-PH1 | | | | 0.000 | 0.011 | 0.04 | 3.73 | 0.13 | 0.000 | 0.078 | 0.078 | 0.03 | 0.16 | 9.7 | 250 PVC | 0.254 | 0.013 | 1.50 | 76.0 | 1.50 | 0.2% |
| Block 29 | A3 | 409 | 411 | | 6 | | 0.016 | 0.016 | 0.05 | 3.71 | 0.19 | 0.089 | 0.089 | 0.089 | 0.03 | 0.22 | 21.3 | 200 PVC | 0.203 | 0.013 | 2.00 | 48.4 | 1.49 | 0.5% |
| Block 29 | | 411 | EX-PH1 | | | | 0.000 | 0.016 | 0.05 | 3.71 | 0.19 | 0.000 | 0.089 | 0.089 | 0.03 | 0.22 | 8.4 | 250 PVC | 0.254 | 0.013 | 2.00 | 87.7 | 1.73 | 0.3% |
| Total to Phase 1 Sewers | A2+A3 | | | 0 | 10 | 0 | 0.027 | 0.027 | 0.09 | 3.69 | 0.32 | 0.167 | 0.167 | 0.167 | 0.06 | 0.38 | 61.8 | | | | | | | |

Demand Equation / Parameters

- $Q(D) = Q(p) + Q(ici) + Q(e)$
- $Q(p) = (P \times q \times M \times K) / 86,400$
- $q = 280$ L/person/day (design)
- $M = \text{Harmon Formula (maximum of 4.0)}$
- $K = 0.8$ (design)
- Park flow is considered equivalent to a single unit / ha**
 $\text{Park Demand} = 4$ single unit equivalent / park ha (~ 3,600 L/ha/day)
- $Q(ici) = \text{ICI Area} \times \text{ICI Flow} \times \text{ICI Peak}$
- $Q(e) = 0.33$ L/s/ha (design)

Definitions

- Q(D)** = Peak Design Flow (L/s)
Q(p) = Peak Design Population Flow (L/s)
Q(q) = Average Population Flow (L/s)
- | | | | |
|--|----------------|----------------------|-------------|
| | <u>Singles</u> | <u>Semis / Towns</u> | <u>Apts</u> |
| P = Residential Population = | 3.4 | 2.7 | 2.1 |
| q = Average Capita Flow | | | |
| M = Harmon Formula | | | |
| K = Harmon Correction Factor | | | |
| Q(ici) = Industrial / Commercial / Institutional Flow (L/s) | | | |
| Q(e) = Extraneous Flow (L/s) | | | |
-
- | | | |
|--|-------------------|-----------------------------------|
| <u>Institutional / Commercial / Industrial</u> | <u>Industrial</u> | <u>Commercial / Institutional</u> |
| Design = | 35000 | 28000 |
| | | L/gross ha/day |
| <u>ICI Peak *</u> | | |
| Design = | 1.0 | 1.5 |
- * ICI Peak = 1.0 Default, 1.5 if ICI in contributing area is >20% (design only)

Capacity Equation

$$Q_{full} = 1000 \cdot (1/n) \cdot A_p \cdot R^{2/3} \cdot S_o^{0.5}$$

Definitions

- Q full** = Capacity (L/s)
n = Manning coefficient of roughness (0.013)
A_p = Pipe flow area (m²)
R = Hydraulic Radius of wetted area (dia./4 for full pipes)
S_o = Pipe slope/gradient



SANITARY SEWER DESIGN SHEET
Greystone Village - 175 Main Street
Developer: Greystone Village Inc.
Additional Condo Units



PROJECT # : 114025
DESIGNED BY : SZ
CHECKED BY : JAG
DATE PREPARED : 15-Dec-15
DATE REVISED : 04-Apr-16
DATE REVISED : 21-Jun-16
DATE REVISED : 15-Mar-17
DATE REVISED : 26-May-17

| LOCATION | | | | INDIVIDUAL | | | | | | | CUMULATIVE | | PEAK FACTOR M | POPULATION FLOW Q(p) (L/s) | PEAK EXTRAN. FLOW Q(i) (L/s) | PEAK DESIGN FLOW Q(d) (L/s) | PROPOSED SEWER | | | | | | | | |
|------------------------|---------|-------|------|--------------|-----------------|-------------|-------------------------|-----------------------|------------------------|------------|------------------------|------------|---------------|----------------------------|------------------------------|-----------------------------|----------------|----------------|--------------|--------------|---------|----------------|--------------------------|------------|--|
| STREET | FROM MH | TO MH | Area | Single Units | Townhouse Units | Condo Units | Future School Residence | Retirement Home Units | Population (in 1000's) | AREA (ha.) | Population (in 1000's) | AREA (ha.) | | | | | LENGTH (m) | PIPE SIZE (mm) | PIPE ID (mm) | TYPE OF PIPE | GRADE % | CAPACITY (L/s) | FULL FLOW VELOCITY (m/s) | Qpeak/Qcap | |
| *DESCHATELETS AVENUE | 151 | 149 | 1&2 | Block 29 | 21 | 80 | | | 0.225 | 0.64 | 0.225 | 0.640 | 4.0 | 3.64 | 0.18 | 3.82 | 30.6 | 200 | 203.20 | DR 35 | 0.65 | 27.6 | 0.85 | 14% | |
| *DESCHATELETS AVENUE | 149 | 147 | 3 | | | | | | | 0.05 | 0.225 | 0.690 | 4.0 | 3.64 | 0.19 | 3.83 | 27.8 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 18% | |
| *DESCHATELETS AVENUE | 147 | 145 | 4 | | | | | | | 0.31 | 0.225 | 1.000 | 4.0 | 3.64 | 0.28 | 3.92 | 33.6 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 18% | |
| *DESCHATELETS AVENUE | 145 | 193 | 5 | Block 28 | 21 | | 112 | | 0.281 | 0.74 | 0.505 | 1.740 | 4.0 | 8.13 | 0.49 | 8.62 | 20.2 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 40% | |
| *DESCHATELETS AVENUE | 193 | 143 | | | | | | | | | 0.505 | 1.74 | 4.0 | 8.13 | 0.49 | 8.62 | 20.2 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 40% | |
| DESCHATELETS AVENUE | 143 | 141 | 6 | | | 75 | | | 0.158 | 0.21 | 0.663 | 1.95 | 3.9 | 10.49 | 0.55 | 11.04 | 31.1 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 51% | |
| DESCHATELETS AVENUE | 141 | 139 | 7 | | | | | | | 0.08 | 0.663 | 2.030 | 3.9 | 10.49 | 0.57 | 11.06 | 27.0 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 51% | |
| DESCHATELETS AVENUE | 139 | 133 | 8 | | | | | | | 0.09 | 0.663 | 2.120 | 3.9 | 10.49 | 0.59 | 11.09 | 21.8 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 51% | |
| **FORECOURT | | | 9 | | | | | | 0.149 | 0.80 | | | 1.5 | 0.05 | 0.22 | 0.28 | | | | | | | | | |
| DE MAZENOD AVENUE | 133 | 131 | 10 | | 12 | 102 | | | 0.247 | 0.47 | 0.910 | 2.590 | 3.8 | 14.10 | 0.73 | 14.82 | 75.3 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 68% | |
| DE MAZENOD AVENUE | 105 | 131 | 11 | | 12 | 102 | | | 0.247 | 0.48 | 0.247 | 0.480 | 4.0 | 4.00 | 0.13 | 4.13 | 73.6 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 19% | |
| JEREMIAH KEALEY STREET | 131 | 129 | 12 | | 6 | | | | 0.016 | 0.19 | 1.172 | 3.260 | 3.8 | 17.83 | 0.91 | 19.02 | 47.7 | 250 | 254.00 | DR 35 | 0.40 | 39.2 | 0.77 | 48% | |
| JEREMIAH KEALEY STREET | 129 | 127 | 13 | | 6 | | | | 0.016 | 0.19 | 1.189 | 3.450 | 3.8 | 18.06 | 0.97 | 19.30 | 48.7 | 250 | 254.00 | DR 35 | 0.40 | 39.2 | 0.77 | 49% | |
| DESCHATELETS AVENUE | 133 | 135 | 14 | | 3 | 47 | | | 0.107 | 0.34 | 0.107 | 0.340 | 4.0 | 1.73 | 0.10 | 1.83 | 51.2 | 200 | 203.20 | DR 35 | 0.65 | 27.6 | 0.85 | 7% | |
| DESCHATELETS AVENUE | 135 | 137 | 15 | | 3 | 20 | | | 0.050 | 0.13 | 0.157 | 0.470 | 4.0 | 2.54 | 0.13 | 2.67 | 49.3 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 12% | |
| SCHOLASTIC DRIVE | 137 | 127 | 16 | 4 | | | | | 0.014 | 0.19 | 0.171 | 0.660 | 4.0 | 2.76 | 0.18 | 2.95 | 69.9 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 14% | |
| SCHOLASTIC DRIVE | 127 | 125 | 17 | 4 | | | | | 0.014 | 0.17 | 1.373 | 4.280 | 3.7 | 20.61 | 1.20 | 22.09 | 59.6 | 250 | 254.00 | DR 35 | 0.40 | 39.2 | 0.77 | 56% | |
| SCHOLASTIC DRIVE | 125 | 109 | | | | | | | | | 1.373 | 4.280 | 3.7 | 20.61 | 1.20 | 22.09 | 13.6 | 250 | 254.00 | DR 35 | 0.40 | 39.2 | 0.77 | 56% | |
| PHILOSOPHER PRIVATE | 101 | 111 | 18 | 4 | | | | | 0.014 | 0.17 | 0.014 | 0.170 | 4.0 | 0.22 | 0.05 | 0.27 | 24.8 | 200 | 203.20 | DR 35 | 0.65 | 27.6 | 0.85 | 1% | |
| TELMON STREET | 111 | 103 | 19 | | | | | | | 0.07 | 0.014 | 0.240 | 4.0 | 0.22 | 0.07 | 0.29 | 17.1 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 1% | |
| TELMON STREET | 103 | 105 | 20 | 1 | | | | | 0.003 | 0.03 | 0.017 | 0.270 | 4.0 | 0.28 | 0.08 | 0.35 | 8.4 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 2% | |
| TELMON STREET | 105 | 107 | 21 | 7 | 3 | | | | 0.032 | 0.26 | 0.049 | 0.530 | 4.0 | 0.79 | 0.15 | 0.94 | 46.3 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 4% | |
| TELMON STREET | 107 | 109 | 22 | 4 | 3 | | | | 0.022 | 0.21 | 0.071 | 0.740 | 4.0 | 1.14 | 0.21 | 1.35 | 39.7 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 6% | |
| OUTLET | 109 | 113 | | | | | | | | | 1.443 | 5.020 | 3.7 | 21.58 | 1.41 | 23.26 | 11.9 | 250 | 254.00 | DR 35 | 0.40 | 39.2 | 0.77 | 59% | |
| OUTLET | 113 | 115 | 23 | | | | | | | 0.04 | 1.443 | 5.060 | 3.7 | 21.58 | 1.42 | 23.27 | 43.3 | 250 | 254.00 | DR 35 | 5.13 | 140.5 | 2.77 | 17% | |
| CLEGG | 123 | 121 | 24 | 6 | | | | | 0.020 | 0.19 | 0.020 | 0.190 | 4.0 | 0.33 | 0.05 | 0.38 | 72.5 | 200 | 203.20 | DR 35 | 3.16 | 60.8 | 1.88 | 1% | |
| CLEGG | 121 | 117 | 25 | 8 | | | | | 0.027 | 0.18 | 0.048 | 0.370 | 4.0 | 0.77 | 0.10 | 0.87 | 77.0 | 200 | 203.20 | DR 35 | 0.40 | 21.6 | 0.67 | 4% | |
| CLEGG | 117 | 115 | | | | | | | | | 0.048 | 0.370 | 4.0 | 0.77 | 0.10 | 0.87 | 9.5 | 200 | 203.20 | DR 35 | 0.42 | 22.2 | 0.68 | 4% | |
| OUTLET | 115 | 119 | | | | | | | | | 1.491 | 5.430 | 3.7 | 22.23 | 1.52 | 24.03 | 10.6 | 250 | 254.00 | DR 35 | 0.41 | 39.7 | 0.78 | 60% | |

SANITARY SEWER DESIGN SHEET
Greystone Village - 175 Main Street
Developer: Greystone Village Inc.
 Additional Condo Units



PROJECT # : 114025
 DESIGNED BY : SZ
 CHECKED BY : JAG
 DATE PREPARED : 15-Dec-15
 DATE REVISED : 04-Apr-16
 DATE REVISED : 21-Jun-16
 DATE REVISED : 15-Mar-17
 DATE REVISED : 26-May-17

| LOCATION | | | INDIVIDUAL | | | | | | | | CUMULATIVE | | | PROPOSED SEWER | | | | | | | | | | |
|----------|---------|-------|------------|--------------|-----------------|-------------|-------------------------|-----------------------|------------------------|------------|------------------------|------------|---------------|----------------------------|------------------------------|-----------------------------|------------|----------------|--------------|--------------|---------|----------------|--------------------------|------------|
| STREET | FROM MH | TO MH | Area | Single Units | Townhouse Units | Condo Units | Future School Residence | Retirement Home Units | Population (in 1000's) | AREA (ha.) | Population (in 1000's) | AREA (ha.) | PEAK FACTOR M | POPULATION FLOW Q(p) (L/s) | 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 |

*Part of future phase 2 outletting through phase 1A at outlet 1.

Notes:

1. $Q(d) = Q(p) + Q(i)$
2. $Q(i) = 0.28 \text{ L/sec/ha}$
3. $Q(p) = (P \times q \times M / 86,400)$

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, 2.1 persons/apartment, 2.0 persons/ school residence, 1.4 persons/retirement residence)

- q = Average per capita flow = 350 L/cap/day - Residential
 q = Average per gross ha. flow = 35000 L/gross ha/day - Light industrial
 q = Average per gross ha. flow = 50000 L/gross ha/day - Commercial/Mixed use
 M = Harmon Formula (maximum of 4.0)
 Min pipe size 200mm @ min. slope 0.32%

** Parkland: Area = 0.91 ha, Flow Rate for parks with flush toilets = 20L/Day/Person, peak design flow from parkland to be added to peak design flow of subsequent pipes.

Population = 75 Persons/acre Details from Appendix 4-A OSDG
 Institutional Peaking factor = 1.5

APPENDIX B

Water Boundary Conditions & Hydraulic Calculations

Boundary Condition Request

Novatech Project #: 114025-5
Project Name: Greystone Village - Forecourt Townhomes: Block 29
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

Legend: Input by User No Input Required

Calculated Cells →

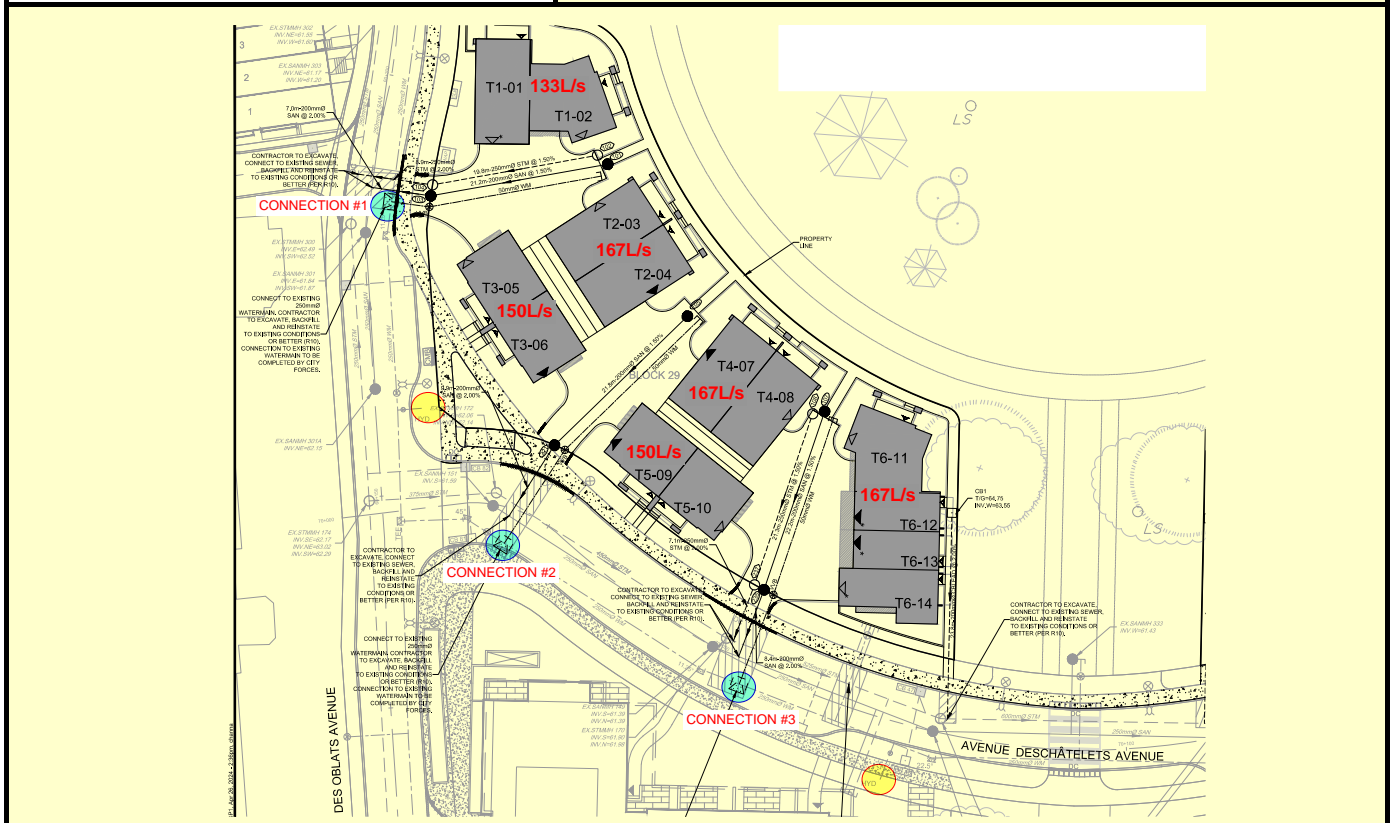
Reference: Ottawa Design Guidelines - Water Distribution (2010 and TBs)
 MOE Design Guidelines for Drinking-Water Systems (2008)
 Fire Underwriter's Survey Guideline (2020)
 Ontario Building Code, Part 3 (2012)

Small System = YES

| | # of Dwellings | Area (ha.) | Pop. Equiv. | Average Day Demand (L/s) | Maximum Day Demand (L/s) | Peak Hour Demand (L/s) |
|---|----------------|-------------|--------------|--------------------------|--------------------------|------------------------|
| Residential Input - Connection 1 | | | | | | |
| Semis / Townhomes | 4 | | 10.80 | 0.04 | 0.33 | 0.50 |
| Residential Input - Connection 2 | | | | | | |
| Semis / Townhomes | 4 | | 10.80 | 0.04 | 0.33 | 0.50 |
| Residential Input - Connection 3 | | | | | | |
| Semis / Townhomes | 6 | | 16.20 | 0.05 | 0.50 | 0.75 |
| Totals | 14 | 0.00 | 37.80 | 0.12 | 1.16 | 1.75 |

Summary

| | |
|---|---|
| i. Type of Development and Units: | Residential, Freehold Townhomes |
| ii. Site Address: | 295 Deschatelets Avenue |
| iii. Proposed Water Service Connection Location(s): | 3 Individual - 50mm diameter service connections (dead ends) servicing 4 (Oblats Avenue), 4 (Deschatelets Avenue), and 6 units (Deschatelets Avenue) respectively |



CONNECTION 1:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.04 | L/s |
| v. Peak Hour Flow Demand: | | 0.50 | L/s |
| vi. Maximum Day Flow Demand: | | 0.33 | L/s |
| vii. Required Fire Flow #1: | | 10000 | L/min |

CONNECTION 2:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.04 | L/s |
| v. Peak Hour Flow Demand: | | 0.50 | L/s |
| vi. Maximum Day Flow Demand: | | 0.33 | L/s |
| vii. Required Fire Flow #2: | | 10000 | L/min |

CONNECTION 3:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.05 | L/s |
| v. Peak Hour Flow Demand: | | 0.75 | L/s |
| vi. Maximum Day Flow Demand: | | 0.50 | L/s |
| vii. Required Fire Flow #3: | | 10000 | L/min |

Design Parameters

| Residential | | | | | |
|--------------------------------|------------------|-----------------|----------------|----------------|---------------|
| Unit Type Population Equiv. | Singles | Semis/ Towns | Apts (2-BR) | Apts (1-BR) | Apts (Avg) |
| | 3.4 | 2.7 | 2.1 | 1.4 | 1.8 |
| Daily Demand | L/per person/day | | | | |
| Average Demand | 280 | | | | |
| Basic Demand | 200 | | | | |

| Residential Peaking Factors | | Max Day (x Avg Day) | Peak Hour (x Avg Day) |
|---|------------------------|------------------------|--------------------------|
| | Pop. | | |
| Small System (If Applicable) | 0 | 9.50 | 14.30 |
| | 30 | 9.50 | 14.30 |
| | 150 | 4.90 | 7.40 |
| | <i>Modified</i> 300 | 3.60 | 5.50 |
| | 450 | 3.00 | 5.50 |
| | 500 | 2.90 | 5.50 |
| Large System (Default) | > 500 | 2.50 | 5.50 |

Boundary Condition Request

Novatech Project #: 114025-5
Project Name: Greystone Village - Forecourt Townhomes: Block 28
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

Legend: Input by User No Input Required

Calculated Cells →

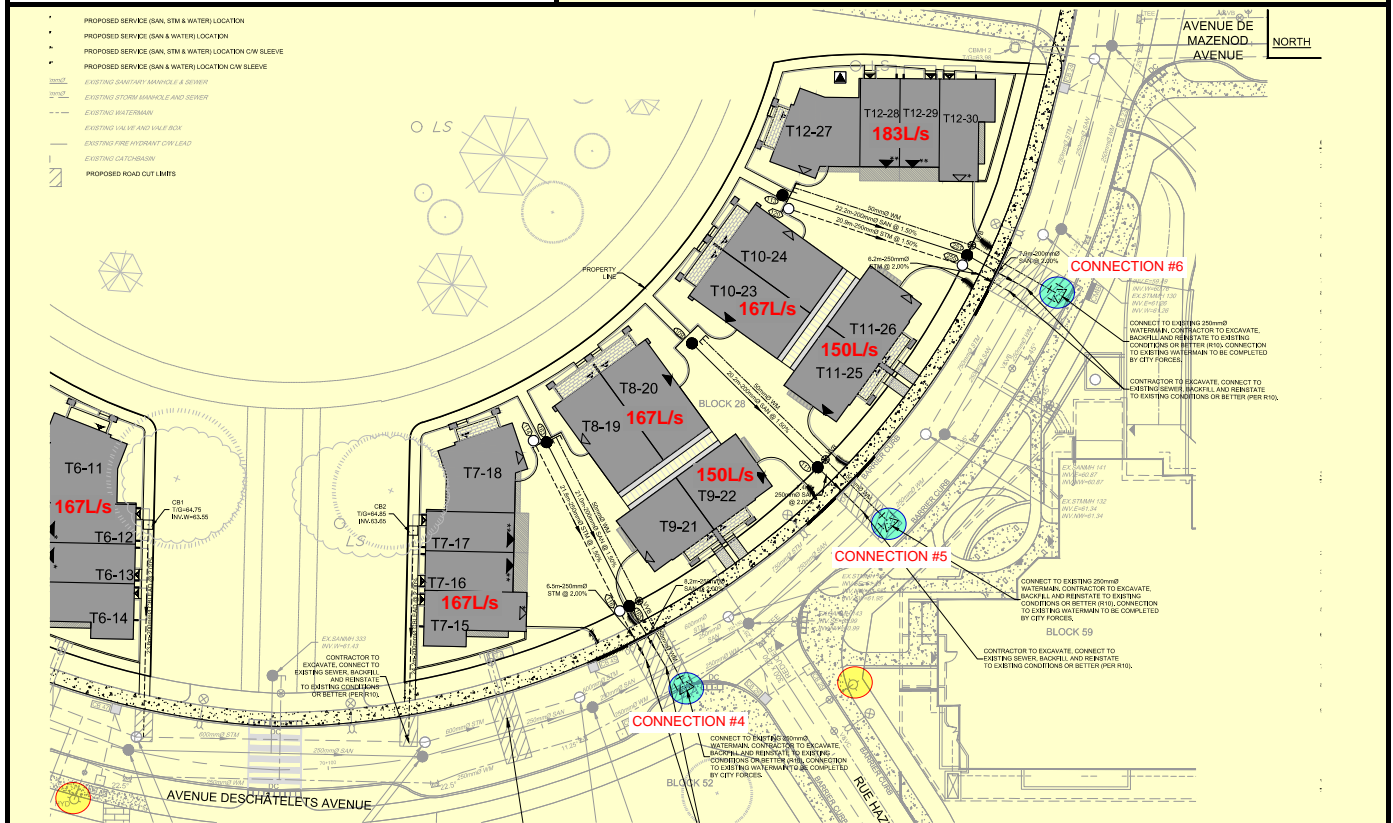
Reference: Ottawa Design Guidelines - Water Distribution (2010 and TBs)
 MOE Design Guidelines for Drinking-Water Systems (2008)
 Fire Underwriter's Survey Guideline (2020)
 Ontario Building Code, Part 3 (2012)

Small System = YES

| | # of Dwellings | Area (ha.) | Pop. Equiv. | Average Day Demand (L/s) | Maximum Day Demand (L/s) | Peak Hour Demand (L/s) |
|---|----------------|-------------|--------------|--------------------------|--------------------------|------------------------|
| Residential Input - Connection 1 | | | | | | |
| Semis / Townhomes | 6 | | 16.20 | 0.05 | 0.50 | 0.75 |
| Residential Input - Connection 2 | | | | | | |
| Semis / Townhomes | 4 | | 10.80 | 0.04 | 0.33 | 0.50 |
| Residential Input - Connection 3 | | | | | | |
| Semis / Townhomes | 6 | | 16.20 | 0.05 | 0.50 | 0.75 |
| Totals | 16 | 0.00 | 43.20 | 0.14 | 1.33 | 2.00 |

Summary

| | |
|---|---|
| i. Type of Development and Units: | Residential, Freehold Townhomes |
| ii. Site Address: | 295 Deschatelets Avenue |
| iii. Proposed Water Service Connection Location(s): | 3 Individual - 50mm diameter service connections (dead ends) servicing 6 units, 4 units, and 6 units from Deschatelets Avenue |



CONNECTION 4:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.05 | L/s |
| v. Peak Hour Flow Demand: | | 0.75 | L/s |
| vi. Maximum Day Flow Demand: | | 0.50 | L/s |
| vii. Required Fire Flow #4: | | 10000 | L/min |

CONNECTION 5:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.04 | L/s |
| v. Peak Hour Flow Demand: | | 0.50 | L/s |
| vi. Maximum Day Flow Demand: | | 0.33 | L/s |
| vii. Required Fire Flow #5: | | 10000 | L/min |

CONNECTION 6:

| | | | |
|------------------------------|--|-------|-------|
| iv. Average Day Flow Demand: | | 0.05 | L/s |
| v. Peak Hour Flow Demand: | | 0.75 | L/s |
| vi. Maximum Day Flow Demand: | | 0.50 | L/s |
| vii. Required Fire Flow #6: | | 11000 | L/min |

Design Parameters

| Residential | | | | | |
|--------------------------------|------------------|-----------------|----------------|----------------|---------------|
| Unit Type Population Equiv. | Singles | Semis/ Towns | Apts (2-BR) | Apts (1-BR) | Apts (Avg) |
| | 3.4 | 2.7 | 2.1 | 1.4 | 1.8 |
| Daily Demand | L/per person/day | | | | |
| Average Demand | 280 | | | | |
| Basic Demand | 200 | | | | |

| Residential Peaking Factors | | Max Day (x Avg Day) | Peak Hour (x Avg Day) |
|---|------------------------|------------------------|--------------------------|
| | Pop. | | |
| Small System (If Applicable) | 0 | 9.50 | 14.30 |
| | 30 | 9.50 | 14.30 |
| | 150 | 4.90 | 7.40 |
| | <i>Modified</i> 300 | 3.60 | 5.50 |
| | 450 | 3.00 | 5.50 |
| | 500 | 2.90 | 5.50 |
| Large System (Default) | > 500 | 2.50 | 5.50 |

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Tuesday, July 30, 2024 9:34 PM
To: Trevor McKay
Cc: Evan Garfinkel
Subject: RE: Pre-Consultation Phase 2 Follow-up - 295-355 Deschâtelets Avenue - PC2024-0184
Attachments: [295 & 355 Deschatelets Avenue July 2024.pdf](#)

Hi Trevor,

Thanks for your patience on this as well, the result just came in today. See below results of the boundary conditions requested.

The following are boundary conditions, HGL, for hydraulic analysis at 295 & 355 Deschatelets Avenue (zone 1W) assumed to be connected via six connections (three for each parcel) to the 254mm watermain on Oblats Avenue and the 254mm watermain on Deschatelets Avenue (see attached PDF for location).

All Connections:

Minimum HGL: 105.3 m

Maximum HGL: 115.1 m

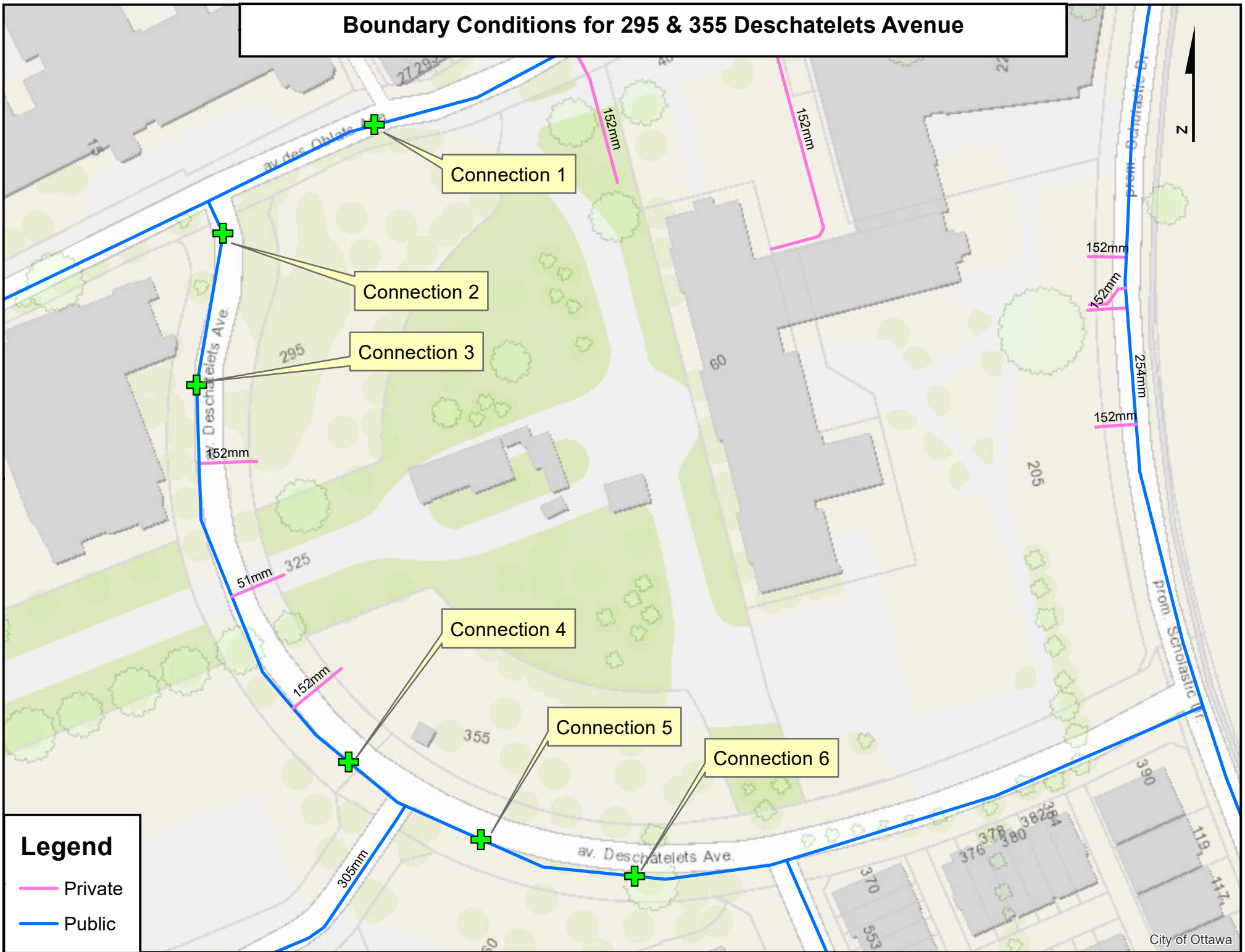
| | Fire Flow rate | Max Day + Fire Flow (m) |
|--------------|----------------|-------------------------|
| Connection 1 | 167 (L/s) | 103.5 |
| Connection 2 | | 103.9 |
| Connection 3 | | 104.3 |
| Connection 4 | | 106.1 |
| Connection 5 | | 106.2 |
| Connection 6 | 183 (L/s) | 105.3 |

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Best Regards,

Boundary Conditions for 295 & 355 Deschatelets Avenue



FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 7 (A3 unit + 2 x B1 units + B2 unit)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|---|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | C Coefficient related to type of construction | Type V - Wood frame | Yes | 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 | | | | 9,000 | |
| | A | Building Footprint (m ²) | 229.5 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 689 | | |
| F | Base fire flow without reductions | | | | | |
| | $F = 220 C (A)^{0.5}$ | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 7,650 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| | Area of Sprinklered Coverage (m²) | | 0% | | | |
| | Cumulative Total | | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 2,678 | |
| | (3) | North Side | >30m | 0% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 10.1 - 20 m | 15% | | |
| | Cumulative Total | | 35% | | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 8 (2 x A2 units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 7,000 | |
| | A | Building Footprint (m ²) | 158.6 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 476 | | |
| F | Base fire flow without reductions | | | | | |
| | F = 220 C (A)^{0.5} | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,950 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| | Area of Sprinklered Coverage (m²) | | 0% | | | |
| | Cumulative Total | | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,868 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 0 - 3 m | 25% | | |
| | Cumulative Total | | 65% | | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 9 (2 x C units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 6,000 | |
| | A | Building Footprint (m ²) | 123.2 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 370 | | |
| F | Base fire flow without reductions | | | | | |
| | | F = 220 C (A)^{0.5} | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,100 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | | 0% | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,825 | |
| | (3) | North Side | 10.1 - 20 m | 15% | | |
| | | East Side | 0 - 3 m | 25% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 10.1 - 20 m | 15% | | |
| | | Cumulative Total | | 75% | | |
| Results | | | | | | |
| 6 | (1) + (2) + (3) | Total Required Fire Flow, rounded to nearest 1000L/min | | L/min | 9,000 | |
| | | (2,000 L/min < Fire Flow < 45,000 L/min) | | or | L/s | 150 |
| | | | | or | USGPM | 2,378 |

FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 10 (2 x A2 units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 7,000 | |
| | A | Building Footprint (m ²) | 158.6 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 476 | | |
| F | Base fire flow without reductions | | | | | |
| | | F = 220 C (A)^{0.5} | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,950 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | | 0% | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,868 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 0 - 3 m | 25% | | |
| | | Cumulative Total | | 65% | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 11 (2 x C units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 6,000 | |
| | A | Building Footprint (m ²) | 123.2 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 370 | | |
| F | Base fire flow without reductions F = 220 C (A)^{0.5} | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,100 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,825 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | 0 - 3 m | 25% | | |
| | | South Side | 10.1 - 20 m | 15% | | |
| | | West Side | 10.1 - 20 m | 15% | | |
| | | Cumulative Total | 75% | | | |
| Results | | | | | | |
| 6 | (1) + (2) + (3) | Total Required Fire Flow, rounded to nearest 1000L/min | | L/min | 9,000 | |
| | | (2,000 L/min < Fire Flow < 45,000 L/min) | | or | L/s | 150 |
| | | | | or | USGPM | 2,378 |

FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP2, Revision 1 - Markup

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

Building Description: Block 28: Townhome Block 12 (A3 unit + 2 x B1 units + B2 unit)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 9,000 | |
| | A | Building Footprint (m ²) | 229.5 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 689 | | |
| F | Base fire flow without reductions $F = 220 C (A)^{0.5}$ | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 7,650 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,443 | |
| | (3) | North Side | >30m | 0% | | |
| | | East Side | 10.1 - 20 m | 15% | | |
| | | South Side | 20.1 - 30 m | 10% | | |
| | | West Side | 3.1 - 10 m | 20% | | |
| | | Cumulative Total | 45% | | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 1 (A2b unit + A3 unit)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | C Coefficient related to type of construction | Type V - Wood frame | Yes | 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 | | | | 7,000 | |
| | A | Building Footprint (m ²) | 155 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 465 | | |
| F | Base fire flow without reductions $F = 220 C (A)^{0.5}$ | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,950 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m ²) | | | | 0% | | |
| | | Cumulative Total | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 2,083 | |
| | (3) | North Side | 10.1 - 20 m | 15% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | >30m | 0% | | |
| | | West Side | 3.1 - 10 m | 20% | | |
| | | Cumulative Total | 35% | | | |
| Results | | | | | | |
| 6 | (1) + (2) + (3) | Total Required Fire Flow, rounded to nearest 1000L/min | | L/min | 8,000 | |
| | | (2,000 L/min < Fire Flow < 45,000 L/min) | | or | L/s | 133 |
| | | | | or | USGPM | 2,114 |

FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 2 (2 x A2 units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|---|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | C Coefficient related to type of construction | Type V - Wood frame | Yes | 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 | | | | 7,000 | |
| | A | Building Footprint (m ²) | 158.6 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 476 | | |
| F | Base fire flow without reductions | | | | | |
| | $F = 220 C (A)^{0.5}$ | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,950 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| | Area of Sprinklered Coverage (m²) | | 0% | | | |
| | Cumulative Total | | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,570 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | 3.1 - 10 m | 20% | | |
| | | South Side | >30m | 0% | | |
| | | West Side | 3.1 - 10 m | 20% | | |
| | Cumulative Total | | 60% | | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 3 (2 x C units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 6,000 | |
| | A | Building Footprint (m ²) | 123.2 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 370 | | |
| F | Base fire flow without reductions | | | | | |
| F = 220 C (A)^{0.5} | | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,100 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | | 0% | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,570 | |
| | (3) | North Side | 10.1 - 20 m | 15% | | |
| | | East Side | 10.1 - 20 m | 15% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 3.1 - 10 m | 20% | | |
| | | Cumulative Total | | 70% | | |
| Results | | | | | | |
| 6 | (1) + (2) + (3) | Total Required Fire Flow, rounded to nearest 1000L/min | | L/min | 9,000 | |
| | | (2,000 L/min < Fire Flow < 45,000 L/min) | | or | L/s | 150 |
| | | | | or | USGPM | 2,378 |

FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 4 (2 x A2 units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 7,000 | |
| | A | Building Footprint (m ²) | 158.6 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 476 | | |
| F | Base fire flow without reductions | | | | | |
| | F = 220 C (A)^{0.5} | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,950 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| | Area of Sprinklered Coverage (m²) | | 0% | | | |
| | Cumulative Total | | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,868 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | 3.1 - 10 m | 20% | | |
| | | West Side | 0 - 3 m | 25% | | |
| | Cumulative Total | | 65% | | | |
| 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



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 5 (2 x C units)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|---|--|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | Coefficient related to type of construction C | Type V - Wood frame | Yes | 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 | | | | 6,000 | |
| | A | Building Footprint (m ²) | 123.2 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 370 | | |
| F | Base fire flow without reductions F = 220 C (A)^{0.5} | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 5,100 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| Area of Sprinklered Coverage (m²) | | | 0% | | | |
| | | Cumulative Total | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 3,825 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | 0 - 3 m | 25% | | |
| | | South Side | 10.1 - 20 m | 15% | | |
| | | West Side | 10.1 - 20 m | 15% | | |
| | | Cumulative Total | 75% | | | |
| Results | | | | | | |
| 6 | (1) + (2) + (3) | Total Required Fire Flow, rounded to nearest 1000L/min | | L/min | 9,000 | |
| | | (2,000 L/min < Fire Flow < 45,000 L/min) | | or | L/s | 150 |
| | | | | or | USGPM | 2,378 |

FUS - Fire Flow Calculations



Novatech Project #: 114025-05
Project Name: Greystone Village - Forecourt Townhomes
Date: 6/28/2024
Input By: Trevor McKay
Reviewed By: Trevor McKay
Drawing Reference: 114025-FT-GP1, Revision 1 - Markup

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

Building Description: Block 29: Townhome Block 6 (A3 unit + 2 x B1 units + B2 unit)
Type V - Wood frame

| Step | | Choose | | Value Used | Total Fire Flow (L/min) | |
|--|---|---|--------------------|----------------------------|-------------------------|-------|
| Base Fire Flow | | | | | | |
| 1 | Construction Material | | Multiplier | | 1.5 | |
| | C Coefficient related to type of construction | Type V - Wood frame | Yes | 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 | | | | 9,000 | |
| | A | Building Footprint (m ²) | 229.5 | | | |
| | | Number of Floors/Storeys | 3 | | | |
| | | Protected Openings (1 hr) if C<1.0 | No | | | |
| | | Area of structure considered (m ²) | | 689 | | |
| F | Base fire flow without reductions | | | | | |
| | $F = 220 C (A)^{0.5}$ | | | | | |
| Reductions or Surcharges | | | | | | |
| 3 | Occupancy hazard reduction or surcharge | | FUS Table 3 | Reduction/Surcharge | 7,650 | |
| | (1) | Non-combustible | | -25% | | |
| | | Limited combustible | Yes | -15% | | |
| | | Combustible | | 0% | | |
| | | Free burning | | 15% | | |
| Rapid burning | | | 25% | | | |
| 4 | Sprinkler Reduction | | FUS Table 4 | Reduction | 0 | |
| | (2) | Adequately Designed System (NFPA 13) | | -30% | | |
| | | Standard Water Supply | | -10% | | |
| | | Fully Supervised System | | -10% | | |
| | | Cumulative Sub-Total | | | | 0% |
| | Area of Sprinklered Coverage (m²) | | 0% | | | |
| | | Cumulative Total | 0% | | | |
| 5 | Exposure Surcharge | | FUS Table 5 | Surcharge | 2,678 | |
| | (3) | North Side | 3.1 - 10 m | 20% | | |
| | | East Side | >30m | 0% | | |
| | | South Side | >30m | 0% | | |
| | | West Side | 10.1 - 20 m | 15% | | |
| | | Cumulative Total | 35% | | | |
| 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 |

| Greystone Village Forecourt Towns 295 & 355 Deschateletes Avenue Average Daily Demand | | | | | | | |
|--|-----------------|-------------------------|---------------------|-----------------|--------------|---------------------------------|----------------------|
| Node | | Demand (LPS) | Head (m) | Pressure | | Unit Headloss (m/km) | Age (hrs) |
| No. | Elev (m) | | | (m) | (PSI) | | |
| N1 | 65.1 | 0.04 | 115.1 | 50.0 | 71.4 | 0.03 | 0.4 |
| N2 | 65.5 | 0.04 | 115.1 | 49.6 | 70.9 | 0.03 | 0.5 |
| N3 | 65.4 | 0.05 | 115.1 | 49.7 | 71.0 | 0.05 | 0.4 |
| N4 | 65.0 | 0.05 | 115.1 | 50.1 | 71.6 | 0.05 | 0.4 |
| N5 | 64.8 | 0.04 | 115.1 | 50.3 | 71.9 | 0.03 | 0.4 |
| N6 | 64.4 | 0.05 | 115.1 | 50.7 | 72.4 | 0.05 | 0.4 |
| R1 | | | 115.1 | | | | |
| R2 | | | 115.1 | | | | |
| R3 | | | 115.1 | | | | |
| R4 | | | 115.1 | | | | |
| R5 | | | 115.1 | | | | |
| R6 | | | 115.1 | | | | |

| Greystone Village Forecourt Towns 295 & 355 Deschateletes Avenue Peak Hour Demand | | | | | | |
|--|-----------------|-------------------------|---------------------|-----------------|--------------|---------------------------------|
| Node | | Demand (LPS) | Head (m) | Pressure | | Unit Headloss (m/km) |
| No. | Elev (m) | | | (m) | (PSI) | |
| N1 | 65.1 | 0.50 | 105.2 | 40.1 | 57.3 | 3.53 |
| N2 | 65.5 | 0.50 | 105.2 | 39.7 | 56.7 | 3.53 |
| N3 | 65.4 | 0.75 | 105.0 | 39.6 | 56.6 | 7.48 |
| N4 | 65.0 | 0.75 | 105.1 | 40.1 | 57.2 | 7.48 |
| N5 | 64.8 | 0.50 | 105.2 | 40.4 | 57.7 | 3.53 |
| N6 | 64.4 | 0.75 | 105.1 | 40.7 | 58.1 | 7.48 |
| R1 | | | 105.3 | | | |
| R2 | | | 105.3 | | | |
| R3 | | | 105.3 | | | |
| R4 | | | 105.3 | | | |
| R5 | | | 105.3 | | | |
| R6 | | | 105.3 | | | |

APPENDIX C

Stormwater Management Design

STORM SEWER DESIGN SHEET (5 YEAR DESIGN EVENT)

Greystone Village - Forecourt Townhomes

| LOCATION | | | AREA | | | | | | | PROPOSED SEWER | | | | | | | |
|----------|-----------|---------|------------|-----------------------------|---------------|-----------------------|-------------------------|-----------|---------------------|----------------|------|-------|--------|----------|--------------------|--------------|---------|
| Location | From Node | To Node | Total Area | Weighted Runoff Coefficient | Indiv 2.78 AR | Time of Concentration | Rain Intensity (5 year) | Peak Flow | Total Peak Flow (Q) | Pipe | Size | Grade | Length | Capacity | Full Flow Velocity | Time of Flow | Q/Qfull |
| | | | (ha) | | | (min) | (mm/hr) | (L/s) | (L/s) | Type | (mm) | (%) | (m) | (l/s) | (m/s) | (min.) | (%) |
| A-5 | CB-2 | EXIS | 0.02 | 0.78 | 0.05 | 10.00 | 104.19 | 4.9 | 4.9 | PVC | 200 | 1.50 | 23.6 | 41.9 | 1.29 | 0.30 | 11.7% |
| | 408 | 410 | | | | | | | 0.0 | PVC | 250 | 2.00 | 20.9 | 87.7 | 1.73 | 0.20 | 0.0% |
| A-6 | 410 | EXIS | 0.04 | 0.86 | 0.09 | 10.00 | 104.19 | 9.8 | 9.8 | PVC | 250 | 2.00 | 7.6 | 87.7 | 1.73 | 0.07 | 11.1% |
| A-7 | CBMH | EXIS | 0.06 | 0.78 | 0.12 | 10.00 | 104.19 | 12.4 | 12.4 | PVC | 200 | 2.00 | 7.1 | 48.4 | 1.49 | 0.08 | 25.6% |
| | 412 | 414 | | | | | | | 0.0 | PVC | 250 | 1.80 | 19.8 | 83.2 | 1.64 | 0.20 | 0.0% |
| A-8 | 414 | EXIS | 0.06 | 0.82 | 0.14 | 10.00 | 104.19 | 14.1 | 14.1 | PVC | 250 | 1.50 | 7.1 | 76.0 | 1.50 | 0.08 | 18.5% |

Project: Forecourt Townhomes (114025)

Q = 2.78 AIR WHERE : Q = PEAK FLOW IN LITRES PER SECOND (L/s)
 A = AREA IN HECTARES (ha)
 I = RAINFALL INTENSITY IN MILLIMETERS PER HOUR (mm/hr)
 R = WEIGHTED RUNOFF COEFFICIENT

WHERE : Q = CAPACITY (L/s)
 n = MANNING COEFFICIENT OF ROUGHNESS (0.013)
 A = FLOW AREA (m²)

Designed: Mo Abdul
 Checked: T. McKay
 Date: October 17, 2024



STORM SEWER DESIGN SHEET (5 YEAR DESIGN EVENT)

Greystone Village - Forecourt Townhomes

| LOCATION | | | AREA | | | | PROPOSED SEWER | | | | | | | | | | |
|----------|-----------|---------|------------|-----------------------------|-----------------|-----------------------|-------------------------|-----------|---------------------|------|------|-------|--------|----------|--------------------|--------------|---------|
| Location | From Node | To Node | Total Area | Weighted Runoff Coefficient | Individ 2.78 AR | Time of Concentration | Rain Intensity (5 year) | Peak Flow | Total Peak Flow (Q) | Pipe | Size | Grade | Length | Capacity | Full Flow Velocity | Time of Flow | Q/Qfull |
| | | | (ha) | | | (min) | (mm/hr) | (L/s) | (L/s) | Type | (mm) | (%) | (m) | (l/s) | (m/s) | (min.) | (%) |
| | 400 | 402 | | | | | | | 0.0 | PVC | 250 | 1.00 | 20.4 | 62.0 | 1.22 | 0.28 | 0.0% |
| A-1 | 402 | EXIS | 0.06 | 0.79 | 0.12 | 10.00 | 104.09 | 12.7 | 12.7 | PVC | 250 | 2.00 | 9.3 | 87.7 | 1.73 | 0.09 | 14.5% |
| A-2 | CBMH4 | EXIS | 0.05 | 0.79 | 0.10 | 10.00 | 104.09 | 10.5 | 10.5 | PVC | 200 | 2.00 | 10.2 | 48.4 | 1.49 | 0.11 | 21.7% |
| | 404 | 406 | | | | | | | 0.0 | PVC | 250 | 2.00 | 22.1 | 87.7 | 1.73 | 0.21 | 0.0% |
| A-3 | 406 | EXIS | 0.05 | 0.83 | 0.12 | 10.00 | 104.09 | 12.6 | 12.6 | PVC | 250 | 2.00 | 7.5 | 87.7 | 1.73 | 0.07 | 14.3% |
| A-4 | CB-1 | EXIS | 0.02 | 0.78 | 0.05 | 10.00 | 104.09 | 4.8 | 4.8 | PVC | 200 | 1.50 | 28.7 | 41.9 | 1.29 | 0.37 | 11.6% |

Project: Forecourt Townhomes (114025)

Q = 2.78 AIR

WHERE : Q = PEAK FLOW IN LITRES PER SECOND (L/s)

A = AREA IN HECTARES (ha)

I = RAINFALL INTENSITY IN MILLIMETERS PER HOUR (mm/hr)

R = WEIGHTED RUNOFF COEFFICIENT

WHERE : Q = CAPACITY (L/s)

n = MANNING COEFFICIENT OF ROUGHNESS (0.013)

A = FLOW AREA (m²)

Designed: Mo Abdul

Checked: T. McKay

Date: October 17, 2024



Forecourt Townhomes Subcatchments



Model Details for Forecourt Townhomes



| Name | Area (ha) | Width (m) | Flow Length (m) | Slope (%) | Imperv. (%) | Zero Imperv (%) | Runoff Coeff. |
|---|-----------|-----------|-----------------|-----------|-------------|-----------------|---------------|
| Proposed Areas for Forecourt Townhomes | | | | | | | |
| A3-A-1 | 0.06 | 17 | 35 | 0.5 | 84 | 100 | 0.79 |
| A3-A-2 | 0.05 | 15 | 34 | 0.5 | 84 | 0 | 0.79 |
| A3-A-3 | 0.05 | 15 | 34 | 0.5 | 90 | 100 | 0.83 |
| A3-A-4 | 0.02 | 6 | 33 | 0.5 | 83 | 40 | 0.78 |
| A3-DR1 | 0.03 | 13 | 23 | 0.5 | 66 | 100 | 0.66 |
| A3-DR2 | 0.03 | 10 | 30 | 0.5 | 53 | 40 | 0.57 |
| A3-DR3 | 0.01 | 4 | 24 | 0.5 | 59 | 100 | 0.61 |
| A3-DR4 | 0.01 | 6 | 16 | 0.5 | 50 | 40 | 0.55 |
| A7-A-5 | 0.02 | 7 | 30 | 0.5 | 83 | 100 | 0.78 |
| A7-A-6 | 0.04 | 13 | 30 | 0.5 | 94 | 40 | 0.86 |
| A7-A-7 | 0.06 | 17 | 35 | 0.5 | 83 | 100 | 0.78 |
| A7-A-8 | 0.06 | 17 | 35 | 0.5 | 89 | 40 | 0.82 |
| A7-DR5 | 0.01 | 6 | 18 | 0.5 | 51 | 40 | 0.56 |
| A7-DR6 | 0.01 | 4 | 25 | 0.5 | 60 | 40 | 0.62 |
| A7-DR7 | 0.01 | 4 | 25 | 0.5 | 59 | 40 | 0.61 |
| A7-DR8 | 0.03 | 11 | 28 | 0.5 | 74 | 40 | 0.72 |
| Total = | 0.50 | | | | | Average = | 0.71 |
| 2017 Master Servicing Study Areas | | | | | | | |
| A3 | 0.14 | 21 | 65 | 1.5 | 100 | 100 | 0.90 |
| A7 | 0.14 | 21 | 65 | 1.5 | 100 | 100 | 0.90 |
| Total = | 0.28 | | | | | Average = | 0.90 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output

100-year, 3-Hour Chicago Storm

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.011)

PCSWMM model for Greystone (Ottawa) Phase 2 (Apr. 2017 DWGs) and updates to the previously approved Phase 1 (Aug. 2016 DWGs) - Updated July 2024.

ForeCourt Townhome | August 16, 2024

{Vahid Mehdipour - 2024.06.12} Use Hotstart for 100yr and Stress test. Adjust boundary conditions based section 3.4.2 of MSS.

Element Count

Number of rain gages 1

Number of subcatchments ... 104

Number of nodes 253

Number of links 366

Number of pollutants 0

Number of land uses 0

Raingage Summary

| Name | Data Source | Recording | |
|------|---------------|-----------|----------|
| | | Type | Interval |
| RG01 | 3hrChic-100yr | INTENSITY | 10 min. |

Subcatchment Summary

| Name | Area | Width | %Imperv | %Slope | Rain Gage | Outlet |
|------|------|-------|---------|--------|-----------|----------|
| A01A | 0.09 | 19.81 | 85.70 | 0.5000 | RG01 | CB53(MS) |
| A01B | 0.08 | 18.99 | 61.40 | 0.5000 | RG01 | CB51(MS) |
| A02 | 0.07 | 15.55 | 70.00 | 0.5000 | RG01 | CB49(MS) |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|----------------|------|-------|--------|--------|------|----------------|
| A04 | 0.10 | 14.29 | 100.00 | 1.5000 | RG01 | A04(STOR) |
| A05 | 0.10 | 12.11 | 57.10 | 0.5000 | RG01 | CB47(MS) |
| A06 | 0.44 | 44.00 | 41.40 | 0.5000 | RG01 | A06(STOR) |
| A08 | 0.11 | 8.45 | 83.00 | 0.5000 | RG01 | CB45(MS) |
| A09A | 0.26 | 34.59 | 47.00 | 0.5000 | RG01 | CB28(MS) |
| A09B | 0.13 | 33.50 | 100.00 | 1.5000 | RG01 | A09B(STOR) |
| A09C | 0.08 | 32.42 | 100.00 | 1.5000 | RG01 | A09C(STOR) |
| A10 | 0.09 | 36.38 | 100.00 | 1.5000 | RG01 | A10(STOR) |
| A11A | 0.20 | 31.95 | 47.00 | 0.5000 | RG01 | CB26(MS) |
| A11B | 0.05 | 12.50 | 100.00 | 1.5000 | RG01 | A11B(STOR) |
| A11B-TopofRoof | 0.03 | 15.00 | 100.00 | 1.5000 | RG01 | J2 |
| A12 | 0.08 | 17.80 | 86.00 | 0.5000 | RG01 | CB26(MS) |
| A13 | 0.22 | 12.91 | 73.00 | 0.5000 | RG01 | CB24(MS) |
| A-13 | 0.22 | 10.00 | 73.00 | 0.5000 | RG01 | CB24(MS) |
| A14 | 0.80 | 53.33 | 46.00 | 1.5000 | RG01 | A14(STOR) |
| A15A | 0.15 | 30.34 | 100.00 | 1.5000 | RG01 | A15A(STOR) |
| A15B | 0.16 | 15.21 | 71.00 | 0.5000 | RG01 | CB22(MS) |
| A16A | 0.05 | 15.24 | 76.00 | 0.5000 | RG01 | CB08(MS) |
| A16B | 0.05 | 15.76 | 73.00 | 0.5000 | RG01 | CB06(MS) |
| A16C_1 | 0.05 | 31.79 | 100.00 | 1.5000 | RG01 | A16C(STOR) |
| A16C_2 | 0.14 | 28.00 | 100.00 | 1.5000 | RG01 | J5 |
| A17 | 0.12 | 26.34 | 94.00 | 0.5000 | RG01 | CB39(MS) |
| A18 | 0.28 | 47.35 | 71.00 | 0.5000 | RG01 | CB09(MS) |
| A19A | 0.03 | 15.72 | 77.00 | 0.5000 | RG01 | CB35(MS) |
| A19B | 0.04 | 15.87 | 77.00 | 0.5000 | RG01 | CB36(MS) |
| A1C | 0.09 | 20.93 | 100.00 | 0.5000 | RG01 | J15 |
| A20 | 0.11 | 13.25 | 60.00 | 0.5000 | RG01 | CB18(MS) |
| A21B | 0.11 | 11.11 | 71.40 | 1.2000 | RG01 | CB34(MS) |
| A22B | 0.11 | 10.68 | 47.10 | 0.7000 | RG01 | CB20(MS) |
| A23 | 0.13 | 21.92 | 70.00 | 0.5000 | RG01 | CB16(MS) |
| A24 | 0.16 | 23.92 | 74.00 | 0.5000 | RG01 | CB15(x2-DICBs) |
| A25 | 0.05 | 30.69 | 76.00 | 0.5000 | RG01 | CB29(MS) |
| A26 | 0.05 | 14.32 | 39.00 | 0.5000 | RG01 | CB29B(L) |
| A27A | 0.10 | 9.34 | 69.00 | 0.5000 | RG01 | CB01(MS) |
| A27B | 0.05 | 16.24 | 80.00 | 0.5000 | RG01 | CB55 |
| A28 | 0.11 | 8.09 | 14.00 | 0.5000 | RG01 | CBMH1 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|--------|------|-------|-------|--------|------|-----------|
| A29 | 0.58 | 38.09 | 39.00 | 0.5000 | RG01 | CBMH1 |
| A30 | 0.12 | 25.67 | 94.00 | 0.5000 | RG01 | CB42(MS) |
| A31 | 0.20 | 18.33 | 79.00 | 0.5000 | RG01 | CB12(MS) |
| A32A | 0.02 | 12.74 | 77.00 | 0.5000 | RG01 | CB40(MS) |
| A32B | 0.04 | 15.84 | 77.00 | 0.5000 | RG01 | CB41(MS) |
| A33A | 0.06 | 35.90 | 76.00 | 0.5000 | RG01 | CB30(MS) |
| A33B | 0.07 | 42.23 | 76.00 | 0.5000 | RG01 | CB31(MS) |
| A34 | 0.05 | 25.16 | 80.00 | 0.5000 | RG01 | CB32 |
| A35 | 0.10 | 10.89 | 39.00 | 0.5000 | RG01 | CB31B(L) |
| A36 | 0.13 | 13.42 | 71.00 | 0.5000 | RG01 | CB14(MS) |
| A3-A-1 | 0.06 | 17.14 | 84.00 | 0.5000 | RG01 | CB3 |
| A3-A-2 | 0.05 | 14.71 | 84.00 | 0.5000 | RG01 | CBMH4 |
| A3-A-3 | 0.05 | 14.71 | 90.00 | 0.5000 | RG01 | CB5 |
| A3-A-4 | 0.02 | 6.06 | 83.00 | 0.5000 | RG01 | CB1 |
| A3-DR1 | 0.03 | 13.04 | 66.00 | 0.5000 | RG01 | 60+224.17 |
| A3-DR2 | 0.03 | 10.00 | 53.00 | 0.5000 | RG01 | CB60(MS) |
| A3-DR3 | 0.01 | 4.17 | 59.00 | 0.5000 | RG01 | 70-034.26 |
| A3-DR4 | 0.01 | 6.25 | 50.00 | 0.5000 | RG01 | CB47(MS) |
| A7-A-5 | 0.02 | 6.67 | 83.00 | 0.5000 | RG01 | CB2 |
| A7-A-6 | 0.04 | 13.33 | 94.00 | 0.5000 | RG01 | CB6 |
| A7-A-7 | 0.06 | 17.14 | 83.00 | 0.5000 | RG01 | CBMH7 |
| A7-A-8 | 0.06 | 17.14 | 89.00 | 0.5000 | RG01 | CB8 |
| A7-DR5 | 0.01 | 5.56 | 51.00 | 0.5000 | RG01 | CB45(MS) |
| A7-DR6 | 0.01 | 4.00 | 60.00 | 0.5000 | RG01 | 70-152.02 |
| A7-DR7 | 0.01 | 4.00 | 59.00 | 0.5000 | RG01 | 70-208.50 |
| A7-DR8 | 0.03 | 10.71 | 74.00 | 0.5000 | RG01 | 70-208.50 |
| B01A | 0.03 | 12.72 | 80.00 | 0.5000 | RG01 | CB60(MS) |
| B01B | 0.06 | 11.16 | 74.00 | 0.6000 | RG01 | CB82 |
| B02 | 0.01 | 6.12 | 70.00 | 0.9000 | RG01 | CB58(MS) |
| B03 | 0.24 | 33.70 | 90.00 | 2.5000 | RG01 | CB62(MS) |
| B04 | 0.19 | 18.07 | 66.00 | 2.7000 | RG01 | CB65(MS) |
| B05 | 0.18 | 16.23 | 57.00 | 3.8000 | RG01 | CB75(MS) |
| B06 | 0.06 | 13.98 | 69.00 | 2.0000 | RG01 | CB76(MS) |
| B07 | 0.09 | 19.50 | 76.00 | 1.2000 | RG01 | CB80(MS) |
| B08 | 0.07 | 17.51 | 86.00 | 1.5000 | RG01 | CB63(MS) |
| B09 | 0.11 | 15.80 | 86.00 | 4.0000 | RG01 | CB78 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|-------------------|------|-------|--------|--------|------|----------------|
| B10 | 0.07 | 16.20 | 76.00 | 1.7000 | RG01 | CB71(MS) |
| B11 | 0.04 | 9.71 | 70.00 | 1.8000 | RG01 | CB69(MS) |
| B12 | 0.09 | 16.11 | 84.00 | 1.0000 | RG01 | CB67(MS) |
| B13 | 0.09 | 24.36 | 64.00 | 2.5000 | RG01 | CB70(MS) |
| B14 | 0.08 | 39.43 | 61.00 | 0.5000 | RG01 | CB73(MS) |
| B15 | 0.15 | 41.65 | 60.00 | 0.5000 | RG01 | CB79(MS) |
| B16 | 0.12 | 19.54 | 64.00 | 0.5000 | RG01 | CB74(4x-DICBs) |
| B17 | 0.07 | 12.12 | 81.00 | 1.0000 | RG01 | CB77(MS) |
| B19 | 0.16 | 18.68 | 100.00 | 1.5000 | RG01 | B19(STOR) |
| B20A | 0.08 | 13.55 | 40.00 | 0.5000 | RG01 | NA02 |
| B22 | 0.07 | 14.80 | 57.00 | 0.5000 | RG01 | MH328 |
| B23 | 0.17 | 32.81 | 100.00 | 1.5000 | RG01 | B23(STOR) |
| B24 | 0.12 | 23.44 | 86.00 | 0.5000 | RG01 | CB65(MS) |
| B25 | 0.06 | 20.80 | 100.00 | 1.5000 | RG01 | B25(STOR) |
| Condo2B_TopofRood | 0.02 | 11.77 | 100.00 | 1.5000 | RG01 | J4 |
| MR-NB | 0.11 | 6.47 | 100.00 | 0.5000 | RG01 | B21(STOR) |
| MR-SB | 0.09 | 7.50 | 100.00 | 0.5000 | RG01 | A22A(STOR) |
| NA01 | 0.04 | 7.27 | 21.00 | 0.5000 | RG01 | CB76(MS) |
| NA02 | 0.12 | 24.00 | 31.00 | 0.5000 | RG01 | MH326 |
| NA03_1 | 0.02 | 5.71 | 53.00 | 0.5000 | RG01 | CB77(MS) |
| NA03_2 | 0.04 | 6.15 | 53.00 | 0.5000 | RG01 | CB76(MS) |
| NA03_3 | 0.01 | 2.50 | 53.00 | 0.5000 | RG01 | CB76(MS) |
| NA04_1 | 0.04 | 5.38 | 43.00 | 0.5000 | RG01 | CB20(MS) |
| NA04_2 | 0.01 | 6.25 | 43.00 | 0.5000 | RG01 | CB34(MS) |
| NA05 | 0.05 | 8.33 | 29.00 | 0.5000 | RG01 | CB34(MS) |
| NA06 | 0.09 | 15.00 | 28.50 | 0.5000 | RG01 | MH126 |
| TR1-NB | 0.01 | 16.67 | 100.00 | 0.5000 | RG01 | B21(STOR) |
| TR2-NB | 0.04 | 5.00 | 100.00 | 0.5000 | RG01 | B21(STOR) |
| TR-SB | 0.05 | 10.42 | 100.00 | 0.5000 | RG01 | A22A(STOR) |

Node Summary

| Name | Type | Invert Elev. | Max. Depth | Ponded Area | External Inflow |
|------|------|--------------|------------|-------------|-----------------|
|------|------|--------------|------------|-------------|-----------------|

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|------------|----------|-------|------|-----|
| 10+171.51 | JUNCTION | 62.19 | 0.30 | 0.0 |
| 10+207.77 | JUNCTION | 62.95 | 0.30 | 0.0 |
| 10+314.72 | JUNCTION | 62.96 | 0.30 | 0.0 |
| 20+033.19 | JUNCTION | 62.71 | 0.30 | 0.0 |
| 20+069.15 | JUNCTION | 62.92 | 0.30 | 0.0 |
| 20+115.54 | JUNCTION | 63.18 | 0.30 | 0.0 |
| 30+038.20 | JUNCTION | 63.17 | 0.30 | 0.0 |
| 30+074.39 | JUNCTION | 62.99 | 0.30 | 0.0 |
| 40+015.59 | JUNCTION | 63.53 | 0.30 | 0.0 |
| 40+084.71 | JUNCTION | 63.25 | 0.30 | 0.0 |
| 40+121.60 | JUNCTION | 63.57 | 0.30 | 0.0 |
| 40+157.95 | JUNCTION | 63.10 | 0.30 | 0.0 |
| 50+102.24 | JUNCTION | 65.72 | 0.30 | 0.0 |
| 50+127.37 | JUNCTION | 65.53 | 0.30 | 0.0 |
| 60+370.58 | JUNCTION | 59.00 | 0.30 | 0.0 |
| 60+148.01 | JUNCTION | 65.19 | 0.30 | 0.0 |
| 60+224.17 | JUNCTION | 63.88 | 0.30 | 0.0 |
| 60+288.71 | JUNCTION | 61.96 | 0.30 | 0.0 |
| 70-034.26 | JUNCTION | 65.16 | 0.30 | 0.0 |
| 70-152.02 | JUNCTION | 64.61 | 0.30 | 0.0 |
| 70-208.50 | JUNCTION | 63.90 | 0.32 | 0.0 |
| 80+003.32 | JUNCTION | 64.85 | 0.30 | 0.0 |
| 80+025.67 | JUNCTION | 64.79 | 0.30 | 0.0 |
| 80+078.80 | JUNCTION | 64.12 | 0.30 | 0.0 |
| 80+121.22 | JUNCTION | 62.54 | 0.30 | 0.0 |
| 80+187.36 | JUNCTION | 60.33 | 0.30 | 0.0 |
| 80+216.33 | JUNCTION | 59.71 | 0.30 | 0.0 |
| 80+267 | JUNCTION | 59.16 | 0.30 | 0.0 |
| 90+071.47 | JUNCTION | 59.98 | 0.30 | 0.0 |
| 90+008.28 | JUNCTION | 60.60 | 0.30 | 0.0 |
| A15A(STOR) | JUNCTION | 63.40 | 0.30 | 0.0 |
| B19(STOR) | JUNCTION | 63.00 | 0.30 | 0.0 |
| CB01 | JUNCTION | 60.14 | 1.49 | 0.0 |
| CB01(MS) | JUNCTION | 61.33 | 0.30 | 0.0 |
| CB06 | JUNCTION | 61.94 | 1.59 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|----------------|----------|-------|------|-----|
| CB06(MS) | JUNCTION | 63.23 | 0.30 | 0.0 |
| CB08 | JUNCTION | 62.05 | 1.66 | 0.0 |
| CB08(MS) | JUNCTION | 63.41 | 0.30 | 0.0 |
| CB09 | JUNCTION | 61.74 | 1.60 | 0.0 |
| CB09(MS) | JUNCTION | 63.04 | 0.30 | 0.0 |
| CB1 | JUNCTION | 63.70 | 1.44 | 0.0 |
| CB12 | JUNCTION | 61.45 | 1.78 | 0.0 |
| CB12(MS) | JUNCTION | 62.93 | 0.30 | 0.0 |
| CB14 | JUNCTION | 61.23 | 1.75 | 0.0 |
| CB14(MS) | JUNCTION | 62.68 | 0.30 | 0.0 |
| CB15(x2-DICBs) | JUNCTION | 61.08 | 1.88 | 0.0 |
| CB16(2x-DICBs) | JUNCTION | 61.63 | 1.67 | 0.0 |
| CB16(MS) | JUNCTION | 63.00 | 0.30 | 0.0 |
| CB18 | JUNCTION | 61.54 | 1.57 | 0.0 |
| CB18(MS) | JUNCTION | 62.81 | 0.30 | 0.0 |
| CB2 | JUNCTION | 63.57 | 1.57 | 0.0 |
| CB20 | JUNCTION | 61.46 | 1.99 | 0.0 |
| CB20(MS) | JUNCTION | 63.15 | 0.30 | 0.0 |
| CB22 | JUNCTION | 62.08 | 1.52 | 0.0 |
| CB22(MS) | JUNCTION | 63.30 | 0.30 | 0.0 |
| CB24 | JUNCTION | 62.40 | 1.66 | 0.0 |
| CB24(MS) | JUNCTION | 63.76 | 0.30 | 0.0 |
| CB26 | JUNCTION | 63.38 | 1.51 | 0.0 |
| CB26(MS) | JUNCTION | 64.59 | 0.30 | 0.0 |
| CB28 | JUNCTION | 63.57 | 1.84 | 0.0 |
| CB28(MS) | JUNCTION | 65.11 | 0.30 | 0.0 |
| CB29 | JUNCTION | 60.45 | 1.70 | 0.0 |
| CB29(MS) | JUNCTION | 61.85 | 0.30 | 0.0 |
| CB29B(L) | JUNCTION | 60.38 | 2.13 | 0.0 |
| CB3 | JUNCTION | 63.70 | 1.44 | 0.0 |
| CB30 | JUNCTION | 59.71 | 1.82 | 0.0 |
| CB30(MS) | JUNCTION | 61.23 | 0.30 | 0.0 |
| CB31 | JUNCTION | 59.50 | 1.82 | 0.0 |
| CB31(MS) | JUNCTION | 61.02 | 0.30 | 0.0 |
| CB31B(L) | JUNCTION | 59.39 | 1.80 | 0.0 |
| CB32 | JUNCTION | 59.47 | 1.72 | 0.0 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|----------|----------|-------|------|-----|
| CB34 | JUNCTION | 62.16 | 1.61 | 0.0 |
| CB34(MS) | JUNCTION | 63.47 | 0.30 | 0.0 |
| CB35 | JUNCTION | 61.90 | 1.82 | 0.0 |
| CB35(MS) | JUNCTION | 63.42 | 0.30 | 0.0 |
| CB36 | JUNCTION | 61.92 | 1.71 | 0.0 |
| CB36(MS) | JUNCTION | 63.33 | 0.30 | 0.0 |
| CB39 | JUNCTION | 62.00 | 1.70 | 0.0 |
| CB39(MS) | JUNCTION | 63.40 | 0.30 | 0.0 |
| CB40 | JUNCTION | 61.77 | 1.53 | 0.0 |
| CB40(MS) | JUNCTION | 63.00 | 0.30 | 0.0 |
| CB41 | JUNCTION | 61.60 | 1.55 | 0.0 |
| CB41(MS) | JUNCTION | 62.85 | 0.30 | 0.0 |
| CB42 | JUNCTION | 61.81 | 1.70 | 0.0 |
| CB42(MS) | JUNCTION | 63.21 | 0.30 | 0.0 |
| CB45 | JUNCTION | 62.92 | 2.09 | 0.0 |
| CB45(MS) | JUNCTION | 64.71 | 0.30 | 0.0 |
| CB47 | JUNCTION | 63.22 | 2.04 | 0.0 |
| CB47(MS) | JUNCTION | 64.96 | 0.30 | 0.0 |
| CB49 | JUNCTION | 64.82 | 0.71 | 0.0 |
| CB49(MS) | JUNCTION | 65.23 | 0.30 | 0.0 |
| CB5 | JUNCTION | 63.93 | 1.50 | 0.0 |
| CB51 | JUNCTION | 63.02 | 1.98 | 0.0 |
| CB51(MS) | JUNCTION | 64.70 | 0.30 | 0.0 |
| CB53 | JUNCTION | 63.04 | 1.74 | 0.0 |
| CB53(MS) | JUNCTION | 64.48 | 0.30 | 0.0 |
| CB55 | JUNCTION | 62.51 | 1.82 | 0.0 |
| CB56 | JUNCTION | 62.42 | 1.57 | 0.0 |
| CB58 | JUNCTION | 63.26 | 1.80 | 0.0 |
| CB58(MS) | JUNCTION | 64.76 | 0.30 | 0.0 |
| CB6 | JUNCTION | 63.31 | 1.70 | 0.0 |
| CB60 | JUNCTION | 63.16 | 2.04 | 0.0 |
| CB60(MS) | JUNCTION | 64.90 | 0.30 | 0.0 |
| CB62 | JUNCTION | 61.16 | 2.14 | 0.0 |
| CB62(MS) | JUNCTION | 63.00 | 0.30 | 0.0 |
| CB63 | JUNCTION | 61.06 | 1.90 | 0.0 |
| CB63(MS) | JUNCTION | 62.66 | 0.30 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|----------------|----------|-------|------|-----|
| CB65 | JUNCTION | 59.43 | 2.12 | 0.0 |
| CB65(MS) | JUNCTION | 61.25 | 0.30 | 0.0 |
| CB67 | JUNCTION | 58.43 | 2.11 | 0.0 |
| CB67(MS) | JUNCTION | 60.24 | 0.30 | 0.0 |
| CB69 | JUNCTION | 58.38 | 1.89 | 0.0 |
| CB69(MS) | JUNCTION | 59.97 | 0.30 | 0.0 |
| CB70 | JUNCTION | 58.31 | 1.90 | 0.0 |
| CB70(MS) | JUNCTION | 59.91 | 0.30 | 0.0 |
| CB71 | JUNCTION | 57.66 | 2.23 | 0.0 |
| CB71(MS) | JUNCTION | 59.59 | 0.30 | 0.0 |
| CB73 | JUNCTION | 57.75 | 1.90 | 0.0 |
| CB73(MS) | JUNCTION | 59.35 | 0.30 | 0.0 |
| CB74(4x-DICBs) | JUNCTION | 56.95 | 2.27 | 0.0 |
| CB75 | JUNCTION | 57.62 | 1.90 | 0.0 |
| CB75(MS) | JUNCTION | 59.22 | 0.30 | 0.0 |
| CB76 | JUNCTION | 59.61 | 1.90 | 0.0 |
| CB76(MS) | JUNCTION | 61.21 | 0.30 | 0.0 |
| CB77 | JUNCTION | 60.97 | 1.90 | 0.0 |
| CB77(MS) | JUNCTION | 62.57 | 0.30 | 0.0 |
| CB78 | JUNCTION | 58.46 | 1.95 | 0.0 |
| CB79 | JUNCTION | 57.34 | 1.90 | 0.0 |
| CB79(MS) | JUNCTION | 58.94 | 0.30 | 0.0 |
| CB8 | JUNCTION | 62.85 | 1.49 | 0.0 |
| CB80 | JUNCTION | 62.53 | 1.90 | 0.0 |
| CB80(MS) | JUNCTION | 64.13 | 0.30 | 0.0 |
| CB82 | JUNCTION | 63.39 | 2.00 | 0.0 |
| CBMH1 | JUNCTION | 61.92 | 3.38 | 0.0 |
| CBMH4 | JUNCTION | 64.06 | 1.39 | 0.0 |
| CBMH7 | JUNCTION | 63.20 | 1.55 | 0.0 |
| HP01 | JUNCTION | 61.04 | 0.30 | 0.0 |
| HP02 | JUNCTION | 61.28 | 0.30 | 0.0 |
| HP03 | JUNCTION | 60.87 | 0.30 | 0.0 |
| HP04 | JUNCTION | 62.65 | 0.30 | 0.0 |
| J1 | JUNCTION | 59.88 | 3.82 | 0.0 |
| J10 | JUNCTION | 64.98 | 0.30 | 0.0 |
| J11 | JUNCTION | 64.77 | 0.30 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------------|----------|-------|------|-----|
| J12 | JUNCTION | 64.50 | 0.30 | 0.0 |
| J13 | JUNCTION | 64.09 | 0.30 | 0.0 |
| J14 | JUNCTION | 63.50 | 1.80 | 0.0 |
| J15 | JUNCTION | 64.90 | 0.60 | 0.0 |
| J16 | JUNCTION | 64.32 | 0.30 | 0.0 |
| J3 | JUNCTION | 60.28 | 1.93 | 0.0 |
| J5 | JUNCTION | 61.42 | 0.20 | 0.0 |
| J6 | JUNCTION | 64.90 | 0.30 | 0.0 |
| J7 | JUNCTION | 65.20 | 0.30 | 0.0 |
| J8 | JUNCTION | 65.18 | 0.30 | 0.0 |
| J9 | JUNCTION | 64.99 | 0.30 | 0.0 |
| MH100 | JUNCTION | 59.97 | 1.72 | 0.0 |
| MH102 | JUNCTION | 59.90 | 4.96 | 0.0 |
| MH104 | JUNCTION | 59.84 | 3.13 | 0.0 |
| MH106 | JUNCTION | 59.65 | 2.53 | 0.0 |
| MH108 | JUNCTION | 59.59 | 2.41 | 0.0 |
| MH110 | JUNCTION | 59.60 | 3.84 | 0.0 |
| MH110B | JUNCTION | 59.40 | 3.79 | 0.0 |
| MH112B | JUNCTION | 59.17 | 3.81 | 0.0 |
| MH114 | JUNCTION | 58.08 | 4.96 | 0.0 |
| MH118 | JUNCTION | 58.41 | 4.44 | 0.0 |
| MH122 | JUNCTION | 59.30 | 3.63 | 0.0 |
| MH122B | JUNCTION | 58.58 | 4.26 | 0.0 |
| MH124 | JUNCTION | 60.55 | 2.82 | 0.0 |
| MH126 | JUNCTION | 61.31 | 2.15 | 0.0 |
| MH128 | JUNCTION | 60.02 | 3.81 | 0.0 |
| MH128(DUMMY) | JUNCTION | 61.60 | 2.23 | 0.0 |
| MH130 | JUNCTION | 61.26 | 2.72 | 0.0 |
| MH132 | JUNCTION | 61.34 | 2.97 | 0.0 |
| MH136 | JUNCTION | 60.90 | 2.25 | 0.0 |
| MH140 | JUNCTION | 60.80 | 2.25 | 0.0 |
| MH144 | JUNCTION | 59.44 | 3.61 | 0.0 |
| MH148 | JUNCTION | 61.22 | 2.25 | 0.0 |
| MH152 | JUNCTION | 59.92 | 3.66 | 0.0 |
| MH164 | JUNCTION | 61.43 | 3.23 | 0.0 |
| MH166 | JUNCTION | 61.65 | 3.22 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------------|----------|-------|------|-----|
| MH168 | JUNCTION | 61.74 | 3.30 | 0.0 |
| MH170 | JUNCTION | 61.88 | 3.34 | 0.0 |
| MH172 | JUNCTION | 62.06 | 3.16 | 0.0 |
| MH174 | JUNCTION | 62.17 | 3.06 | 0.0 |
| MH176 | JUNCTION | 62.90 | 2.34 | 0.0 |
| MH178 | JUNCTION | 62.02 | 3.42 | 0.0 |
| MH180 | JUNCTION | 62.85 | 1.76 | 0.0 |
| MH182 | JUNCTION | 62.48 | 2.43 | 0.0 |
| MH220 | JUNCTION | 59.47 | 2.25 | 0.0 |
| MH222 | JUNCTION | 59.03 | 1.97 | 0.0 |
| MH224 | JUNCTION | 59.17 | 1.75 | 0.0 |
| MH226 | JUNCTION | 60.21 | 2.46 | 0.0 |
| MH228 | JUNCTION | 60.07 | 1.79 | 0.0 |
| MH230 | JUNCTION | 59.77 | 3.67 | 0.0 |
| MH238 | JUNCTION | 58.14 | 4.42 | 0.0 |
| MH242 | JUNCTION | 56.00 | 5.68 | 0.0 |
| MH246 | JUNCTION | 59.84 | 4.44 | 0.0 |
| MH248 | JUNCTION | 61.61 | 3.16 | 0.0 |
| MH250 | JUNCTION | 62.63 | 3.11 | 0.0 |
| MH300 | JUNCTION | 62.40 | 2.46 | 0.0 |
| MH302 | JUNCTION | 61.52 | 2.79 | 0.0 |
| MH304 | JUNCTION | 60.91 | 2.53 | 0.0 |
| MH306 | JUNCTION | 59.44 | 2.65 | 0.0 |
| MH308 | JUNCTION | 58.67 | 2.95 | 0.0 |
| MH310 | JUNCTION | 56.60 | 3.46 | 0.0 |
| MH312 | JUNCTION | 61.64 | 2.55 | 0.0 |
| MH314 | JUNCTION | 60.61 | 2.45 | 0.0 |
| MH314(DUMMY) | JUNCTION | 58.40 | 1.85 | 0.0 |
| MH316 | JUNCTION | 57.13 | 3.07 | 0.0 |
| MH318 | JUNCTION | 57.52 | 2.07 | 0.0 |
| MH320 | JUNCTION | 56.95 | 3.02 | 0.0 |
| MH322 | JUNCTION | 56.91 | 3.12 | 0.0 |
| MH324 | JUNCTION | 60.65 | 2.14 | 0.0 |
| MH326 | JUNCTION | 59.17 | 2.64 | 0.0 |
| MH328 | JUNCTION | 58.04 | 2.39 | 0.0 |
| MH328(DUMMY) | JUNCTION | 57.01 | 2.51 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|------------------|----------|--------|-------|-----|
| MH330 | JUNCTION | 57.05 | 2.25 | 0.0 |
| MH332 | JUNCTION | 56.53 | 2.67 | 0.0 |
| MH334 | JUNCTION | 56.33 | 2.70 | 0.0 |
| MH336 | JUNCTION | 56.35 | 2.46 | 0.0 |
| MH338 | JUNCTION | 56.34 | 2.41 | 0.0 |
| MH340 | JUNCTION | 56.01 | 2.32 | 0.0 |
| MH400 | JUNCTION | 62.66 | 2.58 | 0.0 |
| MH402 | JUNCTION | 62.32 | 2.56 | 0.0 |
| MH404 | JUNCTION | 62.96 | 2.57 | 0.0 |
| MH406 | JUNCTION | 62.79 | 2.42 | 0.0 |
| MH408 | JUNCTION | 62.96 | 32.19 | 0.0 |
| MH410 | JUNCTION | 62.23 | 2.58 | 0.0 |
| MH412 | JUNCTION | 62.28 | 2.25 | 0.0 |
| MH414 | JUNCTION | 61.90 | 2.26 | 0.0 |
| VortechsPh1 | JUNCTION | 58.40 | 4.39 | 0.0 |
| VortechsPh2 | JUNCTION | 56.35 | 2.46 | 0.0 |
| Clegg | OUTFALL | 61.30 | 0.30 | 0.0 |
| MainNorth | OUTFALL | 64.70 | 0.30 | 0.0 |
| MainSouth | OUTFALL | 65.02 | 0.30 | 0.0 |
| Out1 | OUTFALL | 60.50 | 0.30 | 0.0 |
| Out2 | OUTFALL | 60.50 | 0.30 | 0.0 |
| Out3 | OUTFALL | 62.50 | 0.30 | 0.0 |
| Outlet1-Phase1 | OUTFALL | 56.00 | 0.90 | 0.0 |
| Outlet2-Phase2&3 | OUTFALL | 56.00 | 0.75 | 0.0 |
| A04(STOR) | STORAGE | 61.13 | 4.00 | 0.0 |
| A06(STOR) | STORAGE | 63.90 | 1.50 | 0.0 |
| A09B(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |
| A09C(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |
| A10(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |
| A11B(STOR) | STORAGE | 60.98 | 3.05 | 0.0 |
| A14(STOR) | STORAGE | 62.70 | 1.50 | 0.0 |
| A16C(STOR) | STORAGE | 65.22 | 0.78 | 0.0 |
| A22A(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |
| B21(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |
| B23(STOR) | STORAGE | 56.51 | 3.69 | 0.0 |
| B25(STOR) | STORAGE | 100.00 | 0.15 | 0.0 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

J2 STORAGE 65.37 0.15 0.0
 J4 STORAGE 100.00 0.15 0.0

Link Summary

| Name | From Node | To Node | Type | Length | %Slope | Roughness |
|------|-----------|-----------|---------|--------|---------|-----------|
| 1 | A04(STOR) | CB47(MS) | CONDUIT | 22.3 | 0.7629 | 0.0350 |
| 10 | CBMH4 | J7 | CONDUIT | 2.6 | -1.9497 | 0.0160 |
| 11 | MH406 | MH170 | CONDUIT | 7.5 | 1.9898 | 0.0150 |
| 12 | J8 | CB47(MS) | CONDUIT | 5.0 | 4.4043 | 0.0160 |
| 13 | J6 | 80+003.32 | CONDUIT | 5.0 | 1.0001 | 0.0160 |
| 14 | J9 | CB47(MS) | CONDUIT | 36.2 | 0.0829 | 0.0150 |
| 15 | J7 | CB82 | CONDUIT | 5.0 | 2.2005 | 0.0160 |
| 16 | CB5 | J8 | CONDUIT | 5.0 | -1.0001 | 0.0160 |
| 18 | J10 | CB45(MS) | CONDUIT | 57.6 | 0.4687 | 0.0160 |
| 19 | MH412 | MH414 | CONDUIT | 19.8 | 1.7680 | 0.0130 |
| 2 | MH402 | MH300 | CONDUIT | 9.3 | 2.0391 | 0.0130 |
| 20 | MH408 | MH410 | CONDUIT | 20.9 | 3.3512 | 0.0130 |
| 22 | MH410 | MH248 | CONDUIT | 7.6 | 1.9689 | 0.0130 |
| 23 | J11 | CB45(MS) | CONDUIT | 5.0 | 1.2001 | 0.0160 |
| 24 | CB1 | J9 | CONDUIT | 5.0 | -3.0014 | 0.0160 |
| 25 | CB2 | J10 | CONDUIT | 1.8 | -7.8409 | 0.0160 |
| 28 | J12 | J16 | CONDUIT | 12.8 | 1.4187 | 0.0160 |
| 29 | CB6 | J11 | CONDUIT | 5.0 | -1.2001 | 0.0160 |
| 3 | MH400 | MH402 | CONDUIT | 20.4 | 1.5198 | 0.0130 |
| 30 | CBMH7 | J12 | CONDUIT | 5.0 | -1.0001 | 0.0160 |
| 32 | CB8 | J13 | CONDUIT | 5.0 | -1.0001 | 0.0160 |
| 33 | J13 | 70-208.50 | CONDUIT | 5.0 | 3.4020 | 0.0160 |
| 35 | J15 | J14 | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| 37 | J15 | CB49(MS) | CONDUIT | 5.0 | -0.6000 | 0.0160 |
| 4 | CB3 | J6 | CONDUIT | 5.0 | -1.2001 | 0.0160 |
| 5 | B23(STOR) | CB70(MS) | CONDUIT | 10.3 | 0.8737 | 0.0350 |
| 6 | J5 | J3 | CONDUIT | 20.0 | 5.7244 | 0.0130 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|-----------|------------|----------------|---------|-------|---------|--------|
| 7 | MH404 | MH406 | CONDUIT | 22.1 | 1.9913 | 0.0130 |
| 9 | MH414 | MH132 | CONDUIT | 7.1 | 1.5495 | 0.0130 |
| A15A(OUT) | A15A(STOR) | J1 | CONDUIT | 6.8 | 60.0333 | 0.0130 |
| B19(OUT) | B19(STOR) | MH306 | CONDUIT | 110.0 | 1.8185 | 0.0150 |
| C01 | 10+171.51 | CB76(MS) | CONDUIT | 24.5 | 3.9841 | 0.0160 |
| C02 | 10+207.77 | CB77(MS) | CONDUIT | 15.0 | 2.5158 | 0.0160 |
| C03 | 10+314.72 | CB15(x2-DICBs) | CONDUIT | 54.8 | 0.5423 | 0.0160 |
| C04 | 20.033.19 | CB14(MS) | CONDUIT | 14.5 | 0.2063 | 0.0160 |
| C05 | 20+069.15 | CB12(MS) | CONDUIT | 5.4 | -0.1866 | 0.0160 |
| C06 | 20+115.54 | 40+157.95 | CONDUIT | 14.5 | 0.5522 | 0.0160 |
| C07 | 20+115.54 | CB01(MS) | CONDUIT | 27.3 | 6.8039 | 0.0160 |
| C08 | 30+038.20 | CB09(MS) | CONDUIT | 7.8 | 1.7202 | 0.0160 |
| C09 | 30+074.39 | CB18(MS) | CONDUIT | 11.2 | 1.6519 | 0.0160 |
| C10 | 40+015.59 | CB34(MS) | CONDUIT | 33.5 | 0.1851 | 0.0160 |
| C100 | CB55 | CB56 | CONDUIT | 19.4 | 1.7515 | 0.0350 |
| C101 | CB56 | 20+115.54 | CONDUIT | 13.4 | 3.8084 | 0.0350 |
| C102 | CB58 | CB58(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C103 | CB58(MS) | 80+003.32 | CONDUIT | 7.4 | -1.2218 | 0.0160 |
| C104 | CB58(MS) | 80+025.67 | CONDUIT | 17.5 | -0.1718 | 0.0160 |
| C105 | CB60 | CB60(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C106 | CB60(MS) | 80+003.32 | CONDUIT | 16.1 | 0.3110 | 0.0160 |
| C107 | CB62 | CB62(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C108 | CB62(MS) | 60+288.71 | CONDUIT | 35.1 | 2.9504 | 0.0160 |
| C109 | CB63 | CB63(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C11 | 40+015.59 | CB22(MS) | CONDUIT | 50.4 | 0.4606 | 0.0160 |
| C110 | CB63(MS) | 80+121.22 | CONDUIT | 5.0 | 2.4007 | 0.0160 |
| C111 | CB65 | CB65(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C112 | CB65(MS) | 90.071.47 | CONDUIT | 33.8 | 3.7492 | 0.0160 |
| C113 | CB67 | CB67(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C114 | CB67(MS) | 90.071.47 | CONDUIT | 11.3 | 2.2636 | 0.0160 |
| C115 | CB69 | CB69(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C116 | CB69(MS) | CB67(MS) | CONDUIT | 28.2 | -0.9585 | 0.0160 |
| C117 | CB70 | CB70(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C118 | CB70(MS) | CB75(MS) | CONDUIT | 22.4 | 3.0872 | 0.0160 |
| C119 | CB71 | CB71(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C12 | 40+084.71 | 30+038.20 | CONDUIT | 26.7 | 0.2880 | 0.0160 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|--------|----------------|----------------|---------|------|---------|--------|
| C120 | CB71(MS) | CB73(MS) | CONDUIT | 27.2 | 0.8815 | 0.0160 |
| C121 | CB73 | CB73(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C122 | CB73(MS) | 80+267 | CONDUIT | 5.0 | 3.8027 | 0.0160 |
| C123 | CB74(4x-DICBs) | 60.370.58 | CONDUIT | 13.5 | -0.5942 | 0.0160 |
| C124 | CB74(4x-DICBs) | MH332 | CONDUIT | 5.0 | 1.0001 | 0.0130 |
| C125 | CB75 | CB75(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C126 | CB76 | CB76(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C127 | CB76(MS) | CB75(MS) | CONDUIT | 60.0 | 3.3174 | 0.0160 |
| C128 | CB77 | CB77(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C129 | CB77(MS) | 10+171.51 | CONDUIT | 21.2 | 1.8082 | 0.0160 |
| C13 | 40+121.60 | CB08(MS) | CONDUIT | 15.3 | 1.0579 | 0.0160 |
| C130 | CB78 | 80+187.36 | CONDUIT | 20.6 | -1.0697 | 0.0160 |
| C131 | CB79 | CB79(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C132 | CB79(MS) | CB74(4x-DICBs) | CONDUIT | 32.7 | 0.0611 | 0.0160 |
| C133 | CB80 | CB80(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C134 | CB80(MS) | 80+078.80 | CONDUIT | 5.0 | 0.2000 | 0.0160 |
| C135 | CBMH1 | CB56 | CONDUIT | 31.1 | 4.2138 | 0.0350 |
| C136 | HP01 | Out2 | CONDUIT | 5.0 | 10.8635 | 0.0350 |
| C137 | HP02 | Clegg | CONDUIT | 5.0 | -0.4000 | 0.0160 |
| C138 | HP03 | Out1 | CONDUIT | 5.0 | 7.4203 | 0.0350 |
| C139 | HP04 | Out3 | CONDUIT | 5.0 | 3.0014 | 0.0350 |
| C14 | 40+121.60 | CB06(MS) | CONDUIT | 16.1 | 2.1287 | 0.0160 |
| C140 | MH100 | MH104 | CONDUIT | 25.1 | 0.4787 | 0.0130 |
| C141 | MH102 | MH246 | CONDUIT | 10.6 | 0.5192 | 0.0130 |
| C142 | MH104 | MH106 | CONDUIT | 10.6 | 0.3774 | 0.0130 |
| C143 | MH106 | MH108 | CONDUIT | 12.4 | 0.4039 | 0.0130 |
| C144 | MH108 | MH144 | CONDUIT | 30.9 | 0.2593 | 0.0130 |
| C145_1 | MH108 | J3 | CONDUIT | 10.0 | 0.5300 | 0.0130 |
| C145_2 | J3 | MH110 | CONDUIT | 63.8 | 0.5752 | 0.0130 |
| C146 | MH110 | MH110B | CONDUIT | 32.1 | 0.7170 | 0.0130 |
| C147 | MH110B | MH112B | CONDUIT | 35.3 | 0.6518 | 0.0130 |
| C148 | MH112B | MH114 | CONDUIT | 32.6 | 0.2763 | 0.0130 |
| C149 | MH114 | MH118 | CONDUIT | 68.5 | 0.8758 | 0.0130 |
| C15 | 40+157.95 | 20+069.15 | CONDUIT | 30.6 | 0.5877 | 0.0160 |
| C150 | MH118 | MH238 | CONDUIT | 4.8 | 1.0374 | 0.0130 |
| C151 | MH118 | VortechsPh1 | CONDUIT | 3.0 | 0.3390 | 0.0130 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|--------|--------------|--------------|---------|------|---------|--------|
| C152 | MH122 | MH122B | CONDUIT | 18.9 | 0.2541 | 0.0130 |
| C153 | MH122B | MH118 | CONDUIT | 31.1 | 0.2891 | 0.0130 |
| C154 | MH124 | MH114 | CONDUIT | 70.2 | 0.2707 | 0.0130 |
| C155 | MH126 | MH124 | CONDUIT | 54.8 | 0.4839 | 0.0130 |
| C156_1 | MH128 | J1 | CONDUIT | 25.8 | 0.5164 | 0.0130 |
| C156_2 | J1 | MH110 | CONDUIT | 50.5 | 0.5785 | 0.0130 |
| C157 | MH128 | MH128(DUMMY) | CONDUIT | 5.0 | -0.1000 | 0.0130 |
| C158 | MH128(DUMMY) | MH126 | CONDUIT | 50.3 | 0.4771 | 0.0130 |
| C159 | MH130 | MH128 | CONDUIT | 19.8 | 0.4541 | 0.0130 |
| C16 | 50+102.24 | CB28(MS) | CONDUIT | 72.0 | 0.8543 | 0.0160 |
| C160 | MH132 | MH130 | CONDUIT | 26.4 | 0.3028 | 0.0130 |
| C161 | MH136 | MH144 | CONDUIT | 36.4 | 0.4996 | 0.0130 |
| C162 | MH140 | MH122B | CONDUIT | 39.3 | 0.5007 | 0.0130 |
| C163 | MH144 | MH122 | CONDUIT | 18.2 | 0.6590 | 0.0130 |
| C164 | MH148 | MH112B | CONDUIT | 41.5 | 0.4989 | 0.0130 |
| C165 | MH152 | MH110B | CONDUIT | 36.5 | 0.5007 | 0.0130 |
| C166 | MH164 | MH132 | CONDUIT | 30.8 | 0.2595 | 0.0130 |
| C167 | MH166 | MH248 | CONDUIT | 17.3 | 0.1734 | 0.0130 |
| C168 | MH168 | MH166 | CONDUIT | 33.4 | 0.2698 | 0.0130 |
| C169 | MH170 | MH168 | CONDUIT | 27.2 | 0.2574 | 0.0130 |
| C17 | 50+102.24 | 50+127.37 | CONDUIT | 26.2 | 0.7620 | 0.0160 |
| C170 | MH172 | MH170 | CONDUIT | 32.2 | 0.3102 | 0.0130 |
| C171 | MH174 | MH172 | CONDUIT | 15.2 | 0.1318 | 0.0130 |
| C172 | MH174 | MH300 | CONDUIT | 32.9 | 1.7931 | 0.0130 |
| C173 | MH176 | MH250 | CONDUIT | 60.4 | 0.4801 | 0.0130 |
| C174 | MH178 | MH164 | CONDUIT | 37.3 | 0.2410 | 0.0130 |
| C175 | MH180 | MH182 | CONDUIT | 61.8 | 0.3725 | 0.0130 |
| C176 | MH182 | MH174 | CONDUIT | 71.5 | 0.3076 | 0.0130 |
| C177 | MH220 | MH222 | CONDUIT | 75.1 | 0.5061 | 0.0130 |
| C178 | MH222 | MH122B | CONDUIT | 30.9 | 0.4989 | 0.0130 |
| C179 | MH224 | MH222 | CONDUIT | 16.4 | 0.5014 | 0.0130 |
| C18 | 50+127.37 | CB26(MS) | CONDUIT | 33.5 | 2.7931 | 0.0160 |
| C180 | MH226 | MH228 | CONDUIT | 28.3 | 0.5026 | 0.0130 |
| C181 | MH228 | MH100 | CONDUIT | 7.6 | 0.5283 | 0.0130 |
| C182 | MH230 | MH106 | CONDUIT | 9.1 | 0.4952 | 0.0130 |
| C183 | MH238 | MH242 | CONDUIT | 15.4 | 1.5540 | 0.0130 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|------|--------------|------------------|---------|------|---------|--------|
| C184 | MH242 | Outlet1-Phase1 | CONDUIT | 9.4 | 1.1740 | 0.0130 |
| C185 | MH246 | MH230 | CONDUIT | 14.8 | 0.4744 | 0.0130 |
| C186 | MH248 | MH164 | CONDUIT | 12.2 | 0.5757 | 0.0130 |
| C187 | MH250 | MH178 | CONDUIT | 38.5 | 0.4669 | 0.0130 |
| C188 | MH300 | MH302 | CONDUIT | 26.3 | 3.0825 | 0.0130 |
| C189 | MH302 | MH304 | CONDUIT | 34.1 | 1.7865 | 0.0130 |
| C19 | 60.370.58 | CB75(MS) | CONDUIT | 5.0 | -4.4043 | 0.0160 |
| C190 | MH304 | MH306 | CONDUIT | 44.7 | 3.2874 | 0.0130 |
| C191 | MH306 | MH308 | CONDUIT | 13.6 | 3.8943 | 0.0130 |
| C192 | MH308 | MH310 | CONDUIT | 39.7 | 2.8950 | 0.0130 |
| C193 | MH310 | MH334 | CONDUIT | 34.3 | 0.2625 | 0.0130 |
| C194 | MH312 | MH314 | CONDUIT | 33.0 | 3.1256 | 0.0130 |
| C195 | MH314 | MH314(DUMMY) | CONDUIT | 72.7 | 3.0400 | 0.0130 |
| C196 | MH314(DUMMY) | MH316 | CONDUIT | 7.7 | 5.7446 | 0.0130 |
| C197 | MH316 | MH320 | CONDUIT | 38.6 | 0.4404 | 0.0130 |
| C198 | MH318 | MH316 | CONDUIT | 61.1 | -0.1145 | 0.0130 |
| C199 | MH320 | MH322 | CONDUIT | 7.3 | 0.5472 | 0.0130 |
| C20 | 60+148.01 | CB49(MS) | CONDUIT | 55.0 | -0.0818 | 0.0160 |
| C200 | MH322 | MH310 | CONDUIT | 21.9 | 0.2738 | 0.0130 |
| C201 | MH324 | MH326 | CONDUIT | 37.7 | 3.7131 | 0.0130 |
| C202 | MH326 | MH328 | CONDUIT | 35.4 | 3.1407 | 0.0130 |
| C203 | MH328 | MH328(DUMMY) | CONDUIT | 29.6 | 3.4783 | 0.0130 |
| C204 | MH328(DUMMY) | MH334 | CONDUIT | 10.0 | 2.4007 | 0.0130 |
| C205 | MH330 | MH332 | CONDUIT | 36.8 | 0.4072 | 0.0130 |
| C206 | MH332 | MH334 | CONDUIT | 35.8 | 0.5585 | 0.0130 |
| C207 | MH334 | MH336 | CONDUIT | 5.0 | 0.2000 | 0.0130 |
| C208 | MH336 | VortechsPh2 | CONDUIT | 2.4 | 0.0127 | 0.0130 |
| C209 | MH336 | MH338 | CONDUIT | 5.0 | 0.2000 | 0.0130 |
| C21 | 60+148.01 | CB60(MS) | CONDUIT | 27.7 | 1.0286 | 0.0160 |
| C210 | MH338 | MH340 | CONDUIT | 14.2 | 0.2176 | 0.0130 |
| C211 | MH340 | Outlet2-Phase2&3 | CONDUIT | 2.9 | 0.3415 | 0.0130 |
| C212 | VortechsPh1 | MH238 | CONDUIT | 5.0 | 0.2000 | 0.0130 |
| C213 | VortechsPh2 | MH338 | CONDUIT | 2.4 | 0.0127 | 0.0130 |
| C22 | 60+148.01 | CB82 | CONDUIT | 21.6 | 0.4389 | 0.0160 |
| C23 | 60+224.17 | CB62(MS) | CONDUIT | 29.5 | 2.9667 | 0.0160 |
| C24 | 60+288.71 | CB65(MS) | CONDUIT | 16.5 | 4.3385 | 0.0160 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|-------|----------------|----------------|---------|------|---------|--------|
| C25 | 70-034.26 | CB82 | CONDUIT | 24.9 | 0.2688 | 0.0160 |
| C26 | 70-034.26 | CB47(MS) | CONDUIT | 42.7 | 0.4610 | 0.0160 |
| C27_1 | 70-152.02 | J16 | CONDUIT | 24.0 | 1.1915 | 0.0160 |
| C27_2 | J16 | 70-208.50 | CONDUIT | 35.0 | 1.1903 | 0.0160 |
| C28 | 70-208.50 | CB24(MS) | CONDUIT | 17.5 | 0.8136 | 0.0160 |
| C29 | 80+003.32 | 60+224.17 | CONDUIT | 38.7 | 2.5211 | 0.0160 |
| C30 | 80+025.67 | CB80(MS) | CONDUIT | 50.3 | 1.3125 | 0.0160 |
| C31 | 80+078.80 | CB63(MS) | CONDUIT | 38.4 | 3.8029 | 0.0160 |
| C32 | 80+121.22 | CB78 | CONDUIT | 53.9 | 4.5098 | 0.0160 |
| C33 | 80+187.36 | 90+008.28 | CONDUIT | 10.7 | -2.5152 | 0.0160 |
| C34 | 80+187.36 | 80+216.33 | CONDUIT | 28.9 | 2.1432 | 0.0160 |
| C35 | 80+216.33 | CB71(MS) | CONDUIT | 17.4 | 0.6911 | 0.0160 |
| C36 | 80+267 | CB79(MS) | CONDUIT | 36.3 | 0.6065 | 0.0160 |
| C37 | 90.071.47 | CB70(MS) | CONDUIT | 10.6 | 0.7108 | 0.0160 |
| C38 | 90+008.28 | CB69(MS) | CONDUIT | 23.3 | 2.7014 | 0.0160 |
| C39 | CB01 | CB01(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C40 | CB01(MS) | CB30(MS) | CONDUIT | 36.6 | 0.2735 | 0.0160 |
| C41 | CB01(MS) | HP02 | CONDUIT | 5.5 | 0.9091 | 0.0160 |
| C42 | CB06 | CB06(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C43 | CB06(MS) | 40+157.95 | CONDUIT | 22.2 | 0.5845 | 0.0160 |
| C44 | CB08 | CB08(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C45 | CB08(MS) | 40+084.71 | CONDUIT | 21.2 | 0.7448 | 0.0160 |
| C46 | CB09 | CB09(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C47 | CB09(MS) | 30+074.39 | CONDUIT | 30.6 | 0.1472 | 0.0160 |
| C48 | CB12 | CB12(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C49 | CB12(MS) | 20.033.19 | CONDUIT | 33.2 | 0.6627 | 0.0160 |
| C50 | CB14 | CB14(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C51 | CB14(MS) | CB15(x2-DICBs) | CONDUIT | 17.9 | 0.1116 | 0.0160 |
| C52 | CB16(2x-DICBs) | CB16(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C53 | CB16(MS) | 10+314.72 | CONDUIT | 13.2 | 0.3251 | 0.0160 |
| C54 | CB18 | CB18(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C55 | CB18(MS) | 10+314.72 | CONDUIT | 13.6 | -1.0819 | 0.0160 |
| C56 | CB20 | CB20(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C57 | CB20(MS) | CB16(MS) | CONDUIT | 65.7 | 0.2283 | 0.0160 |
| C58 | CB20(MS) | 10+207.77 | CONDUIT | 37.6 | 0.5403 | 0.0160 |
| C59 | CB22 | CB22(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|-----|----------|-----------|---------|------|----------|--------|
| C60 | CB22(MS) | 40+084.71 | CONDUIT | 21.7 | 0.2216 | 0.0160 |
| C61 | CB24 | CB24(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C62 | CB24(MS) | 40+015.59 | CONDUIT | 10.6 | 2.1474 | 0.0160 |
| C63 | CB26 | CB26(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C64 | CB26(MS) | 70-152.02 | CONDUIT | 7.5 | -0.1999 | 0.0160 |
| C65 | CB28 | CB28(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C66 | CB28(MS) | MainSouth | CONDUIT | 15.5 | 0.6017 | 0.0160 |
| C67 | CB29 | CB29(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C68 | CB29(MS) | CB01(MS) | CONDUIT | 16.3 | 3.1971 | 0.0160 |
| C69 | CB29B(L) | HP04 | CONDUIT | 5.0 | -51.0954 | 0.0350 |
| C70 | CB30 | CB30(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C71 | CB30(MS) | CB31(MS) | CONDUIT | 32.6 | 0.6438 | 0.0160 |
| C72 | CB31 | CB31(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C73 | CB31(MS) | CB32 | CONDUIT | 31.5 | 0.4004 | 0.0160 |
| C74 | CB31B(L) | HP01 | CONDUIT | 5.0 | -2.9212 | 0.0350 |
| C75 | CB32 | HP03 | CONDUIT | 5.0 | 0.0061 | 0.0350 |
| C76 | CB34 | CB34(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C77 | CB34(MS) | CB20(MS) | CONDUIT | 63.4 | 0.5045 | 0.0160 |
| C78 | CB35 | CB35(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C79 | CB35(MS) | CB36(MS) | CONDUIT | 28.2 | 0.3187 | 0.0160 |
| C80 | CB36 | CB36(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C81 | CB36(MS) | 30+074.39 | CONDUIT | 20.3 | 1.6493 | 0.0160 |
| C82 | CB39 | CB39(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C83 | CB39(MS) | 30+038.20 | CONDUIT | 18.0 | 1.2471 | 0.0160 |
| C84 | CB40 | CB40(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C85 | CB40(MS) | CB41(MS) | CONDUIT | 29.2 | 0.5143 | 0.0160 |
| C86 | CB41 | CB41(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C87 | CB41(MS) | 20.033.19 | CONDUIT | 11.4 | 1.2325 | 0.0160 |
| C88 | CB42 | CB42(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C89 | CB42(MS) | 20+069.15 | CONDUIT | 13.8 | 2.1080 | 0.0160 |
| C90 | CB45 | CB45(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C91 | CB45(MS) | 70-152.02 | CONDUIT | 20.1 | 0.5224 | 0.0160 |
| C92 | CB47 | CB47(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C93 | CB47(MS) | CB45(MS) | CONDUIT | 61.3 | 0.4079 | 0.0160 |
| C94 | CB49 | CB49(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C95 | CB49(MS) | CB51(MS) | CONDUIT | 45.7 | 1.1604 | 0.0160 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | |
|----------|----------------|--------------|---------|------|---------|--------|
| C96 | CB51 | CB51(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C97 | CB51(MS) | CB53(MS) | CONDUIT | 45.8 | 0.4806 | 0.0160 |
| C98 | CB53 | CB53(MS) | CONDUIT | 5.0 | 0.0061 | 0.0160 |
| C99 | CB53(MS) | MainNorth | CONDUIT | 17.8 | -1.2388 | 0.0160 |
| OR52 | CBMH1 | MH102 | CONDUIT | 7.6 | 0.3947 | 0.0130 |
| 34 | J14 | MH182 | ORIFICE | | | |
| A3-A1-OR | CB3 | MH402 | ORIFICE | | | |
| A3-A2-OR | CBMH4 | MH172 | ORIFICE | | | |
| A3-A3-OR | CB5 | MH406 | ORIFICE | | | |
| A7-A7-OR | CBMH7 | MH164 | ORIFICE | | | |
| A7-A8-OR | CB8 | MH414 | ORIFICE | | | |
| OR01 | CB01 | MH100 | ORIFICE | | | |
| OR02 | CB06 | MH108 | ORIFICE | | | |
| OR03 | CB08 | MH108 | ORIFICE | | | |
| OR04 | CB09 | MH110B | ORIFICE | | | |
| OR05 | CB12 | MH144 | ORIFICE | | | |
| OR06 | CB14 | MH122B | ORIFICE | | | |
| OR07 | CB15(x2-DICBs) | MH114 | ORIFICE | | | |
| OR08 | CB16(2x-DICBs) | MH124 | ORIFICE | | | |
| OR09 | CB18 | MH112B | ORIFICE | | | |
| OR10 | CB20 | MH126 | ORIFICE | | | |
| OR11 | CB22 | MH128 | ORIFICE | | | |
| OR12 | CB24 | MH130 | ORIFICE | | | |
| OR13 | CB26 | MH178 | ORIFICE | | | |
| OR14 | CB28 | MH176 | ORIFICE | | | |
| OR15 | CB29 | MH226 | ORIFICE | | | |
| OR16 | CB29B(L) | MH228 | ORIFICE | | | |
| OR17 | CB30 | MH220 | ORIFICE | | | |
| OR18 | CB31 | MH220 | ORIFICE | | | |
| OR19 | CB31B(L) | MH222 | ORIFICE | | | |
| OR20 | CB32 | MH224 | ORIFICE | | | |
| OR21 | CB34 | MH128(DUMMY) | ORIFICE | | | |
| OR22 | CB35 | MH148 | ORIFICE | | | |
| OR23 | CB36 | MH148 | ORIFICE | | | |
| OR24 | CB39 | MH152 | ORIFICE | | | |
| OR25 | CB40 | MH140 | ORIFICE | | | |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | |
|----------------------|------------|--------------|---------|
| OR26 | CB41 | MH140 | ORIFICE |
| OR27 | CB42 | MH136 | ORIFICE |
| OR28 | CB45 | MH248 | ORIFICE |
| OR29 | CB47 | MH170 | ORIFICE |
| OR30 | CB49 | MH182 | ORIFICE |
| OR31 | CB51 | MH180 | ORIFICE |
| OR32 | CB53 | MH180 | ORIFICE |
| OR33 | CB55 | MH102 | ORIFICE |
| OR34 | CB56 | MH230 | ORIFICE |
| OR35 | CB58 | MH300 | ORIFICE |
| OR36 | CB60 | MH174 | ORIFICE |
| OR37 | CB62 | MH304 | ORIFICE |
| OR38 | CB63 | MH314 | ORIFICE |
| OR39 | CB65 | MH308 | ORIFICE |
| OR40 | CB67 | MH322 | ORIFICE |
| OR41 | CB69 | MH316 | ORIFICE |
| OR42 | CB70 | MH310 | ORIFICE |
| OR43 | CB71 | MH318 | ORIFICE |
| OR44 | CB73 | MH330 | ORIFICE |
| OR45 | CB75 | MH328(DUMMY) | ORIFICE |
| OR46 | CB76 | MH326 | ORIFICE |
| OR47 | CB77 | MH324 | ORIFICE |
| OR48 | CB78 | MH314(DUMMY) | ORIFICE |
| OR49 | CB79 | MH330 | ORIFICE |
| OR50 | CB80 | MH312 | ORIFICE |
| OR51 | CB82 | MH174 | ORIFICE |
| 1CTopofRoofToTank J2 | | A11B(STOR) | OUTLET |
| 36 | J15 | J14 | OUTLET |
| A04(OUT) | A04(STOR) | MH170 | OUTLET |
| A06(OUT) | A06(STOR) | MH168 | OUTLET |
| A09B(OUT) | A09B(STOR) | MH176 | OUTLET |
| A09C(OUT) | A09C(STOR) | MH176 | OUTLET |
| A10(OUT) | A10(STOR) | MH176 | OUTLET |
| A11B(OUT) | A11B(STOR) | MH130 | OUTLET |
| A14(OUT) | A14(STOR) | MH128 | OUTLET |
| A16C(OUT) | A16C(STOR) | J3 | OUTLET |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | |
|-----------|------------|----------------|--------|
| A22A(OUT) | A22A(STOR) | MH126 | OUTLET |
| A3-A4-LMF | CB1 | MH168 | OUTLET |
| A7-A5-LMF | CB2 | MH166 | OUTLET |
| A7-A6-LMF | CB6 | MH410 | OUTLET |
| B21(OUT) | B21(STOR) | MH326 | OUTLET |
| B23(OUT) | B23(STOR) | MH310 | OUTLET |
| B25(OUT) | B25(STOR) | MH304 | OUTLET |
| O01 | CB01(MS) | CB01 | OUTLET |
| O02 | CB06(MS) | CB06 | OUTLET |
| O03 | CB08(MS) | CB08 | OUTLET |
| O04 | CB09(MS) | CB09 | OUTLET |
| O05 | CB12(MS) | CB12 | OUTLET |
| O06 | CB14(MS) | CB14 | OUTLET |
| O07 | CB16(MS) | CB16(2x-DICBs) | OUTLET |
| O08 | CB18(MS) | CB18 | OUTLET |
| O09 | CB20(MS) | CB20 | OUTLET |
| O10 | CB22(MS) | CB22 | OUTLET |
| O11 | CB24(MS) | CB24 | OUTLET |
| O12 | CB26(MS) | CB26 | OUTLET |
| O13 | CB28(MS) | CB28 | OUTLET |
| O14 | CB29(MS) | CB29 | OUTLET |
| O15 | CB30(MS) | CB30 | OUTLET |
| O16 | CB31(MS) | CB31 | OUTLET |
| O17 | CB34(MS) | CB34 | OUTLET |
| O18 | CB35(MS) | CB35 | OUTLET |
| O19 | CB36(MS) | CB36 | OUTLET |
| O20 | CB39(MS) | CB39 | OUTLET |
| O21 | CB40(MS) | CB40 | OUTLET |
| O22 | CB41(MS) | CB41 | OUTLET |
| O23 | CB42(MS) | CB42 | OUTLET |
| O24 | CB45(MS) | CB45 | OUTLET |
| O25 | CB47(MS) | CB47 | OUTLET |
| O26 | CB49(MS) | CB49 | OUTLET |
| O27 | CB51(MS) | CB51 | OUTLET |
| O28 | CB53(MS) | CB53 | OUTLET |
| O29 | CB58(MS) | CB58 | OUTLET |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | |
|-----|----------|-----------|--------|
| O30 | CB60(MS) | CB60 | OUTLET |
| O31 | CB62(MS) | CB62 | OUTLET |
| O32 | CB63(MS) | CB63 | OUTLET |
| O33 | CB65(MS) | CB65 | OUTLET |
| O34 | CB67(MS) | CB67 | OUTLET |
| O35 | CB69(MS) | CB69 | OUTLET |
| O36 | CB70(MS) | CB70 | OUTLET |
| O37 | CB71(MS) | CB71 | OUTLET |
| O38 | CB73(MS) | CB73 | OUTLET |
| O39 | CB75(MS) | CB75 | OUTLET |
| O40 | CB76(MS) | CB76 | OUTLET |
| O41 | CB77(MS) | CB77 | OUTLET |
| O42 | CB79(MS) | CB79 | OUTLET |
| O43 | CB80(MS) | CB80 | OUTLET |
| OL1 | J4 | A04(STOR) | OUTLET |

Cross Section Summary

| Conduit | Shape | Full Depth | Full Hyd. Area | Max. Rad. | No. of Width | Full Barrels | Flow |
|---------|------------|------------|----------------|-----------|--------------|--------------|---------|
| 1 | TRIANGULAR | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 312.94 |
| 10 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 5439.79 |
| 11 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 72.70 |
| 12 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 8175.91 |
| 13 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 3895.92 |
| 14 | RECT_OPEN | 0.30 | 0.42 | 0.21 | 1.40 | 1 | 284.79 |
| 15 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 5779.14 |
| 16 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 3895.92 |
| 18 | RECT_OPEN | 0.30 | 0.42 | 0.21 | 1.40 | 1 | 634.98 |
| 19 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 79.08 |
| 2 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 84.92 |
| 20 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 108.87 |
| 22 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 83.45 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|-----------|------------------------------------|------|------|------|-------|---|----------|
| 23 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 4267.82 |
| 24 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 6749.29 |
| 25 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 10908.91 |
| 28 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 4640.37 |
| 29 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 4267.82 |
| 3 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 73.32 |
| 30 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 3895.92 |
| 32 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 3895.92 |
| 33 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 7185.63 |
| 35 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 304.17 |
| 37 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 3017.72 |
| 4 | RECT_OPEN | 0.30 | 1.50 | 0.27 | 5.00 | 1 | 4267.82 |
| 5 | TRIANGULAR | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 334.88 |
| 6 | CIRCULAR | 0.20 | 0.03 | 0.05 | 0.20 | 1 | 78.48 |
| 7 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 83.92 |
| 9 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 74.03 |
| A15A(OUT) | CIRCULAR | 0.20 | 0.03 | 0.05 | 0.20 | 1 | 254.14 |
| B19(OUT) | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 113.02 |
| C01 | HALF(A1-A1)Scholastic(13mROW) | 0.30 | 1.12 | 0.17 | 6.51 | 1 | 4235.12 |
| C02 | HALF(A1-A1)Scholastic(13mROW) | 0.30 | 1.12 | 0.17 | 6.51 | 1 | 3365.43 |
| C03 | HALF(A-A)Scholastic(10.5mROW) | 0.30 | 1.03 | 0.19 | 5.26 | 1 | 1557.63 |
| C04 | (I-I)Telmon(upper)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 2075.23 |
| C05 | (I-I)Telmon(upper)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 1973.36 |
| C06 | (B-B)Telmon(lower)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 3395.06 |
| C07 | (B-B)Telmon(lower)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 11917.03 |
| C08 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 7030.75 |
| C09 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 6889.65 |
| C10 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 2032.76 |
| C100 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 472.89 |
| C101 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 697.31 |
| C102 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C103 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 5020.42 |
| C104 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 1882.67 |
| C105 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C106 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 2989.65 |
| C107 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|------|-------------------------------|------|------|------|-------|---|----------|
| C108 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 9207.72 |
| C109 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C11 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 3206.46 |
| C110 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 7037.47 |
| C111 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C112 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 10379.60 |
| C113 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C114 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 6833.62 |
| C115 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C116 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 4446.87 |
| C117 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C118 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 9418.73 |
| C119 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C12 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 2876.74 |
| C120 | (A2-A2)Sanctuary(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 4264.44 |
| C121 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C122 | (A2-A2)Sanctuary(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 8857.21 |
| C123 | HALF(A2-A2)Sanctuary(11mROW) | 0.30 | 1.07 | 0.19 | 5.51 | 1 | 1704.48 |
| C124 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 4 | 175.35 |
| C125 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C126 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C127 | HALF(A1-A1)Scholastic(13mROW) | 0.30 | 1.12 | 0.17 | 6.51 | 1 | 3864.56 |
| C128 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C129 | HALF(A1-A1)Scholastic(13mROW) | 0.30 | 1.12 | 0.17 | 6.51 | 1 | 2853.13 |
| C13 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 4859.44 |
| C130 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 4697.71 |
| C131 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C132 | HALF(A2-A2)Sanctuary(11mROW) | 0.30 | 1.07 | 0.19 | 5.51 | 1 | 546.69 |
| C133 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C134 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 2031.05 |
| C135 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 733.48 |
| C136 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 1177.71 |
| C137 | (B-B)Telmon(lower)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 2889.48 |
| C138 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 973.34 |
| C139 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 619.03 |
| C14 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 6893.11 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|--------|----------------------------|------|------|------|-------|---|---------|
| C140 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 66.91 |
| C141 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 126.34 |
| C142 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 59.41 |
| C143 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 181.20 |
| C144 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 145.19 |
| C145_1 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 127.65 |
| C145_2 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 132.99 |
| C146 | CIRCULAR | 0.82 | 0.53 | 0.21 | 0.82 | 1 | 1215.52 |
| C147 | CIRCULAR | 0.82 | 0.53 | 0.21 | 0.82 | 1 | 1158.92 |
| C148 | CIRCULAR | 0.82 | 0.53 | 0.21 | 0.82 | 1 | 754.61 |
| C149 | CIRCULAR | 0.90 | 0.64 | 0.23 | 0.90 | 1 | 1694.28 |
| C15 | (I-I)Telmon(upper)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 3502.31 |
| C150 | CIRCULAR | 0.90 | 0.64 | 0.23 | 0.90 | 1 | 1843.96 |
| C151 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 357.51 |
| C152 | CIRCULAR | 0.53 | 0.22 | 0.13 | 0.53 | 1 | 216.80 |
| C153 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 330.17 |
| C154 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 148.33 |
| C155 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 121.98 |
| C156_1 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 800.04 |
| C156_2 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 846.81 |
| C157 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 30.58 |
| C158 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 66.80 |
| C159 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 750.24 |
| C16 | (G-G)Hazel(15mROW) | 0.30 | 2.34 | 0.15 | 15.00 | 1 | 3880.91 |
| C160 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 612.65 |
| C161 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.04 |
| C162 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.08 |
| C163 | CIRCULAR | 0.53 | 0.22 | 0.13 | 0.53 | 1 | 349.14 |
| C164 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.01 |
| C165 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.08 |
| C166 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 567.14 |
| C167 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 255.71 |
| C168 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 318.94 |
| C169 | CIRCULAR | 0.53 | 0.22 | 0.13 | 0.53 | 1 | 218.18 |
| C17 | (G-G)Hazel(15mROW) | 0.30 | 2.34 | 0.15 | 15.00 | 1 | 3665.07 |
| C170 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 158.79 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|------|------------------------------|------|------|------|-------|---|---------|
| C171 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 63.67 |
| C172 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 79.63 |
| C173 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 197.55 |
| C174 | CIRCULAR | 0.53 | 0.22 | 0.13 | 0.53 | 1 | 211.15 |
| C175 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 59.02 |
| C176 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 97.24 |
| C177 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.31 |
| C178 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 68.31 |
| C179 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.11 |
| C18 | (G-G)Hazel(15mROW) | 0.30 | 2.34 | 0.15 | 15.00 | 1 | 7017.20 |
| C180 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 42.16 |
| C181 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 43.23 |
| C182 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 123.39 |
| C183 | CIRCULAR | 0.90 | 0.64 | 0.23 | 0.90 | 1 | 2256.85 |
| C184 | CIRCULAR | 0.90 | 0.64 | 0.23 | 0.90 | 1 | 1961.65 |
| C185 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 120.77 |
| C186 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 465.90 |
| C187 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 194.83 |
| C188 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 104.41 |
| C189 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 79.49 |
| C19 | HALF(A2-A2)Sanctuary(11mROW) | 0.30 | 1.07 | 0.19 | 5.51 | 1 | 4640.52 |
| C190 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 175.34 |
| C191 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 190.84 |
| C192 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 298.34 |
| C193 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 314.59 |
| C194 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 105.14 |
| C195 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 103.69 |
| C196 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 142.54 |
| C197 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 116.36 |
| C198 | CIRCULAR | 0.25 | 0.05 | 0.06 | 0.25 | 1 | 20.12 |
| C199 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 129.71 |
| C20 | (H-H)Oblates(lower)12.2mROW | 0.30 | 2.13 | 0.18 | 12.20 | 1 | 1196.90 |
| C200 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 91.76 |
| C201 | CIRCULAR | 0.30 | 0.07 | 0.07 | 0.30 | 1 | 186.35 |
| C202 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 310.74 |
| C203 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 327.01 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|-------|------------------------------------|------|------|------|-------|---|----------|
| C204 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 271.68 |
| C205 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 111.88 |
| C206 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 832.04 |
| C207 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 497.90 |
| C208 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 32.13 |
| C209 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 497.90 |
| C21 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 5436.68 |
| C210 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 519.34 |
| C211 | CIRCULAR | 0.75 | 0.44 | 0.19 | 0.75 | 1 | 650.65 |
| C212 | CIRCULAR | 0.60 | 0.28 | 0.15 | 0.60 | 1 | 274.61 |
| C213 | CIRCULAR | 0.45 | 0.16 | 0.11 | 0.45 | 1 | 32.13 |
| C22 | (F-F)Deschatelets(lower)(17.5mROW) | 0.30 | 2.77 | 0.16 | 17.50 | 1 | 3320.08 |
| C23 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 9233.09 |
| C24 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 11165.49 |
| C25 | (F-F)Deschatelets(lower)(17.5mROW) | 0.30 | 2.77 | 0.16 | 17.50 | 1 | 2598.18 |
| C26 | (F-F)Deschatelets(lower)(17.5mROW) | 0.30 | 2.77 | 0.16 | 17.50 | 1 | 3402.69 |
| C27_1 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 5157.14 |
| C27_2 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 5154.43 |
| C28 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 4261.64 |
| C29 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 8511.47 |
| C30 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 5203.58 |
| C31 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 8857.33 |
| C32 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 9645.59 |
| C33 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 7203.39 |
| C34 | (A2-A2)Sanctuary(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 6649.28 |
| C35 | (A2-A2)Sanctuary(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 3775.78 |
| C36 | (A2-A2)Sanctuary(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 3537.20 |
| C37 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 4519.38 |
| C38 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 7465.18 |
| C39 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C40 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 2375.48 |
| C41 | (B-B)Telmon(lower)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 4356.13 |
| C42 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C43 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 3612.18 |
| C44 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 |
| C45 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 4077.31 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|-----|------------------------------------|------|------|------|-------|---|---------|--|
| C46 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C47 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 2056.86 | |
| C48 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C49 | (I-I)Telmon(upper)(16mROW) | 0.30 | 2.52 | 0.16 | 16.00 | 1 | 3719.08 | |
| C50 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C51 | HALF(A-A)Scholastic(10.5mROW) | 0.30 | 1.03 | 0.19 | 5.26 | 1 | 706.51 | |
| C52 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C53 | HALF(A-A)Scholastic(10.5mROW) | 0.30 | 1.03 | 0.19 | 5.26 | 1 | 1205.98 | |
| C54 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C55 | (D-D)Oblates(upper)(20mROW) | 0.30 | 3.07 | 0.15 | 20.00 | 1 | 5575.75 | |
| C56 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C57 | HALF(A-A)Scholastic(10.5mROW) | 0.30 | 1.03 | 0.19 | 5.26 | 1 | 1010.61 | |
| C58 | HALF(A1-A1)Scholastic(13mROW) | 0.30 | 1.12 | 0.17 | 6.51 | 1 | 1559.67 | |
| C59 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C60 | (E-E)DeMazenod(16.5mROW) | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 2224.30 | |
| C61 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C62 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 6923.35 | |
| C63 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C64 | (G-G)Hazel(15mROW) | 0.30 | 2.34 | 0.15 | 15.00 | 1 | 1877.10 | |
| C65 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C66 | (G-G)Hazel(15mROW) | 0.30 | 2.34 | 0.15 | 15.00 | 1 | 3256.87 | |
| C67 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C68 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 8121.33 | |
| C69 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 2554.13 | |
| C70 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C71 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 3644.41 | |
| C72 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C73 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 2874.14 | |
| C74 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 610.71 | |
| C75 | Ditch | 0.30 | 0.45 | 0.15 | 3.00 | 1 | 27.90 | |
| C76 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C77 | (E1-E1)Deschatelets(upper)16.5mROW | 0.30 | 2.61 | 0.16 | 16.50 | 1 | 3355.76 | |
| C78 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C79 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 2564.21 | |
| C80 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | |
| C81 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 5833.00 | |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

| | | | | | | | | | |
|------|------------------------------------|------|------|------|-------|---|---------|--|--|
| C82 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C83 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 5072.27 | | |
| C84 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C85 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 3257.14 | | |
| C86 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C87 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 5042.43 | | |
| C88 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C89 | (PVT)PrivateSt(11mROW) | 0.30 | 2.15 | 0.20 | 11.00 | 1 | 6594.57 | | |
| C90 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C91 | (F-F)Deschatelets(lower)(17.5mROW) | 0.30 | 2.77 | 0.16 | 17.50 | 1 | 3622.38 | | |
| C92 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C93 | (F-F)Deschatelets(lower)(17.5mROW) | 0.30 | 2.77 | 0.16 | 17.50 | 1 | 3200.63 | | |
| C94 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C95 | (H-H)Oblates(lower)12.2mROW | 0.30 | 2.13 | 0.18 | 12.20 | 1 | 4506.89 | | |
| C96 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C97 | (H-H)Oblates(lower)12.2mROW | 0.30 | 2.13 | 0.18 | 12.20 | 1 | 2900.43 | | |
| C98 | RECT_OPEN | 0.30 | 1.50 | 0.28 | 5.00 | 1 | 315.55 | | |
| C99 | (H-H)Oblates(lower)12.2mROW | 0.30 | 2.13 | 0.18 | 12.20 | 1 | 4656.58 | | |
| OR52 | CIRCULAR | 0.38 | 0.11 | 0.09 | 0.38 | 1 | 110.16 | | |

Transect Summary

Transect (A1-A1)Scholastic(13mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0021 | 0.0048 | 0.0085 | 0.0133 |
| 0.0192 | 0.0262 | 0.0342 | 0.0433 | 0.0534 |
| 0.0646 | 0.0769 | 0.0902 | 0.1047 | 0.1201 |
| 0.1367 | 0.1543 | 0.1730 | 0.1928 | 0.2129 |
| 0.2330 | 0.2531 | 0.2732 | 0.2934 | 0.3135 |
| 0.3339 | 0.3549 | 0.3765 | 0.3987 | 0.4215 |
| 0.4448 | 0.4687 | 0.4933 | 0.5184 | 0.5441 |
| 0.5704 | 0.5972 | 0.6247 | 0.6528 | 0.6814 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

0.7106 0.7404 0.7708 0.8018 0.8334

0.8655 0.8983 0.9316 0.9655 1.0000

Hrad:

0.0167 0.0334 0.0500 0.0667 0.0834

0.1001 0.1167 0.1334 0.1501 0.1668

0.1835 0.2001 0.2168 0.2335 0.2502

0.2669 0.2835 0.3002 0.3196 0.3524

0.3851 0.4177 0.4502 0.4826 0.5149

0.5473 0.5782 0.6077 0.6359 0.6628

0.6885 0.7129 0.7362 0.7584 0.7796

0.7997 0.8189 0.8372 0.8546 0.8712

0.8870 0.9021 0.9164 0.9301 0.9432

0.9557 0.9675 0.9789 0.9897 1.0000

Width:

0.0307 0.0614 0.0921 0.1228 0.1535

0.1842 0.2149 0.2456 0.2763 0.3069

0.3376 0.3683 0.3990 0.4297 0.4604

0.4911 0.5218 0.5525 0.5781 0.5782

0.5782 0.5783 0.5783 0.5784 0.5785

0.5953 0.6122 0.6290 0.6459 0.6628

0.6796 0.6965 0.7134 0.7302 0.7471

0.7639 0.7808 0.7977 0.8145 0.8314

0.8482 0.8651 0.8820 0.8988 0.9157

0.9326 0.9494 0.9663 0.9831 1.0000

Transect (A2-A2)Sanctuary(11mROW)

Area:

0.0006 0.0022 0.0050 0.0090 0.0140

0.0202 0.0274 0.0358 0.0453 0.0560

0.0677 0.0806 0.0946 0.1097 0.1259

0.1433 0.1618 0.1814 0.2021 0.2239

0.2463 0.2687 0.2911 0.3135 0.3359

0.3585 0.3814 0.4046 0.4282 0.4521

0.4763 0.5009 0.5258 0.5510 0.5766

0.6025 0.6287 0.6553 0.6822 0.7094

0.7369 0.7648 0.7931 0.8216 0.8505

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

0.8798 0.9093 0.9392 0.9694 1.0000

Hrad:

0.0148 0.0295 0.0443 0.0591 0.0738

0.0886 0.1034 0.1181 0.1329 0.1476

0.1624 0.1772 0.1919 0.2067 0.2215

0.2362 0.2510 0.2658 0.2805 0.2953

0.3243 0.3533 0.3822 0.4110 0.4398

0.4688 0.4971 0.5249 0.5520 0.5785

0.6044 0.6297 0.6544 0.6786 0.7022

0.7254 0.7479 0.7700 0.7916 0.8127

0.8334 0.8536 0.8733 0.8926 0.9115

0.9300 0.9481 0.9657 0.9831 1.0000

Width:

0.0364 0.0729 0.1093 0.1457 0.1822

0.2186 0.2551 0.2915 0.3279 0.3644

0.4008 0.4372 0.4737 0.5101 0.5465

0.5830 0.6194 0.6559 0.6923 0.7287

0.7288 0.7289 0.7289 0.7290 0.7291

0.7399 0.7508 0.7616 0.7724 0.7833

0.7941 0.8049 0.8158 0.8266 0.8375

0.8483 0.8591 0.8700 0.8808 0.8916

0.9025 0.9133 0.9241 0.9350 0.9458

0.9567 0.9675 0.9783 0.9892 1.0000

Transect (A-A)Scholastic(10.5mROW)

Area:

0.0006 0.0023 0.0052 0.0093 0.0146

0.0210 0.0286 0.0373 0.0472 0.0583

0.0705 0.0839 0.0985 0.1142 0.1311

0.1492 0.1684 0.1888 0.2104 0.2323

0.2543 0.2762 0.2982 0.3201 0.3421

0.3642 0.3867 0.4096 0.4327 0.4563

0.4801 0.5044 0.5290 0.5539 0.5791

0.6048 0.6307 0.6570 0.6837 0.7107

0.7381 0.7658 0.7939 0.8223 0.8510

0.8801 0.9096 0.9394 0.9695 1.0000

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0147 | 0.0294 | 0.0441 | 0.0588 | 0.0735 |
| 0.0882 | 0.1029 | 0.1176 | 0.1323 | 0.1470 |
| 0.1617 | 0.1764 | 0.1911 | 0.2058 | 0.2205 |
| 0.2352 | 0.2499 | 0.2646 | 0.2816 | 0.3105 |
| 0.3394 | 0.3681 | 0.3967 | 0.4253 | 0.4538 |
| 0.4826 | 0.5107 | 0.5381 | 0.5649 | 0.5910 |
| 0.6165 | 0.6414 | 0.6657 | 0.6894 | 0.7125 |
| 0.7351 | 0.7571 | 0.7786 | 0.7995 | 0.8200 |
| 0.8400 | 0.8595 | 0.8786 | 0.8972 | 0.9153 |
| 0.9331 | 0.9504 | 0.9673 | 0.9838 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0380 | 0.0760 | 0.1140 | 0.1520 | 0.1900 |
| 0.2280 | 0.2660 | 0.3040 | 0.3420 | 0.3800 |
| 0.4180 | 0.4560 | 0.4940 | 0.5320 | 0.5700 |
| 0.6080 | 0.6460 | 0.6841 | 0.7157 | 0.7158 |
| 0.7159 | 0.7160 | 0.7160 | 0.7161 | 0.7162 |
| 0.7275 | 0.7389 | 0.7502 | 0.7616 | 0.7730 |
| 0.7843 | 0.7957 | 0.8070 | 0.8184 | 0.8297 |
| 0.8411 | 0.8524 | 0.8638 | 0.8751 | 0.8865 |
| 0.8978 | 0.9092 | 0.9205 | 0.9319 | 0.9432 |
| 0.9546 | 0.9659 | 0.9773 | 0.9886 | 1.0000 |

Transect (B-B)Telmon(lower)(16mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0019 | 0.0043 | 0.0076 | 0.0119 |
| 0.0172 | 0.0234 | 0.0305 | 0.0386 | 0.0477 |
| 0.0577 | 0.0686 | 0.0805 | 0.0934 | 0.1072 |
| 0.1220 | 0.1377 | 0.1544 | 0.1720 | 0.1906 |
| 0.2097 | 0.2288 | 0.2478 | 0.2669 | 0.2860 |
| 0.3054 | 0.3256 | 0.3466 | 0.3683 | 0.3908 |
| 0.4141 | 0.4381 | 0.4628 | 0.4884 | 0.5146 |
| 0.5417 | 0.5695 | 0.5981 | 0.6274 | 0.6575 |
| 0.6883 | 0.7199 | 0.7522 | 0.7854 | 0.8192 |
| 0.8539 | 0.8893 | 0.9254 | 0.9623 | 1.0000 |

Hrad:

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0186 | 0.0373 | 0.0559 | 0.0745 | 0.0932 |
| 0.1118 | 0.1304 | 0.1490 | 0.1677 | 0.1863 |
| 0.2049 | 0.2236 | 0.2422 | 0.2608 | 0.2795 |
| 0.2981 | 0.3167 | 0.3354 | 0.3540 | 0.3726 |
| 0.4093 | 0.4459 | 0.4823 | 0.5187 | 0.5549 |
| 0.5908 | 0.6246 | 0.6563 | 0.6859 | 0.7136 |
| 0.7395 | 0.7637 | 0.7862 | 0.8072 | 0.8268 |
| 0.8451 | 0.8620 | 0.8778 | 0.8925 | 0.9062 |
| 0.9190 | 0.9308 | 0.9418 | 0.9521 | 0.9616 |
| 0.9705 | 0.9787 | 0.9863 | 0.9934 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0251 | 0.0501 | 0.0752 | 0.1002 | 0.1253 |
| 0.1503 | 0.1754 | 0.2004 | 0.2255 | 0.2505 |
| 0.2756 | 0.3006 | 0.3257 | 0.3507 | 0.3758 |
| 0.4008 | 0.4259 | 0.4509 | 0.4760 | 0.5010 |
| 0.5011 | 0.5011 | 0.5012 | 0.5012 | 0.5013 |
| 0.5212 | 0.5412 | 0.5611 | 0.5811 | 0.6010 |
| 0.6210 | 0.6409 | 0.6609 | 0.6808 | 0.7008 |
| 0.7207 | 0.7407 | 0.7606 | 0.7806 | 0.8005 |
| 0.8205 | 0.8404 | 0.8604 | 0.8803 | 0.9002 |
| 0.9202 | 0.9402 | 0.9601 | 0.9801 | 1.0000 |

Transect (C-C)Oblates(mid)(19mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0004 | 0.0016 | 0.0036 | 0.0064 | 0.0100 |
| 0.0145 | 0.0197 | 0.0257 | 0.0325 | 0.0401 |
| 0.0486 | 0.0578 | 0.0678 | 0.0787 | 0.0903 |
| 0.1028 | 0.1160 | 0.1301 | 0.1449 | 0.1606 |
| 0.1770 | 0.1943 | 0.2123 | 0.2312 | 0.2509 |
| 0.2717 | 0.2939 | 0.3175 | 0.3418 | 0.3667 |
| 0.3923 | 0.4185 | 0.4454 | 0.4729 | 0.5011 |
| 0.5299 | 0.5593 | 0.5893 | 0.6201 | 0.6514 |
| 0.6834 | 0.7160 | 0.7493 | 0.7832 | 0.8177 |
| 0.8529 | 0.8887 | 0.9252 | 0.9623 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0190 | 0.0380 | 0.0570 | 0.0760 | 0.0950 |
|--------|--------|--------|--------|--------|

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.1140 | 0.1329 | 0.1519 | 0.1709 | 0.1899 |
| 0.2089 | 0.2279 | 0.2469 | 0.2659 | 0.2849 |
| 0.3039 | 0.3229 | 0.3419 | 0.3609 | 0.3798 |
| 0.3988 | 0.4178 | 0.4368 | 0.4558 | 0.4748 |
| 0.4935 | 0.5106 | 0.5355 | 0.5680 | 0.5991 |
| 0.6288 | 0.6572 | 0.6843 | 0.7102 | 0.7349 |
| 0.7586 | 0.7811 | 0.8027 | 0.8234 | 0.8432 |
| 0.8621 | 0.8801 | 0.8975 | 0.9140 | 0.9299 |
| 0.9452 | 0.9597 | 0.9737 | 0.9871 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0211 | 0.0422 | 0.0633 | 0.0844 | 0.1055 |
| 0.1266 | 0.1477 | 0.1688 | 0.1899 | 0.2109 |
| 0.2320 | 0.2531 | 0.2742 | 0.2953 | 0.3164 |
| 0.3375 | 0.3586 | 0.3797 | 0.4008 | 0.4219 |
| 0.4430 | 0.4641 | 0.4852 | 0.5063 | 0.5274 |
| 0.5652 | 0.6031 | 0.6304 | 0.6472 | 0.6640 |
| 0.6808 | 0.6976 | 0.7144 | 0.7312 | 0.7480 |
| 0.7648 | 0.7816 | 0.7984 | 0.8152 | 0.8320 |
| 0.8488 | 0.8656 | 0.8824 | 0.8992 | 0.9160 |
| 0.9328 | 0.9496 | 0.9664 | 0.9832 | 1.0000 |

Transect (D-D)Oblates(upper)(20mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0004 | 0.0016 | 0.0035 | 0.0063 | 0.0098 |
| 0.0141 | 0.0192 | 0.0251 | 0.0317 | 0.0392 |
| 0.0474 | 0.0564 | 0.0662 | 0.0768 | 0.0881 |
| 0.1002 | 0.1132 | 0.1269 | 0.1414 | 0.1566 |
| 0.1727 | 0.1895 | 0.2072 | 0.2256 | 0.2447 |
| 0.2651 | 0.2869 | 0.3101 | 0.3341 | 0.3587 |
| 0.3841 | 0.4102 | 0.4370 | 0.4645 | 0.4927 |
| 0.5216 | 0.5513 | 0.5816 | 0.6126 | 0.6443 |
| 0.6767 | 0.7098 | 0.7436 | 0.7781 | 0.8134 |
| 0.8493 | 0.8859 | 0.9232 | 0.9613 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0197 | 0.0394 | 0.0590 | 0.0787 | 0.0984 |
| 0.1181 | 0.1378 | 0.1574 | 0.1771 | 0.1968 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.2165 | 0.2362 | 0.2558 | 0.2755 | 0.2952 |
| 0.3149 | 0.3346 | 0.3543 | 0.3739 | 0.3936 |
| 0.4133 | 0.4330 | 0.4527 | 0.4723 | 0.4920 |
| 0.5113 | 0.5287 | 0.5539 | 0.5870 | 0.6183 |
| 0.6481 | 0.6764 | 0.7032 | 0.7286 | 0.7528 |
| 0.7757 | 0.7974 | 0.8181 | 0.8378 | 0.8564 |
| 0.8742 | 0.8911 | 0.9071 | 0.9224 | 0.9370 |
| 0.9508 | 0.9640 | 0.9766 | 0.9886 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0200 | 0.0401 | 0.0601 | 0.0802 | 0.1002 |
| 0.1202 | 0.1403 | 0.1603 | 0.1804 | 0.2004 |
| 0.2204 | 0.2405 | 0.2605 | 0.2806 | 0.3006 |
| 0.3206 | 0.3407 | 0.3607 | 0.3808 | 0.4008 |
| 0.4208 | 0.4409 | 0.4609 | 0.4810 | 0.5010 |
| 0.5390 | 0.5769 | 0.6049 | 0.6228 | 0.6408 |
| 0.6588 | 0.6767 | 0.6947 | 0.7126 | 0.7306 |
| 0.7486 | 0.7665 | 0.7845 | 0.8024 | 0.8204 |
| 0.8384 | 0.8563 | 0.8743 | 0.8922 | 0.9102 |
| 0.9282 | 0.9461 | 0.9641 | 0.9820 | 1.0000 |

Transect (E1-E1)Deschatelets(upper)16.5mROW

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0018 | 0.0041 | 0.0073 | 0.0115 |
| 0.0165 | 0.0225 | 0.0294 | 0.0372 | 0.0459 |
| 0.0555 | 0.0661 | 0.0776 | 0.0900 | 0.1033 |
| 0.1175 | 0.1327 | 0.1487 | 0.1657 | 0.1836 |
| 0.2024 | 0.2220 | 0.2416 | 0.2612 | 0.2808 |
| 0.3007 | 0.3214 | 0.3428 | 0.3650 | 0.3879 |
| 0.4115 | 0.4359 | 0.4610 | 0.4868 | 0.5134 |
| 0.5407 | 0.5687 | 0.5975 | 0.6270 | 0.6572 |
| 0.6882 | 0.7199 | 0.7524 | 0.7855 | 0.8194 |
| 0.8541 | 0.8895 | 0.9256 | 0.9624 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0186 | 0.0373 | 0.0559 | 0.0745 | 0.0931 |
| 0.1118 | 0.1304 | 0.1490 | 0.1677 | 0.1863 |
| 0.2049 | 0.2235 | 0.2422 | 0.2608 | 0.2794 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.2980 | 0.3167 | 0.3353 | 0.3539 | 0.3726 |
| 0.3912 | 0.4218 | 0.4584 | 0.4949 | 0.5313 |
| 0.5674 | 0.6014 | 0.6334 | 0.6636 | 0.6919 |
| 0.7185 | 0.7434 | 0.7668 | 0.7887 | 0.8093 |
| 0.8286 | 0.8466 | 0.8635 | 0.8794 | 0.8942 |
| 0.9082 | 0.9212 | 0.9334 | 0.9449 | 0.9556 |
| 0.9657 | 0.9751 | 0.9840 | 0.9922 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0242 | 0.0484 | 0.0726 | 0.0968 | 0.1210 |
| 0.1452 | 0.1694 | 0.1936 | 0.2178 | 0.2420 |
| 0.2662 | 0.2904 | 0.3146 | 0.3387 | 0.3629 |
| 0.3871 | 0.4113 | 0.4355 | 0.4597 | 0.4839 |
| 0.5081 | 0.5162 | 0.5163 | 0.5163 | 0.5164 |
| 0.5357 | 0.5551 | 0.5744 | 0.5937 | 0.6131 |
| 0.6324 | 0.6518 | 0.6711 | 0.6905 | 0.7098 |
| 0.7292 | 0.7485 | 0.7679 | 0.7872 | 0.8065 |
| 0.8259 | 0.8452 | 0.8646 | 0.8839 | 0.9033 |
| 0.9226 | 0.9420 | 0.9613 | 0.9807 | 1.0000 |

Transect (E-E)DeMazenod(16.5mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0018 | 0.0041 | 0.0073 | 0.0115 |
| 0.0165 | 0.0225 | 0.0294 | 0.0372 | 0.0459 |
| 0.0555 | 0.0661 | 0.0776 | 0.0900 | 0.1033 |
| 0.1175 | 0.1327 | 0.1487 | 0.1657 | 0.1836 |
| 0.2024 | 0.2220 | 0.2416 | 0.2612 | 0.2808 |
| 0.3007 | 0.3214 | 0.3428 | 0.3650 | 0.3879 |
| 0.4115 | 0.4359 | 0.4610 | 0.4868 | 0.5134 |
| 0.5407 | 0.5687 | 0.5975 | 0.6270 | 0.6572 |
| 0.6882 | 0.7199 | 0.7524 | 0.7855 | 0.8194 |
| 0.8541 | 0.8895 | 0.9256 | 0.9624 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0186 | 0.0373 | 0.0559 | 0.0745 | 0.0931 |
| 0.1118 | 0.1304 | 0.1490 | 0.1677 | 0.1863 |
| 0.2049 | 0.2235 | 0.2422 | 0.2608 | 0.2794 |
| 0.2980 | 0.3167 | 0.3353 | 0.3539 | 0.3726 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.3912 | 0.4218 | 0.4584 | 0.4949 | 0.5313 |
| 0.5674 | 0.6014 | 0.6334 | 0.6636 | 0.6919 |
| 0.7185 | 0.7434 | 0.7668 | 0.7887 | 0.8093 |
| 0.8286 | 0.8466 | 0.8635 | 0.8794 | 0.8942 |
| 0.9082 | 0.9212 | 0.9334 | 0.9449 | 0.9556 |
| 0.9657 | 0.9751 | 0.9840 | 0.9922 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0242 | 0.0484 | 0.0726 | 0.0968 | 0.1210 |
| 0.1452 | 0.1694 | 0.1936 | 0.2178 | 0.2420 |
| 0.2662 | 0.2904 | 0.3146 | 0.3387 | 0.3629 |
| 0.3871 | 0.4113 | 0.4355 | 0.4597 | 0.4839 |
| 0.5081 | 0.5162 | 0.5163 | 0.5163 | 0.5164 |
| 0.5357 | 0.5551 | 0.5744 | 0.5937 | 0.6131 |
| 0.6324 | 0.6518 | 0.6711 | 0.6905 | 0.7098 |
| 0.7292 | 0.7485 | 0.7679 | 0.7872 | 0.8065 |
| 0.8259 | 0.8452 | 0.8646 | 0.8839 | 0.9033 |
| 0.9226 | 0.9420 | 0.9613 | 0.9807 | 1.0000 |

Transect (F-F)Deschatelets(lower)(17.5mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0004 | 0.0017 | 0.0039 | 0.0069 | 0.0108 |
| 0.0156 | 0.0212 | 0.0276 | 0.0350 | 0.0432 |
| 0.0523 | 0.0622 | 0.0730 | 0.0847 | 0.0972 |
| 0.1106 | 0.1248 | 0.1400 | 0.1559 | 0.1728 |
| 0.1905 | 0.2091 | 0.2285 | 0.2488 | 0.2694 |
| 0.2903 | 0.3120 | 0.3343 | 0.3573 | 0.3810 |
| 0.4054 | 0.4305 | 0.4562 | 0.4827 | 0.5099 |
| 0.5377 | 0.5662 | 0.5955 | 0.6254 | 0.6560 |
| 0.6873 | 0.7193 | 0.7519 | 0.7853 | 0.8194 |
| 0.8541 | 0.8895 | 0.9257 | 0.9625 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0187 | 0.0374 | 0.0561 | 0.0748 | 0.0935 |
| 0.1121 | 0.1308 | 0.1495 | 0.1682 | 0.1869 |
| 0.2056 | 0.2243 | 0.2430 | 0.2617 | 0.2804 |
| 0.2991 | 0.3177 | 0.3364 | 0.3551 | 0.3738 |
| 0.3925 | 0.4112 | 0.4299 | 0.4516 | 0.4884 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.5248 | 0.5593 | 0.5921 | 0.6232 | 0.6526 |
| 0.6805 | 0.7068 | 0.7318 | 0.7553 | 0.7777 |
| 0.7988 | 0.8187 | 0.8377 | 0.8556 | 0.8725 |
| 0.8885 | 0.9037 | 0.9181 | 0.9318 | 0.9447 |
| 0.9570 | 0.9686 | 0.9796 | 0.9901 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0228 | 0.0456 | 0.0685 | 0.0913 | 0.1141 |
| 0.1369 | 0.1598 | 0.1826 | 0.2054 | 0.2282 |
| 0.2511 | 0.2739 | 0.2967 | 0.3195 | 0.3423 |
| 0.3652 | 0.3880 | 0.4108 | 0.4336 | 0.4565 |
| 0.4793 | 0.5021 | 0.5249 | 0.5440 | 0.5440 |
| 0.5622 | 0.5805 | 0.5987 | 0.6170 | 0.6352 |
| 0.6534 | 0.6717 | 0.6899 | 0.7082 | 0.7264 |
| 0.7446 | 0.7629 | 0.7811 | 0.7994 | 0.8176 |
| 0.8358 | 0.8541 | 0.8723 | 0.8906 | 0.9088 |
| 0.9270 | 0.9453 | 0.9635 | 0.9818 | 1.0000 |

Transect (G-G)Hazel(15mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0021 | 0.0046 | 0.0082 | 0.0129 |
| 0.0185 | 0.0252 | 0.0329 | 0.0417 | 0.0515 |
| 0.0623 | 0.0741 | 0.0870 | 0.1009 | 0.1158 |
| 0.1318 | 0.1488 | 0.1667 | 0.1847 | 0.2027 |
| 0.2207 | 0.2388 | 0.2568 | 0.2748 | 0.2929 |
| 0.3113 | 0.3306 | 0.3507 | 0.3716 | 0.3933 |
| 0.4158 | 0.4392 | 0.4634 | 0.4884 | 0.5142 |
| 0.5409 | 0.5683 | 0.5966 | 0.6257 | 0.6556 |
| 0.6864 | 0.7180 | 0.7503 | 0.7835 | 0.8176 |
| 0.8524 | 0.8881 | 0.9246 | 0.9619 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0188 | 0.0377 | 0.0565 | 0.0753 | 0.0942 |
| 0.1130 | 0.1318 | 0.1507 | 0.1695 | 0.1883 |
| 0.2072 | 0.2260 | 0.2448 | 0.2637 | 0.2825 |
| 0.3013 | 0.3202 | 0.3481 | 0.3851 | 0.4220 |
| 0.4588 | 0.4954 | 0.5319 | 0.5684 | 0.6047 |
| 0.6406 | 0.6741 | 0.7052 | 0.7340 | 0.7606 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.7851 | 0.8077 | 0.8284 | 0.8475 | 0.8649 |
| 0.8809 | 0.8956 | 0.9089 | 0.9212 | 0.9323 |
| 0.9424 | 0.9517 | 0.9600 | 0.9677 | 0.9745 |
| 0.9808 | 0.9864 | 0.9914 | 0.9960 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0267 | 0.0534 | 0.0802 | 0.1069 | 0.1336 |
| 0.1603 | 0.1870 | 0.2138 | 0.2405 | 0.2672 |
| 0.2939 | 0.3206 | 0.3474 | 0.3741 | 0.4008 |
| 0.4275 | 0.4542 | 0.4676 | 0.4677 | 0.4677 |
| 0.4678 | 0.4678 | 0.4679 | 0.4679 | 0.4680 |
| 0.4893 | 0.5106 | 0.5318 | 0.5531 | 0.5744 |
| 0.5957 | 0.6170 | 0.6382 | 0.6595 | 0.6808 |
| 0.7021 | 0.7234 | 0.7446 | 0.7659 | 0.7872 |
| 0.8085 | 0.8298 | 0.8510 | 0.8723 | 0.8936 |
| 0.9149 | 0.9362 | 0.9574 | 0.9787 | 1.0000 |

Transect (H-H)Oblates(lower)12.2mROW

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0006 | 0.0023 | 0.0051 | 0.0091 | 0.0141 |
| 0.0204 | 0.0277 | 0.0362 | 0.0458 | 0.0566 |
| 0.0684 | 0.0815 | 0.0956 | 0.1109 | 0.1273 |
| 0.1448 | 0.1635 | 0.1831 | 0.2029 | 0.2228 |
| 0.2426 | 0.2624 | 0.2822 | 0.3020 | 0.3218 |
| 0.3419 | 0.3626 | 0.3839 | 0.4058 | 0.4282 |
| 0.4512 | 0.4749 | 0.4991 | 0.5238 | 0.5492 |
| 0.5752 | 0.6017 | 0.6288 | 0.6566 | 0.6849 |
| 0.7137 | 0.7432 | 0.7733 | 0.8039 | 0.8351 |
| 0.8669 | 0.8993 | 0.9323 | 0.9659 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0164 | 0.0329 | 0.0493 | 0.0658 | 0.0822 |
| 0.0986 | 0.1151 | 0.1315 | 0.1480 | 0.1644 |
| 0.1808 | 0.1973 | 0.2137 | 0.2301 | 0.2466 |
| 0.2630 | 0.2795 | 0.3039 | 0.3362 | 0.3684 |
| 0.4004 | 0.4324 | 0.4643 | 0.4961 | 0.5278 |
| 0.5596 | 0.5899 | 0.6189 | 0.6466 | 0.6729 |
| 0.6981 | 0.7220 | 0.7447 | 0.7664 | 0.7870 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.8066 | 0.8253 | 0.8431 | 0.8600 | 0.8761 |
| 0.8914 | 0.9059 | 0.9198 | 0.9330 | 0.9456 |
| 0.9575 | 0.9689 | 0.9798 | 0.9901 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0329 | 0.0657 | 0.0986 | 0.1314 | 0.1643 |
| 0.1971 | 0.2300 | 0.2628 | 0.2957 | 0.3285 |
| 0.3614 | 0.3942 | 0.4271 | 0.4599 | 0.4928 |
| 0.5256 | 0.5585 | 0.5750 | 0.5750 | 0.5751 |
| 0.5751 | 0.5752 | 0.5753 | 0.5753 | 0.5754 |
| 0.5924 | 0.6094 | 0.6264 | 0.6433 | 0.6603 |
| 0.6773 | 0.6943 | 0.7113 | 0.7283 | 0.7452 |
| 0.7622 | 0.7792 | 0.7962 | 0.8132 | 0.8302 |
| 0.8471 | 0.8641 | 0.8811 | 0.8981 | 0.9151 |
| 0.9321 | 0.9490 | 0.9660 | 0.9830 | 1.0000 |

Transect (I-I)Telmon(upper)(16mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0019 | 0.0043 | 0.0076 | 0.0119 |
| 0.0172 | 0.0234 | 0.0305 | 0.0386 | 0.0477 |
| 0.0577 | 0.0686 | 0.0805 | 0.0934 | 0.1072 |
| 0.1220 | 0.1377 | 0.1544 | 0.1720 | 0.1906 |
| 0.2097 | 0.2288 | 0.2478 | 0.2669 | 0.2860 |
| 0.3054 | 0.3256 | 0.3466 | 0.3683 | 0.3908 |
| 0.4141 | 0.4381 | 0.4628 | 0.4884 | 0.5146 |
| 0.5417 | 0.5695 | 0.5981 | 0.6274 | 0.6575 |
| 0.6883 | 0.7199 | 0.7522 | 0.7854 | 0.8192 |
| 0.8539 | 0.8893 | 0.9254 | 0.9623 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0186 | 0.0373 | 0.0559 | 0.0745 | 0.0932 |
| 0.1118 | 0.1304 | 0.1490 | 0.1677 | 0.1863 |
| 0.2049 | 0.2236 | 0.2422 | 0.2608 | 0.2795 |
| 0.2981 | 0.3167 | 0.3354 | 0.3540 | 0.3726 |
| 0.4093 | 0.4459 | 0.4823 | 0.5187 | 0.5549 |
| 0.5908 | 0.6246 | 0.6563 | 0.6859 | 0.7136 |
| 0.7395 | 0.7637 | 0.7862 | 0.8072 | 0.8268 |
| 0.8451 | 0.8620 | 0.8778 | 0.8925 | 0.9062 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

0.9190 0.9308 0.9418 0.9521 0.9616

0.9705 0.9787 0.9863 0.9934 1.0000

Width:

0.0251 0.0501 0.0752 0.1002 0.1253

0.1503 0.1754 0.2004 0.2255 0.2505

0.2756 0.3006 0.3257 0.3507 0.3758

0.4008 0.4259 0.4509 0.4760 0.5010

0.5011 0.5011 0.5012 0.5012 0.5013

0.5212 0.5412 0.5611 0.5811 0.6010

0.6210 0.6409 0.6609 0.6808 0.7008

0.7207 0.7407 0.7606 0.7806 0.8005

0.8205 0.8404 0.8604 0.8803 0.9002

0.9202 0.9402 0.9601 0.9801 1.0000

Transect (J1-J1)Clegg(lower)(20mROW)

Area:

0.0004 0.0016 0.0037 0.0066 0.0103

0.0148 0.0202 0.0263 0.0333 0.0412

0.0498 0.0593 0.0696 0.0807 0.0926

0.1054 0.1190 0.1334 0.1486 0.1647

0.1816 0.1993 0.2177 0.2362 0.2548

0.2737 0.2936 0.3144 0.3361 0.3587

0.3822 0.4066 0.4319 0.4581 0.4852

0.5132 0.5421 0.5719 0.6026 0.6342

0.6667 0.7002 0.7345 0.7697 0.8058

0.8429 0.8808 0.9196 0.9594 1.0000

Hrad:

0.0209 0.0418 0.0627 0.0836 0.1045

0.1254 0.1463 0.1671 0.1880 0.2089

0.2298 0.2507 0.2716 0.2925 0.3134

0.3343 0.3552 0.3761 0.3970 0.4179

0.4388 0.4597 0.4907 0.5318 0.5727

0.6129 0.6501 0.6844 0.7160 0.7451

0.7718 0.7962 0.8185 0.8390 0.8576

0.8747 0.8902 0.9044 0.9173 0.9290

0.9397 0.9493 0.9581 0.9661 0.9733

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

0.9798 0.9857 0.9910 0.9957 1.0000

Width:

0.0200 0.0401 0.0601 0.0802 0.1002

0.1202 0.1403 0.1603 0.1804 0.2004

0.2204 0.2405 0.2605 0.2806 0.3006

0.3206 0.3407 0.3607 0.3808 0.4008

0.4208 0.4409 0.4509 0.4510 0.4510

0.4730 0.4949 0.5169 0.5388 0.5608

0.5828 0.6047 0.6267 0.6486 0.6706

0.6926 0.7145 0.7365 0.7584 0.7804

0.8024 0.8243 0.8463 0.8682 0.8902

0.9122 0.9341 0.9561 0.9780 1.0000

Transect (J-J)Clegg(upper)(20mROW)

Area:

0.0004 0.0016 0.0037 0.0066 0.0103

0.0148 0.0202 0.0263 0.0333 0.0412

0.0498 0.0593 0.0696 0.0807 0.0926

0.1054 0.1190 0.1334 0.1486 0.1647

0.1816 0.1993 0.2177 0.2362 0.2548

0.2737 0.2936 0.3144 0.3361 0.3587

0.3822 0.4066 0.4319 0.4581 0.4852

0.5132 0.5421 0.5719 0.6026 0.6342

0.6667 0.7002 0.7345 0.7697 0.8058

0.8429 0.8808 0.9196 0.9594 1.0000

Hrad:

0.0209 0.0418 0.0627 0.0836 0.1045

0.1254 0.1463 0.1671 0.1880 0.2089

0.2298 0.2507 0.2716 0.2925 0.3134

0.3343 0.3552 0.3761 0.3970 0.4179

0.4388 0.4597 0.4907 0.5318 0.5727

0.6129 0.6501 0.6844 0.7160 0.7451

0.7718 0.7962 0.8185 0.8390 0.8576

0.8747 0.8902 0.9044 0.9173 0.9290

0.9397 0.9493 0.9581 0.9661 0.9733

0.9798 0.9857 0.9910 0.9957 1.0000

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0200 | 0.0401 | 0.0601 | 0.0802 | 0.1002 |
| 0.1202 | 0.1403 | 0.1603 | 0.1804 | 0.2004 |
| 0.2204 | 0.2405 | 0.2605 | 0.2806 | 0.3006 |
| 0.3206 | 0.3407 | 0.3607 | 0.3808 | 0.4008 |
| 0.4208 | 0.4409 | 0.4509 | 0.4510 | 0.4510 |
| 0.4730 | 0.4949 | 0.5169 | 0.5388 | 0.5608 |
| 0.5828 | 0.6047 | 0.6267 | 0.6486 | 0.6706 |
| 0.6926 | 0.7145 | 0.7365 | 0.7584 | 0.7804 |
| 0.8024 | 0.8243 | 0.8463 | 0.8682 | 0.8902 |
| 0.9122 | 0.9341 | 0.9561 | 0.9780 | 1.0000 |

Transect (P-P)PrivateSt(4mRoad)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0007 | 0.0028 | 0.0063 | 0.0111 | 0.0174 |
| 0.0250 | 0.0340 | 0.0445 | 0.0563 | 0.0695 |
| 0.0841 | 0.1001 | 0.1174 | 0.1362 | 0.1563 |
| 0.1779 | 0.2008 | 0.2249 | 0.2491 | 0.2732 |
| 0.2974 | 0.3216 | 0.3458 | 0.3700 | 0.3942 |
| 0.4184 | 0.4426 | 0.4668 | 0.4910 | 0.5152 |
| 0.5394 | 0.5637 | 0.5879 | 0.6121 | 0.6363 |
| 0.6606 | 0.6848 | 0.7090 | 0.7333 | 0.7575 |
| 0.7817 | 0.8060 | 0.8302 | 0.8545 | 0.8787 |
| 0.9030 | 0.9272 | 0.9515 | 0.9757 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0130 | 0.0260 | 0.0389 | 0.0519 | 0.0649 |
| 0.0779 | 0.0909 | 0.1038 | 0.1168 | 0.1298 |
| 0.1428 | 0.1557 | 0.1687 | 0.1817 | 0.1947 |
| 0.2077 | 0.2206 | 0.2412 | 0.2665 | 0.2917 |
| 0.3168 | 0.3418 | 0.3667 | 0.3915 | 0.4162 |
| 0.4407 | 0.4652 | 0.4895 | 0.5138 | 0.5379 |
| 0.5620 | 0.5859 | 0.6098 | 0.6335 | 0.6571 |
| 0.6807 | 0.7041 | 0.7275 | 0.7507 | 0.7739 |
| 0.7969 | 0.8198 | 0.8427 | 0.8654 | 0.8881 |
| 0.9107 | 0.9331 | 0.9555 | 0.9778 | 1.0000 |

Width:

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0573 | 0.1146 | 0.1719 | 0.2292 | 0.2864 |
| 0.3437 | 0.4010 | 0.4583 | 0.5156 | 0.5729 |
| 0.6302 | 0.6875 | 0.7448 | 0.8020 | 0.8593 |
| 0.9166 | 0.9739 | 0.9964 | 0.9966 | 0.9967 |
| 0.9969 | 0.9970 | 0.9972 | 0.9973 | 0.9975 |
| 0.9977 | 0.9978 | 0.9980 | 0.9981 | 0.9983 |
| 0.9984 | 0.9986 | 0.9987 | 0.9988 | 0.9989 |
| 0.9989 | 0.9990 | 0.9991 | 0.9992 | 0.9992 |
| 0.9993 | 0.9994 | 0.9995 | 0.9995 | 0.9996 |
| 0.9997 | 0.9998 | 0.9998 | 0.9999 | 1.0000 |

Transect (PVT)PrivateSt(11mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0006 | 0.0022 | 0.0050 | 0.0090 | 0.0140 |
| 0.0202 | 0.0274 | 0.0358 | 0.0453 | 0.0560 |
| 0.0677 | 0.0806 | 0.0946 | 0.1097 | 0.1259 |
| 0.1433 | 0.1618 | 0.1814 | 0.2021 | 0.2239 |
| 0.2463 | 0.2687 | 0.2911 | 0.3135 | 0.3359 |
| 0.3585 | 0.3814 | 0.4046 | 0.4282 | 0.4521 |
| 0.4763 | 0.5009 | 0.5258 | 0.5510 | 0.5766 |
| 0.6025 | 0.6287 | 0.6553 | 0.6822 | 0.7094 |
| 0.7369 | 0.7648 | 0.7931 | 0.8216 | 0.8505 |
| 0.8798 | 0.9093 | 0.9392 | 0.9694 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0148 | 0.0295 | 0.0443 | 0.0591 | 0.0738 |
| 0.0886 | 0.1034 | 0.1181 | 0.1329 | 0.1476 |
| 0.1624 | 0.1772 | 0.1919 | 0.2067 | 0.2215 |
| 0.2362 | 0.2510 | 0.2658 | 0.2805 | 0.2953 |
| 0.3243 | 0.3533 | 0.3822 | 0.4110 | 0.4398 |
| 0.4688 | 0.4971 | 0.5249 | 0.5520 | 0.5785 |
| 0.6044 | 0.6297 | 0.6544 | 0.6786 | 0.7022 |
| 0.7254 | 0.7479 | 0.7700 | 0.7916 | 0.8127 |
| 0.8334 | 0.8536 | 0.8733 | 0.8926 | 0.9115 |
| 0.9300 | 0.9481 | 0.9657 | 0.9831 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0364 | 0.0729 | 0.1093 | 0.1457 | 0.1822 |
|--------|--------|--------|--------|--------|

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.2186 | 0.2551 | 0.2915 | 0.3279 | 0.3644 |
| 0.4008 | 0.4372 | 0.4737 | 0.5101 | 0.5465 |
| 0.5830 | 0.6194 | 0.6559 | 0.6923 | 0.7287 |
| 0.7288 | 0.7289 | 0.7289 | 0.7290 | 0.7291 |
| 0.7399 | 0.7508 | 0.7616 | 0.7724 | 0.7833 |
| 0.7941 | 0.8049 | 0.8158 | 0.8266 | 0.8375 |
| 0.8483 | 0.8591 | 0.8700 | 0.8808 | 0.8916 |
| 0.9025 | 0.9133 | 0.9241 | 0.9350 | 0.9458 |
| 0.9567 | 0.9675 | 0.9783 | 0.9892 | 1.0000 |

Transect Ditch

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0004 | 0.0016 | 0.0036 | 0.0064 | 0.0100 |
| 0.0144 | 0.0196 | 0.0256 | 0.0324 | 0.0400 |
| 0.0484 | 0.0576 | 0.0676 | 0.0784 | 0.0900 |
| 0.1024 | 0.1156 | 0.1296 | 0.1444 | 0.1600 |
| 0.1764 | 0.1936 | 0.2116 | 0.2304 | 0.2500 |
| 0.2704 | 0.2916 | 0.3136 | 0.3364 | 0.3600 |
| 0.3844 | 0.4096 | 0.4356 | 0.4624 | 0.4900 |
| 0.5184 | 0.5476 | 0.5776 | 0.6084 | 0.6400 |
| 0.6724 | 0.7056 | 0.7396 | 0.7744 | 0.8100 |
| 0.8464 | 0.8836 | 0.9216 | 0.9604 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0200 | 0.0400 | 0.0600 | 0.0800 | 0.1000 |
| 0.1200 | 0.1400 | 0.1600 | 0.1800 | 0.2000 |
| 0.2200 | 0.2400 | 0.2600 | 0.2800 | 0.3000 |
| 0.3200 | 0.3400 | 0.3600 | 0.3800 | 0.4000 |
| 0.4200 | 0.4400 | 0.4600 | 0.4800 | 0.5000 |
| 0.5200 | 0.5400 | 0.5600 | 0.5800 | 0.6000 |
| 0.6200 | 0.6400 | 0.6600 | 0.6800 | 0.7000 |
| 0.7200 | 0.7400 | 0.7600 | 0.7800 | 0.8000 |
| 0.8200 | 0.8400 | 0.8600 | 0.8800 | 0.9000 |
| 0.9200 | 0.9400 | 0.9600 | 0.9800 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0200 | 0.0400 | 0.0600 | 0.0800 | 0.1000 |
| 0.1200 | 0.1400 | 0.1600 | 0.1800 | 0.2000 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|--------|--------|--------|--------|--------|
| 0.2200 | 0.2400 | 0.2600 | 0.2800 | 0.3000 |
| 0.3200 | 0.3400 | 0.3600 | 0.3800 | 0.4000 |
| 0.4200 | 0.4400 | 0.4600 | 0.4800 | 0.5000 |
| 0.5200 | 0.5400 | 0.5600 | 0.5800 | 0.6000 |
| 0.6200 | 0.6400 | 0.6600 | 0.6800 | 0.7000 |
| 0.7200 | 0.7400 | 0.7600 | 0.7800 | 0.8000 |
| 0.8200 | 0.8400 | 0.8600 | 0.8800 | 0.9000 |
| 0.9200 | 0.9400 | 0.9600 | 0.9800 | 1.0000 |

Transect HALF(A1-A1)Scholastic(13mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0005 | 0.0021 | 0.0048 | 0.0085 | 0.0133 |
| 0.0192 | 0.0261 | 0.0341 | 0.0432 | 0.0534 |
| 0.0646 | 0.0768 | 0.0902 | 0.1046 | 0.1200 |
| 0.1366 | 0.1542 | 0.1729 | 0.1926 | 0.2127 |
| 0.2328 | 0.2529 | 0.2730 | 0.2931 | 0.3133 |
| 0.3337 | 0.3547 | 0.3763 | 0.3984 | 0.4212 |
| 0.4446 | 0.4685 | 0.4930 | 0.5182 | 0.5439 |
| 0.5702 | 0.5970 | 0.6245 | 0.6526 | 0.6812 |
| 0.7104 | 0.7403 | 0.7707 | 0.8017 | 0.8333 |
| 0.8654 | 0.8982 | 0.9315 | 0.9655 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0175 | 0.0349 | 0.0524 | 0.0698 | 0.0873 |
| 0.1047 | 0.1222 | 0.1396 | 0.1571 | 0.1745 |
| 0.1920 | 0.2094 | 0.2269 | 0.2443 | 0.2618 |
| 0.2792 | 0.2967 | 0.3141 | 0.3343 | 0.3680 |
| 0.4016 | 0.4349 | 0.4681 | 0.5010 | 0.5338 |
| 0.5665 | 0.5976 | 0.6272 | 0.6553 | 0.6820 |
| 0.7074 | 0.7314 | 0.7542 | 0.7758 | 0.7963 |
| 0.8156 | 0.8340 | 0.8514 | 0.8679 | 0.8835 |
| 0.8982 | 0.9122 | 0.9254 | 0.9379 | 0.9498 |
| 0.9610 | 0.9716 | 0.9816 | 0.9910 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0306 | 0.0613 | 0.0919 | 0.1226 | 0.1532 |
| 0.1839 | 0.2145 | 0.2452 | 0.2758 | 0.3065 |
| 0.3371 | 0.3678 | 0.3984 | 0.4291 | 0.4597 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.4904 | 0.5210 | 0.5517 | 0.5772 | 0.5773 |
| 0.5774 | 0.5775 | 0.5777 | 0.5778 | 0.5779 |
| 0.5948 | 0.6116 | 0.6285 | 0.6454 | 0.6623 |
| 0.6792 | 0.6961 | 0.7130 | 0.7298 | 0.7467 |
| 0.7636 | 0.7805 | 0.7974 | 0.8143 | 0.8312 |
| 0.8480 | 0.8649 | 0.8818 | 0.8987 | 0.9156 |
| 0.9325 | 0.9493 | 0.9662 | 0.9831 | 1.0000 |

Transect HALF(A2-A2)Sanctuary(11mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0006 | 0.0022 | 0.0050 | 0.0089 | 0.0140 |
| 0.0201 | 0.0274 | 0.0358 | 0.0453 | 0.0559 |
| 0.0677 | 0.0805 | 0.0945 | 0.1096 | 0.1258 |
| 0.1432 | 0.1616 | 0.1812 | 0.2019 | 0.2237 |
| 0.2461 | 0.2685 | 0.2909 | 0.3132 | 0.3356 |
| 0.3582 | 0.3811 | 0.4043 | 0.4279 | 0.4518 |
| 0.4760 | 0.5006 | 0.5255 | 0.5507 | 0.5763 |
| 0.6022 | 0.6284 | 0.6550 | 0.6819 | 0.7092 |
| 0.7367 | 0.7647 | 0.7929 | 0.8215 | 0.8504 |
| 0.8797 | 0.9092 | 0.9392 | 0.9694 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0154 | 0.0308 | 0.0462 | 0.0615 | 0.0769 |
| 0.0923 | 0.1077 | 0.1231 | 0.1385 | 0.1539 |
| 0.1693 | 0.1846 | 0.2000 | 0.2154 | 0.2308 |
| 0.2462 | 0.2616 | 0.2770 | 0.2923 | 0.3077 |
| 0.3375 | 0.3672 | 0.3966 | 0.4259 | 0.4550 |
| 0.4844 | 0.5130 | 0.5408 | 0.5679 | 0.5944 |
| 0.6201 | 0.6452 | 0.6696 | 0.6934 | 0.7166 |
| 0.7391 | 0.7611 | 0.7825 | 0.8034 | 0.8237 |
| 0.8435 | 0.8627 | 0.8815 | 0.8998 | 0.9176 |
| 0.9349 | 0.9518 | 0.9683 | 0.9844 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0364 | 0.0727 | 0.1091 | 0.1455 | 0.1819 |
| 0.2182 | 0.2546 | 0.2910 | 0.3273 | 0.3637 |
| 0.4001 | 0.4364 | 0.4728 | 0.5092 | 0.5456 |
| 0.5819 | 0.6183 | 0.6547 | 0.6910 | 0.7274 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.7275 | 0.7277 | 0.7278 | 0.7279 | 0.7281 |
| 0.7389 | 0.7498 | 0.7607 | 0.7716 | 0.7825 |
| 0.7933 | 0.8042 | 0.8151 | 0.8260 | 0.8368 |
| 0.8477 | 0.8586 | 0.8695 | 0.8804 | 0.8912 |
| 0.9021 | 0.9130 | 0.9239 | 0.9347 | 0.9456 |
| 0.9565 | 0.9674 | 0.9782 | 0.9891 | 1.0000 |

Transect HALF(A-A)Scholastic(10.5mROW)

Area:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0006 | 0.0023 | 0.0052 | 0.0093 | 0.0146 |
| 0.0210 | 0.0285 | 0.0373 | 0.0472 | 0.0582 |
| 0.0704 | 0.0838 | 0.0984 | 0.1141 | 0.1310 |
| 0.1490 | 0.1683 | 0.1886 | 0.2102 | 0.2321 |
| 0.2540 | 0.2760 | 0.2979 | 0.3199 | 0.3418 |
| 0.3640 | 0.3864 | 0.4093 | 0.4324 | 0.4560 |
| 0.4798 | 0.5041 | 0.5287 | 0.5536 | 0.5789 |
| 0.6045 | 0.6305 | 0.6568 | 0.6835 | 0.7105 |
| 0.7379 | 0.7656 | 0.7937 | 0.8221 | 0.8509 |
| 0.8800 | 0.9095 | 0.9393 | 0.9695 | 1.0000 |

Hrad:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0154 | 0.0308 | 0.0461 | 0.0615 | 0.0769 |
| 0.0923 | 0.1077 | 0.1231 | 0.1384 | 0.1538 |
| 0.1692 | 0.1846 | 0.2000 | 0.2153 | 0.2307 |
| 0.2461 | 0.2615 | 0.2769 | 0.2947 | 0.3244 |
| 0.3540 | 0.3834 | 0.4126 | 0.4416 | 0.4705 |
| 0.4996 | 0.5279 | 0.5554 | 0.5822 | 0.6083 |
| 0.6336 | 0.6582 | 0.6821 | 0.7053 | 0.7279 |
| 0.7499 | 0.7712 | 0.7920 | 0.8121 | 0.8317 |
| 0.8508 | 0.8693 | 0.8873 | 0.9048 | 0.9218 |
| 0.9383 | 0.9544 | 0.9700 | 0.9852 | 1.0000 |

Width:

| | | | | |
|--------|--------|--------|--------|--------|
| 0.0379 | 0.0759 | 0.1138 | 0.1517 | 0.1897 |
| 0.2276 | 0.2655 | 0.3034 | 0.3414 | 0.3793 |
| 0.4172 | 0.4552 | 0.4931 | 0.5310 | 0.5690 |
| 0.6069 | 0.6448 | 0.6828 | 0.7144 | 0.7145 |
| 0.7147 | 0.7148 | 0.7149 | 0.7151 | 0.7152 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|--------|--------|--------|--------|--------|
| 0.7266 | 0.7380 | 0.7494 | 0.7608 | 0.7722 |
| 0.7836 | 0.7949 | 0.8063 | 0.8177 | 0.8291 |
| 0.8405 | 0.8519 | 0.8633 | 0.8747 | 0.8861 |
| 0.8975 | 0.9089 | 0.9203 | 0.9316 | 0.9430 |
| 0.9544 | 0.9658 | 0.9772 | 0.9886 | 1.0000 |

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.

Analysis Options

Flow Units LPS

Process Models:

Rainfall/Runoff YES

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing YES

Ponding Allowed YES

Water Quality NO

Infiltration Method HORTON

Flow Routing Method DYNWAVE

Starting Date 10/29/2015 00:00:00

Ending Date 10/30/2015 00:00:00

Antecedent Dry Days 0.0

Report Time Step 00:01:00

Wet Time Step 00:00:30

Dry Time Step 00:01:00

Routing Time Step 1.00 sec

Variable Time Step NO

Maximum Trials 8

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

Number of Threads 4
 Head Tolerance 0.001500 m

 Control Actions Taken

| | Volume | Depth |
|----------------------------|-----------|--------|
| Runoff Quantity Continuity | hectare-m | mm |
| ***** | ----- | ----- |
| Initial LID Storage | 0.005 | 0.521 |
| Total Precipitation | 0.738 | 71.667 |
| Evaporation Loss | 0.000 | 0.000 |
| Infiltration Loss | 0.182 | 17.640 |
| Surface Runoff | 0.557 | 54.039 |
| Final Storage | 0.005 | 0.523 |
| Continuity Error (%) | -0.019 | |

| | Volume | Volume |
|----------------------------|-----------|---------------------|
| Flow Routing Continuity | hectare-m | 10 ⁶ ltr |
| ***** | ----- | ----- |
| Dry Weather Inflow | 0.000 | 0.000 |
| Wet Weather Inflow | 0.557 | 5.567 |
| Groundwater Inflow | 0.000 | 0.000 |
| RDII Inflow | 0.000 | 0.000 |
| External Inflow | 0.000 | 0.000 |
| External Outflow | 0.559 | 5.586 |
| Flooding Loss | 0.000 | 0.000 |
| Evaporation Loss | 0.000 | 0.000 |
| Exfiltration Loss | 0.000 | 0.000 |
| Initial Stored Volume | 0.011 | 0.109 |
| Final Stored Volume | 0.012 | 0.120 |
| Continuity Error (%) | -0.536 | |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output

100-year, 3-Hour Chicago Storm

Highest Continuity Errors

- Node CB73 (-26.22%)
- Node 40+157.95 (11.45%)
- Node CB6 (-10.35%)
- Node 60+148.01 (7.62%)
- Node 80+267 (-4.11%)

Highest Flow Instability Indexes

- Link OR44 (92)
- Link C205 (70)
- Link OR43 (65)
- Link OR49 (33)
- Link C204 (32)

Routing Time Step Summary

- Minimum Time Step : 1.00 sec
- Average Time Step : 1.00 sec
- Maximum Time Step : 1.00 sec
- Percent in Steady State : 0.00
- Average Iterations per Step : 2.84
- Percent Not Converging : 4.42

Subcatchment Runoff Summary

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| Subcatchment | Total Precip mm | Total Runon mm | Total Evap mm | Total Infil mm | Total Runoff mm | Total Runoff mm | Peak Runoff 10 ⁶ ltr | Runoff LPS | Coeff |
|----------------|--------------------|-------------------|------------------|-------------------|--------------------|--------------------|------------------------------------|---------------|-------|
| A01A | 71.67 | 0.00 | 0.00 | 9.02 | 62.67 | 0.06 | 43.10 | 0.874 | |
| A01B | 71.67 | 0.00 | 0.00 | 22.16 | 49.53 | 0.04 | 29.41 | 0.691 | |
| A02 | 71.67 | 0.00 | 0.00 | 17.78 | 53.90 | 0.04 | 28.95 | 0.752 | |
| A04 | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.07 | 49.39 | 1.000 | |
| A05 | 71.67 | 0.00 | 0.00 | 25.33 | 46.34 | 0.05 | 23.36 | 0.647 | |
| A06 | 71.67 | 0.00 | 0.00 | 30.01 | 41.66 | 0.18 | 101.70 | 0.581 | |
| A08 | 71.67 | 0.00 | 0.00 | 11.18 | 60.50 | 0.07 | 39.15 | 0.844 | |
| A09A | 71.67 | 0.00 | 0.00 | 30.19 | 41.48 | 0.11 | 49.34 | 0.579 | |
| A09B | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.09 | 64.46 | 1.000 | |
| A09C | 71.67 | 0.00 | 0.00 | 0.00 | 71.69 | 0.06 | 39.68 | 1.000 | |
| A10 | 71.67 | 0.00 | 0.00 | 0.00 | 71.69 | 0.06 | 44.64 | 1.000 | |
| A11A | 71.67 | 0.00 | 0.00 | 29.74 | 41.94 | 0.08 | 43.02 | 0.585 | |
| A11B | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.04 | 24.79 | 1.000 | |
| A11B-TopofRoof | 71.67 | 0.00 | 0.00 | 0.00 | 71.69 | 0.02 | 14.88 | 1.000 | |
| A12 | 71.67 | 0.00 | 0.00 | 6.25 | 65.43 | 0.05 | 36.83 | 0.913 | |
| A13 | 71.67 | 0.00 | 0.00 | 17.64 | 54.03 | 0.12 | 50.21 | 0.754 | |
| A-13 | 71.67 | 0.00 | 0.00 | 17.85 | 53.81 | 0.12 | 42.94 | 0.751 | |
| A14 | 71.67 | 0.00 | 0.00 | 27.06 | 44.62 | 0.36 | 206.21 | 0.623 | |
| A15A | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.11 | 74.32 | 1.000 | |
| A15B | 71.67 | 0.00 | 0.00 | 18.09 | 53.58 | 0.09 | 46.13 | 0.748 | |
| A16A | 71.67 | 0.00 | 0.00 | 14.39 | 57.29 | 0.03 | 23.37 | 0.799 | |
| A16B | 71.67 | 0.00 | 0.00 | 15.99 | 55.70 | 0.03 | 22.98 | 0.777 | |
| A16C_1 | 71.67 | 0.00 | 0.00 | 0.00 | 71.70 | 0.04 | 24.80 | 1.000 | |
| A16C_2 | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.10 | 69.36 | 1.000 | |
| A17 | 71.67 | 0.00 | 0.00 | 2.64 | 69.04 | 0.08 | 58.13 | 0.963 | |
| A18 | 71.67 | 0.00 | 0.00 | 17.46 | 54.22 | 0.15 | 106.99 | 0.757 | |
| A19A | 71.67 | 0.00 | 0.00 | 13.64 | 58.06 | 0.02 | 14.50 | 0.810 | |
| A19B | 71.67 | 0.00 | 0.00 | 13.74 | 57.95 | 0.02 | 19.15 | 0.809 | |
| A1C | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.06 | 44.41 | 1.000 | |
| A20 | 71.67 | 0.00 | 0.00 | 23.76 | 47.92 | 0.05 | 27.27 | 0.669 | |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|--------|-------|------|------|-------|-------|------|--------|-------|
| A21B | 71.67 | 0.00 | 0.00 | 17.32 | 54.36 | 0.06 | 41.11 | 0.759 |
| A22B | 71.67 | 0.00 | 0.00 | 30.57 | 41.11 | 0.05 | 18.91 | 0.574 |
| A23 | 71.67 | 0.00 | 0.00 | 18.01 | 53.67 | 0.07 | 48.69 | 0.749 |
| A24 | 71.67 | 0.00 | 0.00 | 15.93 | 55.75 | 0.09 | 61.75 | 0.778 |
| A25 | 71.67 | 0.00 | 0.00 | 14.13 | 57.56 | 0.03 | 24.18 | 0.803 |
| A26 | 71.67 | 0.00 | 0.00 | 28.73 | 42.95 | 0.02 | 13.66 | 0.599 |
| A27A | 71.67 | 0.00 | 0.00 | 19.25 | 52.42 | 0.05 | 26.97 | 0.731 |
| A27B | 71.67 | 0.00 | 0.00 | 12.15 | 59.54 | 0.03 | 23.96 | 0.831 |
| A28 | 71.67 | 0.00 | 0.00 | 47.44 | 24.23 | 0.03 | 10.20 | 0.338 |
| A29 | 71.67 | 0.00 | 0.00 | 32.79 | 38.88 | 0.23 | 120.24 | 0.542 |
| A30 | 71.67 | 0.00 | 0.00 | 2.64 | 69.04 | 0.08 | 58.08 | 0.963 |
| A31 | 71.67 | 0.00 | 0.00 | 13.48 | 58.20 | 0.12 | 69.90 | 0.812 |
| A32A | 71.67 | 0.00 | 0.00 | 13.58 | 58.12 | 0.01 | 9.69 | 0.811 |
| A32B | 71.67 | 0.00 | 0.00 | 13.74 | 57.95 | 0.02 | 19.15 | 0.809 |
| A33A | 71.67 | 0.00 | 0.00 | 14.14 | 57.56 | 0.03 | 29.01 | 0.803 |
| A33B | 71.67 | 0.00 | 0.00 | 14.14 | 57.56 | 0.04 | 33.85 | 0.803 |
| A34 | 71.67 | 0.00 | 0.00 | 12.00 | 59.70 | 0.03 | 24.29 | 0.833 |
| A35 | 71.67 | 0.00 | 0.00 | 31.10 | 40.58 | 0.04 | 22.28 | 0.566 |
| A36 | 71.67 | 0.00 | 0.00 | 17.98 | 53.69 | 0.07 | 39.26 | 0.749 |
| A3-A-1 | 71.67 | 0.00 | 0.00 | 9.92 | 61.77 | 0.04 | 28.98 | 0.862 |
| A3-A-2 | 71.67 | 0.00 | 0.00 | 9.91 | 61.78 | 0.03 | 24.18 | 0.862 |
| A3-A-3 | 71.67 | 0.00 | 0.00 | 6.36 | 65.33 | 0.03 | 24.49 | 0.912 |
| A3-A-4 | 71.67 | 0.00 | 0.00 | 10.47 | 61.22 | 0.01 | 9.65 | 0.854 |
| A3-DR1 | 71.67 | 0.00 | 0.00 | 19.45 | 52.24 | 0.02 | 13.67 | 0.729 |
| A3-DR2 | 71.67 | 0.00 | 0.00 | 25.87 | 45.82 | 0.01 | 10.98 | 0.639 |
| A3-DR3 | 71.67 | 0.00 | 0.00 | 22.92 | 48.77 | 0.00 | 4.25 | 0.680 |
| A3-DR4 | 71.67 | 0.00 | 0.00 | 26.79 | 44.90 | 0.00 | 4.25 | 0.627 |
| A7-A-5 | 71.67 | 0.00 | 0.00 | 10.44 | 61.25 | 0.01 | 9.69 | 0.855 |
| A7-A-6 | 71.67 | 0.00 | 0.00 | 3.90 | 67.79 | 0.03 | 19.71 | 0.946 |
| A7-A-7 | 71.67 | 0.00 | 0.00 | 10.49 | 61.19 | 0.04 | 28.88 | 0.854 |
| A7-A-8 | 71.67 | 0.00 | 0.00 | 6.97 | 64.72 | 0.04 | 29.33 | 0.903 |
| A7-DR5 | 71.67 | 0.00 | 0.00 | 26.42 | 45.27 | 0.00 | 4.18 | 0.632 |
| A7-DR6 | 71.67 | 0.00 | 0.00 | 22.46 | 49.22 | 0.00 | 4.26 | 0.687 |
| A7-DR7 | 71.67 | 0.00 | 0.00 | 22.95 | 48.74 | 0.00 | 4.21 | 0.680 |
| A7-DR8 | 71.67 | 0.00 | 0.00 | 15.40 | 56.29 | 0.02 | 14.07 | 0.785 |
| B01A | 71.67 | 0.00 | 0.00 | 12.07 | 59.62 | 0.02 | 15.37 | 0.832 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|-------------------|-------|-------|------|-------|-------|------|--------|-------|
| B01B | 71.67 | 0.00 | 0.00 | 15.69 | 56.00 | 0.03 | 25.27 | 0.781 |
| B02 | 71.67 | 0.00 | 0.00 | 17.19 | 54.51 | 0.01 | 4.80 | 0.761 |
| B03 | 71.67 | 0.00 | 0.00 | 6.34 | 65.35 | 0.15 | 115.68 | 0.912 |
| B04 | 71.67 | 0.00 | 0.00 | 19.88 | 51.80 | 0.10 | 73.61 | 0.723 |
| B05 | 71.67 | 0.00 | 0.00 | 24.27 | 47.42 | 0.09 | 62.27 | 0.662 |
| B06 | 71.67 | 0.00 | 0.00 | 17.89 | 53.80 | 0.03 | 28.04 | 0.751 |
| B07 | 71.67 | 0.00 | 0.00 | 14.35 | 57.34 | 0.05 | 42.44 | 0.800 |
| B08 | 71.67 | 0.00 | 0.00 | 8.63 | 63.06 | 0.04 | 34.26 | 0.880 |
| B09 | 71.67 | 0.00 | 0.00 | 8.65 | 63.04 | 0.07 | 53.81 | 0.880 |
| B10 | 71.67 | 0.00 | 0.00 | 14.25 | 57.44 | 0.04 | 33.51 | 0.801 |
| B11 | 71.67 | 0.00 | 0.00 | 17.38 | 54.31 | 0.02 | 18.77 | 0.758 |
| B12 | 71.67 | 0.00 | 0.00 | 9.96 | 61.73 | 0.06 | 43.19 | 0.861 |
| B13 | 71.67 | 0.00 | 0.00 | 20.32 | 51.38 | 0.05 | 41.92 | 0.717 |
| B14 | 71.67 | 0.00 | 0.00 | 21.87 | 49.82 | 0.04 | 35.75 | 0.695 |
| B15 | 71.67 | 0.00 | 0.00 | 22.71 | 48.97 | 0.07 | 57.28 | 0.683 |
| B16 | 71.67 | 0.00 | 0.00 | 21.22 | 50.46 | 0.06 | 39.08 | 0.704 |
| B17 | 71.67 | 0.00 | 0.00 | 11.70 | 59.98 | 0.04 | 33.00 | 0.837 |
| B19 | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.11 | 78.72 | 1.000 |
| B20A | 71.67 | 0.00 | 0.00 | 29.34 | 42.34 | 0.03 | 19.69 | 0.591 |
| B22 | 71.67 | 0.00 | 0.00 | 20.19 | 51.49 | 0.04 | 23.50 | 0.718 |
| B23 | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.12 | 84.21 | 1.000 |
| B24 | 71.67 | 0.00 | 0.00 | 6.27 | 65.40 | 0.08 | 54.77 | 0.913 |
| B25 | 71.67 | 0.00 | 0.00 | 0.00 | 71.69 | 0.04 | 29.76 | 1.000 |
| Condo2B_TopofRood | 71.67 | 0.00 | 0.00 | 0.00 | 71.69 | 0.01 | 9.92 | 1.000 |
| MR-NB | 71.67 | 0.00 | 0.00 | 0.00 | 71.66 | 0.08 | 47.95 | 1.000 |
| MR-SB | 71.67 | 0.00 | 0.00 | 0.00 | 71.67 | 0.06 | 41.61 | 1.000 |
| NA01 | 71.67 | 0.00 | 0.00 | 41.97 | 29.71 | 0.01 | 4.89 | 0.415 |
| NA02 | 71.67 | 28.23 | 0.00 | 39.21 | 60.70 | 0.07 | 32.56 | 0.608 |
| NA03_1 | 71.67 | 0.00 | 0.00 | 26.16 | 45.52 | 0.01 | 6.83 | 0.635 |
| NA03_2 | 71.67 | 0.00 | 0.00 | 27.02 | 44.66 | 0.02 | 9.67 | 0.623 |
| NA03_3 | 71.67 | 0.00 | 0.00 | 26.30 | 45.38 | 0.00 | 3.20 | 0.633 |
| NA04_1 | 71.67 | 0.00 | 0.00 | 28.16 | 43.52 | 0.02 | 9.41 | 0.607 |
| NA04_2 | 71.67 | 0.00 | 0.00 | 25.45 | 46.24 | 0.00 | 2.07 | 0.645 |
| NA05 | 71.67 | 0.00 | 0.00 | 38.54 | 33.14 | 0.02 | 7.01 | 0.462 |
| NA06 | 71.67 | 0.00 | 0.00 | 35.77 | 35.90 | 0.03 | 18.27 | 0.501 |
| TR1-NB | 71.67 | 0.00 | 0.00 | 0.00 | 71.70 | 0.01 | 4.96 | 1.000 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

| | | | | | | | | |
|--------|-------|------|------|------|-------|------|-------|-------|
| TR2-NB | 71.67 | 0.00 | 0.00 | 0.00 | 71.67 | 0.03 | 19.26 | 1.000 |
| TR-SB | 71.67 | 0.00 | 0.00 | 0.00 | 71.68 | 0.04 | 24.62 | 1.000 |

Node Depth Summary

| ----- | | | | | | | |
|-----------|----------|---------|---------|-------------|-------------|--------|--|
| | Average | Maximum | Maximum | Time of Max | Reported | | |
| | Depth | Depth | HGL | Occurrence | Max Depth | | |
| Node | Type | Meters | Meters | Meters | days hr:min | Meters | |
| ----- | | | | | | | |
| 10+171.51 | JUNCTION | 0.00 | 0.04 | 62.23 | 0 01:11 | 0.04 | |
| 10+207.77 | JUNCTION | 0.00 | 0.03 | 62.98 | 0 01:18 | 0.03 | |
| 10+314.72 | JUNCTION | 0.00 | 0.07 | 63.02 | 0 01:18 | 0.07 | |
| 20.033.19 | JUNCTION | 0.00 | 0.08 | 62.79 | 0 01:12 | 0.08 | |
| 20+069.15 | JUNCTION | 0.01 | 0.08 | 63.00 | 0 01:10 | 0.08 | |
| 20+115.54 | JUNCTION | 0.00 | 0.00 | 63.18 | 0 00:00 | 0.00 | |
| 30+038.20 | JUNCTION | 0.00 | 0.05 | 63.22 | 0 01:16 | 0.05 | |
| 30+074.39 | JUNCTION | 0.00 | 0.06 | 63.05 | 0 01:11 | 0.06 | |
| 40+015.59 | JUNCTION | 0.00 | 0.07 | 63.60 | 0 01:12 | 0.07 | |
| 40+084.71 | JUNCTION | 0.00 | 0.07 | 63.32 | 0 01:16 | 0.07 | |
| 40+121.60 | JUNCTION | 0.00 | 0.00 | 63.57 | 0 00:00 | 0.00 | |
| 40+157.95 | JUNCTION | 0.00 | 0.02 | 63.12 | 0 01:13 | 0.02 | |
| 50+102.24 | JUNCTION | 0.00 | 0.00 | 65.72 | 0 00:00 | 0.00 | |
| 50+127.37 | JUNCTION | 0.00 | 0.00 | 65.53 | 0 00:00 | 0.00 | |
| 60.370.58 | JUNCTION | 0.00 | 0.15 | 59.15 | 0 01:10 | 0.15 | |
| 60+148.01 | JUNCTION | 0.00 | 0.00 | 65.19 | 0 01:23 | 0.00 | |
| 60+224.17 | JUNCTION | 0.00 | 0.03 | 63.91 | 0 01:10 | 0.03 | |
| 60+288.71 | JUNCTION | 0.00 | 0.05 | 62.01 | 0 01:10 | 0.05 | |
| 70-034.26 | JUNCTION | 0.00 | 0.02 | 65.18 | 0 01:10 | 0.02 | |
| 70-152.02 | JUNCTION | 0.00 | 0.04 | 64.65 | 0 01:11 | 0.04 | |
| 70-208.50 | JUNCTION | 0.00 | 0.06 | 63.96 | 0 01:11 | 0.06 | |
| 80+003.32 | JUNCTION | 0.00 | 0.02 | 64.87 | 0 01:10 | 0.02 | |
| 80+025.67 | JUNCTION | 0.00 | 0.00 | 64.79 | 0 00:00 | 0.00 | |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|----------------|----------|------|------|-------|---|-------|------|
| 80+078.80 | JUNCTION | 0.00 | 0.03 | 64.15 | 0 | 01:11 | 0.03 |
| 80+121.22 | JUNCTION | 0.00 | 0.03 | 62.57 | 0 | 01:10 | 0.03 |
| 80+187.36 | JUNCTION | 0.00 | 0.00 | 60.33 | 0 | 00:00 | 0.00 |
| 80+216.33 | JUNCTION | 0.00 | 0.00 | 59.71 | 0 | 00:00 | 0.00 |
| 80+267 | JUNCTION | 0.00 | 0.05 | 59.21 | 0 | 01:11 | 0.05 |
| 90.071.47 | JUNCTION | 0.00 | 0.09 | 60.08 | 0 | 01:10 | 0.09 |
| 90+008.28 | JUNCTION | 0.00 | 0.00 | 60.60 | 0 | 00:00 | 0.00 |
| A15A(STOR) | JUNCTION | 0.00 | 0.07 | 63.47 | 0 | 01:10 | 0.07 |
| B19(STOR) | JUNCTION | 0.01 | 0.18 | 63.18 | 0 | 01:10 | 0.18 |
| CB01 | JUNCTION | 0.02 | 1.20 | 61.34 | 0 | 01:12 | 1.20 |
| CB01(MS) | JUNCTION | 0.00 | 0.02 | 61.35 | 0 | 01:12 | 0.02 |
| CB06 | JUNCTION | 0.02 | 1.30 | 63.24 | 0 | 01:11 | 1.30 |
| CB06(MS) | JUNCTION | 0.00 | 0.03 | 63.26 | 0 | 01:11 | 0.02 |
| CB08 | JUNCTION | 0.02 | 1.37 | 63.42 | 0 | 01:11 | 1.37 |
| CB08(MS) | JUNCTION | 0.00 | 0.02 | 63.43 | 0 | 01:10 | 0.02 |
| CB09 | JUNCTION | 0.03 | 1.22 | 62.96 | 0 | 01:11 | 1.22 |
| CB09(MS) | JUNCTION | 0.00 | 0.10 | 63.14 | 0 | 01:10 | 0.10 |
| CB1 | JUNCTION | 0.04 | 1.30 | 65.00 | 0 | 01:15 | 1.30 |
| CB12 | JUNCTION | 0.02 | 1.29 | 62.74 | 0 | 01:11 | 1.29 |
| CB12(MS) | JUNCTION | 0.00 | 0.06 | 62.99 | 0 | 01:10 | 0.06 |
| CB14 | JUNCTION | 0.03 | 1.51 | 62.74 | 0 | 01:13 | 1.51 |
| CB14(MS) | JUNCTION | 0.00 | 0.10 | 62.78 | 0 | 01:13 | 0.10 |
| CB15(x2-DICBs) | JUNCTION | 0.01 | 0.47 | 61.55 | 0 | 01:14 | 0.47 |
| CB16(2x-DICBs) | JUNCTION | 0.02 | 1.39 | 63.02 | 0 | 01:12 | 1.39 |
| CB16(MS) | JUNCTION | 0.00 | 0.04 | 63.04 | 0 | 01:12 | 0.04 |
| CB18 | JUNCTION | 0.04 | 1.44 | 62.98 | 0 | 01:18 | 1.44 |
| CB18(MS) | JUNCTION | 0.00 | 0.21 | 63.02 | 0 | 01:18 | 0.21 |
| CB2 | JUNCTION | 0.03 | 1.42 | 64.99 | 0 | 01:11 | 1.42 |
| CB20 | JUNCTION | 0.04 | 1.71 | 63.17 | 0 | 01:17 | 1.71 |
| CB20(MS) | JUNCTION | 0.00 | 0.04 | 63.19 | 0 | 01:17 | 0.04 |
| CB22 | JUNCTION | 0.02 | 0.92 | 63.00 | 0 | 01:14 | 0.92 |
| CB22(MS) | JUNCTION | 0.00 | 0.07 | 63.37 | 0 | 01:13 | 0.07 |
| CB24 | JUNCTION | 0.03 | 1.30 | 63.70 | 0 | 01:13 | 1.30 |
| CB24(MS) | JUNCTION | 0.00 | 0.06 | 63.82 | 0 | 01:12 | 0.06 |
| CB26 | JUNCTION | 0.02 | 0.86 | 64.24 | 0 | 01:11 | 0.86 |
| CB26(MS) | JUNCTION | 0.00 | 0.06 | 64.65 | 0 | 01:10 | 0.06 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|----------|----------|------|------|-------|---|-------|------|
| CB28 | JUNCTION | 0.01 | 0.38 | 63.95 | 0 | 01:12 | 0.38 |
| CB28(MS) | JUNCTION | 0.00 | 0.02 | 65.13 | 0 | 01:12 | 0.02 |
| CB29 | JUNCTION | 0.01 | 0.99 | 61.44 | 0 | 01:11 | 0.98 |
| CB29(MS) | JUNCTION | 0.00 | 0.03 | 61.88 | 0 | 01:07 | 0.03 |
| CB29B(L) | JUNCTION | 0.01 | 1.20 | 61.58 | 0 | 01:10 | 1.20 |
| CB3 | JUNCTION | 0.02 | 1.21 | 64.91 | 0 | 01:10 | 1.21 |
| CB30 | JUNCTION | 0.02 | 1.52 | 61.23 | 0 | 01:11 | 1.52 |
| CB30(MS) | JUNCTION | 0.00 | 0.03 | 61.26 | 0 | 01:10 | 0.03 |
| CB31 | JUNCTION | 0.02 | 1.53 | 61.03 | 0 | 01:11 | 1.53 |
| CB31(MS) | JUNCTION | 0.00 | 0.05 | 61.07 | 0 | 01:10 | 0.05 |
| CB31B(L) | JUNCTION | 0.03 | 1.69 | 61.09 | 0 | 01:10 | 1.69 |
| CB32 | JUNCTION | 0.03 | 1.54 | 61.01 | 0 | 01:11 | 1.54 |
| CB34 | JUNCTION | 0.02 | 1.00 | 63.16 | 0 | 01:14 | 1.00 |
| CB34(MS) | JUNCTION | 0.00 | 0.05 | 63.52 | 0 | 01:13 | 0.05 |
| CB35 | JUNCTION | 0.01 | 0.62 | 62.52 | 0 | 01:10 | 0.62 |
| CB35(MS) | JUNCTION | 0.00 | 0.02 | 63.44 | 0 | 01:10 | 0.02 |
| CB36 | JUNCTION | 0.01 | 0.75 | 62.67 | 0 | 01:11 | 0.75 |
| CB36(MS) | JUNCTION | 0.00 | 0.02 | 63.35 | 0 | 01:10 | 0.02 |
| CB39 | JUNCTION | 0.03 | 1.41 | 63.41 | 0 | 01:10 | 1.41 |
| CB39(MS) | JUNCTION | 0.00 | 0.05 | 63.45 | 0 | 01:10 | 0.05 |
| CB40 | JUNCTION | 0.00 | 0.34 | 62.11 | 0 | 01:10 | 0.33 |
| CB40(MS) | JUNCTION | 0.00 | 0.02 | 63.02 | 0 | 01:10 | 0.02 |
| CB41 | JUNCTION | 0.01 | 0.75 | 62.35 | 0 | 01:11 | 0.75 |
| CB41(MS) | JUNCTION | 0.00 | 0.02 | 62.87 | 0 | 01:10 | 0.02 |
| CB42 | JUNCTION | 0.03 | 1.41 | 63.22 | 0 | 01:10 | 1.41 |
| CB42(MS) | JUNCTION | 0.00 | 0.04 | 63.25 | 0 | 01:10 | 0.04 |
| CB45 | JUNCTION | 0.02 | 1.21 | 64.13 | 0 | 01:13 | 1.21 |
| CB45(MS) | JUNCTION | 0.00 | 0.04 | 64.75 | 0 | 01:11 | 0.04 |
| CB47 | JUNCTION | 0.01 | 0.69 | 63.91 | 0 | 01:12 | 0.69 |
| CB47(MS) | JUNCTION | 0.00 | 0.03 | 64.99 | 0 | 01:11 | 0.03 |
| CB49 | JUNCTION | 0.01 | 0.41 | 65.23 | 0 | 01:10 | 0.41 |
| CB49(MS) | JUNCTION | 0.00 | 0.01 | 65.24 | 0 | 01:10 | 0.01 |
| CB5 | JUNCTION | 0.02 | 1.26 | 65.19 | 0 | 01:10 | 1.26 |
| CB51 | JUNCTION | 0.02 | 1.67 | 64.69 | 0 | 01:13 | 1.67 |
| CB51(MS) | JUNCTION | 0.00 | 0.02 | 64.72 | 0 | 01:11 | 0.02 |
| CB53 | JUNCTION | 0.03 | 1.51 | 64.55 | 0 | 01:14 | 1.51 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|----------------|----------|------|------|-------|---|-------|------|
| CB53(MS) | JUNCTION | 0.00 | 0.08 | 64.56 | 0 | 01:14 | 0.08 |
| CB55 | JUNCTION | 0.02 | 1.58 | 64.09 | 0 | 01:10 | 1.58 |
| CB56 | JUNCTION | 0.00 | 0.14 | 62.56 | 0 | 01:11 | 0.14 |
| CB58 | JUNCTION | 0.00 | 0.42 | 63.68 | 0 | 01:11 | 0.42 |
| CB58(MS) | JUNCTION | 0.00 | 0.01 | 64.77 | 0 | 01:10 | 0.01 |
| CB6 | JUNCTION | 0.02 | 1.47 | 64.78 | 0 | 01:09 | 1.47 |
| CB60 | JUNCTION | 0.02 | 1.75 | 64.91 | 0 | 01:11 | 1.75 |
| CB60(MS) | JUNCTION | 0.00 | 0.03 | 64.93 | 0 | 01:11 | 0.03 |
| CB62 | JUNCTION | 0.02 | 1.14 | 62.30 | 0 | 01:10 | 1.14 |
| CB62(MS) | JUNCTION | 0.00 | 0.05 | 63.05 | 0 | 01:10 | 0.05 |
| CB63 | JUNCTION | 0.01 | 1.04 | 62.10 | 0 | 01:11 | 1.04 |
| CB63(MS) | JUNCTION | 0.00 | 0.04 | 62.70 | 0 | 01:10 | 0.04 |
| CB65 | JUNCTION | 0.04 | 1.84 | 61.27 | 0 | 01:10 | 1.84 |
| CB65(MS) | JUNCTION | 0.00 | 0.06 | 61.31 | 0 | 01:10 | 0.06 |
| CB67 | JUNCTION | 0.03 | 1.82 | 60.25 | 0 | 01:10 | 1.82 |
| CB67(MS) | JUNCTION | 0.00 | 0.03 | 60.27 | 0 | 01:10 | 0.03 |
| CB69 | JUNCTION | 0.03 | 1.64 | 60.02 | 0 | 01:14 | 1.64 |
| CB69(MS) | JUNCTION | 0.00 | 0.07 | 60.04 | 0 | 01:14 | 0.07 |
| CB70 | JUNCTION | 0.02 | 1.62 | 59.93 | 0 | 01:11 | 1.62 |
| CB70(MS) | JUNCTION | 0.00 | 0.08 | 59.99 | 0 | 01:10 | 0.08 |
| CB71 | JUNCTION | 0.22 | 1.95 | 59.61 | 0 | 01:11 | 1.95 |
| CB71(MS) | JUNCTION | 0.00 | 0.04 | 59.63 | 0 | 01:10 | 0.04 |
| CB73 | JUNCTION | 0.12 | 1.61 | 59.36 | 0 | 01:11 | 1.61 |
| CB73(MS) | JUNCTION | 0.00 | 0.03 | 59.38 | 0 | 01:10 | 0.03 |
| CB74(4x-DICBs) | JUNCTION | 0.91 | 2.08 | 59.03 | 0 | 01:12 | 2.08 |
| CB75 | JUNCTION | 0.24 | 1.66 | 59.28 | 0 | 01:11 | 1.66 |
| CB75(MS) | JUNCTION | 0.00 | 0.10 | 59.32 | 0 | 01:10 | 0.10 |
| CB76 | JUNCTION | 0.02 | 1.15 | 60.76 | 0 | 01:12 | 1.15 |
| CB76(MS) | JUNCTION | 0.00 | 0.05 | 61.26 | 0 | 01:11 | 0.05 |
| CB77 | JUNCTION | 0.03 | 1.61 | 62.58 | 0 | 01:11 | 1.61 |
| CB77(MS) | JUNCTION | 0.00 | 0.05 | 62.62 | 0 | 01:10 | 0.05 |
| CB78 | JUNCTION | 0.03 | 1.78 | 60.24 | 0 | 01:14 | 1.78 |
| CB79 | JUNCTION | 0.55 | 1.71 | 59.05 | 0 | 01:13 | 1.71 |
| CB79(MS) | JUNCTION | 0.00 | 0.12 | 59.06 | 0 | 01:13 | 0.12 |
| CB8 | JUNCTION | 0.02 | 1.25 | 64.10 | 0 | 01:10 | 1.25 |
| CB80 | JUNCTION | 0.03 | 1.61 | 64.14 | 0 | 01:11 | 1.61 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|----------|----------|------|------|-------|---|-------|------|
| CB80(MS) | JUNCTION | 0.00 | 0.05 | 64.18 | 0 | 01:10 | 0.05 |
| CB82 | JUNCTION | 0.01 | 0.57 | 63.96 | 0 | 01:10 | 0.56 |
| CBMH1 | JUNCTION | 0.01 | 0.29 | 62.21 | 0 | 01:10 | 0.29 |
| CBMH4 | JUNCTION | 0.02 | 1.15 | 65.21 | 0 | 01:10 | 1.15 |
| CBMH7 | JUNCTION | 0.02 | 1.31 | 64.51 | 0 | 01:10 | 1.31 |
| HP01 | JUNCTION | 0.00 | 0.04 | 61.08 | 0 | 01:10 | 0.04 |
| HP02 | JUNCTION | 0.02 | 0.05 | 61.33 | 0 | 01:12 | 0.05 |
| HP03 | JUNCTION | 0.00 | 0.08 | 60.95 | 0 | 01:11 | 0.08 |
| HP04 | JUNCTION | 0.00 | 0.00 | 62.65 | 0 | 00:00 | 0.00 |
| J1 | JUNCTION | 0.05 | 1.38 | 61.26 | 0 | 01:12 | 1.35 |
| J10 | JUNCTION | 0.00 | 0.01 | 64.99 | 0 | 01:11 | 0.01 |
| J11 | JUNCTION | 0.00 | 0.01 | 64.78 | 0 | 01:10 | 0.01 |
| J12 | JUNCTION | 0.00 | 0.01 | 64.51 | 0 | 01:10 | 0.01 |
| J13 | JUNCTION | 0.00 | 0.01 | 64.10 | 0 | 01:10 | 0.01 |
| J14 | JUNCTION | 0.03 | 1.69 | 65.19 | 0 | 01:11 | 1.69 |
| J15 | JUNCTION | 0.00 | 0.29 | 65.19 | 0 | 01:11 | 0.29 |
| J16 | JUNCTION | 0.00 | 0.05 | 64.37 | 0 | 01:11 | 0.05 |
| J3 | JUNCTION | 0.01 | 0.38 | 60.66 | 0 | 01:12 | 0.38 |
| J5 | JUNCTION | 0.01 | 0.15 | 61.57 | 0 | 01:10 | 0.15 |
| J6 | JUNCTION | 0.00 | 0.01 | 64.91 | 0 | 01:10 | 0.01 |
| J7 | JUNCTION | 0.00 | 0.01 | 65.21 | 0 | 01:10 | 0.01 |
| J8 | JUNCTION | 0.00 | 0.00 | 65.18 | 0 | 01:10 | 0.00 |
| J9 | JUNCTION | 0.00 | 0.01 | 65.00 | 0 | 01:15 | 0.01 |
| MH100 | JUNCTION | 0.02 | 0.81 | 60.78 | 0 | 01:11 | 0.80 |
| MH102 | JUNCTION | 0.02 | 1.16 | 61.06 | 0 | 01:10 | 1.12 |
| MH104 | JUNCTION | 0.03 | 0.86 | 60.70 | 0 | 01:11 | 0.86 |
| MH106 | JUNCTION | 0.08 | 1.00 | 60.65 | 0 | 01:11 | 1.00 |
| MH108 | JUNCTION | 0.09 | 0.99 | 60.58 | 0 | 01:11 | 0.99 |
| MH110 | JUNCTION | 0.07 | 1.15 | 60.75 | 0 | 01:12 | 1.14 |
| MH110B | JUNCTION | 0.04 | 1.20 | 60.60 | 0 | 01:13 | 1.20 |
| MH112B | JUNCTION | 0.05 | 1.25 | 60.42 | 0 | 01:13 | 1.25 |
| MH114 | JUNCTION | 1.04 | 1.94 | 60.02 | 0 | 01:13 | 1.94 |
| MH118 | JUNCTION | 0.08 | 1.11 | 59.52 | 0 | 01:13 | 1.11 |
| MH122 | JUNCTION | 0.11 | 0.71 | 60.01 | 0 | 01:12 | 0.71 |
| MH122B | JUNCTION | 0.08 | 1.24 | 59.82 | 0 | 01:12 | 1.24 |
| MH124 | JUNCTION | 0.03 | 0.33 | 60.88 | 0 | 01:16 | 0.33 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|--------------|----------|------|------|-------|---|-------|------|
| MH126 | JUNCTION | 0.02 | 0.26 | 61.58 | 0 | 01:15 | 0.26 |
| MH128 | JUNCTION | 0.04 | 1.45 | 61.47 | 0 | 01:12 | 1.41 |
| MH128(DUMMY) | JUNCTION | 0.02 | 0.16 | 61.76 | 0 | 01:14 | 0.16 |
| MH130 | JUNCTION | 0.05 | 0.69 | 61.95 | 0 | 01:14 | 0.69 |
| MH132 | JUNCTION | 0.04 | 0.70 | 62.04 | 0 | 01:14 | 0.69 |
| MH136 | JUNCTION | 0.01 | 0.13 | 61.03 | 0 | 01:10 | 0.13 |
| MH140 | JUNCTION | 0.01 | 0.14 | 60.94 | 0 | 01:11 | 0.14 |
| MH144 | JUNCTION | 0.04 | 0.77 | 60.21 | 0 | 01:11 | 0.77 |
| MH148 | JUNCTION | 0.01 | 0.15 | 61.37 | 0 | 01:11 | 0.15 |
| MH152 | JUNCTION | 1.42 | 1.54 | 61.46 | 0 | 01:10 | 1.54 |
| MH164 | JUNCTION | 0.03 | 0.69 | 62.12 | 0 | 01:14 | 0.69 |
| MH166 | JUNCTION | 0.03 | 0.62 | 62.27 | 0 | 01:13 | 0.62 |
| MH168 | JUNCTION | 0.02 | 0.64 | 62.38 | 0 | 01:14 | 0.64 |
| MH170 | JUNCTION | 0.02 | 0.59 | 62.47 | 0 | 01:14 | 0.59 |
| MH172 | JUNCTION | 0.04 | 0.54 | 62.60 | 0 | 01:13 | 0.54 |
| MH174 | JUNCTION | 0.05 | 0.60 | 62.77 | 0 | 01:13 | 0.60 |
| MH176 | JUNCTION | 0.07 | 0.24 | 63.14 | 0 | 01:12 | 0.24 |
| MH178 | JUNCTION | 0.02 | 0.36 | 62.38 | 0 | 01:13 | 0.36 |
| MH180 | JUNCTION | 0.01 | 0.51 | 63.36 | 0 | 01:12 | 0.39 |
| MH182 | JUNCTION | 0.06 | 0.74 | 63.22 | 0 | 01:10 | 0.60 |
| MH220 | JUNCTION | 0.01 | 0.84 | 60.31 | 0 | 01:12 | 0.83 |
| MH222 | JUNCTION | 0.03 | 1.06 | 60.09 | 0 | 01:04 | 0.99 |
| MH224 | JUNCTION | 0.02 | 1.13 | 60.30 | 0 | 01:04 | 0.87 |
| MH226 | JUNCTION | 0.01 | 0.61 | 60.82 | 0 | 01:11 | 0.61 |
| MH228 | JUNCTION | 0.01 | 0.73 | 60.80 | 0 | 01:11 | 0.73 |
| MH230 | JUNCTION | 0.02 | 1.07 | 60.84 | 0 | 01:10 | 1.05 |
| MH238 | JUNCTION | 0.04 | 0.73 | 58.87 | 0 | 01:13 | 0.72 |
| MH242 | JUNCTION | 1.86 | 2.41 | 58.41 | 0 | 01:13 | 2.40 |
| MH246 | JUNCTION | 0.02 | 1.12 | 60.96 | 0 | 01:10 | 1.09 |
| MH248 | JUNCTION | 0.03 | 0.59 | 62.20 | 0 | 01:13 | 0.59 |
| MH250 | JUNCTION | 0.05 | 0.24 | 62.87 | 0 | 01:14 | 0.24 |
| MH300 | JUNCTION | 0.00 | 0.09 | 62.49 | 0 | 01:11 | 0.09 |
| MH302 | JUNCTION | 0.00 | 0.10 | 61.62 | 0 | 01:12 | 0.10 |
| MH304 | JUNCTION | 0.01 | 0.14 | 61.05 | 0 | 01:11 | 0.14 |
| MH306 | JUNCTION | 0.01 | 0.47 | 59.91 | 0 | 01:11 | 0.46 |
| MH308 | JUNCTION | 0.01 | 0.81 | 59.48 | 0 | 01:11 | 0.80 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|------------------|----------|------|------|-------|---|-------|------|
| MH310 | JUNCTION | 1.26 | 2.34 | 58.94 | 0 | 01:11 | 2.34 |
| MH312 | JUNCTION | 0.00 | 0.07 | 61.71 | 0 | 01:11 | 0.07 |
| MH314 | JUNCTION | 0.00 | 0.10 | 60.71 | 0 | 01:11 | 0.10 |
| MH314(DUMMY) | JUNCTION | 0.02 | 1.25 | 59.65 | 0 | 01:12 | 1.24 |
| MH316 | JUNCTION | 0.74 | 2.17 | 59.30 | 0 | 01:12 | 2.17 |
| MH318 | JUNCTION | 0.35 | 1.80 | 59.32 | 0 | 01:12 | 1.80 |
| MH320 | JUNCTION | 0.92 | 2.21 | 59.16 | 0 | 01:12 | 2.21 |
| MH322 | JUNCTION | 0.95 | 2.21 | 59.12 | 0 | 01:11 | 2.21 |
| MH324 | JUNCTION | 0.02 | 0.08 | 60.73 | 0 | 01:11 | 0.08 |
| MH326 | JUNCTION | 0.01 | 0.13 | 59.30 | 0 | 01:12 | 0.13 |
| MH328 | JUNCTION | 0.02 | 1.33 | 59.37 | 0 | 01:07 | 1.01 |
| MH328(DUMMY) | JUNCTION | 0.85 | 1.93 | 58.94 | 0 | 01:11 | 1.93 |
| MH330 | JUNCTION | 0.81 | 1.90 | 58.95 | 0 | 01:12 | 1.90 |
| MH332 | JUNCTION | 1.33 | 2.41 | 58.94 | 0 | 01:11 | 2.41 |
| MH334 | JUNCTION | 1.53 | 2.47 | 58.80 | 0 | 01:12 | 2.47 |
| MH336 | JUNCTION | 1.51 | 2.04 | 58.39 | 0 | 01:12 | 2.04 |
| MH338 | JUNCTION | 1.52 | 2.03 | 58.37 | 0 | 01:12 | 2.03 |
| MH340 | JUNCTION | 1.84 | 2.16 | 58.17 | 0 | 01:12 | 2.16 |
| MH400 | JUNCTION | 0.00 | 0.00 | 62.66 | 0 | 00:00 | 0.00 |
| MH402 | JUNCTION | 0.30 | 0.39 | 62.71 | 0 | 01:10 | 0.39 |
| MH404 | JUNCTION | 0.00 | 0.00 | 62.96 | 0 | 00:00 | 0.00 |
| MH406 | JUNCTION | 0.00 | 0.08 | 62.87 | 0 | 01:10 | 0.08 |
| MH408 | JUNCTION | 0.00 | 0.00 | 62.96 | 0 | 00:00 | 0.00 |
| MH410 | JUNCTION | 0.30 | 0.36 | 62.59 | 0 | 01:10 | 0.36 |
| MH412 | JUNCTION | 0.00 | 0.00 | 62.28 | 0 | 00:00 | 0.00 |
| MH414 | JUNCTION | 0.00 | 0.15 | 62.05 | 0 | 01:14 | 0.12 |
| VortechsPh1 | JUNCTION | 0.07 | 0.84 | 59.24 | 0 | 01:12 | 0.84 |
| VortechsPh2 | JUNCTION | 1.51 | 2.03 | 58.38 | 0 | 01:12 | 2.03 |
| Clegg | OUTFALL | 0.00 | 0.03 | 61.33 | 0 | 01:12 | 0.03 |
| MainNorth | OUTFALL | 0.00 | 0.00 | 64.70 | 0 | 00:00 | 0.00 |
| MainSouth | OUTFALL | 0.00 | 0.02 | 65.04 | 0 | 01:12 | 0.02 |
| Out1 | OUTFALL | 0.00 | 0.08 | 60.58 | 0 | 01:11 | 0.08 |
| Out2 | OUTFALL | 0.00 | 0.04 | 60.54 | 0 | 01:10 | 0.04 |
| Out3 | OUTFALL | 0.00 | 0.00 | 62.50 | 0 | 00:00 | 0.00 |
| Outlet1-Phase1 | OUTFALL | 1.85 | 1.85 | 57.85 | 0 | 00:00 | 1.85 |
| Outlet2-Phase2&3 | OUTFALL | 1.85 | 1.85 | 57.85 | 0 | 00:00 | 1.85 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

| | | | | | | | |
|------------|---------|------|------|--------|---|-------|------|
| A04(STOR) | STORAGE | 0.84 | 2.49 | 63.62 | 0 | 01:26 | 2.49 |
| A06(STOR) | STORAGE | 0.04 | 1.23 | 65.13 | 0 | 01:11 | 1.23 |
| A09B(STOR) | STORAGE | 0.00 | 0.04 | 100.04 | 0 | 01:26 | 0.04 |
| A09C(STOR) | STORAGE | 0.00 | 0.04 | 100.04 | 0 | 01:25 | 0.04 |
| A10(STOR) | STORAGE | 0.00 | 0.04 | 100.04 | 0 | 01:25 | 0.04 |
| A11B(STOR) | STORAGE | 0.34 | 1.22 | 62.20 | 0 | 01:21 | 1.22 |
| A14(STOR) | STORAGE | 0.03 | 1.22 | 63.92 | 0 | 01:10 | 1.22 |
| A16C(STOR) | STORAGE | 0.00 | 0.01 | 65.23 | 0 | 01:10 | 0.01 |
| A22A(STOR) | STORAGE | 0.01 | 0.11 | 100.11 | 0 | 01:37 | 0.11 |
| B21(STOR) | STORAGE | 0.01 | 0.11 | 100.11 | 0 | 01:40 | 0.11 |
| B23(STOR) | STORAGE | 1.43 | 3.65 | 60.16 | 0 | 01:10 | 3.65 |
| B25(STOR) | STORAGE | 0.00 | 0.04 | 100.04 | 0 | 01:25 | 0.04 |
| J2 | STORAGE | 0.01 | 0.04 | 65.41 | 0 | 01:30 | 0.04 |
| J4 | STORAGE | 0.01 | 0.03 | 100.03 | 0 | 01:20 | 0.03 |

Node Inflow Summary

| Node | Type | Maximum | | Lateral | Total | Flow | Error | |
|-----------|----------|---------|-------------|----------|----------|---------|---------|-----------|
| | | Lateral | Total | | | | | |
| | | Inflow | Inflow | Inflow | Inflow | Balance | | |
| | | LPS | LPS | Volume | Volume | | Percent | |
| | | | Occurrence | 10^6 ltr | 10^6 ltr | | | |
| | | | days hr:min | | | | | |
| 10+171.51 | JUNCTION | 0.00 | 21.21 | 0 | 01:11 | 0 | 0.0172 | 0.043 |
| 10+207.77 | JUNCTION | 0.00 | 10.25 | 0 | 01:17 | 0 | 0.00804 | 0.839 |
| 10+314.72 | JUNCTION | 0.00 | 38.54 | 0 | 01:13 | 0 | 0.0234 | 0.562 |
| 20.033.19 | JUNCTION | 0.00 | 59.97 | 0 | 01:10 | 0 | 0.0447 | 0.331 |
| 20+069.15 | JUNCTION | 0.00 | 41.77 | 0 | 01:10 | 0 | 0.0331 | -0.397 |
| 20+115.54 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| 30+038.20 | JUNCTION | 0.00 | 50.15 | 0 | 01:15 | 0 | 0.0695 | -0.305 |
| 30+074.39 | JUNCTION | 0.00 | 86.27 | 0 | 01:11 | 0 | 0.0664 | -0.572 |
| 40+015.59 | JUNCTION | 0.00 | 94.26 | 0 | 01:12 | 0 | 0.117 | 0.379 |
| 40+084.71 | JUNCTION | 0.00 | 44.89 | 0 | 01:14 | 0 | 0.0401 | 1.697 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|----------------|----------|--------|--------|---------|---------|-----------|-----------|
| 40+121.60 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 40+157.95 | JUNCTION | 0.00 | 4.36 | 0 01:11 | 0 | 0.00171 | 12.933 |
| 50+102.24 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 50+127.37 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 60.370.58 | JUNCTION | 0.00 | 326.41 | 0 01:10 | 0 | 0.195 | -0.009 |
| 60+148.01 | JUNCTION | 0.00 | 0.09 | 0 01:10 | 0 | 6.56e-005 | 8.249 |
| 60+224.17 | JUNCTION | 13.67 | 23.59 | 0 01:10 | 0.0157 | 0.0195 | 0.340 |
| 60+288.71 | JUNCTION | 0.00 | 85.85 | 0 01:10 | 0 | 0.0633 | 0.035 |
| 70-034.26 | JUNCTION | 4.25 | 4.25 | 0 01:10 | 0.00488 | 0.00488 | -0.711 |
| 70-152.02 | JUNCTION | 4.26 | 31.90 | 0 01:10 | 0.00492 | 0.0223 | -0.464 |
| 70-208.50 | JUNCTION | 18.28 | 63.52 | 0 01:10 | 0.0218 | 0.0516 | -0.547 |
| 80+003.32 | JUNCTION | 0.00 | 16.30 | 0 01:10 | 0 | 0.00577 | 0.803 |
| 80+025.67 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 80+078.80 | JUNCTION | 0.00 | 21.93 | 0 01:10 | 0 | 0.0125 | 0.606 |
| 80+121.22 | JUNCTION | 0.00 | 34.61 | 0 01:10 | 0 | 0.0224 | -1.249 |
| 80+187.36 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 80+216.33 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| 80+267 | JUNCTION | 0.00 | 32.00 | 0 01:10 | 0 | 0.0147 | -3.947 |
| 90.071.47 | JUNCTION | 0.00 | 180.47 | 0 01:10 | 0 | 0.127 | 0.089 |
| 90+008.28 | JUNCTION | 0.00 | 0.00 | 0 00:00 | 0 | 0 | 0.000 ltr |
| A15A(STOR) | JUNCTION | 74.32 | 74.32 | 0 01:10 | 0.108 | 0.108 | -0.002 |
| B19(STOR) | JUNCTION | 78.72 | 78.72 | 0 01:10 | 0.115 | 0.115 | -0.002 |
| CB01 | JUNCTION | 0.00 | 32.32 | 0 01:10 | 0 | 0.0564 | -0.019 |
| CB01(MS) | JUNCTION | 26.97 | 37.51 | 0 01:10 | 0.0524 | 0.0598 | 0.203 |
| CB06 | JUNCTION | 0.00 | 19.70 | 0 01:08 | 0 | 0.0261 | 0.036 |
| CB06(MS) | JUNCTION | 22.98 | 22.98 | 0 01:10 | 0.0279 | 0.0279 | 0.038 |
| CB08 | JUNCTION | 0.00 | 19.66 | 0 01:09 | 0 | 0.0268 | -0.008 |
| CB08(MS) | JUNCTION | 23.37 | 23.37 | 0 01:10 | 0.0286 | 0.0286 | -0.435 |
| CB09 | JUNCTION | 0.00 | 72.30 | 0 01:10 | 0 | 0.161 | 0.005 |
| CB09(MS) | JUNCTION | 106.99 | 153.22 | 0 01:10 | 0.152 | 0.221 | -0.049 |
| CB1 | JUNCTION | 9.65 | 9.65 | 0 01:10 | 0.0122 | 0.0125 | 0.046 |
| CB12 | JUNCTION | 0.00 | 55.14 | 0 01:10 | 0 | 0.11 | 0.004 |
| CB12(MS) | JUNCTION | 69.90 | 109.18 | 0 01:10 | 0.116 | 0.15 | -0.118 |
| CB14 | JUNCTION | 0.00 | 50.95 | 0 01:08 | 0 | 0.0887 | -0.024 |
| CB14(MS) | JUNCTION | 39.26 | 95.11 | 0 01:11 | 0.0698 | 0.114 | 0.268 |
| CB15(x2-DICBs) | JUNCTION | 61.75 | 109.61 | 0 01:14 | 0.0892 | 0.136 | 0.001 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|----------------|----------|-------|--------|---|-------|--------|--------|--------|
| CB16(2x-DICBs) | JUNCTION | 0.00 | 44.53 | 0 | 01:09 | 0 | 0.0717 | 0.005 |
| CB16(MS) | JUNCTION | 48.69 | 51.27 | 0 | 01:10 | 0.0698 | 0.074 | -0.320 |
| CB18 | JUNCTION | 0.00 | 50.34 | 0 | 01:08 | 0 | 0.0994 | -0.008 |
| CB18(MS) | JUNCTION | 27.27 | 112.66 | 0 | 01:11 | 0.0527 | 0.121 | 0.692 |
| CB2 | JUNCTION | 9.69 | 9.69 | 0 | 01:10 | 0.0123 | 0.0124 | -0.013 |
| CB20 | JUNCTION | 0.00 | 33.46 | 0 | 01:11 | 0 | 0.0701 | -0.002 |
| CB20(MS) | JUNCTION | 27.16 | 49.31 | 0 | 01:13 | 0.0605 | 0.0822 | 0.503 |
| CB22 | JUNCTION | 0.00 | 62.05 | 0 | 01:13 | 0 | 0.13 | 0.003 |
| CB22(MS) | JUNCTION | 46.13 | 107.61 | 0 | 01:13 | 0.0857 | 0.168 | -0.213 |
| CB24 | JUNCTION | 0.00 | 55.13 | 0 | 01:12 | 0 | 0.172 | 0.010 |
| CB24(MS) | JUNCTION | 92.56 | 149.69 | 0 | 01:12 | 0.238 | 0.289 | 0.003 |
| CB26 | JUNCTION | 0.00 | 59.72 | 0 | 01:10 | 0 | 0.13 | 0.006 |
| CB26(MS) | JUNCTION | 78.90 | 78.90 | 0 | 01:10 | 0.136 | 0.137 | -0.034 |
| CB28 | JUNCTION | 0.00 | 45.44 | 0 | 01:12 | 0 | 0.104 | -0.001 |
| CB28(MS) | JUNCTION | 49.34 | 49.34 | 0 | 01:12 | 0.108 | 0.108 | -0.000 |
| CB29 | JUNCTION | 0.00 | 13.32 | 0 | 01:07 | 0 | 0.0214 | 0.002 |
| CB29(MS) | JUNCTION | 24.18 | 24.18 | 0 | 01:10 | 0.0288 | 0.0288 | -0.117 |
| CB29B(L) | JUNCTION | 13.66 | 13.66 | 0 | 01:10 | 0.0215 | 0.0215 | -0.348 |
| CB3 | JUNCTION | 28.98 | 28.98 | 0 | 01:10 | 0.0371 | 0.0371 | 0.038 |
| CB30 | JUNCTION | 0.00 | 16.91 | 0 | 01:10 | 0 | 0.0272 | 0.029 |
| CB30(MS) | JUNCTION | 29.01 | 30.13 | 0 | 01:10 | 0.0345 | 0.0357 | -0.001 |
| CB31 | JUNCTION | 0.00 | 22.53 | 0 | 01:09 | 0 | 0.0345 | 0.003 |
| CB31(MS) | JUNCTION | 33.85 | 46.52 | 0 | 01:10 | 0.0403 | 0.0488 | 0.324 |
| CB31B(L) | JUNCTION | 22.28 | 22.28 | 0 | 01:10 | 0.0406 | 0.0406 | -0.004 |
| CB32 | JUNCTION | 24.29 | 47.06 | 0 | 01:10 | 0.0298 | 0.044 | -0.043 |
| CB34 | JUNCTION | 0.00 | 47.67 | 0 | 01:13 | 0 | 0.0917 | 0.004 |
| CB34(MS) | JUNCTION | 49.90 | 75.23 | 0 | 01:12 | 0.0787 | 0.113 | -0.375 |
| CB35 | JUNCTION | 0.00 | 11.54 | 0 | 01:10 | 0 | 0.0158 | 0.001 |
| CB35(MS) | JUNCTION | 14.50 | 14.50 | 0 | 01:10 | 0.0174 | 0.0174 | -0.043 |
| CB36 | JUNCTION | 0.00 | 12.86 | 0 | 01:10 | 0 | 0.0195 | 0.001 |
| CB36(MS) | JUNCTION | 19.15 | 22.01 | 0 | 01:10 | 0.0232 | 0.0248 | -0.358 |
| CB39 | JUNCTION | 0.00 | 20.87 | 0 | 01:05 | 0 | 0.0528 | 0.044 |
| CB39(MS) | JUNCTION | 58.13 | 58.13 | 0 | 01:10 | 0.0828 | 0.0828 | 0.014 |
| CB40 | JUNCTION | 0.00 | 8.09 | 0 | 01:10 | 0 | 0.0108 | 0.001 |
| CB40(MS) | JUNCTION | 9.69 | 9.69 | 0 | 01:10 | 0.0116 | 0.0116 | -0.072 |
| CB41 | JUNCTION | 0.00 | 12.84 | 0 | 01:10 | 0 | 0.0194 | 0.001 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|----------|----------|--------|--------|---|-------|---------|---------|---------|
| CB41(MS) | JUNCTION | 19.15 | 20.71 | 0 | 01:10 | 0.0232 | 0.0241 | -0.284 |
| CB42 | JUNCTION | 0.00 | 19.60 | 0 | 01:06 | 0 | 0.0512 | 0.028 |
| CB42(MS) | JUNCTION | 58.08 | 58.08 | 0 | 01:10 | 0.0828 | 0.0828 | 0.010 |
| CB45 | JUNCTION | 0.00 | 37.91 | 0 | 01:11 | 0 | 0.068 | -0.001 |
| CB45(MS) | JUNCTION | 42.98 | 58.59 | 0 | 01:10 | 0.071 | 0.0786 | -0.019 |
| CB47 | JUNCTION | 0.00 | 27.85 | 0 | 01:11 | 0 | 0.0536 | 0.004 |
| CB47(MS) | JUNCTION | 27.00 | 37.68 | 0 | 01:10 | 0.0525 | 0.0581 | 0.128 |
| CB49 | JUNCTION | 0.00 | 10.52 | 0 | 01:07 | 0 | 0.0213 | 0.031 |
| CB49(MS) | JUNCTION | 28.95 | 28.95 | 0 | 01:10 | 0.0377 | 0.0377 | 0.020 |
| CB5 | JUNCTION | 24.49 | 24.49 | 0 | 01:10 | 0.0327 | 0.0327 | 0.020 |
| CB51 | JUNCTION | 0.00 | 25.04 | 0 | 01:11 | 0 | 0.0379 | -0.001 |
| CB51(MS) | JUNCTION | 29.41 | 30.91 | 0 | 01:10 | 0.0396 | 0.0405 | -0.370 |
| CB53 | JUNCTION | 0.00 | 34.61 | 0 | 01:05 | 0 | 0.059 | -0.004 |
| CB53(MS) | JUNCTION | 43.10 | 47.03 | 0 | 01:10 | 0.0564 | 0.0592 | 0.412 |
| CB55 | JUNCTION | 23.96 | 23.96 | 0 | 01:10 | 0.0298 | 0.0298 | 0.009 |
| CB56 | JUNCTION | 0.00 | 5.23 | 0 | 01:10 | 0 | 0.00109 | -0.098 |
| CB58 | JUNCTION | 0.00 | 9.88 | 0 | 01:10 | 0 | 0.00737 | -0.001 |
| CB58(MS) | JUNCTION | 4.80 | 10.05 | 0 | 01:10 | 0.00545 | 0.00737 | -0.029 |
| CB6 | JUNCTION | 19.71 | 19.71 | 0 | 01:10 | 0.0271 | 0.0271 | -9.382 |
| CB60 | JUNCTION | 0.00 | 22.77 | 0 | 01:09 | 0 | 0.0311 | 0.040 |
| CB60(MS) | JUNCTION | 26.36 | 26.36 | 0 | 01:10 | 0.0327 | 0.0327 | 0.106 |
| CB62 | JUNCTION | 0.00 | 51.27 | 0 | 01:10 | 0 | 0.11 | 0.005 |
| CB62(MS) | JUNCTION | 115.68 | 138.02 | 0 | 01:10 | 0.154 | 0.174 | -0.084 |
| CB63 | JUNCTION | 0.00 | 19.45 | 0 | 01:10 | 0 | 0.0343 | 0.000 |
| CB63(MS) | JUNCTION | 34.26 | 54.41 | 0 | 01:10 | 0.0441 | 0.0566 | -0.138 |
| CB65 | JUNCTION | 0.00 | 51.70 | 0 | 01:05 | 0 | 0.122 | -0.001 |
| CB65(MS) | JUNCTION | 128.38 | 212.96 | 0 | 01:10 | 0.177 | 0.24 | -0.001 |
| CB67 | JUNCTION | 0.00 | 24.58 | 0 | 01:07 | 0 | 0.0413 | 0.066 |
| CB67(MS) | JUNCTION | 43.19 | 43.19 | 0 | 01:10 | 0.0556 | 0.0556 | -0.244 |
| CB69 | JUNCTION | 0.00 | 22.26 | 0 | 01:07 | 0 | 0.0269 | -0.018 |
| CB69(MS) | JUNCTION | 18.77 | 29.00 | 0 | 01:10 | 0.0217 | 0.0272 | 1.096 |
| CB70 | JUNCTION | 0.00 | 31.90 | 0 | 01:09 | 0 | 0.0515 | 0.002 |
| CB70(MS) | JUNCTION | 41.92 | 285.64 | 0 | 01:10 | 0.0462 | 0.193 | -0.013 |
| CB71 | JUNCTION | 0.00 | 17.01 | 0 | 01:07 | 0 | 0.0287 | 0.253 |
| CB71(MS) | JUNCTION | 33.51 | 33.51 | 0 | 01:10 | 0.0402 | 0.0402 | 0.375 |
| CB73 | JUNCTION | 0.00 | 30.98 | 0 | 01:09 | 0 | 0.0459 | -20.773 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | |
|----------------|----------|--------|--------|---|-------|--------|----------|-----------|
| CB73(MS) | JUNCTION | 35.75 | 58.01 | 0 | 01:10 | 0.0399 | 0.0529 | 0.171 |
| CB74(4x-DICBs) | JUNCTION | 39.08 | 414.92 | 0 | 01:11 | 0.0606 | 0.301 | 0.122 |
| CB75 | JUNCTION | 0.00 | 34.03 | 0 | 01:07 | 0 | 0.0656 | 0.009 |
| CB75(MS) | JUNCTION | 62.27 | 355.66 | 0 | 01:10 | 0.0854 | 0.261 | 0.154 |
| CB76 | JUNCTION | 0.00 | 24.07 | 0 | 01:11 | 0 | 0.0502 | 0.000 |
| CB76(MS) | JUNCTION | 45.49 | 64.47 | 0 | 01:10 | 0.0666 | 0.0837 | 0.015 |
| CB77 | JUNCTION | 0.00 | 21.27 | 0 | 01:09 | 0 | 0.0419 | 0.009 |
| CB77(MS) | JUNCTION | 39.83 | 41.50 | 0 | 01:10 | 0.0511 | 0.0591 | 0.058 |
| CB78 | JUNCTION | 53.81 | 86.81 | 0 | 01:10 | 0.0693 | 0.0921 | 0.059 |
| CB79 | JUNCTION | 0.00 | 21.13 | 0 | 01:05 | 0 | 0.0476 | 0.531 |
| CB79(MS) | JUNCTION | 57.28 | 83.09 | 0 | 01:11 | 0.0735 | 0.0887 | -0.107 |
| CB8 | JUNCTION | 29.33 | 29.33 | 0 | 01:10 | 0.0388 | 0.0388 | -0.004 |
| CB80 | JUNCTION | 0.00 | 21.57 | 0 | 01:08 | 0 | 0.039 | 0.064 |
| CB80(MS) | JUNCTION | 42.44 | 42.44 | 0 | 01:10 | 0.0516 | 0.0516 | 0.203 |
| CB82 | JUNCTION | 25.27 | 35.10 | 0 | 01:10 | 0.033 | 0.0371 | 0.001 |
| CBMH1 | JUNCTION | 130.45 | 130.45 | 0 | 01:10 | 0.252 | 0.252 | 0.000 |
| CBMH4 | JUNCTION | 24.18 | 24.18 | 0 | 01:10 | 0.0309 | 0.0309 | -0.012 |
| CBMH7 | JUNCTION | 28.88 | 28.88 | 0 | 01:10 | 0.0367 | 0.0368 | -0.003 |
| HP01 | JUNCTION | 0.00 | 6.14 | 0 | 01:10 | 0 | 0.000764 | 0.808 |
| HP02 | JUNCTION | 0.00 | 4.94 | 0 | 01:12 | 0 | 0.00213 | 0.275 |
| HP03 | JUNCTION | 0.00 | 24.49 | 0 | 01:11 | 0 | 0.0124 | 0.038 |
| HP04 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| J1 | JUNCTION | 0.00 | 820.74 | 0 | 01:12 | 0 | 2.13 | 0.009 |
| J10 | JUNCTION | 0.00 | 10.27 | 0 | 01:08 | 0 | 0.00131 | 0.031 |
| J11 | JUNCTION | 0.00 | 9.09 | 0 | 01:07 | 0 | 0.00198 | -0.006 |
| J12 | JUNCTION | 0.00 | 12.27 | 0 | 01:10 | 0 | 0.00377 | -0.051 |
| J13 | JUNCTION | 0.00 | 13.14 | 0 | 01:10 | 0 | 0.0046 | -0.002 |
| J14 | JUNCTION | 0.00 | 52.80 | 0 | 01:10 | 0 | 0.08 | -0.195 |
| J15 | JUNCTION | 44.41 | 61.92 | 0 | 01:10 | 0.0645 | 0.08 | 0.071 |
| J16 | JUNCTION | 0.00 | 41.08 | 0 | 01:11 | 0 | 0.0255 | 1.130 |
| J3 | JUNCTION | 0.00 | 94.16 | 0 | 01:10 | 0 | 0.153 | 0.958 |
| J5 | JUNCTION | 69.36 | 69.36 | 0 | 01:10 | 0.1 | 0.1 | 0.004 |
| J6 | JUNCTION | 0.00 | 13.04 | 0 | 01:10 | 0 | 0.0042 | 0.003 |
| J7 | JUNCTION | 0.00 | 9.29 | 0 | 01:06 | 0 | 0.00252 | -0.030 |
| J8 | JUNCTION | 0.00 | 8.83 | 0 | 01:07 | 0 | 0.00217 | 0.005 |
| J9 | JUNCTION | 0.00 | 4.37 | 0 | 01:12 | 0 | 0.000395 | -0.013 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | |
|--------------|----------|-------|---------|---|-------|--------|--------|--------|
| MH100 | JUNCTION | 0.00 | 51.79 | 0 | 01:10 | 0 | 0.0994 | -0.071 |
| MH102 | JUNCTION | 0.00 | 148.47 | 0 | 01:10 | 0 | 0.281 | 0.010 |
| MH104 | JUNCTION | 0.00 | 51.69 | 0 | 01:10 | 0 | 0.0995 | -0.109 |
| MH106 | JUNCTION | 0.00 | 197.02 | 0 | 01:10 | 0 | 0.381 | -0.005 |
| MH108 | JUNCTION | 0.00 | 289.31 | 0 | 01:10 | 0 | 0.491 | 0.058 |
| MH110 | JUNCTION | 0.00 | 821.02 | 0 | 01:12 | 0 | 2.22 | -0.091 |
| MH110B | JUNCTION | 0.00 | 873.83 | 0 | 01:10 | 0 | 2.42 | -0.001 |
| MH112B | JUNCTION | 0.00 | 916.61 | 0 | 01:10 | 0 | 2.55 | 0.048 |
| MH114 | JUNCTION | 0.00 | 1131.38 | 0 | 01:13 | 0 | 3.04 | -0.016 |
| MH118 | JUNCTION | 0.00 | 1597.72 | 0 | 01:13 | 0 | 3.94 | 0.000 |
| MH122 | JUNCTION | 0.00 | 349.75 | 0 | 01:11 | 0 | 0.651 | 0.017 |
| MH122B | JUNCTION | 0.00 | 473.91 | 0 | 01:11 | 0 | 0.903 | -0.017 |
| MH124 | JUNCTION | 0.00 | 118.68 | 0 | 01:15 | 0 | 0.348 | -0.003 |
| MH126 | JUNCTION | 18.27 | 79.37 | 0 | 01:14 | 0.0323 | 0.276 | 0.010 |
| MH128 | JUNCTION | 0.00 | 793.86 | 0 | 01:12 | 0 | 2.02 | -0.009 |
| MH128(DUMMY) | JUNCTION | 0.00 | 47.37 | 0 | 01:14 | 0 | 0.0917 | -0.035 |
| MH130 | JUNCTION | 0.00 | 561.28 | 0 | 01:14 | 0 | 1.51 | -0.008 |
| MH132 | JUNCTION | 0.00 | 499.94 | 0 | 01:14 | 0 | 1.28 | 0.005 |
| MH136 | JUNCTION | 0.00 | 17.20 | 0 | 01:10 | 0 | 0.0512 | 0.000 |
| MH140 | JUNCTION | 0.00 | 20.33 | 0 | 01:11 | 0 | 0.0302 | -0.005 |
| MH144 | JUNCTION | 0.00 | 350.31 | 0 | 01:11 | 0 | 0.651 | -0.011 |
| MH148 | JUNCTION | 0.00 | 23.57 | 0 | 01:11 | 0 | 0.0352 | -0.005 |
| MH152 | JUNCTION | 0.00 | 17.23 | 0 | 01:10 | 0 | 0.0528 | 0.000 |
| MH164 | JUNCTION | 0.00 | 480.56 | 0 | 01:13 | 0 | 1.25 | -0.017 |
| MH166 | JUNCTION | 0.00 | 290.99 | 0 | 01:13 | 0 | 0.671 | -0.002 |
| MH168 | JUNCTION | 0.00 | 287.22 | 0 | 01:13 | 0 | 0.66 | 0.053 |
| MH170 | JUNCTION | 0.00 | 211.36 | 0 | 01:11 | 0 | 0.465 | -0.071 |
| MH172 | JUNCTION | 0.00 | 160.97 | 0 | 01:11 | 0 | 0.295 | 0.031 |
| MH174 | JUNCTION | 0.00 | 149.93 | 0 | 01:10 | 0 | 0.266 | 0.073 |
| MH176 | JUNCTION | 0.00 | 69.42 | 0 | 01:12 | 0 | 0.319 | 0.049 |
| MH178 | JUNCTION | 0.00 | 125.56 | 0 | 01:12 | 0 | 0.449 | -0.001 |
| MH180 | JUNCTION | 0.00 | 48.83 | 0 | 01:12 | 0 | 0.0968 | -0.786 |
| MH182 | JUNCTION | 0.00 | 100.73 | 0 | 01:17 | 0 | 0.199 | 0.353 |
| MH220 | JUNCTION | 0.00 | 33.85 | 0 | 01:10 | 0 | 0.0616 | 0.486 |
| MH222 | JUNCTION | 0.00 | 64.56 | 0 | 01:09 | 0 | 0.133 | -0.196 |
| MH224 | JUNCTION | 0.00 | 27.05 | 0 | 01:04 | 0 | 0.0318 | 0.044 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | |
|--------------|----------|-------|---------|---|-------|--------|--------|-----------|
| MH226 | JUNCTION | 0.00 | 12.68 | 0 | 01:08 | 0 | 0.0214 | -0.078 |
| MH228 | JUNCTION | 0.00 | 24.99 | 0 | 01:09 | 0 | 0.043 | 0.031 |
| MH230 | JUNCTION | 0.00 | 145.56 | 0 | 01:10 | 0 | 0.282 | 0.013 |
| MH238 | JUNCTION | 0.00 | 1597.71 | 0 | 01:13 | 0 | 3.94 | 0.000 |
| MH242 | JUNCTION | 0.00 | 1597.79 | 0 | 01:13 | 0 | 3.94 | 0.000 |
| MH246 | JUNCTION | 0.00 | 142.11 | 0 | 01:09 | 0 | 0.281 | -0.027 |
| MH248 | JUNCTION | 0.00 | 339.41 | 0 | 01:13 | 0 | 0.767 | 0.020 |
| MH250 | JUNCTION | 0.00 | 69.50 | 0 | 01:12 | 0 | 0.318 | -0.056 |
| MH300 | JUNCTION | 0.00 | 25.00 | 0 | 01:11 | 0 | 0.0402 | -0.001 |
| MH302 | JUNCTION | 0.00 | 24.96 | 0 | 01:12 | 0 | 0.0402 | 0.028 |
| MH304 | JUNCTION | 0.00 | 80.04 | 0 | 01:11 | 0 | 0.194 | -0.002 |
| MH306 | JUNCTION | 0.00 | 156.84 | 0 | 01:10 | 0 | 0.308 | 0.040 |
| MH308 | JUNCTION | 0.00 | 196.58 | 0 | 01:08 | 0 | 0.43 | -0.025 |
| MH310 | JUNCTION | 0.00 | 351.70 | 0 | 01:09 | 0 | 0.868 | -0.008 |
| MH312 | JUNCTION | 0.00 | 18.43 | 0 | 01:11 | 0 | 0.0389 | 0.019 |
| MH314 | JUNCTION | 0.00 | 37.28 | 0 | 01:11 | 0 | 0.0732 | 0.011 |
| MH314(DUMMY) | JUNCTION | 0.00 | 79.23 | 0 | 01:16 | 0 | 0.165 | -0.070 |
| MH316 | JUNCTION | 0.00 | 106.89 | 0 | 01:17 | 0 | 0.228 | -0.071 |
| MH318 | JUNCTION | 0.00 | 12.10 | 0 | 01:17 | 0 | 0.0309 | -0.609 |
| MH320 | JUNCTION | 0.00 | 106.93 | 0 | 01:17 | 0 | 0.232 | 0.043 |
| MH322 | JUNCTION | 0.00 | 124.17 | 0 | 01:17 | 0 | 0.273 | -0.056 |
| MH324 | JUNCTION | 0.00 | 18.42 | 0 | 01:11 | 0 | 0.0419 | -0.002 |
| MH326 | JUNCTION | 32.56 | 82.47 | 0 | 01:12 | 0.0728 | 0.28 | -0.053 |
| MH328 | JUNCTION | 23.50 | 102.20 | 0 | 01:10 | 0.036 | 0.316 | 0.036 |
| MH328(DUMMY) | JUNCTION | 0.00 | 123.69 | 0 | 01:10 | 0 | 0.382 | 0.106 |
| MH330 | JUNCTION | 0.00 | 35.78 | 0 | 01:14 | 0 | 0.115 | -2.243 |
| MH332 | JUNCTION | 0.00 | 428.43 | 0 | 01:12 | 0 | 0.416 | -0.470 |
| MH334 | JUNCTION | 0.00 | 884.10 | 0 | 01:12 | 0 | 1.65 | -0.150 |
| MH336 | JUNCTION | 0.00 | 884.10 | 0 | 01:12 | 0 | 1.65 | 0.176 |
| MH338 | JUNCTION | 0.00 | 884.15 | 0 | 01:12 | 0 | 1.65 | -0.079 |
| MH340 | JUNCTION | 0.00 | 884.18 | 0 | 01:12 | 0 | 1.64 | -0.005 |
| MH400 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| MH402 | JUNCTION | 0.00 | 15.91 | 0 | 01:10 | 0 | 0.0329 | -0.001 |
| MH404 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| MH406 | JUNCTION | 0.00 | 16.22 | 0 | 01:10 | 0 | 0.0305 | -0.001 |
| MH408 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | | |
|------------------|----------|--------|---------|---|-------|--------|----------|-----------|
| MH410 | JUNCTION | 0.00 | 11.87 | 0 | 01:09 | 0 | 0.028 | 1.551 |
| MH412 | JUNCTION | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| MH414 | JUNCTION | 0.00 | 16.17 | 0 | 01:10 | 0 | 0.0342 | 0.078 |
| VortechsPh1 | JUNCTION | 0.00 | 476.48 | 0 | 01:13 | 0 | 2.34 | -0.003 |
| VortechsPh2 | JUNCTION | 0.00 | 59.44 | 0 | 01:12 | 0 | 0.131 | -0.794 |
| Clegg | OUTFALL | 0.00 | 4.63 | 0 | 01:12 | 0 | 0.00213 | 0.000 |
| MainNorth | OUTFALL | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| MainSouth | OUTFALL | 0.00 | 3.80 | 0 | 01:12 | 0 | 0.00427 | 0.000 |
| Out1 | OUTFALL | 0.00 | 24.48 | 0 | 01:11 | 0 | 0.0123 | 0.000 |
| Out2 | OUTFALL | 0.00 | 5.94 | 0 | 01:10 | 0 | 0.000746 | 0.000 |
| Out3 | OUTFALL | 0.00 | 0.00 | 0 | 00:00 | 0 | 0 | 0.000 ltr |
| Outlet1-Phase1 | OUTFALL | 0.00 | 1597.83 | 0 | 01:13 | 0 | 3.94 | 0.000 |
| Outlet2-Phase2&3 | OUTFALL | 0.00 | 884.18 | 0 | 01:12 | 0 | 1.64 | 0.000 |
| A04(STOR) | STORAGE | 49.39 | 51.79 | 0 | 01:10 | 0.0717 | 0.0997 | 0.160 |
| A06(STOR) | STORAGE | 101.70 | 101.70 | 0 | 01:10 | 0.183 | 0.183 | 0.004 |
| A09B(STOR) | STORAGE | 64.46 | 64.46 | 0 | 01:10 | 0.0932 | 0.0932 | -0.006 |
| A09C(STOR) | STORAGE | 39.68 | 39.68 | 0 | 01:10 | 0.0574 | 0.0574 | -0.004 |
| A10(STOR) | STORAGE | 44.64 | 44.64 | 0 | 01:10 | 0.0645 | 0.0645 | -0.004 |
| A11B(STOR) | STORAGE | 24.79 | 26.89 | 0 | 01:10 | 0.0358 | 0.0628 | 0.056 |
| A14(STOR) | STORAGE | 206.21 | 206.21 | 0 | 01:10 | 0.357 | 0.357 | 0.003 |
| A16C(STOR) | STORAGE | 24.80 | 24.80 | 0 | 01:10 | 0.0358 | 0.0358 | -0.020 |
| A22A(STOR) | STORAGE | 66.23 | 66.23 | 0 | 01:10 | 0.1 | 0.1 | 0.010 |
| B21(STOR) | STORAGE | 72.17 | 72.17 | 0 | 01:10 | 0.115 | 0.115 | 0.010 |
| B23(STOR) | STORAGE | 84.21 | 84.21 | 0 | 01:10 | 0.122 | 0.146 | 0.034 |
| B25(STOR) | STORAGE | 29.76 | 29.76 | 0 | 01:10 | 0.043 | 0.043 | -0.005 |
| J2 | STORAGE | 14.88 | 14.88 | 0 | 01:10 | 0.0215 | 0.0245 | -0.230 |
| J4 | STORAGE | 9.92 | 9.92 | 0 | 01:10 | 0.0143 | 0.0173 | -1.041 |

Node Surcharge Summary

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

Max. Height Min. Depth

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| Node | Type | Hours | Above Crown | Below Rim |
|--------------|----------|------------|-------------|-----------|
| | | Surcharged | Meters | Meters |
| CB29B(L) | JUNCTION | 0.20 | 0.902 | 0.923 |
| J1 | JUNCTION | 0.23 | 0.616 | 2.440 |
| J3 | JUNCTION | 0.02 | 0.008 | 1.550 |
| MH100 | JUNCTION | 0.20 | 0.497 | 0.913 |
| MH104 | JUNCTION | 0.23 | 0.539 | 2.270 |
| MH106 | JUNCTION | 0.21 | 0.489 | 1.528 |
| MH110 | JUNCTION | 0.19 | 0.291 | 2.695 |
| MH122 | JUNCTION | 0.11 | 0.100 | 2.927 |
| MH166 | JUNCTION | 0.06 | 0.018 | 2.599 |
| MH168 | JUNCTION | 0.09 | 0.037 | 2.659 |
| MH172 | JUNCTION | 0.07 | 0.043 | 2.620 |
| MH180 | JUNCTION | 0.08 | 0.211 | 1.249 |
| MH182 | JUNCTION | 0.14 | 0.303 | 1.684 |
| MH220 | JUNCTION | 0.28 | 0.586 | 1.414 |
| MH222 | JUNCTION | 0.47 | 0.749 | 0.911 |
| MH224 | JUNCTION | 0.39 | 0.881 | 0.614 |
| MH226 | JUNCTION | 0.14 | 0.357 | 1.851 |
| MH228 | JUNCTION | 0.19 | 0.483 | 1.057 |
| MH230 | JUNCTION | 0.28 | 0.690 | 2.603 |
| MH246 | JUNCTION | 0.26 | 0.743 | 3.318 |
| MH308 | JUNCTION | 0.09 | 0.270 | 2.140 |
| MH310 | JUNCTION | 0.67 | 1.043 | 1.124 |
| MH314(DUMMY) | JUNCTION | 0.33 | 0.997 | 0.603 |
| MH316 | JUNCTION | 0.38 | 1.092 | 0.898 |
| MH318 | JUNCTION | 24.00 | 1.549 | 0.273 |
| MH320 | JUNCTION | 24.00 | 1.830 | 0.803 |
| MH322 | JUNCTION | 24.00 | 1.835 | 0.907 |
| MH328 | JUNCTION | 0.22 | 0.934 | 1.059 |
| MH328(DUMMY) | JUNCTION | 24.00 | 1.558 | 0.577 |
| MH330 | JUNCTION | 24.00 | 1.513 | 0.352 |
| MH332 | JUNCTION | 24.00 | 1.653 | 0.257 |
| MH334 | JUNCTION | 24.00 | 1.652 | 0.237 |
| MH336 | JUNCTION | 24.00 | 0.845 | 0.415 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

| | | | | |
|-------------|----------|-------|-------|-------|
| MH338 | JUNCTION | 24.00 | 0.829 | 0.381 |
| MH340 | JUNCTION | 24.00 | 1.116 | 0.155 |
| VortechsPh1 | JUNCTION | 0.84 | 0.238 | 3.552 |
| VortechsPh2 | JUNCTION | 24.00 | 1.580 | 0.430 |

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

| Storage Unit | Average | Avg Evap | Exfil | Maximum | Max | Time of Max | Maximum | | |
|--------------|---------|----------|-------|---------|---------|-------------|-------------|--------|--|
| | Volume | Pcnt | Pcnt | Volume | Pcnt | Occurrence | Outflow | | |
| | 1000 m3 | Full | Loss | Loss | 1000 m3 | Full | days hr:min | LPS | |
| A04(STOR) | 0.015 | 21 | 0 | 0 | 0.045 | 62 | 0 01:26 | 11.20 | |
| A06(STOR) | 0.000 | 0 | 0 | 0 | 0.009 | 1 | 0 01:11 | 73.20 | |
| A09B(STOR) | 0.002 | 1 | 0 | 0 | 0.043 | 23 | 0 01:26 | 10.40 | |
| A09C(STOR) | 0.002 | 1 | 0 | 0 | 0.027 | 23 | 0 01:25 | 6.40 | |
| A10(STOR) | 0.002 | 1 | 0 | 0 | 0.030 | 23 | 0 01:25 | 7.20 | |
| A11B(STOR) | 0.006 | 11 | 0 | 0 | 0.022 | 40 | 0 01:21 | 7.73 | |
| A14(STOR) | 0.000 | 0 | 0 | 0 | 0.006 | 0 | 0 01:10 | 176.00 | |
| A16C(STOR) | 0.000 | 0 | 0 | 0 | 0.000 | 1 | 0 01:10 | 24.80 | |
| A22A(STOR) | 0.005 | 5 | 0 | 0 | 0.056 | 53 | 0 01:37 | 8.84 | |
| B21(STOR) | 0.006 | 5 | 0 | 0 | 0.063 | 50 | 0 01:40 | 10.17 | |
| B23(STOR) | 0.019 | 39 | 0 | 0 | 0.049 | 99 | 0 01:10 | 83.44 | |
| B25(STOR) | 0.001 | 1 | 0 | 0 | 0.020 | 23 | 0 01:25 | 4.80 | |
| J2 | 0.004 | 8 | 0 | 0 | 0.013 | 29 | 0 01:30 | 2.10 | |
| J4 | 0.003 | 7 | 0 | 0 | 0.008 | 17 | 0 01:20 | 2.40 | |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output

100-year, 3-Hour Chicago Storm

Outfall Loading Summary

| Outfall Node | Flow Freq | Avg Flow | Max Flow | Total Volume |
|------------------|-----------|----------|----------|--------------|
| | Pcnt | LPS | LPS | 10^6 ltr |
| Clegg | 3.43 | 0.71 | 4.63 | 0.002 |
| MainNorth | 0.00 | 0.00 | 0.00 | 0.000 |
| MainSouth | 4.38 | 1.12 | 3.80 | 0.004 |
| Out1 | 1.44 | 9.94 | 24.48 | 0.012 |
| Out2 | 0.43 | 2.00 | 5.94 | 0.001 |
| Out3 | 0.00 | 0.00 | 0.00 | 0.000 |
| Outlet1-Phase1 | 42.73 | 106.72 | 1597.83 | 3.941 |
| Outlet2-Phase2&3 | 97.15 | 19.60 | 884.18 | 1.645 |
| System | 18.69 | 140.08 | 2496.16 | 5.605 |

Link Flow Summary

| Link | Type | Maximum Flow LPS | Time of Occurrence days | Max Veloc m/sec | Maximum Full Flow | Max/ Full Depth |
|------|---------|--------------------|-------------------------|-------------------|-------------------|-----------------|
| 1 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.05 |
| 10 | CONDUIT | 9.29 | 0 01:06 | 0.07 | 0.00 | 0.10 |
| 11 | CONDUIT | 16.22 | 0 01:10 | 1.19 | 0.22 | 0.32 |
| 12 | CONDUIT | 8.25 | 0 01:10 | 0.15 | 0.00 | 0.05 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|-----------|---------|-------|---|-------|------|------|------|
| 13 | CONDUIT | 13.01 | 0 | 01:10 | 0.20 | 0.00 | 0.06 |
| 14 | CONDUIT | 0.42 | 0 | 01:15 | 0.02 | 0.00 | 0.05 |
| 15 | CONDUIT | 8.66 | 0 | 01:10 | 0.30 | 0.00 | 0.02 |
| 16 | CONDUIT | 8.83 | 0 | 01:07 | 0.06 | 0.00 | 0.10 |
| 18 | CONDUIT | 3.61 | 0 | 01:11 | 0.10 | 0.01 | 0.08 |
| 19 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.24 |
| 2 | CONDUIT | 15.91 | 0 | 01:10 | 1.17 | 0.19 | 0.32 |
| 20 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.07 |
| 22 | CONDUIT | 11.87 | 0 | 01:10 | 1.20 | 0.14 | 0.25 |
| 23 | CONDUIT | 7.83 | 0 | 01:10 | 0.09 | 0.00 | 0.07 |
| 24 | CONDUIT | 4.37 | 0 | 01:12 | 0.01 | 0.00 | 0.27 |
| 25 | CONDUIT | 10.27 | 0 | 01:08 | 0.03 | 0.00 | 0.27 |
| 28 | CONDUIT | 12.20 | 0 | 01:10 | 0.13 | 0.00 | 0.09 |
| 29 | CONDUIT | 9.09 | 0 | 01:07 | 0.05 | 0.00 | 0.12 |
| 3 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.11 |
| 30 | CONDUIT | 12.27 | 0 | 01:10 | 0.08 | 0.00 | 0.11 |
| 32 | CONDUIT | 13.14 | 0 | 01:10 | 0.08 | 0.00 | 0.11 |
| 33 | CONDUIT | 13.13 | 0 | 01:10 | 0.17 | 0.00 | 0.08 |
| 35 | CONDUIT | 52.80 | 0 | 01:10 | 0.22 | 0.17 | 0.63 |
| 37 | CONDUIT | 17.82 | 0 | 01:10 | 0.29 | 0.01 | 0.04 |
| 4 | CONDUIT | 13.04 | 0 | 01:10 | 0.07 | 0.00 | 0.13 |
| 5 | CONDUIT | 68.64 | 0 | 01:10 | 0.94 | 0.20 | 0.40 |
| 6 | CONDUIT | 69.35 | 0 | 01:10 | 2.40 | 0.88 | 0.87 |
| 7 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.10 |
| 9 | CONDUIT | 24.66 | 0 | 01:17 | 1.21 | 0.33 | 0.78 |
| A15A(OUT) | CONDUIT | 74.32 | 0 | 01:10 | 3.24 | 0.29 | 0.69 |
| B19(OUT) | CONDUIT | 78.28 | 0 | 01:10 | 1.73 | 0.69 | 0.61 |
| C01 | CHANNEL | 21.00 | 0 | 01:11 | 0.65 | 0.00 | 0.15 |
| C02 | CHANNEL | 10.17 | 0 | 01:18 | 0.56 | 0.00 | 0.11 |
| C03 | CHANNEL | 33.08 | 0 | 01:18 | 0.49 | 0.02 | 0.21 |
| C04 | CHANNEL | 55.85 | 0 | 01:11 | 0.32 | 0.03 | 0.29 |
| C05 | CHANNEL | 39.75 | 0 | 01:10 | 0.28 | 0.02 | 0.23 |
| C06 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.03 |
| C07 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C08 | CHANNEL | 49.68 | 0 | 01:16 | 0.59 | 0.01 | 0.24 |
| C09 | CHANNEL | 84.45 | 0 | 01:11 | 0.66 | 0.01 | 0.44 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|------|---------|--------|---|-------|------|------|------|
| C10 | CHANNEL | 30.45 | 0 | 01:13 | 0.27 | 0.01 | 0.19 |
| C100 | CHANNEL | 5.23 | 0 | 01:10 | 0.37 | 0.01 | 0.18 |
| C101 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C102 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.02 |
| C103 | CHANNEL | 5.51 | 0 | 01:10 | 0.55 | 0.00 | 0.06 |
| C104 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.02 |
| C105 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.05 |
| C106 | CHANNEL | 3.86 | 0 | 01:11 | 0.28 | 0.00 | 0.08 |
| C107 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.09 |
| C108 | CHANNEL | 85.85 | 0 | 01:10 | 0.98 | 0.01 | 0.17 |
| C109 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.07 |
| C11 | CHANNEL | 62.63 | 0 | 01:13 | 0.43 | 0.02 | 0.22 |
| C110 | CHANNEL | 34.61 | 0 | 01:10 | 0.76 | 0.00 | 0.12 |
| C111 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.13 |
| C112 | CHANNEL | 164.64 | 0 | 01:10 | 0.83 | 0.02 | 0.26 |
| C113 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.07 |
| C114 | CHANNEL | 15.88 | 0 | 01:10 | 0.13 | 0.00 | 0.20 |
| C115 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.20 |
| C116 | CHANNEL | 10.33 | 0 | 01:10 | 0.36 | 0.00 | 0.15 |
| C117 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.17 |
| C118 | CHANNEL | 255.30 | 0 | 01:10 | 0.94 | 0.03 | 0.30 |
| C119 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.11 |
| C12 | CHANNEL | 41.43 | 0 | 01:16 | 0.38 | 0.01 | 0.19 |
| C120 | CHANNEL | 23.17 | 0 | 01:10 | 0.49 | 0.01 | 0.13 |
| C121 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.08 |
| C122 | CHANNEL | 32.00 | 0 | 01:10 | 0.59 | 0.00 | 0.14 |
| C123 | CHANNEL | 326.84 | 0 | 01:11 | 0.93 | 0.19 | 0.49 |
| C124 | CONDUIT | 401.28 | 0 | 01:12 | 0.91 | 0.57 | 1.00 |
| C125 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.28 |
| C126 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.08 |
| C127 | CHANNEL | 39.25 | 0 | 01:11 | 0.43 | 0.01 | 0.26 |
| C128 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.09 |
| C129 | CHANNEL | 21.21 | 0 | 01:11 | 0.73 | 0.01 | 0.14 |
| C13 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C130 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.22 |
| C131 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.39 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | |
|--------|---------|---------|---|-------|------|------|------|
| C132 | CHANNEL | 58.78 | 0 | 01:11 | 0.34 | 0.11 | 0.38 |
| C133 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.09 |
| C134 | CHANNEL | 21.93 | 0 | 01:10 | 0.45 | 0.01 | 0.13 |
| C135 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C136 | CHANNEL | 5.94 | 0 | 01:10 | 0.70 | 0.01 | 0.14 |
| C137 | CHANNEL | 4.63 | 0 | 01:12 | 0.10 | 0.00 | 0.12 |
| C138 | CHANNEL | 24.48 | 0 | 01:11 | 0.86 | 0.03 | 0.25 |
| C139 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C14 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C140 | CONDUIT | 51.69 | 0 | 01:10 | 0.73 | 0.77 | 1.00 |
| C141 | CONDUIT | 142.11 | 0 | 01:09 | 1.29 | 1.12 | 1.00 |
| C142 | CONDUIT | 51.70 | 0 | 01:09 | 0.73 | 0.87 | 1.00 |
| C143 | CONDUIT | 196.78 | 0 | 01:10 | 1.24 | 1.09 | 1.00 |
| C144 | CONDUIT | 278.65 | 0 | 01:11 | 1.75 | 1.92 | 1.00 |
| C145_1 | CONDUIT | 93.11 | 0 | 01:13 | 0.98 | 0.73 | 0.83 |
| C145_2 | CONDUIT | 75.18 | 0 | 01:06 | 1.14 | 0.57 | 1.00 |
| C146 | CONDUIT | 785.34 | 0 | 01:10 | 1.57 | 0.65 | 1.00 |
| C147 | CONDUIT | 855.11 | 0 | 01:10 | 1.60 | 0.74 | 1.00 |
| C148 | CONDUIT | 910.00 | 0 | 01:13 | 1.70 | 1.21 | 1.00 |
| C149 | CONDUIT | 1129.97 | 0 | 01:13 | 1.78 | 0.67 | 1.00 |
| C15 | CHANNEL | 2.83 | 0 | 01:13 | 0.04 | 0.00 | 0.16 |
| C150 | CONDUIT | 1121.24 | 0 | 01:13 | 3.04 | 0.61 | 0.56 |
| C151 | CONDUIT | 476.48 | 0 | 01:13 | 1.69 | 1.33 | 1.00 |
| C152 | CONDUIT | 349.74 | 0 | 01:11 | 1.63 | 1.61 | 0.97 |
| C153 | CONDUIT | 473.56 | 0 | 01:12 | 1.67 | 1.43 | 1.00 |
| C154 | CONDUIT | 118.52 | 0 | 01:16 | 1.15 | 0.80 | 0.62 |
| C155 | CONDUIT | 79.04 | 0 | 01:15 | 1.09 | 0.65 | 0.62 |
| C156_1 | CONDUIT | 788.21 | 0 | 01:12 | 1.78 | 0.99 | 1.00 |
| C156_2 | CONDUIT | 821.02 | 0 | 01:12 | 1.86 | 0.97 | 1.00 |
| C157 | CONDUIT | 13.68 | 0 | 01:14 | 0.65 | 0.45 | 0.34 |
| C158 | CONDUIT | 33.67 | 0 | 01:14 | 0.77 | 0.50 | 0.60 |
| C159 | CONDUIT | 558.59 | 0 | 01:14 | 1.55 | 0.74 | 0.76 |
| C16 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C160 | CONDUIT | 499.69 | 0 | 01:14 | 1.19 | 0.82 | 0.91 |
| C161 | CONDUIT | 17.20 | 0 | 01:10 | 0.78 | 0.41 | 0.46 |
| C162 | CONDUIT | 20.19 | 0 | 01:11 | 0.81 | 0.48 | 0.50 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|------|---------|---------|---|-------|------|------|------|
| C163 | CONDUIT | 349.75 | 0 | 01:11 | 1.62 | 1.00 | 1.00 |
| C164 | CONDUIT | 23.40 | 0 | 01:11 | 0.84 | 0.56 | 0.55 |
| C165 | CONDUIT | 17.23 | 0 | 01:10 | 0.78 | 0.41 | 0.46 |
| C166 | CONDUIT | 482.08 | 0 | 01:14 | 1.14 | 0.85 | 0.92 |
| C167 | CONDUIT | 290.71 | 0 | 01:13 | 1.05 | 1.14 | 0.98 |
| C168 | CONDUIT | 287.12 | 0 | 01:13 | 1.02 | 0.90 | 1.00 |
| C169 | CONDUIT | 210.35 | 0 | 01:13 | 0.97 | 0.96 | 1.00 |
| C17 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C170 | CONDUIT | 157.85 | 0 | 01:10 | 1.11 | 0.99 | 1.00 |
| C171 | CONDUIT | 145.51 | 0 | 01:11 | 1.35 | 2.29 | 1.00 |
| C172 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.15 |
| C173 | CONDUIT | 69.50 | 0 | 01:12 | 1.05 | 0.35 | 0.44 |
| C174 | CONDUIT | 125.20 | 0 | 01:13 | 0.99 | 0.59 | 0.56 |
| C175 | CONDUIT | 52.51 | 0 | 01:18 | 0.96 | 0.89 | 1.00 |
| C176 | CONDUIT | 101.42 | 0 | 01:18 | 0.93 | 1.04 | 1.00 |
| C177 | CONDUIT | 33.83 | 0 | 01:09 | 0.75 | 0.80 | 1.00 |
| C178 | CONDUIT | 64.52 | 0 | 01:09 | 0.91 | 0.94 | 1.00 |
| C179 | CONDUIT | 17.37 | 0 | 01:04 | 0.61 | 0.41 | 1.00 |
| C18 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.11 |
| C180 | CONDUIT | 12.98 | 0 | 01:17 | 0.48 | 0.31 | 1.00 |
| C181 | CONDUIT | 25.00 | 0 | 01:09 | 0.68 | 0.58 | 1.00 |
| C182 | CONDUIT | 145.45 | 0 | 01:10 | 1.32 | 1.18 | 1.00 |
| C183 | CONDUIT | 1597.79 | 0 | 01:13 | 3.29 | 0.71 | 0.71 |
| C184 | CONDUIT | 1597.83 | 0 | 01:13 | 2.51 | 0.81 | 1.00 |
| C185 | CONDUIT | 142.02 | 0 | 01:09 | 1.29 | 1.18 | 1.00 |
| C186 | CONDUIT | 338.95 | 0 | 01:14 | 1.36 | 0.73 | 0.96 |
| C187 | CONDUIT | 69.20 | 0 | 01:14 | 1.06 | 0.36 | 0.43 |
| C188 | CONDUIT | 24.96 | 0 | 01:12 | 1.71 | 0.24 | 0.34 |
| C189 | CONDUIT | 24.95 | 0 | 01:12 | 1.10 | 0.31 | 0.48 |
| C19 | CHANNEL | 326.41 | 0 | 01:10 | 1.23 | 0.07 | 0.42 |
| C190 | CONDUIT | 79.99 | 0 | 01:11 | 1.83 | 0.46 | 0.74 |
| C191 | CONDUIT | 150.73 | 0 | 01:08 | 2.70 | 0.79 | 1.00 |
| C192 | CONDUIT | 192.87 | 0 | 01:09 | 1.80 | 0.65 | 1.00 |
| C193 | CONDUIT | 351.77 | 0 | 01:09 | 1.24 | 1.12 | 1.00 |
| C194 | CONDUIT | 18.43 | 0 | 01:11 | 1.25 | 0.18 | 0.35 |
| C195 | CONDUIT | 37.25 | 0 | 01:11 | 1.29 | 0.36 | 0.71 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|-------|---------|--------|---|-------|------|------|------|
| C196 | CONDUIT | 79.29 | 0 | 01:16 | 1.91 | 0.56 | 1.00 |
| C197 | CONDUIT | 106.93 | 0 | 01:17 | 0.97 | 0.92 | 1.00 |
| C198 | CONDUIT | 12.11 | 0 | 01:17 | 0.25 | 0.60 | 1.00 |
| C199 | CONDUIT | 107.01 | 0 | 01:17 | 0.97 | 0.83 | 1.00 |
| C20 | CHANNEL | 0.09 | 0 | 01:10 | 0.05 | 0.00 | 0.03 |
| C200 | CONDUIT | 124.28 | 0 | 01:17 | 1.13 | 1.35 | 1.00 |
| C201 | CONDUIT | 18.42 | 0 | 01:11 | 1.66 | 0.10 | 0.21 |
| C202 | CONDUIT | 82.47 | 0 | 01:12 | 2.11 | 0.27 | 0.68 |
| C203 | CONDUIT | 102.14 | 0 | 01:10 | 0.92 | 0.31 | 1.00 |
| C204 | CONDUIT | 123.68 | 0 | 01:10 | 1.12 | 0.46 | 1.00 |
| C205 | CONDUIT | 35.84 | 0 | 01:14 | 0.32 | 0.32 | 1.00 |
| C206 | CONDUIT | 428.25 | 0 | 01:12 | 0.97 | 0.51 | 1.00 |
| C207 | CONDUIT | 884.10 | 0 | 01:12 | 2.00 | 1.78 | 1.00 |
| C208 | CONDUIT | 59.44 | 0 | 01:12 | 0.37 | 1.85 | 1.00 |
| C209 | CONDUIT | 825.21 | 0 | 01:12 | 1.87 | 1.66 | 1.00 |
| C21 | CHANNEL | 0.01 | 0 | 01:23 | 0.03 | 0.00 | 0.04 |
| C210 | CONDUIT | 884.18 | 0 | 01:12 | 2.00 | 1.70 | 1.00 |
| C211 | CONDUIT | 884.18 | 0 | 01:12 | 2.00 | 1.36 | 1.00 |
| C212 | CONDUIT | 476.48 | 0 | 01:13 | 1.80 | 1.74 | 0.90 |
| C213 | CONDUIT | 59.21 | 0 | 01:10 | 0.37 | 1.84 | 1.00 |
| C22 | CHANNEL | 0.01 | 0 | 01:23 | 0.00 | 0.00 | 0.01 |
| C23 | CHANNEL | 23.11 | 0 | 01:10 | 0.42 | 0.00 | 0.14 |
| C24 | CHANNEL | 85.53 | 0 | 01:10 | 0.81 | 0.01 | 0.19 |
| C25 | CHANNEL | 1.21 | 0 | 01:10 | 0.13 | 0.00 | 0.05 |
| C26 | CHANNEL | 2.73 | 0 | 01:10 | 0.19 | 0.00 | 0.08 |
| C27_1 | CHANNEL | 30.83 | 0 | 01:11 | 0.57 | 0.01 | 0.15 |
| C27_2 | CHANNEL | 38.23 | 0 | 01:11 | 0.42 | 0.01 | 0.18 |
| C28 | CHANNEL | 61.97 | 0 | 01:11 | 0.55 | 0.01 | 0.20 |
| C29 | CHANNEL | 10.41 | 0 | 01:10 | 0.39 | 0.00 | 0.09 |
| C30 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.08 |
| C31 | CHANNEL | 21.62 | 0 | 01:11 | 0.55 | 0.00 | 0.12 |
| C32 | CHANNEL | 34.10 | 0 | 01:10 | 0.72 | 0.00 | 0.26 |
| C33 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C34 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.00 |
| C35 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.07 |
| C36 | CHANNEL | 29.76 | 0 | 01:11 | 0.18 | 0.01 | 0.28 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | |
|-----|---------|--------|---------|------|------|------|
| C37 | CHANNEL | 178.49 | 0 01:10 | 0.80 | 0.04 | 0.28 |
| C38 | CHANNEL | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.11 |
| C39 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.05 |
| C40 | CHANNEL | 2.71 | 0 01:12 | 0.11 | 0.00 | 0.09 |
| C41 | CHANNEL | 4.94 | 0 01:12 | 0.12 | 0.00 | 0.12 |
| C42 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.06 |
| C43 | CHANNEL | 4.36 | 0 01:11 | 0.32 | 0.00 | 0.07 |
| C44 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.05 |
| C45 | CHANNEL | 4.65 | 0 01:10 | 0.32 | 0.00 | 0.13 |
| C46 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.16 |
| C47 | CHANNEL | 77.89 | 0 01:11 | 0.39 | 0.04 | 0.26 |
| C48 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.10 |
| C49 | CHANNEL | 52.59 | 0 01:10 | 0.37 | 0.01 | 0.22 |
| C50 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.26 |
| C51 | CHANNEL | 44.30 | 0 01:13 | 0.38 | 0.06 | 0.28 |
| C52 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.10 |
| C53 | CHANNEL | 7.24 | 0 01:12 | 0.45 | 0.01 | 0.16 |
| C54 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.65 |
| C55 | CHANNEL | 33.53 | 0 01:16 | 0.09 | 0.01 | 0.47 |
| C56 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.10 |
| C57 | CHANNEL | 5.85 | 0 01:14 | 0.22 | 0.01 | 0.13 |
| C58 | CHANNEL | 10.25 | 0 01:17 | 0.43 | 0.01 | 0.13 |
| C59 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.11 |
| C60 | CHANNEL | 43.87 | 0 01:14 | 0.31 | 0.02 | 0.22 |
| C61 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.10 |
| C62 | CHANNEL | 94.26 | 0 01:12 | 0.75 | 0.01 | 0.21 |
| C63 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.11 |
| C64 | CHANNEL | 14.29 | 0 01:10 | 0.16 | 0.01 | 0.18 |
| C65 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.04 |
| C66 | CHANNEL | 3.80 | 0 01:12 | 0.23 | 0.00 | 0.07 |
| C67 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.04 |
| C68 | CHANNEL | 11.15 | 0 01:10 | 0.89 | 0.00 | 0.07 |
| C69 | CHANNEL | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.50 |
| C70 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.06 |
| C71 | CHANNEL | 12.71 | 0 01:10 | 0.23 | 0.00 | 0.13 |
| C72 | CONDUIT | 0.00 | 0 00:00 | 0.00 | 0.00 | 0.09 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | | | |
|----------|---------|--------|---|-------|------|------|------|
| C73 | CHANNEL | 23.42 | 0 | 01:10 | 0.27 | 0.01 | 0.27 |
| C74 | CHANNEL | 6.14 | 0 | 01:10 | 0.12 | 0.01 | 0.39 |
| C75 | CHANNEL | 24.49 | 0 | 01:11 | 0.43 | 0.88 | 0.36 |
| C76 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.08 |
| C77 | CHANNEL | 25.66 | 0 | 01:13 | 0.42 | 0.01 | 0.15 |
| C78 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C79 | CHANNEL | 2.86 | 0 | 01:10 | 0.15 | 0.00 | 0.08 |
| C80 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C81 | CHANNEL | 8.90 | 0 | 01:10 | 0.31 | 0.00 | 0.14 |
| C82 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.10 |
| C83 | CHANNEL | 40.87 | 0 | 01:10 | 0.58 | 0.01 | 0.15 |
| C84 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.03 |
| C85 | CHANNEL | 1.56 | 0 | 01:10 | 0.11 | 0.00 | 0.07 |
| C86 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C87 | CHANNEL | 7.66 | 0 | 01:10 | 0.22 | 0.00 | 0.16 |
| C88 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.08 |
| C89 | CHANNEL | 40.71 | 0 | 01:10 | 0.34 | 0.01 | 0.20 |
| C90 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.06 |
| C91 | CHANNEL | 15.73 | 0 | 01:11 | 0.29 | 0.00 | 0.13 |
| C92 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.05 |
| C93 | CHANNEL | 5.70 | 0 | 01:11 | 0.16 | 0.00 | 0.11 |
| C94 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.03 |
| C95 | CHANNEL | 1.54 | 0 | 01:10 | 0.13 | 0.00 | 0.06 |
| C96 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.04 |
| C97 | CHANNEL | 4.39 | 0 | 01:11 | 0.12 | 0.00 | 0.17 |
| C98 | CONDUIT | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.25 |
| C99 | CHANNEL | 0.00 | 0 | 00:00 | 0.00 | 0.00 | 0.13 |
| OR52 | CONDUIT | 130.22 | 0 | 01:10 | 1.49 | 1.18 | 0.74 |
| 34 | ORIFICE | 43.94 | 0 | 01:11 | | | 1.00 |
| A3-A1-OR | ORIFICE | 15.91 | 0 | 01:10 | | | 1.00 |
| A3-A2-OR | ORIFICE | 15.47 | 0 | 01:10 | | | 1.00 |
| A3-A3-OR | ORIFICE | 16.22 | 0 | 01:10 | | | 1.00 |
| A7-A7-OR | ORIFICE | 16.57 | 0 | 01:10 | | | 1.00 |
| A7-A8-OR | ORIFICE | 16.17 | 0 | 01:10 | | | 1.00 |
| OR01 | ORIFICE | 30.55 | 0 | 01:15 | | | 1.00 |
| OR02 | ORIFICE | 16.50 | 0 | 01:11 | | | 1.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | |
|------|---------|--------|---------|------|
| OR03 | ORIFICE | 16.94 | 0 01:11 | 1.00 |
| OR04 | ORIFICE | 72.14 | 0 01:11 | 1.00 |
| OR05 | ORIFICE | 54.47 | 0 01:11 | 1.00 |
| OR06 | ORIFICE | 41.40 | 0 01:13 | 1.00 |
| OR07 | ORIFICE | 109.58 | 0 01:14 | 1.00 |
| OR08 | ORIFICE | 39.71 | 0 01:12 | 1.00 |
| OR09 | ORIFICE | 40.48 | 0 01:18 | 1.00 |
| OR10 | ORIFICE | 28.15 | 0 01:24 | 1.00 |
| OR11 | ORIFICE | 61.84 | 0 01:14 | 1.00 |
| OR12 | ORIFICE | 54.62 | 0 01:13 | 1.00 |
| OR13 | ORIFICE | 59.35 | 0 01:11 | 1.00 |
| OR14 | ORIFICE | 45.42 | 0 01:12 | 1.00 |
| OR15 | ORIFICE | 12.68 | 0 01:08 | 1.00 |
| OR16 | ORIFICE | 13.47 | 0 01:10 | 1.00 |
| OR17 | ORIFICE | 14.40 | 0 01:10 | 1.00 |
| OR18 | ORIFICE | 19.78 | 0 01:09 | 1.00 |
| OR19 | ORIFICE | 16.04 | 0 01:08 | 1.00 |
| OR20 | ORIFICE | 17.36 | 0 01:04 | 1.00 |
| OR21 | ORIFICE | 47.37 | 0 01:14 | 1.00 |
| OR22 | ORIFICE | 11.19 | 0 01:11 | 1.00 |
| OR23 | ORIFICE | 12.40 | 0 01:11 | 1.00 |
| OR24 | ORIFICE | 17.23 | 0 01:10 | 1.00 |
| OR25 | ORIFICE | 7.98 | 0 01:10 | 1.00 |
| OR26 | ORIFICE | 12.39 | 0 01:11 | 1.00 |
| OR27 | ORIFICE | 17.20 | 0 01:10 | 1.00 |
| OR28 | ORIFICE | 36.93 | 0 01:13 | 1.00 |
| OR29 | ORIFICE | 27.36 | 0 01:12 | 1.00 |
| OR30 | ORIFICE | 8.99 | 0 01:10 | 1.00 |
| OR31 | ORIFICE | 22.71 | 0 01:13 | 1.00 |
| OR32 | ORIFICE | 26.75 | 0 01:18 | 1.00 |
| OR33 | ORIFICE | 18.26 | 0 01:10 | 1.00 |
| OR34 | ORIFICE | 4.71 | 0 01:11 | 1.00 |
| OR35 | ORIFICE | 9.10 | 0 01:11 | 1.00 |
| OR36 | ORIFICE | 19.22 | 0 01:11 | 1.00 |
| OR37 | ORIFICE | 50.96 | 0 01:10 | 1.00 |
| OR38 | ORIFICE | 18.85 | 0 01:11 | 1.00 |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|-------------------|---------|--------|---------|------|
| OR39 | ORIFICE | 45.89 | 0 01:10 | 1.00 |
| OR40 | ORIFICE | 18.27 | 0 01:07 | 1.00 |
| OR41 | ORIFICE | 17.36 | 0 01:23 | 1.00 |
| OR42 | ORIFICE | 28.08 | 0 01:15 | 1.00 |
| OR43 | ORIFICE | 12.10 | 0 01:17 | 1.00 |
| OR44 | ORIFICE | 27.10 | 0 01:14 | 1.00 |
| OR45 | ORIFICE | 30.85 | 0 01:18 | 1.00 |
| OR46 | ORIFICE | 23.33 | 0 01:12 | 1.00 |
| OR47 | ORIFICE | 18.42 | 0 01:11 | 1.00 |
| OR48 | ORIFICE | 55.74 | 0 01:24 | 1.00 |
| OR49 | ORIFICE | 15.09 | 0 01:36 | 1.00 |
| OR50 | ORIFICE | 18.43 | 0 01:11 | 1.00 |
| OR51 | ORIFICE | 34.62 | 0 01:10 | 1.00 |
| 1CTopofRoofToTank | DUMMY | 2.10 | 0 00:43 | |
| 36 | DUMMY | 46.04 | 0 01:04 | |
| A04(OUT) | DUMMY | 11.20 | 0 01:00 | |
| A06(OUT) | DUMMY | 73.20 | 0 01:03 | |
| A09B(OUT) | DUMMY | 10.40 | 0 01:01 | |
| A09C(OUT) | DUMMY | 6.40 | 0 01:01 | |
| A10(OUT) | DUMMY | 7.20 | 0 01:01 | |
| A11B(OUT) | DUMMY | 7.73 | 0 01:00 | |
| A14(OUT) | DUMMY | 176.00 | 0 01:05 | |
| A16C(OUT) | DUMMY | 24.80 | 0 01:10 | |
| A22A(OUT) | DUMMY | 8.84 | 0 01:37 | |
| A3-A4-LMF | DUMMY | 3.67 | 0 01:15 | |
| A7-A5-LMF | DUMMY | 3.87 | 0 01:11 | |
| A7-A6-LMF | DUMMY | 11.87 | 0 01:09 | |
| B21(OUT) | DUMMY | 10.17 | 0 01:40 | |
| B23(OUT) | DUMMY | 14.80 | 0 00:53 | |
| B25(OUT) | DUMMY | 4.80 | 0 01:01 | |
| O01 | DUMMY | 32.32 | 0 01:10 | |
| O02 | DUMMY | 19.70 | 0 01:08 | |
| O03 | DUMMY | 19.66 | 0 01:09 | |
| O04 | DUMMY | 72.30 | 0 01:10 | |
| O05 | DUMMY | 55.14 | 0 01:10 | |
| O06 | DUMMY | 50.95 | 0 01:08 | |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | |
|-----|-------|-------|---|-------|
| O07 | DUMMY | 44.53 | 0 | 01:09 |
| O08 | DUMMY | 50.34 | 0 | 01:08 |
| O09 | DUMMY | 33.46 | 0 | 01:11 |
| O10 | DUMMY | 62.05 | 0 | 01:13 |
| O11 | DUMMY | 55.13 | 0 | 01:12 |
| O12 | DUMMY | 59.72 | 0 | 01:10 |
| O13 | DUMMY | 45.44 | 0 | 01:12 |
| O14 | DUMMY | 13.32 | 0 | 01:07 |
| O15 | DUMMY | 16.91 | 0 | 01:10 |
| O16 | DUMMY | 22.53 | 0 | 01:09 |
| O17 | DUMMY | 47.67 | 0 | 01:13 |
| O18 | DUMMY | 11.54 | 0 | 01:10 |
| O19 | DUMMY | 12.86 | 0 | 01:10 |
| O20 | DUMMY | 20.87 | 0 | 01:05 |
| O21 | DUMMY | 8.09 | 0 | 01:10 |
| O22 | DUMMY | 12.84 | 0 | 01:10 |
| O23 | DUMMY | 19.60 | 0 | 01:06 |
| O24 | DUMMY | 37.91 | 0 | 01:11 |
| O25 | DUMMY | 27.85 | 0 | 01:11 |
| O26 | DUMMY | 10.52 | 0 | 01:07 |
| O27 | DUMMY | 25.04 | 0 | 01:11 |
| O28 | DUMMY | 34.61 | 0 | 01:05 |
| O29 | DUMMY | 9.88 | 0 | 01:10 |
| O30 | DUMMY | 22.77 | 0 | 01:09 |
| O31 | DUMMY | 51.27 | 0 | 01:10 |
| O32 | DUMMY | 19.45 | 0 | 01:10 |
| O33 | DUMMY | 51.70 | 0 | 01:05 |
| O34 | DUMMY | 24.58 | 0 | 01:07 |
| O35 | DUMMY | 22.26 | 0 | 01:07 |
| O36 | DUMMY | 31.90 | 0 | 01:09 |
| O37 | DUMMY | 17.01 | 0 | 01:07 |
| O38 | DUMMY | 30.98 | 0 | 01:09 |
| O39 | DUMMY | 34.03 | 0 | 01:07 |
| O40 | DUMMY | 24.07 | 0 | 01:11 |
| O41 | DUMMY | 21.27 | 0 | 01:09 |
| O42 | DUMMY | 21.13 | 0 | 01:05 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output

100-year, 3-Hour Chicago Storm

O43 DUMMY 21.57 0 01:08
 OL1 DUMMY 2.40 0 00:50

Flow Classification Summary

| ----- | | | | | | | | | | | |
|--|--------|------|------|------|------|------|------|------|------|------|------|
| Adjusted ----- Fraction of Time in Flow Class ----- | | | | | | | | | | | |
| /Actual Up Down Sub Sup Up Down Norm Inlet | | | | | | | | | | | |
| Conduit | Length | Dry | Dry | Dry | Crit | Crit | Crit | Crit | Ltd | Ctrl | |
| ----- | | | | | | | | | | | |
| 1 | 1.00 | 0.88 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 1.00 | 0.99 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 11 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| 12 | 1.00 | 0.88 | 0.11 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 13 | 1.00 | 0.00 | 0.99 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 14 | 1.00 | 0.88 | 0.10 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 15 | 1.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 16 | 1.00 | 0.99 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 1.00 | 0.87 | 0.12 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 19 | 1.00 | 0.96 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| 20 | 1.00 | 0.97 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| 23 | 1.00 | 0.87 | 0.12 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 24 | 1.00 | 0.98 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.94 | 0.00 | 0.00 |
| 25 | 1.00 | 0.98 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| 28 | 1.00 | 0.00 | 0.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 29 | 1.00 | 0.99 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 3 | 1.00 | 0.96 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 1.00 | 0.98 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 32 | 1.00 | 0.99 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 1.00 | 0.97 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 |
| 35 | 1.00 | 0.99 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|-----------|------|------|------|------|------|------|------|------|------|------|
| 37 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 |
| 4 | 1.00 | 0.98 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| 5 | 1.00 | 0.85 | 0.14 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.94 | 0.00 |
| 6 | 1.00 | 0.00 | 0.00 | 0.00 | 0.82 | 0.18 | 0.00 | 0.00 | 0.96 | 0.00 |
| 7 | 1.00 | 0.96 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.99 | 0.01 | 0.00 |
| A15A(OUT) | 1.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.06 | 0.00 | 0.80 | 0.20 | 0.00 |
| B19(OUT) | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C01 | 1.00 | 0.00 | 0.00 | 0.00 | 0.94 | 0.06 | 0.00 | 0.00 | 0.08 | 0.00 |
| C02 | 1.00 | 0.00 | 0.00 | 0.00 | 0.93 | 0.07 | 0.00 | 0.00 | 0.10 | 0.00 |
| C03 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C04 | 1.00 | 0.00 | 0.00 | 0.00 | 0.76 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| C05 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.00 |
| C06 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C07 | 1.00 | 0.88 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C08 | 1.00 | 0.00 | 0.00 | 0.00 | 0.75 | 0.25 | 0.00 | 0.00 | 0.03 | 0.00 |
| C09 | 1.00 | 0.00 | 0.00 | 0.00 | 0.86 | 0.14 | 0.00 | 0.00 | 0.02 | 0.00 |
| C10 | 1.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.17 | 0.00 | 0.00 | 0.01 | 0.00 |
| C100 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C101 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C102 | 1.00 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C103 | 1.00 | 0.00 | 0.00 | 0.00 | 0.92 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| C104 | 1.00 | 0.90 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C105 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C106 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.93 | 0.00 |
| C107 | 1.00 | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| C108 | 1.00 | 0.00 | 0.85 | 0.00 | 0.04 | 0.11 | 0.00 | 0.00 | 0.87 | 0.00 |
| C109 | 1.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| C11 | 1.00 | 0.00 | 0.00 | 0.00 | 0.75 | 0.25 | 0.00 | 0.00 | 0.01 | 0.00 |
| C110 | 1.00 | 0.00 | 0.88 | 0.00 | 0.01 | 0.11 | 0.00 | 0.00 | 0.93 | 0.00 |
| C111 | 1.00 | 0.75 | 0.00 | 0.00 | 0.01 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 |
| C112 | 1.00 | 0.00 | 0.75 | 0.00 | 0.20 | 0.05 | 0.00 | 0.00 | 0.98 | 0.00 |
| C113 | 1.00 | 0.88 | 0.00 | 0.00 | 0.01 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C114 | 1.00 | 0.00 | 0.88 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.97 | 0.00 |
| C115 | 1.00 | 0.90 | 0.00 | 0.00 | 0.01 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| C116 | 1.00 | 0.88 | 0.00 | 0.00 | 0.04 | 0.08 | 0.00 | 0.00 | 0.01 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|--------|------|------|------|------|------|------|------|------|------|------|
| C117 | 1.00 | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| C118 | 1.00 | 0.85 | 0.00 | 0.00 | 0.13 | 0.02 | 0.00 | 0.00 | 0.96 | 0.00 |
| C119 | 1.00 | 0.89 | 0.00 | 0.00 | 0.01 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C12 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 |
| C120 | 1.00 | 0.89 | 0.00 | 0.00 | 0.01 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| C121 | 1.00 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C122 | 1.00 | 0.00 | 0.90 | 0.00 | 0.09 | 0.01 | 0.00 | 0.00 | 0.96 | 0.00 |
| C123 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C124 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C125 | 1.00 | 0.90 | 0.00 | 0.00 | 0.01 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| C126 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C127 | 1.00 | 0.89 | 0.00 | 0.00 | 0.04 | 0.07 | 0.00 | 0.00 | 0.96 | 0.00 |
| C128 | 1.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C129 | 1.00 | 0.00 | 0.88 | 0.00 | 0.02 | 0.10 | 0.00 | 0.00 | 0.89 | 0.00 |
| C13 | 1.00 | 0.89 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C130 | 1.00 | 0.99 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C131 | 1.00 | 0.90 | 0.00 | 0.00 | 0.02 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 |
| C132 | 1.00 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| C133 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C134 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.87 | 0.00 |
| C135 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C136 | 1.00 | 0.00 | 0.00 | 0.00 | 0.97 | 0.03 | 0.00 | 0.00 | 0.94 | 0.00 |
| C137 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| C138 | 1.00 | 0.00 | 0.00 | 0.00 | 0.95 | 0.05 | 0.00 | 0.00 | 0.93 | 0.00 |
| C139 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C14 | 1.00 | 0.89 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C140 | 1.00 | 0.00 | 0.15 | 0.00 | 0.85 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 |
| C141 | 1.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.03 | 0.00 | 0.91 | 0.00 | 0.00 |
| C142 | 1.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 |
| C143 | 1.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 |
| C144 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.99 | 0.00 | 0.00 |
| C145_1 | 1.00 | 0.00 | 0.94 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 |
| C145_2 | 1.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.98 | 0.01 | 0.00 |
| C146 | 1.00 | 0.00 | 0.00 | 0.00 | 0.88 | 0.12 | 0.00 | 0.00 | 0.85 | 0.00 |
| C147 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.91 | 0.00 |
| C148 | 1.00 | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 0.12 | 0.25 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|
| C180 | 1.00 | 0.00 | 0.83 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C181 | 1.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 |
| C182 | 1.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.93 | 0.00 | 0.00 |
| C183 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C184 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C185 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.88 | 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 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C188 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C189 | 1.00 | 0.00 | 0.84 | 0.00 | 0.15 | 0.02 | 0.00 | 0.00 | 0.97 | 0.00 |
| C19 | 1.00 | 0.00 | 0.90 | 0.00 | 0.07 | 0.03 | 0.00 | 0.00 | 0.96 | 0.00 |
| C190 | 1.00 | 0.00 | 0.00 | 0.00 | 0.86 | 0.14 | 0.00 | 0.00 | 0.99 | 0.00 |
| C191 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C192 | 1.00 | 0.00 | 0.01 | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 |
| C193 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C194 | 1.00 | 0.00 | 0.00 | 0.00 | 0.90 | 0.10 | 0.00 | 0.00 | 0.97 | 0.00 |
| C195 | 1.00 | 0.00 | 0.76 | 0.00 | 0.13 | 0.11 | 0.00 | 0.00 | 0.97 | 0.00 |
| C196 | 1.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 |
| C197 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C198 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C199 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C20 | 1.00 | 0.00 | 0.89 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.92 | 0.00 |
| C200 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C201 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C202 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.98 | 0.01 | 0.00 |
| C203 | 1.00 | 0.00 | 0.01 | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 |
| C204 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C205 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C206 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C207 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C208 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C209 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C21 | 1.00 | 0.00 | 0.00 | 0.00 | 0.94 | 0.06 | 0.00 | 0.00 | 0.05 | 0.00 |
| C210 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C211 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C212 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|------|------|
| C213 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C22 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C23 | 1.00 | 0.00 | 0.00 | 0.00 | 0.82 | 0.18 | 0.00 | 0.00 | 0.05 | 0.00 |
| C24 | 1.00 | 0.00 | 0.00 | 0.00 | 0.85 | 0.15 | 0.00 | 0.00 | 0.09 | 0.00 |
| C25 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| C26 | 1.00 | 0.00 | 0.00 | 0.00 | 0.84 | 0.16 | 0.00 | 0.00 | 0.02 | 0.00 |
| C27_1 | 1.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.01 | 0.00 | 0.00 | 0.95 | 0.00 |
| C27_2 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| C28 | 1.00 | 0.00 | 0.00 | 0.00 | 0.47 | 0.53 | 0.00 | 0.00 | 0.05 | 0.00 |
| C29 | 1.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.01 | 0.00 | 0.00 | 1.00 | 0.00 |
| C30 | 1.00 | 0.89 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C31 | 1.00 | 0.00 | 0.00 | 0.00 | 0.94 | 0.06 | 0.00 | 0.00 | 0.11 | 0.00 |
| C32 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.99 | 0.01 | 0.00 |
| C33 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C34 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C35 | 1.00 | 0.89 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C36 | 1.00 | 0.00 | 0.00 | 0.00 | 0.97 | 0.03 | 0.00 | 0.00 | 0.08 | 0.00 |
| C37 | 1.00 | 0.00 | 0.00 | 0.00 | 0.75 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| C38 | 1.00 | 0.90 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C39 | 1.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C40 | 1.00 | 0.88 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C41 | 1.00 | 0.00 | 0.88 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C42 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C43 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.95 | 0.00 |
| C44 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C45 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.95 | 0.00 |
| C46 | 1.00 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 |
| C47 | 1.00 | 0.00 | 0.84 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 |
| C48 | 1.00 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 |
| C49 | 1.00 | 0.00 | 0.84 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 |
| C50 | 1.00 | 0.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| C51 | 1.00 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 |
| C52 | 1.00 | 0.89 | 0.00 | 0.00 | 0.01 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C53 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.95 | 0.00 |
| C54 | 1.00 | 0.88 | 0.00 | 0.00 | 0.02 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| C55 | 1.00 | 0.00 | 0.00 | 0.00 | 0.96 | 0.04 | 0.00 | 0.00 | 0.06 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|
| C56 | 1.00 | 0.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| C57 | 1.00 | 0.84 | 0.00 | 0.00 | 0.15 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| C58 | 1.00 | 0.00 | 0.84 | 0.00 | 0.15 | 0.01 | 0.00 | 0.00 | 0.90 | 0.00 |
| C59 | 1.00 | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| C60 | 1.00 | 0.00 | 0.85 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 |
| C61 | 1.00 | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 |
| C62 | 1.00 | 0.00 | 0.77 | 0.00 | 0.21 | 0.03 | 0.00 | 0.00 | 0.95 | 0.00 |
| C63 | 1.00 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 |
| C64 | 1.00 | 0.00 | 0.00 | 0.00 | 0.97 | 0.03 | 0.00 | 0.00 | 0.06 | 0.00 |
| C65 | 1.00 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C66 | 1.00 | 0.90 | 0.00 | 0.00 | 0.09 | 0.02 | 0.00 | 0.00 | 0.90 | 0.00 |
| C67 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C68 | 1.00 | 0.88 | 0.01 | 0.00 | 0.01 | 0.09 | 0.00 | 0.00 | 0.01 | 0.00 |
| C69 | 1.00 | 0.37 | 0.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C70 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C71 | 1.00 | 0.89 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C72 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C73 | 1.00 | 0.89 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.09 | 0.01 | 0.00 |
| C74 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.99 | 0.00 | 0.00 |
| C75 | 1.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 |
| C76 | 1.00 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 |
| C77 | 1.00 | 0.82 | 0.02 | 0.00 | 0.15 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| C78 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C79 | 1.00 | 0.89 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C80 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C81 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.96 | 0.00 |
| C82 | 1.00 | 0.70 | 0.00 | 0.00 | 0.01 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 |
| C83 | 1.00 | 0.00 | 0.70 | 0.00 | 0.27 | 0.02 | 0.00 | 0.00 | 0.96 | 0.00 |
| C84 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C85 | 1.00 | 0.89 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C86 | 1.00 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C87 | 1.00 | 0.00 | 0.89 | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.96 | 0.00 |
| C88 | 1.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 |
| C89 | 1.00 | 0.00 | 0.70 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 |
| C90 | 1.00 | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 |
| C91 | 1.00 | 0.00 | 0.87 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output 100-year, 3-Hour Chicago Storm

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|
| C92 | 1.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| C93 | 1.00 | 0.86 | 0.02 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| C94 | 1.00 | 0.89 | 0.00 | 0.00 | 0.01 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C95 | 1.00 | 0.89 | 0.00 | 0.00 | 0.08 | 0.03 | 0.00 | 0.00 | 0.07 | 0.00 |
| C96 | 1.00 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 |
| C97 | 1.00 | 0.88 | 0.02 | 0.00 | 0.06 | 0.04 | 0.00 | 0.00 | 0.91 | 0.00 |
| C98 | 1.00 | 0.88 | 0.00 | 0.00 | 0.01 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| C99 | 1.00 | 0.88 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| OR52 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |

Conduit Surcharge Summary

| | Hours | | Hours | | Capacity | |
|-----------|------------------------|----------|------------|-------------|----------|--|
| | ----- Hours Full ----- | | Above Full | | Limited | |
| Conduit | Both Ends | Upstream | Dnstream | Normal Flow | Limited | |
| ----- | | | | | | |
| 6 | 0.01 | 0.01 | 0.25 | 0.01 | 0.01 | |
| A15A(OUT) | 0.01 | 0.01 | 1.41 | 0.01 | 0.01 | |
| C124 | 24.00 | 24.00 | 24.00 | 0.17 | 0.08 | |
| C140 | 0.20 | 0.20 | 0.23 | 0.01 | 0.01 | |
| C141 | 0.25 | 0.25 | 0.26 | 0.08 | 0.15 | |
| C142 | 0.23 | 0.23 | 0.24 | 0.01 | 0.19 | |
| C143 | 0.21 | 0.21 | 0.21 | 0.04 | 0.14 | |
| C144 | 0.13 | 0.21 | 0.13 | 0.29 | 0.13 | |
| C145_1 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | |
| C145_2 | 0.02 | 0.02 | 0.26 | 0.01 | 0.01 | |
| C146 | 0.19 | 0.19 | 0.26 | 0.01 | 0.01 | |
| C147 | 0.26 | 0.26 | 0.32 | 0.01 | 0.01 | |
| C148 | 0.13 | 0.32 | 0.13 | 0.28 | 0.13 | |
| C149 | 0.06 | 0.06 | 0.32 | 0.01 | 0.01 | |
| C151 | 0.84 | 1.15 | 0.84 | 0.58 | 0.84 | |
| C152 | 0.01 | 0.11 | 0.01 | 0.26 | 0.01 | |

**114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm**

| | | | | | |
|--------|-------|-------|-------|------|------|
| C153 | 0.65 | 0.65 | 0.83 | 0.23 | 0.32 |
| C156_1 | 0.23 | 0.23 | 0.23 | 0.01 | 0.20 |
| C156_2 | 0.23 | 0.23 | 0.23 | 0.01 | 0.22 |
| C163 | 0.15 | 0.16 | 0.15 | 0.01 | 0.15 |
| C167 | 0.01 | 0.06 | 0.01 | 0.17 | 0.01 |
| C168 | 0.06 | 0.09 | 0.06 | 0.01 | 0.06 |
| C169 | 0.09 | 0.11 | 0.09 | 0.01 | 0.09 |
| C170 | 0.09 | 0.10 | 0.09 | 0.01 | 0.09 |
| C171 | 0.07 | 0.24 | 0.07 | 0.40 | 0.07 |
| C175 | 0.08 | 0.08 | 0.14 | 0.01 | 0.01 |
| C176 | 0.12 | 0.16 | 0.12 | 0.11 | 0.12 |
| C177 | 0.28 | 0.28 | 0.47 | 0.01 | 0.01 |
| C178 | 0.48 | 0.48 | 0.70 | 0.01 | 0.20 |
| C179 | 0.39 | 0.39 | 0.47 | 0.01 | 0.01 |
| C180 | 0.14 | 0.14 | 0.19 | 0.01 | 0.01 |
| C181 | 0.19 | 0.19 | 0.20 | 0.01 | 0.01 |
| C182 | 0.25 | 0.28 | 0.25 | 0.09 | 0.25 |
| C184 | 24.00 | 24.00 | 24.00 | 0.01 | 0.49 |
| C185 | 0.26 | 0.26 | 0.28 | 0.10 | 0.14 |
| C190 | 0.01 | 0.01 | 0.06 | 0.01 | 0.01 |
| C191 | 0.06 | 0.06 | 0.09 | 0.01 | 0.01 |
| C192 | 0.12 | 0.12 | 0.67 | 0.01 | 0.01 |
| C193 | 24.00 | 24.00 | 24.00 | 0.17 | 0.26 |
| C195 | 0.01 | 0.01 | 0.33 | 0.01 | 0.01 |
| C196 | 0.33 | 0.33 | 0.38 | 0.01 | 0.01 |
| C197 | 24.00 | 24.00 | 24.00 | 0.01 | 0.04 |
| C198 | 24.00 | 24.00 | 24.00 | 0.01 | 0.01 |
| C199 | 24.00 | 24.00 | 24.00 | 0.01 | 0.31 |
| C200 | 24.00 | 24.00 | 24.00 | 0.35 | 0.40 |
| C202 | 0.01 | 0.01 | 0.22 | 0.01 | 0.01 |
| C203 | 0.23 | 0.23 | 23.87 | 0.01 | 0.01 |
| C204 | 24.00 | 24.00 | 24.00 | 0.01 | 0.01 |
| C205 | 24.00 | 24.00 | 24.00 | 0.01 | 0.01 |
| C206 | 24.00 | 24.00 | 24.00 | 0.01 | 0.01 |
| C207 | 24.00 | 24.00 | 24.00 | 0.28 | 1.74 |
| C208 | 24.00 | 24.00 | 24.00 | 0.29 | 3.29 |

114025 (Forecourt Townhomes Developments) PCSWMM Model Output
100-year, 3-Hour Chicago Storm

| | | | | | |
|------|-------|-------|-------|------|------|
| C209 | 24.00 | 24.00 | 24.00 | 0.25 | 0.80 |
| C210 | 24.00 | 24.00 | 24.00 | 0.26 | 0.38 |
| C211 | 24.00 | 24.00 | 24.00 | 0.16 | 0.71 |
| C212 | 0.01 | 0.84 | 0.01 | 1.01 | 0.01 |
| C213 | 24.00 | 24.00 | 24.00 | 0.29 | 2.31 |
| OR52 | 0.01 | 0.01 | 0.01 | 0.09 | 0.01 |

Analysis begun on: Fri Aug 16 15:08:59 2024

Analysis ended on: Fri Aug 16 15:09:19 2024

Total elapsed time: 00:00:20

| <u>5yr 12hr SCS</u> | | <u>100yr 12hr SCS</u> | | <u>100yr +20% 12hr SCS</u> | |
|-----------------------|----------------------|-----------------------|----------------------|----------------------------|----------------------|
| Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) |
| 0:00 | 0.00 | 0:00 | 0.00 | 0:00 | 0.00 |
| 0:30 | 1.69 | 0:30 | 2.82 | 0:30 | 3.38 |
| 1:00 | 0.79 | 1:00 | 1.31 | 1:00 | 1.58 |
| 1:30 | 1.46 | 1:30 | 2.44 | 1:30 | 2.93 |
| 2:00 | 1.46 | 2:00 | 2.44 | 2:00 | 2.93 |
| 2:30 | 1.91 | 2:30 | 3.19 | 2:30 | 3.83 |
| 3:00 | 1.69 | 3:00 | 2.82 | 3:00 | 3.38 |
| 3:30 | 2.25 | 3:30 | 3.76 | 3:30 | 4.51 |
| 4:00 | 2.25 | 4:00 | 3.76 | 4:00 | 4.51 |
| 4:30 | 3.03 | 4:30 | 5.07 | 4:30 | 6.09 |
| 5:00 | 3.82 | 5:00 | 6.39 | 5:00 | 7.66 |
| 5:30 | 6.07 | 5:30 | 10.14 | 5:30 | 12.17 |
| 6:00 | 48.08 | 6:00 | 80.38 | 6:00 | 96.46 |
| 6:30 | 12.25 | 6:30 | 20.47 | 6:30 | 24.57 |
| 7:00 | 5.39 | 7:00 | 9.02 | 7:00 | 10.82 |
| 7:30 | 3.60 | 7:30 | 6.01 | 7:30 | 7.21 |
| 8:00 | 3.15 | 8:00 | 5.26 | 8:00 | 6.31 |
| 8:30 | 2.47 | 8:30 | 4.13 | 8:30 | 4.96 |
| 9:00 | 2.58 | 9:00 | 4.32 | 9:00 | 5.18 |
| 9:30 | 1.69 | 9:30 | 2.82 | 9:30 | 3.38 |
| 10:00 | 1.35 | 10:00 | 2.25 | 10:00 | 2.70 |
| 10:30 | 1.91 | 10:30 | 3.19 | 10:30 | 3.83 |
| 11:00 | 1.24 | 11:00 | 2.07 | 11:00 | 2.48 |
| 11:30 | 1.12 | 11:30 | 1.88 | 11:30 | 2.25 |
| 12:00 | 1.12 | 12:00 | 1.88 | 12:00 | 2.25 |
| Total Rainfall | 56.17 mm | Total Rainfall | 93.91 mm | Total Rainfall | 112.69 mm |

| <u>July 1 1979</u> | | <u>August 4 1988</u> | | <u>August 8 1996</u> | |
|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) |
| 0:00 | 0.0 | 0:00 | 0.0 | 0:00 | 0.0 |
| 0:05 | 2.3 | 0:05 | 0.1 | 0:05 | 4.0 |
| 1:05 | 2.3 | 1:05 | 0.1 | 1:05 | 11.9 |
| 2:05 | 8.9 | 2:05 | 0.0 | 2:05 | 26.5 |
| 3:05 | 8.9 | 3:05 | 3.7 | 3:05 | 13.3 |
| 4:05 | 8.9 | 4:05 | 6.2 | 4:05 | 0.0 |
| 5:05 | 8.9 | 5:05 | 101.5 | 5:05 | 2.7 |
| 6:05 | 38.1 | 6:05 | 15.5 | 6:05 | 0.0 |
| 7:05 | 38.1 | 7:05 | 29.3 | 7:05 | 8.0 |

Design Storm Time Series Data

City of Ottawa



| | | | | | |
|-----------------------|-----------------|-------|-------|-------|-------|
| 8:05 | 38.1 | 8:05 | 19.8 | 8:05 | 18.6 |
| 9:05 | 38.1 | 9:05 | 1.5 | 9:05 | 10.6 |
| 10:05 | 38.1 | 10:05 | 1.7 | 10:05 | 21.2 |
| 11:05 | 38.1 | 11:05 | 5.4 | 11:05 | 2.7 |
| 12:05 | 38.1 | 12:05 | 24.6 | 12:05 | 2.7 |
| 13:05 | 50.8 | 13:05 | 26.5 | 13:05 | 15.9 |
| 14:05 | 50.8 | 14:05 | 34.9 | 14:05 | 66.3 |
| 15:05 | 76.2 | 15:05 | 10.2 | 15:05 | 55.7 |
| 16:05 | 106.7 | 16:05 | 27.1 | 16:05 | 122.0 |
| 17:05 | 106.7 | 17:05 | 104.4 | 17:05 | 88.9 |
| 18:05 | 71.1 | 18:05 | 27.5 | 18:05 | 9.3 |
| 19:05 | 71.1 | 19:05 | 62.5 | 19:05 | 8.0 |
| 20:05 | 30.5 | 20:05 | 31.8 | 20:05 | 4.0 |
| 21:05 | 30.5 | 21:05 | 79.8 | 21:05 | 0.0 |
| 22:05 | 30.5 | 22:05 | 67.5 | 22:05 | 2.7 |
| 23:05 | 30.5 | 23:05 | 156.2 | 23:05 | 0.0 |
| 0:05 | 3.8 | 0:05 | 5.1 | 0:05 | 0.0 |
| 1:05 | 3.8 | 1:05 | 0.2 | 1:05 | 0.0 |
| 2:05 | 3.8 | 2:05 | 0.2 | 2:05 | 5.3 |
| 3:05 | 3.8 | 3:05 | 0.2 | 3:05 | 0.0 |
| 4:05 | 3.8 | 4:05 | 0.2 | 4:05 | 0.0 |
| 5:05 | 3.8 | 5:05 | 0.2 | 5:05 | 0.0 |
| 6:05 | 3.8 | 6:05 | 0.2 | 6:05 | 0.0 |
| 7:05 | 3.8 | 7:05 | 0.2 | 7:05 | 0.0 |
| 8:05 | 3.8 | 8:05 | 0.2 | 8:05 | 0.0 |
| 9:05 | 3.8 | 9:05 | 0.2 | 9:05 | 4.0 |
| 10:05 | 3.8 | 10:05 | 0.2 | 10:05 | 53.1 |
| 11:05 | 3.8 | 11:05 | 12.8 | 11:05 | 69.0 |
| | | 12:05 | 14.0 | 12:05 | 63.7 |
| | | 13:05 | 22.2 | 13:05 | 58.4 |
| | | 14:05 | 21.8 | 14:05 | 47.8 |
| | | 15:05 | 1.4 | 15:05 | 15.9 |
| | | 16:05 | 0.2 | 16:05 | 13.3 |
| | | 17:05 | 0.2 | 17:05 | 8.0 |
| | | 18:05 | 0.2 | 18:05 | 5.3 |
| | | 19:05 | 0.2 | 19:05 | 6.6 |
| | | 20:05 | 0.2 | 20:05 | 2.7 |
| | | 21:05 | 0.2 | 21:05 | 4.0 |
| | | 22:05 | 0.2 | 22:05 | 2.7 |
| | | 23:05 | 0.2 | 23:05 | 4.0 |
| | | 0:05 | 0.2 | 0:05 | 2.7 |
| | | 1:05 | 0.2 | 1:05 | 5.3 |
| | | 2:05 | 0.2 | 2:05 | 4.0 |
| | | 3:05 | 0.2 | 3:05 | 2.7 |
| | | 4:05 | 0.2 | 4:05 | 4.0 |
| | | 5:05 | 0.2 | 5:05 | 2.7 |
| | | 6:05 | 0.2 | 6:05 | 1.3 |
| Total Rainfall | 83.99 mm | | | | |

| | | | |
|-------|------|-------|-----|
| 7:05 | 0.2 | 7:05 | 1.3 |
| 8:05 | 0.2 | 8:05 | 0.0 |
| 9:05 | 0.2 | 9:05 | 0.0 |
| 10:05 | 0.2 | 10:05 | 0.0 |
| 11:05 | 2.9 | 11:05 | 0.0 |
| 12:05 | 7.8 | 12:05 | 2.7 |
| 13:05 | 10.0 | 13:05 | 0.0 |
| 14:05 | 6.3 | 14:05 | 0.0 |
| 15:05 | 5.1 | 15:05 | 0.0 |
| 16:05 | 9.8 | 16:05 | 0.0 |
| 17:05 | 2.6 | 17:05 | 0.0 |
| 18:05 | 1.7 | 18:05 | 0.0 |
| 19:05 | 0.0 | 19:05 | 0.0 |
| 20:05 | 0.0 | 20:05 | 1.3 |
| 21:05 | 0.0 | 21:05 | 0.0 |
| 22:05 | 0.0 | 22:05 | 0.0 |
| 23:05 | 0.0 | 23:05 | 0.0 |

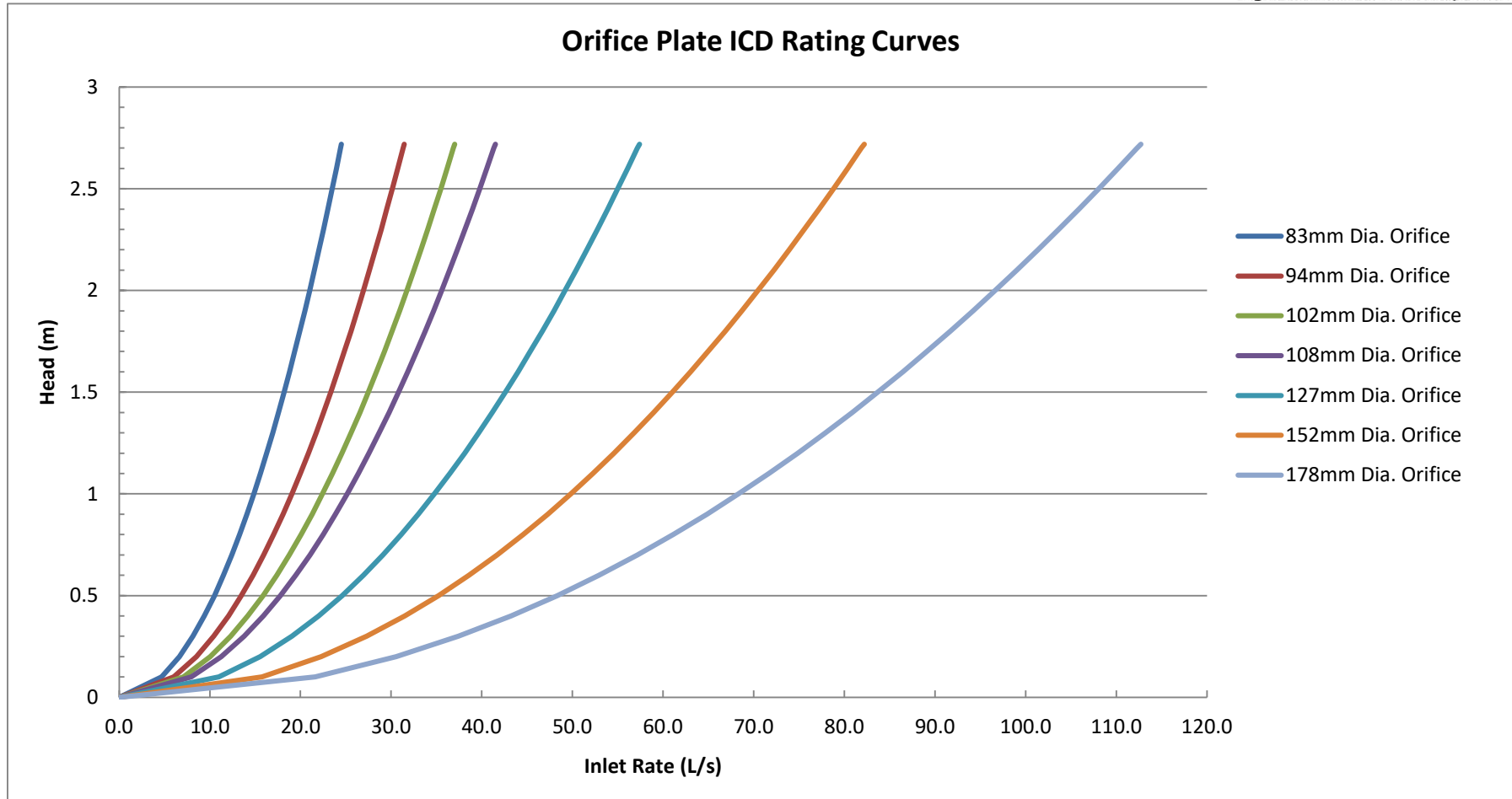
Total Rainfall 80.59 mm

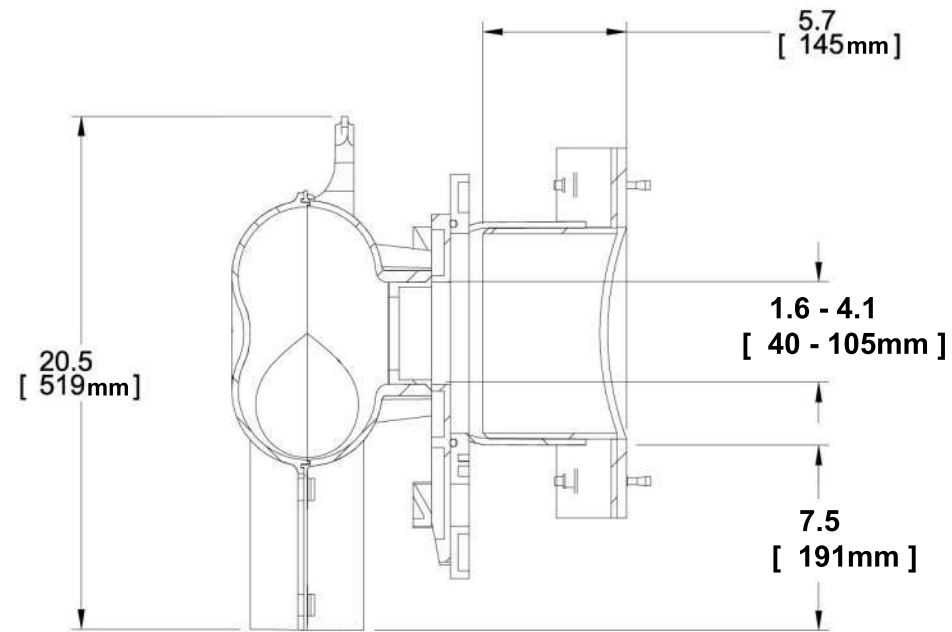
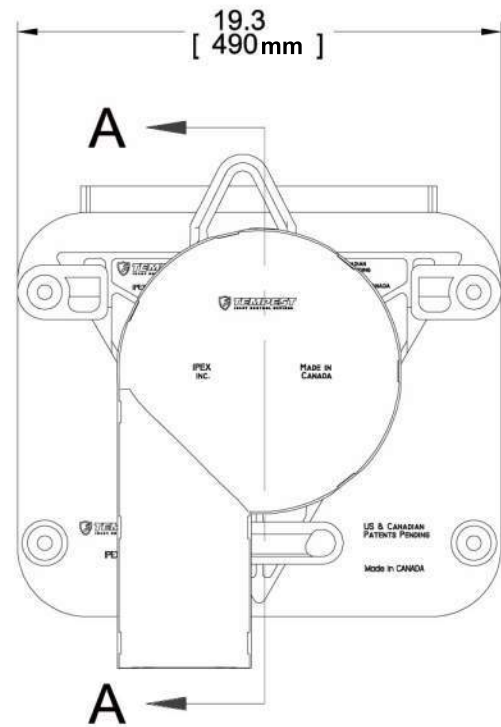
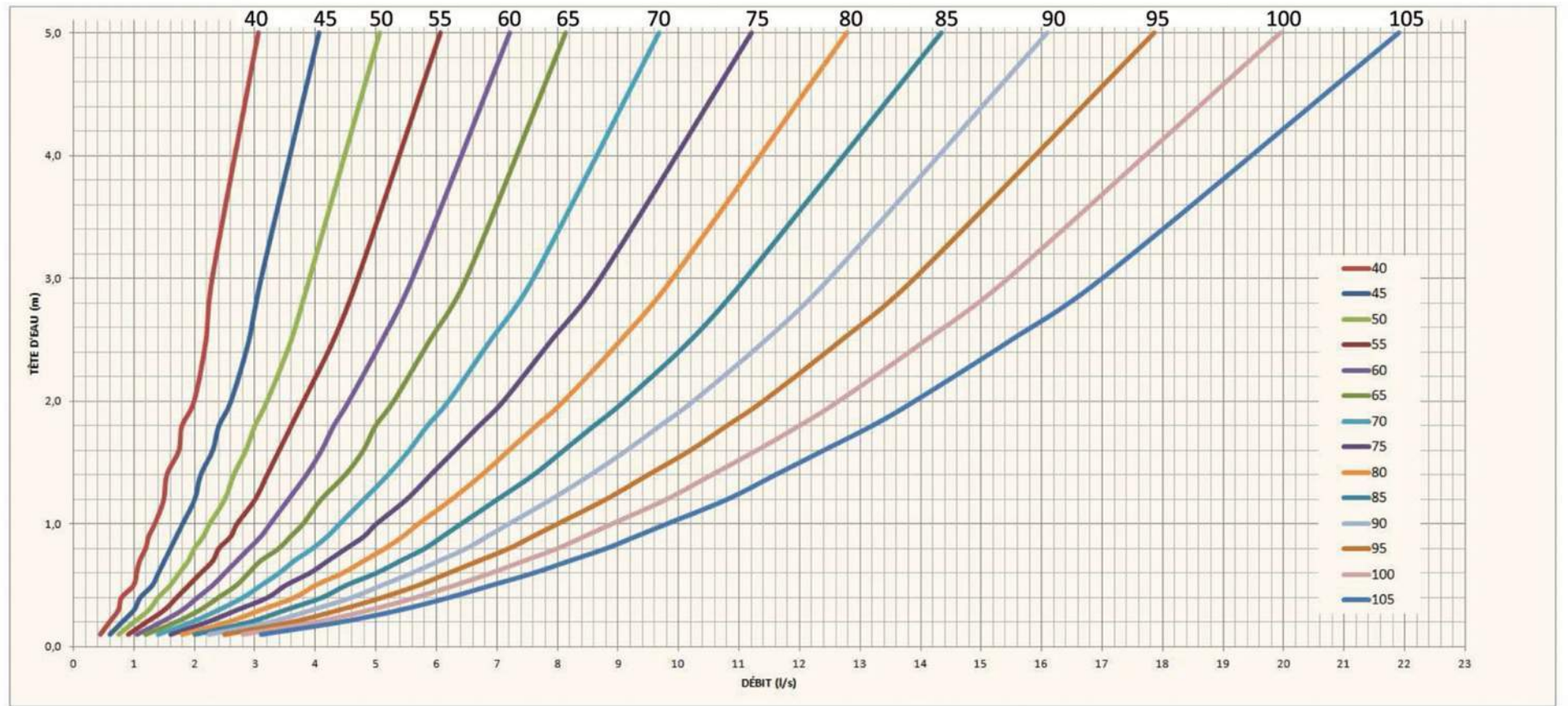
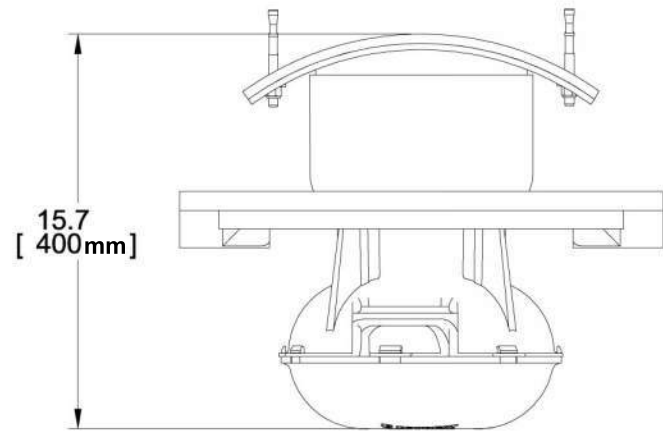
Total Rainfall 73.90 mm

| <u>5yr 3hr Chicago</u> | | <u>100yr 3hr Chicago</u> | | <u>100yr +20% 3hr Chicago</u> | |
|------------------------|-------------------|--------------------------|-------------------|-------------------------------|-------------------|
| Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) | Time (h:mm) | Intensity (mm/hr) |
| 0:00 | 0.00 | 0:00 | 0.00 | 0:00 | 0.00 |
| 0:10 | 3.68 | 0:10 | 6.05 | 0:10 | 7.26 |
| 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 | 4.30 | 2:20 | 7.08 | 2:20 | 8.50 |
| 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 |
| Total Rainfall | 42.51 mm | Total Rainfall | 71.67 mm | Total Rainfall | 86.00 mm |

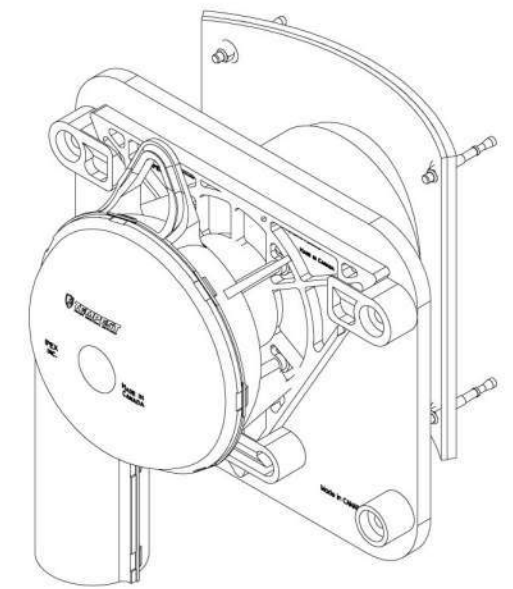
Clarence Crossing 112057

ICD Rating Curves





SECTION A-A



APPENDIX D

Existing Approvals



ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 4082-AAZQ6P
Issue Date: June 24, 2016

Greystone Village Inc.
1737 Woodward Drive, 2nd Floor
Ottawa, Ontario
K2C 0P9

Site Location: 175 Main Street
City of Ottawa, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

sanitary and storm sewers to be constructed in the City of Ottawa, as follows:

- sanitary sewers on Hazel Street (from Station 50+0000 to Station 50+175), Deschatelets Avenue (from Station 70+125 to Station 70+335), Scholastic Drive (from Station 10+225 to Station 10+392), Jeremiah Kealey Street (from Station 30+000 to Station 30+108), De Mazenod Avenue (from Station 40+000 to Station 40+168), Telmon Street (from Station 20+000 to Station 20+189), Clegg Street (from Station 90+000 to Station 90+179), and Easement (Block 61) (from Station 10+392 to Station 10+435); and
- storm sewers on Hazel Street (from Station 50+0000 to Station 50+175), Deschatelets Avenue (from Station 70+125 to Station 70+335), Scholastic Drive (from Station 10+225 to Station 10+392), Jeremiah Kealey Street (from Station 30+000 to Station 30+108), De Mazenod Avenue (from Station 40+000 to Station 40+168), and Telmon Street (from Station 20+000 to Station 20+189);

all in accordance with the application from Greystone Village Inc., dated May 18, 2016, including final plans and specifications prepared by Novatech Engineering.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

CONTENT COPY OF ORIGINAL

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of
the Environmental Protection Act
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of June, 2016

Gregory Zimmer, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

YH/

c: District Manager, MOECC Ottawa District Office
M. Rick O'Connor, City Clerk, City of Ottawa
Joshua White, P.Eng., Project Manager, Development Review, City of Ottawa
Linda Carkner, Program Manager, Infrastructure, City of Ottawa
J.G. Riddell, P.Eng., Novatech Engineering

AMENDED ENVIRONMENTAL COMPLIANCE APPROVALNUMBER 8946-ACUP7W
Issue Date: August 17, 2016

Greystone Village Inc.
1737 Woodward Drive, Unit. 2
Ottawa, Ontario
K2C 0P9

Site Location: 175 Main Street
Lot H, Concession D
City of Ottawa,

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

an amendment of stormwater management Works for the Phase I of Greystone Village subdivision development, located on the north side of Clegg Street, south side of Springhurst Avenue, between Main Street and Rideau River within the Rideau watershed, in the City of Ottawa, for the collection, treatment and disposal of stormwater run-off, to add stormwater management facilities, to service approximately 7.48 hectares, discharging to Rideau River, providing Enhanced Level of quality control and erosion protection, consisting of the following:

Proposed Works:

oil and grit separator (catchment area 7.48 hectares): - one (1) oil and grit separator (Vortechs 11000 or Equivalent), located at the intersection of Telmon Street and Scholastic Drive, west side of Rideau River, receiving inflows from the storm sewers of the subdivision development, identified below, having a sediment storage capacity of approximately 4.280 m³, an oil storage capacity of approximately 2,378 L, a total storage volume of approximately 13.592 m³, and a maximum treatment flow rate of approximately 495 L/s, discharging via a 600 mm diameter outflow pipe to the storm sewer outfall, identified below;

storm sewer outfall (Outlet#1-catchment area 7.48 hectares): - one (1) 825 mm diameter storm sewer outfall with a concrete headwall and rip-rap protection, receiving inflows from the oil and grit separator, identified above, discharging to the Rideau River;

Previous Works:

sanitary sewers on Hazel Street (from Station 50+0000 to Station 50+175), Deschatelets Avenue (from Station 70+125 to Station 70+335), Scholastic Drive (from Station 10+225 to Station 10+392), Jeremiah Kealey Street (from Station 30+000 to Station 30+108), De Mazenod Avenue (from Station 40+000 to Station 40+168), Telmon Street (from Station 20+000 to Station 20+189), Clegg Street (from Station 90+000 to Station 90+179), and Easement (Block 61) (from Station 10+392 to Station 10+435); and

storm sewers on Hazel Street (from Station 50+0000 to Station 50+175), Deschatelets Avenue (from Station 70+125 to Station 70+335), Scholastic Drive (from Station 10+225 to Station 10+392), Jeremiah Kealey Street (from Station 30+000 to Station 30+108), De Mazenod Avenue (from Station 40+000 to Station 40+168), and Telmon Street (from Station 20+000 to Station 20+189);

including erosion/sedimentation control measures during construction and all other controls and appurtenances essential for the proper operation of the aforementioned Works;

all in accordance with the submitted supporting documents listed in Schedule "A" forming part of this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" means this entire document including the application and any supporting documents listed in any schedules in this Approval;

"Director" means a person appointed by the Minister pursuant to section 5 of the Environmental Protection Act for the purposes of Part II.1 of the Environmental Protection Act;

"Equivalent" means a substituted product that meets the required quality and performance standards of a named product;

"Ministry" means the ministry of the government of Ontario responsible for the Environmental Protection Act and the Ontario Water Resources Act and includes all officials, employees or other persons acting on its behalf;

"Owner" means the Greystone Village Inc., and includes their successors and assignees;

"Previous Works" means those portions of the sewage Works previously approved under an Approval;

"Works" means the sewage works described in the Owner's application(s) and this Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

(1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the Conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) The designation of the City of Ottawa as the operating authority of the site on the application for approval of the Works does not relieve the owner from the responsibility of complying with any and all of the this approval.

(3) Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.

(4) Where there is a conflict between a provision of any submitted document referred to in this Approval and the Conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(5) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(6) The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such Condition to other circumstances and the remainder of this Approval shall not be affected thereby.

(7) The issuance of, and compliance with the Conditions of this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works;
or

(b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. EXPIRY OF APPROVAL

(1) This Approval will cease to apply to those parts of the Works which have not been constructed within **five (5) years** of the date of this Approval.

3. CHANGE OF OWNER

(1) The Owner shall notify the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:

(a) change of Owner;

(b) change of address of the Owner;

(c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B17 shall be included in the notification to the Director;

(d) change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the Director.

4. OPERATION AND MAINTENANCE

(1) The Owner shall inspect the Works at least **once a year** and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments and/or vegetation.

(2) The Owner shall maintain a record of the results of these inspections and any cleaning and maintenance operations undertaken, and shall make the record available for inspection by the Ministry. The record shall include the following:

(a) the name of the Works; and

(b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed.

5. MONITORING AND REPORTING

(1) The Owner shall carry out a monitoring program for the inspection and maintenance of the Works as outline in this Approval and shall make the information available to the Ministry staff upon request. The monitoring program shall consist of annul maintenance logs listing the depth of sediment in the oil and grit separator and shall note the date of each inspection, maintenance and cleaning including an estimate of the quantity of materials removed, and maintenance operations undertaken.

6. TEMPORARY EROSION AND SEDIMENT CONTROL

(1) The Owner shall install and maintain temporary sediment and erosion control measures during construction and conduct inspections once every **two (2) weeks** and after each significant storm event (a significant storm event is defined as a minimum of 25 mm of rain in any 24 hours period). The inspections and maintenance of the temporary sediment and erosion control

measures shall continue until they are no longer required and at which time they shall be removed and all disturbed areas reinstated properly.

(2) The Owner shall maintain records of inspections and maintenance which shall be made available for inspection by the Ministry, upon request. The record shall include the name of the inspector, date of inspection, and the remedial measures, if any, undertaken to maintain the temporary sediment and erosion control measures.

7. RECORD KEEPING

The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the operation, maintenance and monitoring activities required by this Approval.

Schedule "A"

1. Application for Environmental Compliance Approval, dated March 9, 2016, received on March 31, 2016, submitted by Novatech;
2. Site Servicing, Stormwater Management, Noise Erosion and Sediment Control Brief, for Greystone Village 175 Main Street, Ottawa, Ontario, dated December 18, 2015, prepared by Novatech;
3. Pipe Data Form and Storm and Sanitary Sewer Design Sheets, prepared by Novatech;
4. Set of Engineering Drawings (8 drawings) for Greystone Village Phase 1A & 1B , City of Ottawa, dated December, 2015, prepared by Novatech;
5. E-mail from Justin Gauthier of Novatech to the Ministry, dated August 15, 2016; and
6. E-mail from Justin Gauthier of Novatech to the Ministry, dated August 16, 2016.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This Condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition 2 is included to ensure that, when the Works are constructed, the Works will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that any subsequent Owner of the Works is made aware of the Approval and continue to operate the Works in compliance with it.
4. Condition 4 is included to require that the Works be properly operated and maintained such that the environment is protected.
5. Condition 5 is included to enable the Owner to evaluate and demonstrate the performance of the Works on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives specified in the Approval and that the Works do not cause any impairment of the receiving watercourse.
6. Condition 6 is included as installation, regular inspection and maintenance of the temporary sediment and erosion control measures is required to mitigate the impact on the downstream receiving watercourse during construction, until they are no longer required.
7. Condition 7 is included to require that all records are retained for a sufficient time period to adequately evaluate the long-term operation and maintenance of the Works.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 4082-AAZQ6P issued on June 24, 2016.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in

- respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 17th day of August, 2016



Gregory Zimmer, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

TN/

c: District Manager, MOECC Ottawa Office
M. Rick O'Connor, City Clerk, City of Ottawa
Joshua White, P.Eng., Project Manager, Development Review, City of Ottawa
Linda Carkner, Program Manager, Infrastructure, City of Ottawa
J.G. Riddell, Novatech Engineering
Justin Gauthier, Novatech Engineering

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 0292-AP6PWR

Issue Date: July 12, 2017

Greystone Village Inc.
1737 Woodward Drive, Unit 2
Ottawa, Ontario
K2C 0P9

Site Location: Greystone Village, Phase 2 and 3
175 Main Street
City of Ottawa, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

storm and sanitary sewers to be constructed in the City of Ottawa, as follows:

- sanitary sewers on Oblates Avenue (from Station 60+007.53 to Station 60+373.35), Scholastics Drive (from Station 10+0075 to Station 10+195.89), Deschatelets Avenue (from Station 70+000 to Station 70+132), and Block 58 (from Station 0+002 to Station 0+048.5); and
- storm sewers on Oblates Avenue (from Station 60+007.53 to Station 60+373.35), Scholastics Drive (from Station 10+0075 to Station 10+195.89), and Deschatelets Avenue (from Station 70+000 to Station 70+132);

all in accordance with the submitted application and supporting documents listed in Schedule "A" forming part of this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval " means this entire document and any schedules attached to it, and the application;
2. "Director " means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;
3. "District Manager " means the District Manager of the appropriate local District Office of the Ministry, where the Works are geographically located;

4. "*EPA* " means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
5. "*Ministry* " means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;
6. "*Owner* " means Greystone Village Inc., and includes their successors and assignees;
7. "*OWRA* " means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;
8. "*Works* " means the sewage works described in the Owner's application, and this Approval;
9. "*Professional Engineer* " means a person entitled to practice as a Professional Engineer in the Province of Ontario under a licence issued under the *Professional Engineers Act*.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITIONS

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
2. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.
3. Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.
4. Where there is a conflict between the documents listed in Schedule 'A' and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
5. The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

6. The issuance of, and compliance with the conditions of, this Approval does not:
 - a. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority/MNR necessary to construct or operate the sewage works; or
 - b. limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. EXPIRY OF APPROVAL

1. This Approval will cease to apply to those parts of the Work which have not been constructed within five (5) years of the date of this Approval.
2. In the event that completion and commissioning of any portion of the Works is anticipated to be delayed beyond the specified expiry period, the Owner shall submit an application of extension to the expiry period, at least twelve (12) months prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review of whether the standards applicable at the time of Approval of the Works are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

3. CHANGE OF OWNER

1. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of Owner;
 - b. change of address of the Owner;
 - c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the District Manager; or
 - d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the District Manager.
2. In the event of any change in ownership of the Works, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the District Manager and the Director.
3. The Owner shall ensure that all communications made pursuant to this condition refer to the

number at the top of this Approval.

4. Notwithstanding any other requirements in this Approval, upon transfer of the ownership or assumption of the Works to a municipality if applicable, any reference to the District Manager shall be replaced with the Water Supervisor.

4. OPERATION AND MAINTENANCE

1. If applicable, any proposed storm sewers or other stormwater conveyance in this Approval can be constructed but not operated until the proposed stormwater management facilities in this Approval or any other Approval that are designed to service the storm sewers or other stormwater conveyance are in operation.

Schedule "A"

1. Application for Environmental Compliance Approval for Municipal and Private Sewage Works, dated May 17, 2017 and received on June 14, 2017, submitted by Greystone Village Inc.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted. This condition is also included to emphasize the precedence of conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. Condition 1.6 is included to emphasize that the issuance of this Approval does not diminish any other statutory and regulatory obligations to which the Owner is subject in the construction, maintenance and operation of the Works. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this Approval doesn't limit the authority of the Ministry to require further information.
2. Condition 2 is included to ensure that, when the Works are constructed, the Works will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
4. Condition 4 is included to prevent the operation of stormwater pipes and other conveyance until such time that their required associated stormwater management Works are also constructed.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario

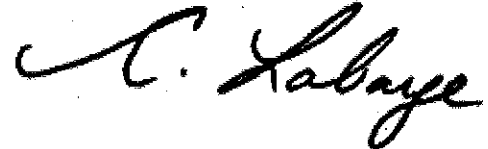
AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 12th day of July, 2017



Christina Labarge, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

SW/

c: District Manager, MOECC Ottawa District Office
City Clerk, City of Ottawa (File No. D07-16-15-0001)
Justin Gauthier, Project Manager, Novatech Engineering
Joshua White, P.Eng., Senior Engineer, Development Review, City of Ottawa
Linda Carkner, Program Manager, ROW Unit, City of Ottawa

ENVIRONMENTAL COMPLIANCE APPROVALNUMBER 3454-APEHFQ
Issue Date: July 31, 2017

Greystone Village Inc.
1737 Woodward Drive, 2nd Floor
Ottawa, Ontario
K2C 0P9

Site Location: Greystone Village Phase 2 and 3
175 Main Street
City of Ottawa, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

storm sewers and an associated **stormwater outfall** to be constructed in the City of Ottawa on Block 58, from Station (0+024.35) to Station (0+056.7), and discharging to the Rideau River;

one (1) oil/grit separator (catchment area - 2.7 hectares): - the establishment of an off-line oil/grit separator (model stormceptor 5000 or Equivalent) in the City of Ottawa, for the treatment and disposal of stormwater run-off for all storm events up to and including the 100-year storm event, to provide Enhanced Level water quality protection for a total catchment area of approximately 2.7 hectares, having a sediment storage capacity of 20,940 litres, an oil storage capacity of 3,360 litres, a total holding capacity of 24,710 litres, and a maximum treatment flow rate of 61 litres/second, discharging to Rideau River;

including erosion/sedimentation control measures during construction and all other controls and appurtenances essential for the proper operation of the aforementioned Works;

all in accordance with the submitted supporting documents listed in Schedule "A" forming part of this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval " means this entire document and any schedules attached to it, and the application;
2. "Director " means a person appointed by the Minister pursuant to section 5 of the *EPA* for the

purposes of Part II.1 of the *EPA*;

3. "*District Manager* " means the *District Manager* of the appropriate local District Office of the *Ministry* , where the *Works* are geographically located;
4. "*EPA* " means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
5. "*Equivalent* " means a substituted oil and grit separator that meets the required quality and performance standards of the approved oil and grit separator;
6. "*Ministry* " means the ministry of the government of Ontario responsible for the *EPA* and *OWRA* and includes all officials, employees or other persons acting on its behalf;
7. "*Owner* " means Greystone Village Inc., and includes its successors and assignees;
8. "*OWRA* " means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;
9. "*Water Supervisor* " means the *Water Supervisor* of the appropriate local office of the Safe Drinking Water Branch of the *Ministry*, where the *Works* are geographically located;
10. "*Works* " means the sewage works described in the *Owner's* application, and this *Approval*.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITIONS

1. The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Approval* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
2. Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Approval*, and the application for approval of the *Works*.
3. Where there is a conflict between a provision of any document in the schedule referred to in this *Approval* and the conditions of this *Approval*, the conditions in this *Approval* shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.
4. Where there is a conflict between the documents listed in Schedule 'A' and the application, the

application shall take precedence unless it is clear that the purpose of the document was to amend the application.

5. The conditions of this *Approval* are severable. If any condition of this *Approval*, or the application of any requirement of this *Approval* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Approval* shall not be affected thereby.
6. The issuance of, and compliance with the conditions of, this *Approval* does not:
 - a. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority/MNR necessary to construct or operate the sewage works; or
 - b. limit in any way the authority of the *Ministry* to require certain steps be taken to require the *Owner* to furnish any further information related to compliance with this *Approval*.

2. EXPIRY OF APPROVAL

1. This *Approval* will cease to apply to those parts of the *Work* which have not been constructed within five (5) years of the date of this *Approval*.
2. In the event that completion and commissioning of any portion of the *Works* is anticipated to be delayed beyond the specified expiry period, the *Owner* shall submit an application of extension to the expiry period, at least twelve (12) months prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review of whether the standards applicable at the time of *Approval* of the *Works* are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

3. CHANGE OF OWNER

1. The *Owner* shall notify the District Manager and the *Director*, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of *Owner*;
 - b. change of address of the *Owner*;
 - c. change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the District Manager; or
 - d. change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act,

R.S.O. 1990, c. C39 shall be included in the notification to the District Manager.

2. In the event of any change in ownership of the *Works* , other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Approval* , and a copy of such notice shall be forwarded to the District Manager and the *Director*.
3. The *Owner* shall ensure that all communications made pursuant to this condition refer to the number at the top of this *Approval*.
4. Notwithstanding any other requirements in this *Approval* , upon transfer of the ownership or assumption of the *Works* to a municipality if applicable, any reference to the *District Manager* shall be replaced with the *Water Supervisor*.

4. OPERATION AND MAINTENANCE

1. If applicable, any proposed storm sewers or other stormwater conveyance in this *Approval* can be constructed but not operated until the proposed stormwater management facilities in this *Approval* or any other *Approval* that are designed to service the storm sewers or other stormwater conveyance are in operation.
2. The *Owner* shall make all necessary investigations, take all necessary steps and obtain all necessary approvals so as to ensure that the physical structure, siting and operations of the *Works* do not constitute a safety or health hazard to the general public.
3. The *Owner* shall undertake an inspection of the condition of the *Works*, at least once a year, and undertake any necessary cleaning and maintenance to ensure that sediment, debris and excessive decaying vegetation are removed from the *Works* to prevent the excessive build-up of sediment, oil/grit, debris and/or decaying vegetation, to avoid reduction of the capacity and/or permeability of the *Works*, as applicable. The *Owner* shall also regularly inspect and clean out the inlet to and outlet from the *Works* to ensure that these are not obstructed.
4. The *Owner* shall design, construct and operate the *Works* with the objective that the effluent from the *Works* is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discoloration on the receiving waters.
5. The *Owner* shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the *Owner's* administration office for inspection by the *Ministry*. The logbook shall include the following:
 - a. the name of the *Works*; and
 - b. the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed and method of clean-out of the *Works*.

6. The *Owner* shall prepare an operations manual prior to the commencement of operation of the *Works* that includes, but is not necessarily limited to, the following information:
 - a. operating and maintenance procedures for routine operation of the *Works*;
 - b. inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;
 - c. repair and maintenance programs, including the frequency of repair and maintenance for the *Works*;
 - d. contingency plans and procedures for dealing with potential spills and any other abnormal situations and for notifying the District Manager; and
 - e. procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.
7. The *Owner* shall maintain the operations manual current and retain a copy at the location of the *Works* for the operational life of the *Works*. Upon request, the *Owner* shall make the manual available to *Ministry* staff.

5. TEMPORARY EROSION AND SEDIMENT CONTROL

1. The *Owner* shall install and maintain temporary sediment and erosion control measures during construction and conduct inspections once every two (2) weeks and after each significant storm event (a significant storm event is defined as a minimum of 25 mm of rain in any 24 hours period). The inspections and maintenance of the temporary sediment and erosion control measures shall continue until they are no longer required and at which time they shall be removed and all disturbed areas reinstated properly.
2. The *Owner* shall maintain records of inspections and maintenance which shall be made available for inspection by the *Ministry*, upon request. The record shall include the name of the inspector, date of inspection, and the remedial measures, if any, undertaken to maintain the temporary sediment and erosion control measures.

6. REPORTING

1. One (1) week prior to the start-up of the operation of the *Works*, the *Owner* shall notify the District Manager (in writing) of the pending start-up date.
2. The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.
3. The *Owner* shall prepare and submit a performance report to the District Manager on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following

thereafter. The reports shall contain, but shall not be limited to, the following information:

- a. a description of any operating problems encountered and corrective actions taken;
- b. a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*, including an estimate of the quantity of any materials removed from the *Works*;
- c. a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- d. a summary of all spill or abnormal discharge events; and
- e. any other information the District Manager requires from time to time.

Schedule "A"

1. Application for Environmental Compliance Approval under M&P Sewage Works, dated May 15, 2017 and received on June 29, 2017, submitted by The Greystone Village Inc.;
2. Greystone Village Phase 2 and 3, 175 Main Street, Plan and Profile, Storm Outlet 2 (including Grading, Erosion and Sediment Control) Revision 4, dated May 26, 2017, prepared by Novatech Engineering;
3. Greystone Village Phase 2 and 3, 175 Main Street, Site Servicing, stormwater management, Noise, Erosion & Sediment Control design beirf, revised May 26, 2017, prepared by Novatech Engineering;

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are constructed and operated in the manner in which they were described and upon which approval was granted. This condition is also included to emphasize the precedence of conditions in the *Approval* and the practice that the *Approval* is based on the most current document, if several conflicting documents are submitted for review. Condition 1.6 is included to emphasize that the issuance of this *Approval* does not diminish any other statutory and regulatory obligations to which the *Owner* is subject in the construction, maintenance and operation of the *Works*. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this *Approval* doesn't limit the authority of the *Ministry* to require further information.
2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to approved *Works* and to ensure that subsequent owners of the *Works* are made aware of the *Approval* and continue to operate the *Works* in compliance with it.
4. Condition 4 is included as regular inspection and necessary removal of sediment and excessive decaying vegetation from the *Works* are required to mitigate the impact of sediment, debris and/or decaying vegetation on the treatment capacity of the *Works*. The Condition also ensures that adequate storage is maintained in the *Works* at all times as required by the design. Furthermore, this Condition is included to ensure that the *Works* are operated and maintained to function as designed. Condition 4.1 is included to prevent the operation of stormwater pipes and other conveyance until such time that their required associated stormwater management *Works* are also constructed.
5. Condition 5 is included as installation, regular inspection and maintenance of the temporary sediment and erosion control measures is required to mitigate the impact on the downstream receiving watercourse during construction until they are no longer required.
6. Condition 6 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Approval*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance

- approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 31st day of July, 2017



Christina Labarge, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

MS/

- c: District Manager, MOECC Ottawa office
Justin Gauthier, Project Manager, Novatech Engineering
City Clerk, City of Ottawa (File No. D07-16-15-0001)
Joshua White, P.Eng., Senior Engineer, Development Review, City of Ottawa
Linda Carkner, Program Manager, Row Unit, City of Ottawa

**LETTER OF PERMISSION – ONT. REG. 174/06,
SECTION 28 CONSERVATION AUTHORITIES ACT 1990, AS AMENDED.**

Date: 15 July, 2016.
File: RV3-34/16
Contact: Hal Stimson
(613) 692-3571 Ext 1127
hal.stimson@rvca.ca

Mr. David Kardish
Greystone Village Inc.
c/o The Regional Group
1737 Woodward Dr.
Ottawa, Ontario
K2C 0P9

Permit for development under Section 28 of the Conservation Authorities Act for storm water outlet in a regulated area at Lot Part H Concession D (old Nepean Township) City of Ottawa known municipally as 175 Main Street

Dear Mr. Kardish

The Rideau Valley Conservation Authority has reviewed your application on behalf of Regional Group and understands the proposal to be for: the installation of a new 900 mm diameter concrete stormwater outlet pipe including headwall and river stone plunge pool discharging to the Rideau River just downstream of Clegg Street in the vicinity of the future Telmon Street.

This proposal was reviewed under Ontario Regulation 174/06, the “*Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*” regulation.

PERMISSION AND CONDITIONS

By this letter the Rideau Valley Conservation Authority hereby grants you approval to undertake this project as outlined in your permit application but subject to the following conditions:

1. Approval is subject to the understanding of the project as described above and outlined in the application and submitted plans including:
 - Drawing No. 114025-PR9 for Project No. 114025-00 titled Storm Outlet Plan and Profile & Grading, Erosion and Sediment Control Plan Station 0+000 to 0+050, dated May 24/16, revision No. 6, as prepared by Novatech Engineering and stamped by J. G. Riddell, P. Eng.**No conditions are subject to change/revision by the on-site contractor(s).**
2. **There will be no in-water works between March 15 and July 1, of any given year to protect local aquatic species populations during their spawning and nursery time periods.**
3. It is recommended that you retain the services of an engineer to conduct on-site inspections to ensure adequacy of the work, verify stability of the final grade and confirm all imported fill is of a suitable type and has been adequately placed and compacted.
4. **A De-watering Plan and Sediment and Erosion Control Plan must be submitted by the contractor to this office for review prior to construction activities commencing.**
5. It is recommended that you ensure your contractor(s) are provided with a copy of this letter so as to ensure compliance with the conditions listed herein.
6. Any excess excavated material, as a result of the work, must be disposed of in a suitable location outside any regulatory floodplain and fill regulated area. No changes to area grades are to occur as a result of the work.
7. Only clean material free from particulate matter may be placed in the water.
8. Operate machinery from outside the water, or on the water in a manner that minimizes disturbance to the banks or bed of the watercourse. Equipment shall not be cleaned in the watercourse or where wash-water can enter any watercourse. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks.
9. All materials and equipment used for the purpose of site preparation and project completion must be operated (washed, refuelled, and serviced) and all fuel stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris etc.) from entering any watercourse.
10. Any stockpiled materials shall be stored and stabilized away from the water.
11. Work in water shall not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods.

12. Sediment barriers should be used on site in an appropriate method according to the Ontario Provincial Standard Specifications (OPSS) for silt barriers as a minimum. If the sediment and erosion control methods include silt fence it should be placed along the shoreline to prevent overland flow on disturbed areas from entering the watercourse. Soil type, slope of land, drainage area, weather, predicted sediment load and deposition should be considered when selecting the type of sediment/erosion control.
13. Sediment and erosion control measures shall be in place before any excavation or construction works commence. All sediment/erosion control measures are to be monitored regularly by experienced personnel and maintained as necessary to ensure good working order. In the event that the erosion and sedimentation control measures are deemed not to be performing adequately, the contractor shall undertake immediate additional measures as appropriate to the situation to the satisfaction of the Conservation Authority.
14. Develop a response plan that is to be implemented immediately in the event of flooding, a sediment release or spill of a deleterious substance. This plan is to include measures to: a) stop work, contain sediment-laden water and other deleterious substances and prevent their further migration into the watercourse and downstream receiving watercourses; b) notify the RVCA and all applicable authorities in the area c) promptly clean-up and appropriately dispose of the sediment-laden water and deleterious substances; and d) ensure clean-up measures are suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse.
15. The owner is ultimately responsible for failure to comply with any and/or all of these conditions and must take all precautions to ensure no sediment runoff from the work site into any watercourse during and after the construction period. Failure to comply with the approval and/or conditions of this letter will result in the permit being revoked and may also result in legal action being initiated to resolve the matter to the Conservation Authority's satisfaction.
16. The applicant agrees that Authority staff may visit the subject property, before, during and after project completion, to ensure compliance with the conditions as set out in this letter of permission.
17. A new application must be submitted should any work as specified in this letter be ongoing or planned for or after July 18, 2018.
18. That the Authority be given twenty-four hours notice prior to the start of construction and within twenty-four hours of project completion.
19. All other approvals as might be required from the Municipality, and/or other Provincial or Federal Agencies must be obtained prior to initiation of work. This includes but is not limited to the Endangered Species Act., the Ontario Water Resources Act., Environmental Protection Act., Public Lands Act, and the Fisheries Act.

By this letter the Rideau Valley Conservation Authority assumes no responsibility or liability for any flood, erosion, or slope failure damage which may occur either to your property or the structures on it or if any activity undertaken by you adversely affects the property or interests of adjacent landowners. This letter does not relieve you of the necessity or responsibility for obtaining any other federal, provincial or municipal permits. This permit is not transferable to subsequent property owners.

Should you have any questions regarding this letter, please contact Hal Stimson at our Manotick office.



Terry K. Davidson, P. Eng.
Conservation Authority S. 28 Signing delegate
O. Reg. 174/06

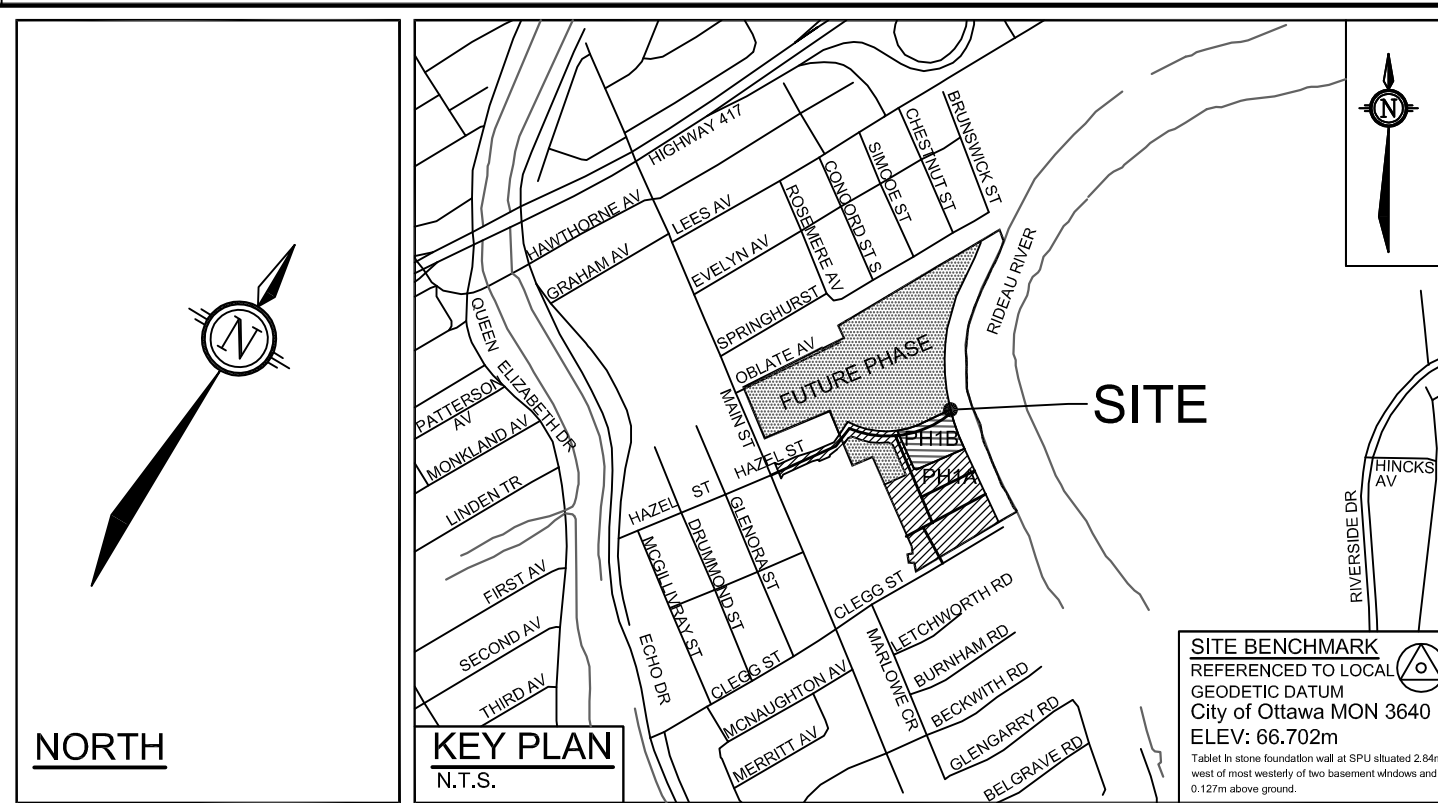
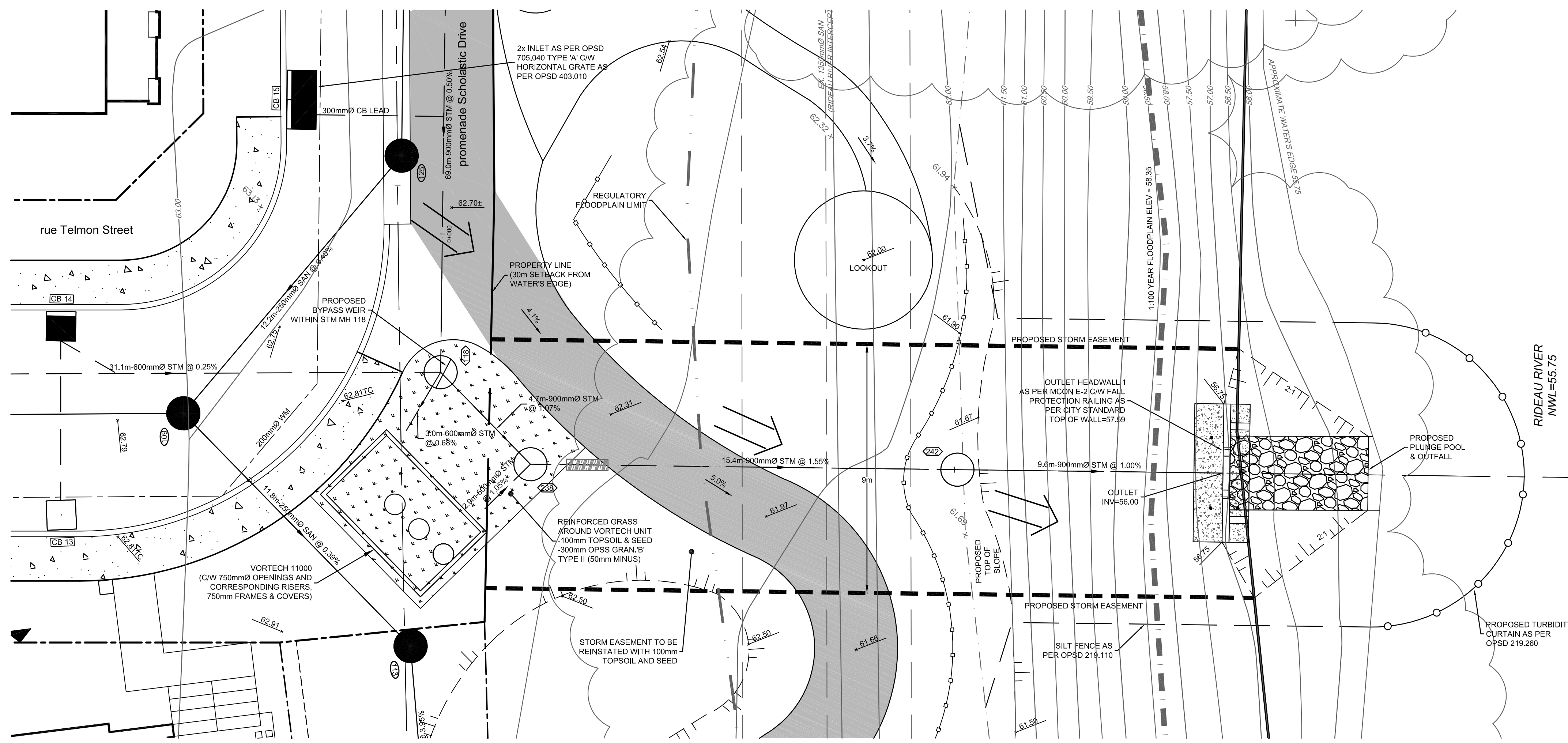
Cc: M. St. Pierre, P. Eng. Novatech
T. McLaurin, MNRF Kemptville

- Pursuant to the provisions of S. 28(12) of the Conservation Authorities Act (R.S.O.1990, as amended.) any or all of the conditions set out above may be appealed to the Executive Committee of the Conservation Authority in the event that they are not satisfactory or cannot be complied with.
- Failure to comply with the conditions of approval or the scope of the project may result in the cancelling of the permission and/or initiation of legal action under S. 28(16) of the Act.
- This letter of permission does not come into full force and effect until the attached copy of this letter is returned to the Authority offices in Manotick signed and dated which return shall be taken as indicating acceptance of the conditions of the Authority's approval and acknowledgement that the details of the proposal as described in this letter are a fair and accurate representation of the proposed undertaking.

Name: DAVID KAPISIAK ARO (print)

Signed: 

Date: July 18/2016

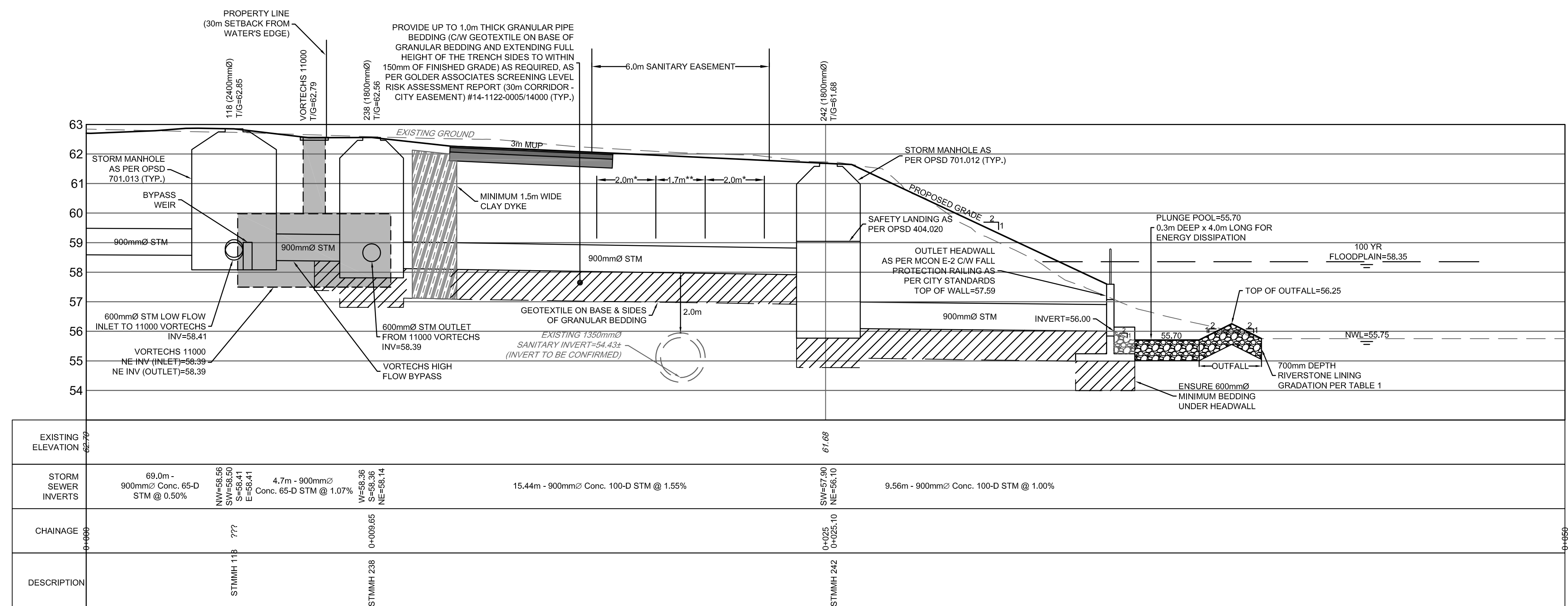


- LEGEND**
- 200mm Ø WM: PROPOSED WATERMAIN AND DIAMETER
 - 100mm Ø S: PROPOSED SANITARY MH & SEWER WITH DIRECTION OF FLOW
 - 100mm Ø S: PROPOSED STORM MH & SEWER WITH DIRECTION OF FLOW
 - CLAY: PROPOSED CLAY DYKE
 - CB 14: PROPOSED CATCH BASIN LEAD
 - CB 28: PROPOSED ROADSIDE CATCH BASIN
 - CB 28: PROPOSED ROADSIDE CATCH BASIN WITH INLET CONTROL DEVICE
 - VORTECH: PROPOSED VORTECHS 11000 STORMWATER TREATMENT UNIT
 - POOL: PROPOSED PLUNGE POOL & OUTFALL
 - EASEMENT: PROPOSED STORM EASEMENT
 - ELEVATION: PROPOSED ELEVATION
 - GRADE: PROPOSED GRADE AND DIRECTION
 - SLOPE: MAXIMUM 2:1 SIDESLOPE
 - ROUTE: MAJOR OVERLAND FLOW ROUTE
 - FENCELINE: PROPOSED FENCELINE
 - CONTOUR: EXISTING GROUND SURFACE CONTOUR (MAJOR/MINOR)
 - FENCE: PROPOSED SILT FENCE PER OPSD 219.110
 - CURTAIN: PROPOSED TURBIDITY CURTAIN AS PER OPSD 219.260
 - PATHWAY: PROPOSED MULTI-USE PATHWAY

TABLE 1: RIVERSTONE GRADATION

| % PASSING | STONE DIAMETER (mm) |
|-----------|---------------------|
| 100 | 450 |
| 85 | 400 |
| 50 | 300 |
| 30 | 200 |
| 15 | GRANULAR 'A' |

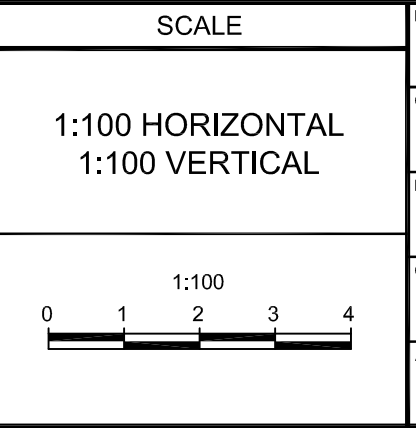
NOTE:
 * LIGHT COMPACTION EQUIPMENT & NOMINAL LEVELS OF COMPACTION EFFORT WITHIN 2.0m OF EXISTING 1350mm Ø SANITARY PIPE
 ** NO PROOF-ROLLING/COMPACTION DIRECTLY OVER EXISTING 1350mm Ø SANITARY PIPE



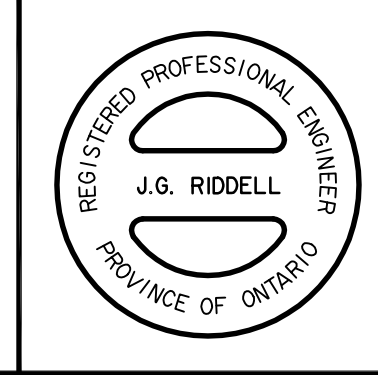
REFER TO 114025-N&L FOR ADDITIONAL NOTES

NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| NO. | REVISION | DATE | BY |
|-----|--|------------|-----|
| 7. | ISSUED FOR ORDERING OF MATERIAL | JUNE 14/16 | JAG |
| 6. | REVISED AS PER CITY COMMENTS & ISSUED FOR E.C.A. | MAY 24/16 | JAG |
| 5. | ISSUED FOR TENDER | APR 20/16 | JAG |
| 4. | REVISED AS PER CITY COMMENTS | APR 13/16 | JAG |
| 3. | REVISED AS PER CITY STORM OUTFALL COMMENTS #2 | MAR 11/16 | JAG |
| 2. | REVISED AS PER CITY STORM OUTFALL COMMENTS | FEB 25/16 | JAG |
| 1. | ISSUED FOR CITY OF OTTAWA REVIEW | DEC 18/15 | JAG |



| DESIGN | FOR REVIEW ONLY |
|---------------|-----------------|
| CHECKED: DDB | FOR REVIEW ONLY |
| DRAWN: DDB | |
| CHECKED: BET | |
| APPROVED: DDB | |
| JGR | |



NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 3P6
 Telephone: (613) 254-9643
 Facsimile: (613) 254-5867
 Website: www.novatech-eng.com

CITY OF OTTAWA
 GREYSTONE VILLAGE
 175 MAIN STREET

DRAWING NAME
**STORM OUTFALL
 PLAN AND PROFILE &
 GRADING, EROSION AND
 SEDIMENT CONTROL PLAN
 STATION 0+000 TO 0+050**

PROJECT NO.: 114025-00
 REV # 7
 DRAWING NO.: 114025-PR9

2016/06/20 09:00:00 2016/06/20 14:14:02 C:\Users\m... \Documents\114025-PR9.dwg PLOT (B1) Jun 17, 2016 - 10:55am m...

**LETTER OF PERMISSION – ONT. REG. 174/06,
SECTION 28 CONSERVATION AUTHORITIES ACT 1990, AS AMENDED.**

Date: 21 April, 2017.
File: RV3-08/17
Contact: Hal Stimson
(613) 692-3571 Ext 1127
hal.stimson@rvca.ca

Mr. David Kardish
Greystone Village Inc.
c/o The Regional Group
1737 Woodward Dr.
Ottawa, Ontario
K2C 0P9

Permit for development under Section 28 of the Conservation Authorities Act for storm water outlet and soil remediation in a regulated area at Lot Part H Concession D (old Nepean Township) City of Ottawa known municipally as 175 Main Street

Dear Mr. Kardish

The Rideau Valley Conservation Authority has reviewed your application on behalf of Regional Group and understands the proposal to be for: 1) the installation of a new 750 mm diameter concrete stormwater outlet pipe including headwall and river stone plunge pool discharging to the Rideau River east of the intersection of Oblate Avenue and Scholastic Drive and including a compensatory cut of fill previously approved. 2) removal and replacement of contaminated soil in the RVCA regulated area with existing grades to be re-established.

This proposal was reviewed under Ontario Regulation 174/06, the “*Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*” regulation and is approved in an amended form noting that the construction of buildings request (lots 12 and 13) will need to form a separate application pending registration of the lots and verification of appropriate flood proofing measures in the final building design.

PERMISSION AND CONDITIONS

By this letter the Rideau Valley Conservation Authority hereby grants you approval to undertake this project as outlined in your permit application but subject to the following conditions:

1. Approval is subject to the understanding of the project as described above and outlined in the application and submitted plans including:
 - Drawing No. 114025-PR6-B for Project No. 114025-00 titled Plan and Profile Phase 2 and 3 Storm Outlet 2 (Incl. Grading, Erosion and Sediment Control) Station 0+000 to 0+54, dated Nov 21/16, revision No. 1, as prepared by Novatech Engineering and stamped by J. G. Riddell, P. Eng.
 - Drawing No. 114025-GR3-B for Project No. 114025-00 titled Grading, Erosion and Sediment Control Plan Phase 2 and 3, dated Nov 21/16, revision No. 1, as prepared by Novatech Engineering and stamped by J. G. Riddell, P. Eng.
 - Drawing No. 114025-GP3-B for Project No. 114025-00 titled General Plan of Services Phase 2 and 3, dated Nov 21/16, revision No. 1, as prepared by Novatech Engineering.
 - Drawing No. 114025-LG-B for Project No. 114025-00 titled RVCA Remediation Permit Plan, dated Feb 13/17, revision No. 1, as prepared by Novatech Engineering.
 - Technical memorandum for project 14-1122-0005 dated February 3, 2017 from Susan Trickey, P. Eng. of Golder Associates.

No conditions are subject to change/revision by the on-site contractor(s).

2. **There will be no in-water works between March 15 and July 1, of any given year to protect local aquatic species populations during their spawning and nursery time periods.**
3. No encroachment for fill remediation purposes is to occur within 15m of the top of the river bank. Construction access fencing should be installed to clearly demarcate the construction access limits.
4. All grades within the 30m setback are to be restored to existing and stabilized upon completion of the remediation work.
5. It is recommended that you retain the services of an engineer to conduct on-site inspections to ensure adequacy of the work, verify stability of the final grade and confirm all imported fill is of a suitable type and has been adequately placed and compacted and that the recommendations of the geotechnical technical memorandum are followed.
6. **A De-watering Plan and Sediment and Erosion Control Plan must be submitted by the contractor to this office for review prior to construction activities commencing on the storm outlet.**
7. It is recommended that you ensure your contractor(s) are provided with a copy of this letter so as to ensure compliance with the conditions listed herein.
8. All disturbed soil areas must be appropriately stabilized to prevent erosion.

9. Any excess excavated material, as a result of the work, must be disposed of in a suitable location outside any regulatory floodplain and fill regulated area. No changes to area grades are to occur as a result of the work.
10. A final as built grading plan shall be submitted immediately upon completion of the approved works prepared by an Ontario Land Surveyor or Professional Engineer licensed to practice in Ontario indicating that grades achieved on the site conform to those indicated on the approved plan. Only clean material free from particulate matter may be placed in the water.
11. Operate machinery from outside the water, or on the water in a manner that minimizes disturbance to the banks or bed of the watercourse. Equipment shall not be cleaned in the watercourse or where wash-water can enter any watercourse. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks.
12. All materials and equipment used for the purpose of site preparation and project completion must be operated (washed, refuelled, and serviced) and all fuel stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris etc.) from entering any watercourse.
13. Any stockpiled materials shall be stored and stabilized away from the water.
14. Work in water shall not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods.
15. Sediment barriers should be used on site in an appropriate method according to the Ontario Provincial Standard Specifications (OPSS) for silt barriers as a minimum. If the sediment and erosion control methods include silt fence it should be placed along the shoreline to prevent overland flow on disturbed areas from entering the watercourse. Soil type, slope of land, drainage area, weather, predicted sediment load and deposition should be considered when selecting the type of sediment/erosion control.
16. Sediment and erosion control measures shall be in place before any excavation or construction works commence. All sediment/erosion control measures are to be monitored regularly by experienced personnel and maintained as necessary to ensure good working order. In the event that the erosion and sedimentation control measures are deemed not to be performing adequately, the contractor shall undertake immediate additional measures as appropriate to the situation to the satisfaction of the Conservation Authority.
17. Develop a response plan that is to be implemented immediately in the event of flooding, a sediment release or spill of a deleterious substance. This plan is to include measures to: a) stop work, contain sediment-laden water and other deleterious substances and prevent their further migration into the watercourse and downstream receiving watercourses; b) notify the RVCA and all applicable authorities in the area c) promptly clean-up and appropriately dispose of the sediment-laden water and deleterious

substances; and d) ensure clean-up measures are suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse.

18. The owner is ultimately responsible for failure to comply with any and/or all of these conditions and must take all precautions to ensure no sediment runoff from the work site into any watercourse during and after the construction period. Failure to comply with the approval and/or conditions of this letter will result in the permit being revoked and may also result in legal action being initiated to resolve the matter to the Conservation Authority's satisfaction.
19. The applicant agrees that Authority staff may visit the subject property, before, during and after project completion, to ensure compliance with the conditions as set out in this letter of permission.
20. A new application must be submitted should any work as specified in this letter be ongoing or planned for or after April 25, 2019.
21. That the Authority be given twenty-four hours notice prior to the start of construction and within twenty-four hours of project completion.
22. All other approvals as might be required from the Municipality, and/or other Provincial or Federal Agencies must be obtained prior to initiation of work. This includes but is not limited to the Endangered Species Act., the Ontario Water Resources Act., Environmental Protection Act., Public Lands Act, and the Fisheries Act.

By this letter the Rideau Valley Conservation Authority assumes no responsibility or liability for any flood, erosion, or slope failure damage which may occur either to your property or the structures on it or if any activity undertaken by you adversely affects the property or interests of adjacent landowners. This letter does not relieve you of the necessity or responsibility for obtaining any other federal, provincial or municipal permits. This permit is not transferable to subsequent property owners.

Should you have any questions regarding this letter, please contact Hal Stimson at our Manotick office.



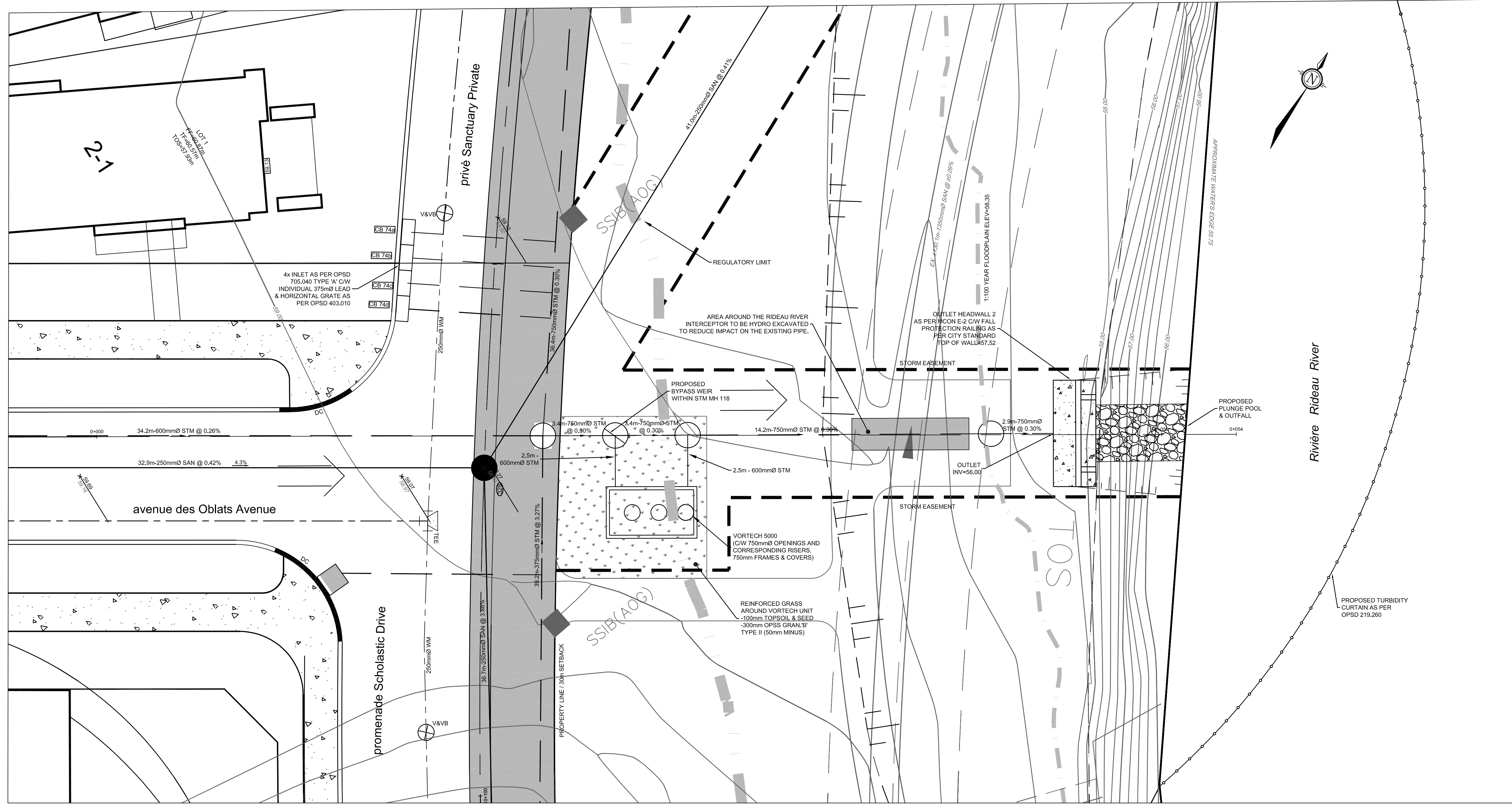
Terry K. Davidson, P. Eng.
Conservation Authority S. 28 Signing delegate
O. Reg. 174/06

Cc: J. Gauthier, E.I.T. Novatech
T. McLaurin, MNRF Kemptville

- Pursuant to the provisions of S. 28(12) of the Conservation Authorities Act (R.S.O.1990, as amended.) any or all of the conditions set out above may be appealed to the Executive Committee of the Conservation Authority in the event that they are not satisfactory or cannot be complied with.
- Failure to comply with the conditions of approval or the scope of the project may result in the cancelling of the permission and/or initiation of legal action under S. 28(16) of the Act.
- This letter of permission does not come into full force and effect until the attached copy of this letter is returned to the Authority offices in Manotick signed and dated which return shall be taken as indicating acceptance of the conditions of the Authority's approval and acknowledgement that the details of the proposal as described in this letter are a fair and accurate representation of the proposed undertaking.

Name: _____ (print)

Signed: _____ Date: _____



LEGEND

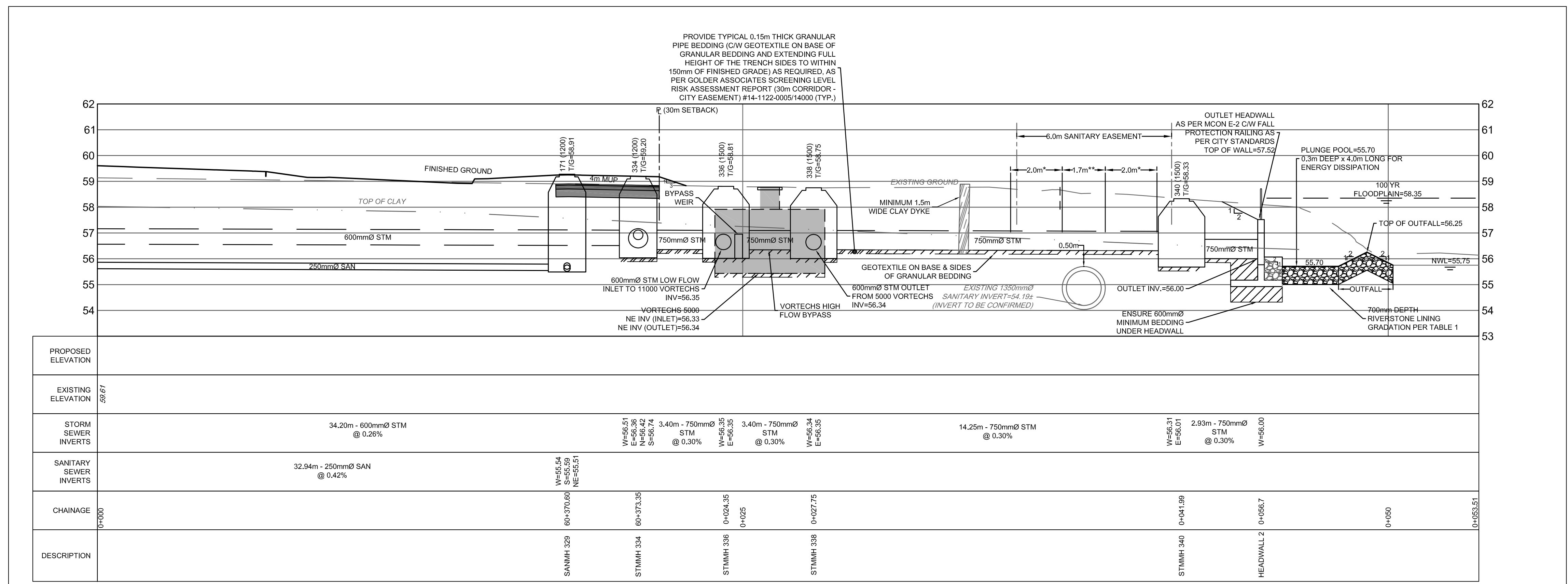
- 200mm Ø WM
- PROPOSED WATERMAIN AND DIAMETER
- PROPOSED SANITARY MH & SEWER WITH DIRECTION OF FLOW
- PROPOSED STORM MH & SEWER WITH DIRECTION OF FLOW
- PROPOSED CLAY DYKE
- PROPOSED CATCH BASIN LEAD
- PROPOSED ROADSIDE CATCHBASIN
- PROPOSED ROADSIDE CATCH BASIN WITH INLET CONTROL DEVICE
- PROPOSED VORTECHS 11000 STORMWATER TREATMENT UNIT
- PROPOSED PLUNGE POOL & OUTFALL
- PROPOSED STORM EASEMENT
- PROPOSED ELEVATION
- PROPOSED GRADE AND DIRECTION
- MAXIMUM 2:1 SIDESLOPE
- MAJOR OVERLAND FLOW ROUTE
- PROPOSED FENCELINE
- EXISTING GROUND SURFACE CONTOUR (MAJOR/MINOR)
- PROPOSED SILT FENCE PER OPSD 219.110
- PROPOSED TURBIDITY CURTAIN AS PER OPSD 219.260
- PROPOSED MULTIPATH WAYWAY

TABLE 1: RIVERSTONE GRADATION

| % PASSING | STONE DIAMETER (mm) |
|-----------|---------------------|
| 100 | 450 |
| 85 | 400 |
| 50 | 300 |
| 30 | 200 |
| 15 | GRANULAR "A" |

NOTE:

- * LIGHT COMPACTION EQUIPMENT & NOMINAL LEVELS OF COMPACTION EFFORT WITHIN 2.0m OF EXISTING 150mm SANITARY PIPE
- ** NO PROF ROLLING/COMPACTION DIRECTLY OVER EXISTING 150mm SANITARY PIPE



REFER TO 114025-N&L-B FOR ADDITIONAL NOTES AND CATCHBASIN TABLES

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

| NO. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 1. | ISSUED FOR CITY OF OTTAWA REVIEW | NOV 21/16 | JAG |

SCALE

1:100 HORIZONTAL
1:100 VERTICAL

FOR REVIEW ONLY

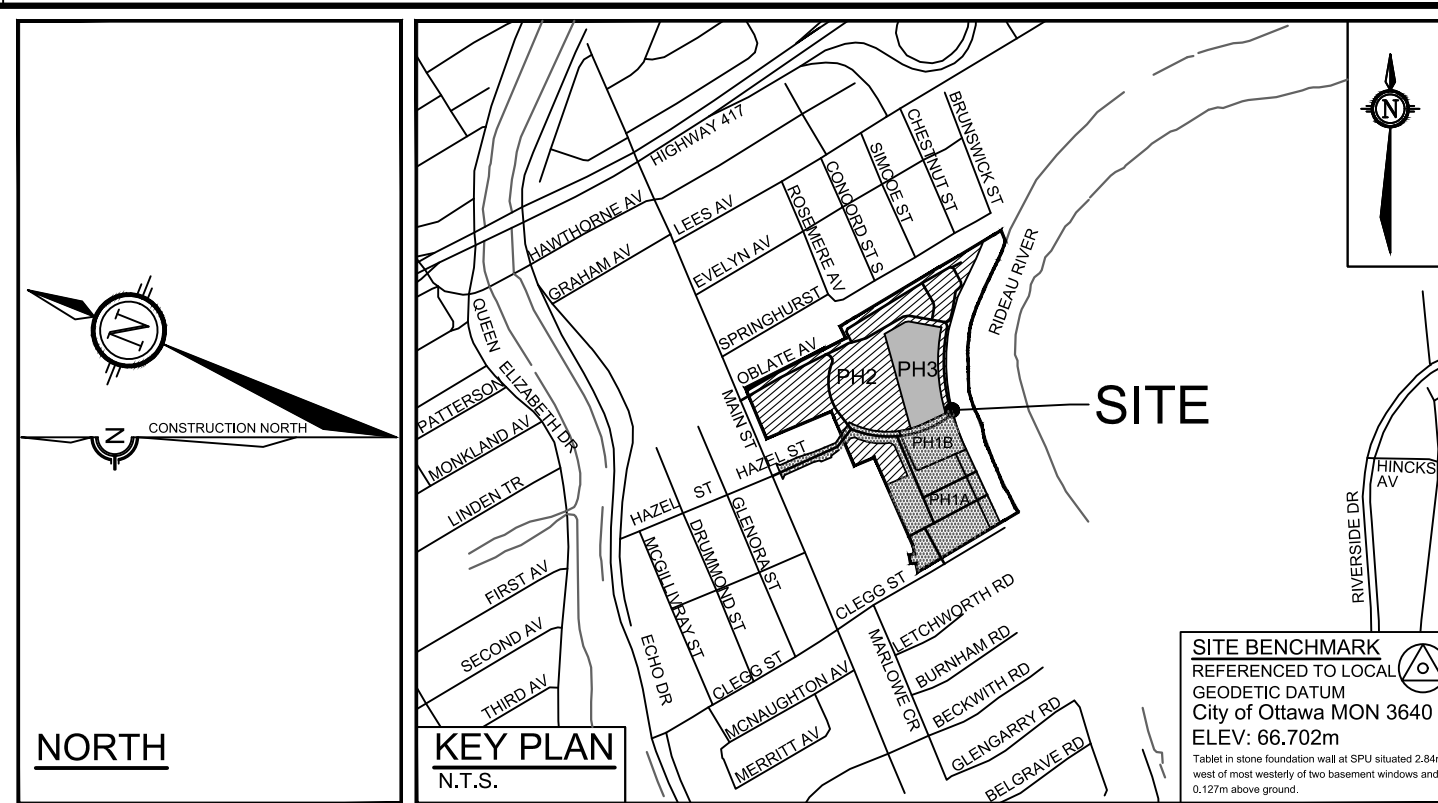
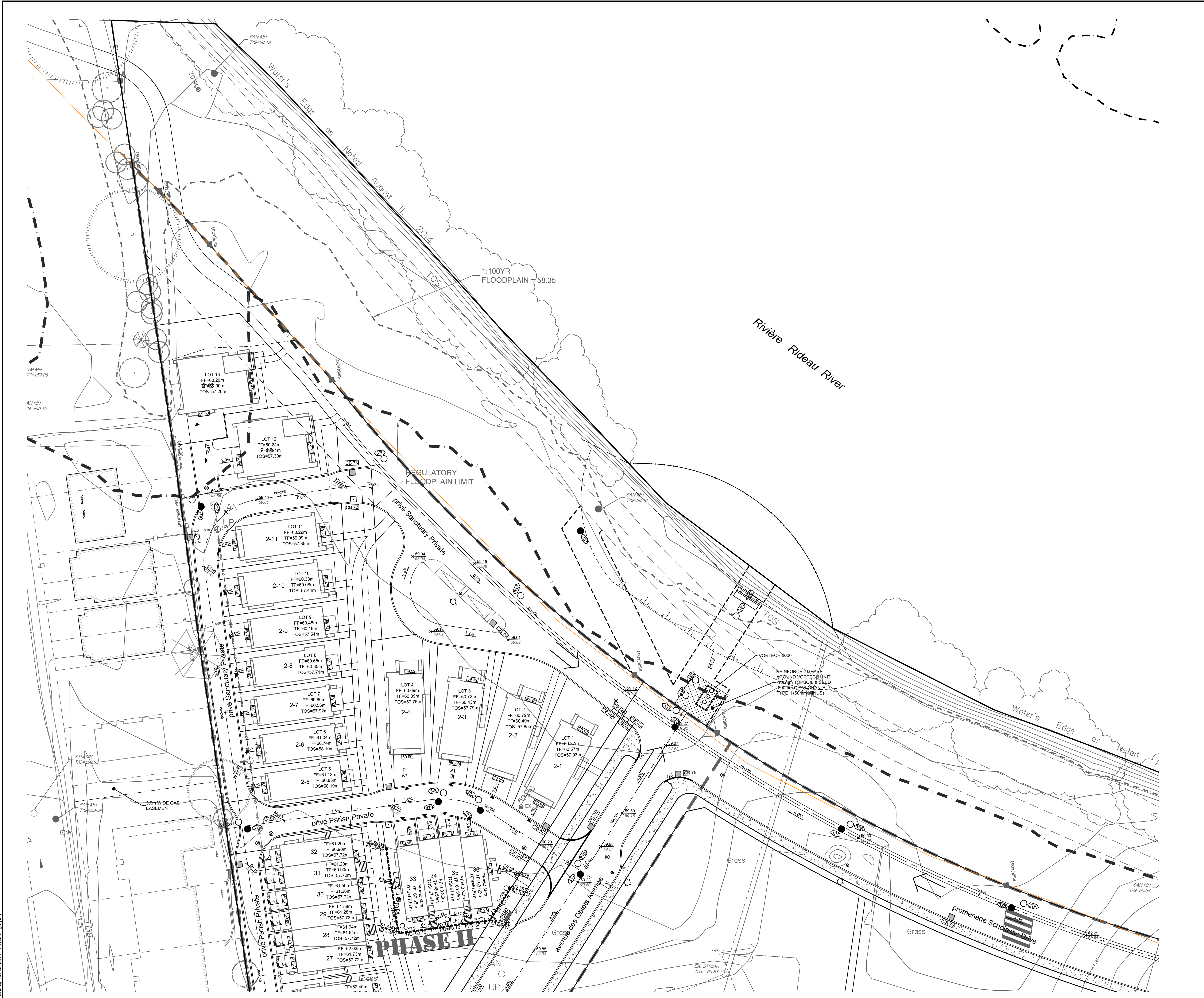
| | |
|----------|-----|
| DESIGN | JAG |
| CHECKED | MSP |
| DRAWN | MTM |
| CHECKED | JAG |
| APPROVED | JGR |

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 3P6
Telephone: (613) 254-9643
Facsimile: (613) 254-5867
Website: www.novatech-eng.com

CITY OF OTTAWA
GREYSTONE VILLAGE
175 MAIN STREET

DRAWING NAME
PLAN AND PROFILE
PHASE 2 AND 3
STORM OUTLET 2.1 (INCL. GRADING,
EROSION AND SEDIMENT CONTROL)
STATION 0+000 TO 0+54

PROJECT NO.: 114025-00
REV # 1
DRAWING NO.: 114025-PR6-B



LEGEND

| | | |
|--|-----------|---|
| --- SITE BOUNDARY | ◇ HYD | ◇ PROPOSED HYDRANT LOCATION |
| - - - PHASING LIMITS | TF=127.55 | PROPOSED TOP OF BOTTOM FLANGE |
| --- PROPOSED ELEVATION | ● V&VB | PROPOSED VALVE AND VALVE BOX |
| --- EXISTING ELEVATION | ● ● | PROPOSED SANITARY MANHOLE |
| --- PROPOSED SWALE ELEVATION | ○ ● | PROPOSED STORM MANHOLE |
| --- PROPOSED TOP OF SLOPE | ○ ● | PROPOSED ROADSIDE CATCH BASIN |
| --- PROPOSED HIGH POINT | ○ ● | PROPOSED ROADSIDE CATCH BASIN WITH INLET CONTROL DEVICE |
| --- PROPOSED TOP OF RETAINING WALL | ○ ● | PROPOSED REAR YARD CATCHBASIN MANHOLE WITH TOP OF GRATE ELEVATION |
| --- PROPOSED BOTTOM OF RETAINING WALL | ○ ● | PROPOSED REAR YARD CATCHBASIN WITH TOP OF GRATE ELEVATION |
| FF= FINISHED FLOOR ELEVATION | ○ ● | REAR YARD ELBOW WITH TOP OF GRATE |
| TF= TOP OF FOOTING ELEVATION | ○ ● | REAR YARD TEE WITH TOP OF GRATE |
| TOS= TOP OF SLAB ELEVATION | ○ ● | PROPOSED COMMUNITY MAIL BOX |
| USF= UNDERSIDE OF FOOTING ELEVATION | ○ ● | PROPOSED STREET LIGHT |
| MUSF= MINIMUM UNDERSIDE OF FOOTING ELEVATION | ○ ● | PROPOSED SERVICE LOCATION (REFER TO DETAIL) |
| SD INDICATES A STANDARD UNIT | | |
| L/O INDICATES A LOOK OUT UNIT | | |
| W/O INDICATES A WALK OUT UNIT | | |
| 127.55 PROPOSED TERRACE ELEVATION | | |
| 2.0% PROPOSED GRADE AND DIRECTION | | |
| ← MAJOR OVERLAND FLOW ROUTE | | |
| 1:1:1 MAXIMUM 3:1 SIDESLOPE | | |
| --- PROPOSED CENTRELINE SWALE | | |
| ■ PART OF PH2 OUTLETING THROUGH PH1A AT OUTLET 1 | | |
| ▨ PHASE 1A AND 1B OUTLETING THROUGH PH1A AT OUTLET 1 | | |

NOTE: SILT FENCE TO BE INSTALLED AROUND ENTIRE SITE. (SEE OPSD 219.110 ON SHEET 114025-D3-B)

NOTE: THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 1. | ISSUED FOR CITY OF OTTAWA REVIEW | NOV 21/16 | JAG |

| | |
|-------|------------|
| SCALE | 1:300 |
| 1:300 | 0 3 6 9 12 |

| | |
|----------|-----|
| DESIGN | JAG |
| CHECKED | MSP |
| DRAWN | MTM |
| CHECKED | JAG |
| APPROVED | JGR |

REFER TO 114025-N&L-B FOR ADDITIONAL NOTES AND CATCHBASIN TABLES

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 3P6
Telephone: (613) 254-9643
Facsimile: (613) 254-5867
Website: www.novatech-eng.com

CITY OF OTTAWA
GREYSTONE VILLAGE
175 MAIN STREET

DRAWING NAME
**GRADING, EROSION AND
SEDIMENT CONTROL PLAN
PHASE 2 AND 3**

PROJECT No. 114025-00
REV # 1
DRAWING No. 114025-GR3-B

D07-16-15-0001 PHASE 2 AND 3

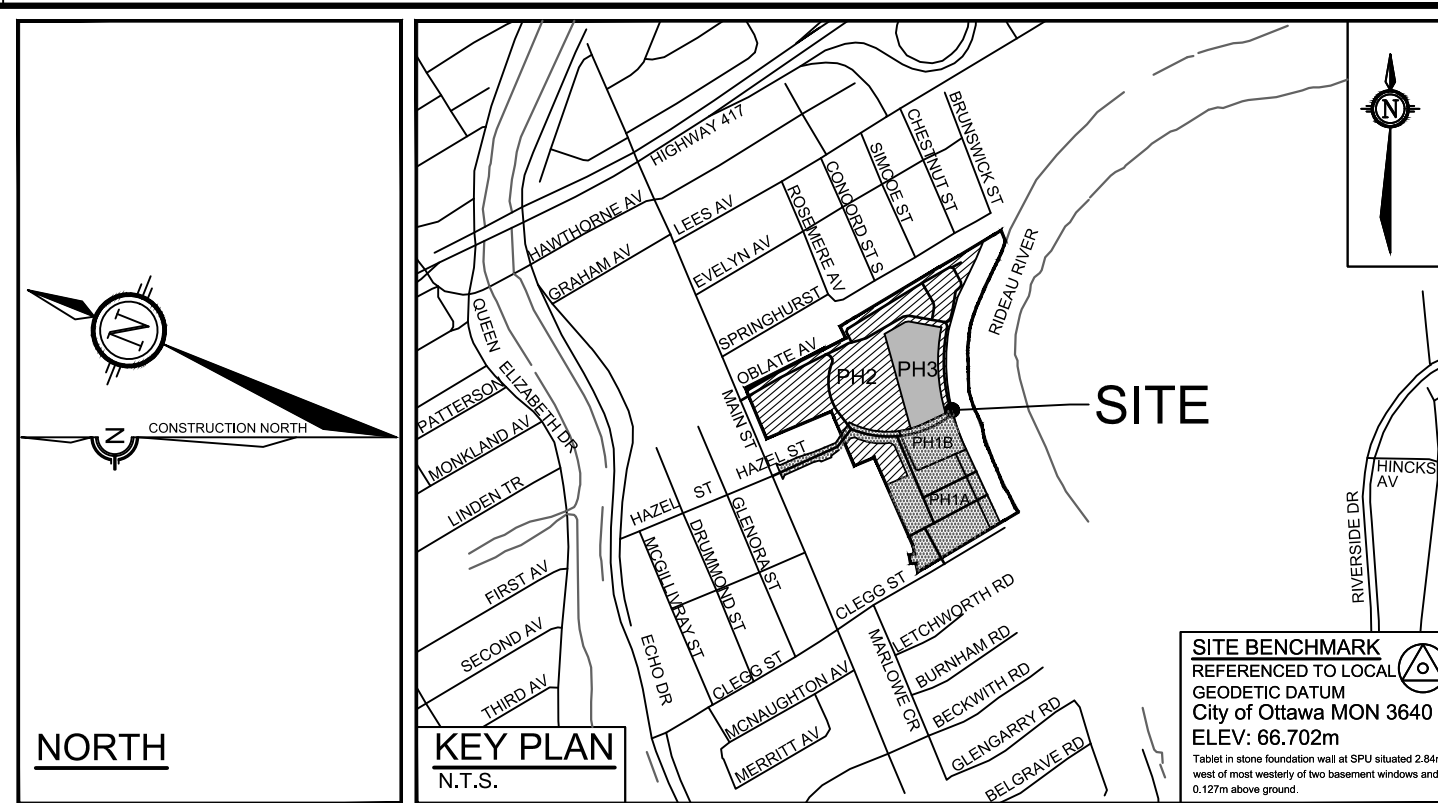
REFER TO MATCHLINE A

1:100YR FLOODPLAIN = 58.35

MATCHLINE A

| CATCHBASIN TABLE | | | | |
|------------------|-----------|---------------|--------|-----------------------------|
| CB No. | STATION | T/G ELEVATION | INVERT | ICD DIA. |
| CB 63 | 80+116.98 | 62.66 | 61.06 | 83mmØ |
| CB 64 | 60+306.59 | 61.25 | 59.71 | 1:100YR CAPTURE RATE=18L/s |
| CB 65 | 60+306.59 | 61.25 | 59.60 | 1:100YR CAPTURE RATE=40L/s |
| CB 66 | 90+060.73 | 60.25 | 58.51 | 1:100YR CAPTURE RATE=18L/s |
| CB 67 | 90+060.73 | 60.11 | 58.43 | 83mmØ |
| CB 68 | 90+030.30 | 60.06 | 58.46 | 1:100YR CAPTURE RATE=20L/s |
| CB 69 | 90+031.41 | 59.97 | 58.38 | 83mmØ |
| CB 70 | 60+346.26 | 59.95 | 58.25 | 1:100YR CAPTURE RATE=27L/s |
| CB 71 | 80+232.19 | 58.44 | 56.84 | 83mmØ |
| CB 72 | 80+263.73 | 58.90 | 57.54 | 1:100YR CAPTURE RATE=18L/s |
| CB 73 | 80+263.73 | 59.20 | 57.60 | 1:100YR CAPTURE RATE=30L/s |
| CB 74a | 10+073.78 | 59.00 | 57.05 | 375mmØ LEAD |
| CB 74b | 10+074.96 | 59.01 | 57.51 | 1:100YR CAPTURE RATE=495L/s |
| CB 74c | 10+076.14 | 59.03 | 57.04 | 375mmØ LEAD |
| CB 74d | 10+077.33 | 59.06 | 57.56 | 1:100YR CAPTURE RATE=495L/s |
| CB 75 | 60+363.05 | 59.04 | 57.44 | 1:100YR CAPTURE RATE=30L/s |
| CB 76 | 10+146.90 | 61.18 | 59.58 | 1:100YR CAPTURE RATE=28L/s |
| CB 77 | 10+192.43 | 62.57 | 60.97 | 83mmØ |
| CB 78 | 80+171.29 | 60.11 | 58.51 | 1:100YR CAPTURE RATE=18L/s |

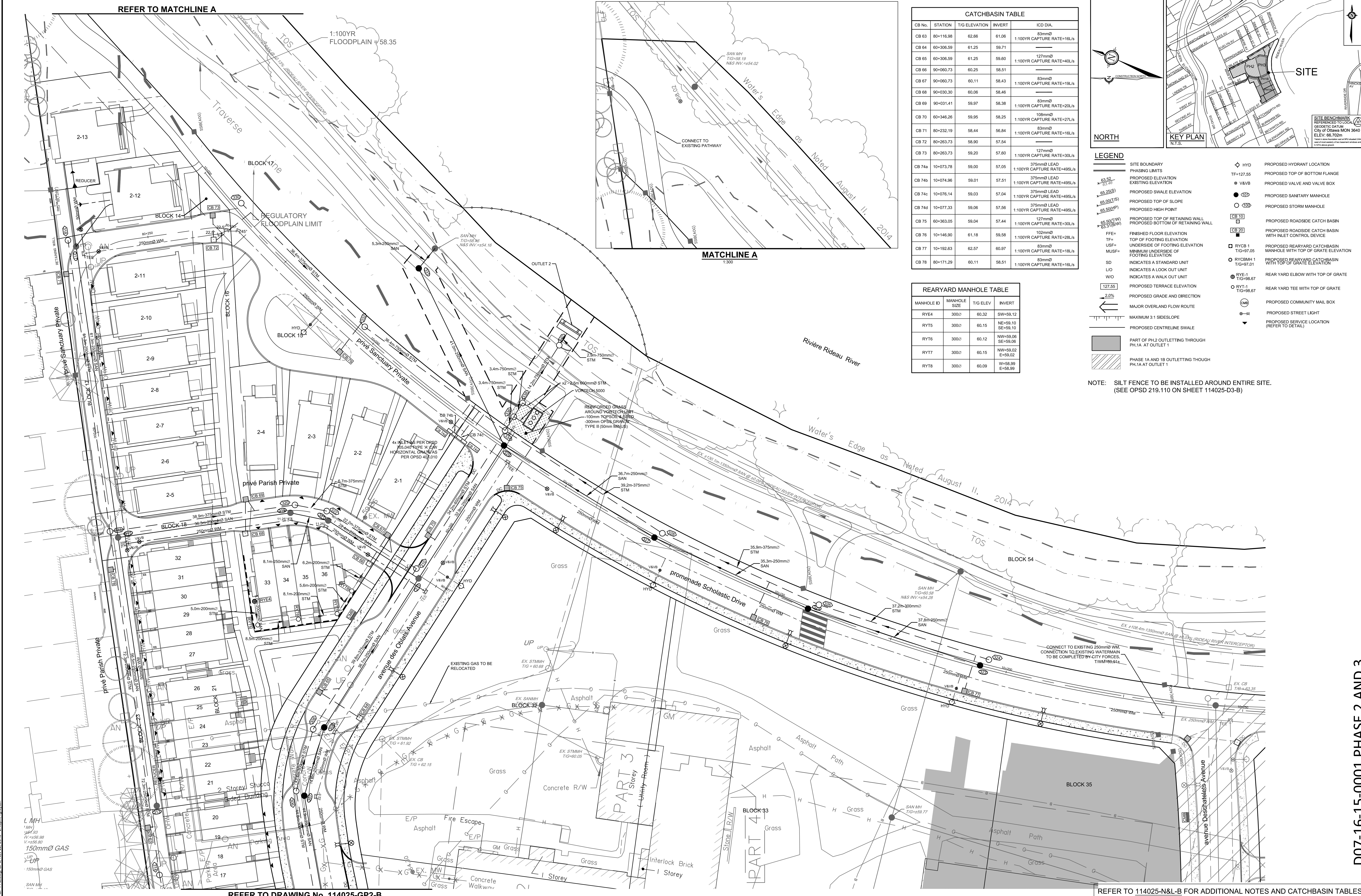
| REARYARD MANHOLE TABLE | | | |
|------------------------|--------------|----------|----------------------|
| MANHOLE ID | MANHOLE SIZE | T/G ELEV | INVERT |
| RYE4 | 300Ø | 60.32 | SW=59.12 |
| RYT5 | 300Ø | 60.15 | NE=59.10 SE=59.10 |
| RYT6 | 300Ø | 60.12 | NW=59.06 SE=59.06 |
| RYT7 | 300Ø | 60.15 | NW=59.02 E=59.02 |
| RYT8 | 300Ø | 60.09 | W=58.99 E=58.99 |



LEGEND

- SITE BOUNDARY
- PHASING LIMITS
- PROPOSED ELEVATION
- EXISTING ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF SLOPE
- PROPOSED HIGH POINT
- PROPOSED TOP OF RETAINING WALL
- PROPOSED BOTTOM OF RETAINING WALL
- FFE= FINISHED FLOOR ELEVATION
- TF= TOP OF FOOTING ELEVATION
- USF= UNDERSIDE OF FOOTING ELEVATION
- MUSF= MINIMUM UNDERSIDE OF FOOTING ELEVATION
- SD INDICATES A STANDARD UNIT
- L/O INDICATES A LOOK OUT UNIT
- W/O INDICATES A WALK OUT UNIT
- PROPOSED TERRACE ELEVATION
- PROPOSED GRADE AND DIRECTION
- MAJOR OVERLAND FLOW ROUTE
- MAXIMUM 3:1 SIDESLOPE
- PROPOSED CENTRELINER SWALE
- PART OF PH.2 OUTLETTING THROUGH PH.1A AT OUTLET 1
- PHASE 1A AND 1B OUTLETTING THROUGH PH.1A AT OUTLET 1

NOTE: SILT FENCE TO BE INSTALLED AROUND ENTIRE SITE. (SEE OPSD 219.110 ON SHEET 114025-D3-B)



REFER TO DRAWING No. 114025-GP2-B

REFER TO 114025-N&L-B FOR ADDITIONAL NOTES AND CATCHBASIN TABLES

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 1. | ISSUED FOR CITY OF OTTAWA REVIEW | NOV 21/16 | JAG |

| SCALE | FOR REVIEW ONLY |
|-------|-----------------|
| 1:300 | JAG |
| 1:300 | MSP |
| 1:300 | MTM |
| 1:300 | JAG |
| 1:300 | JGR |

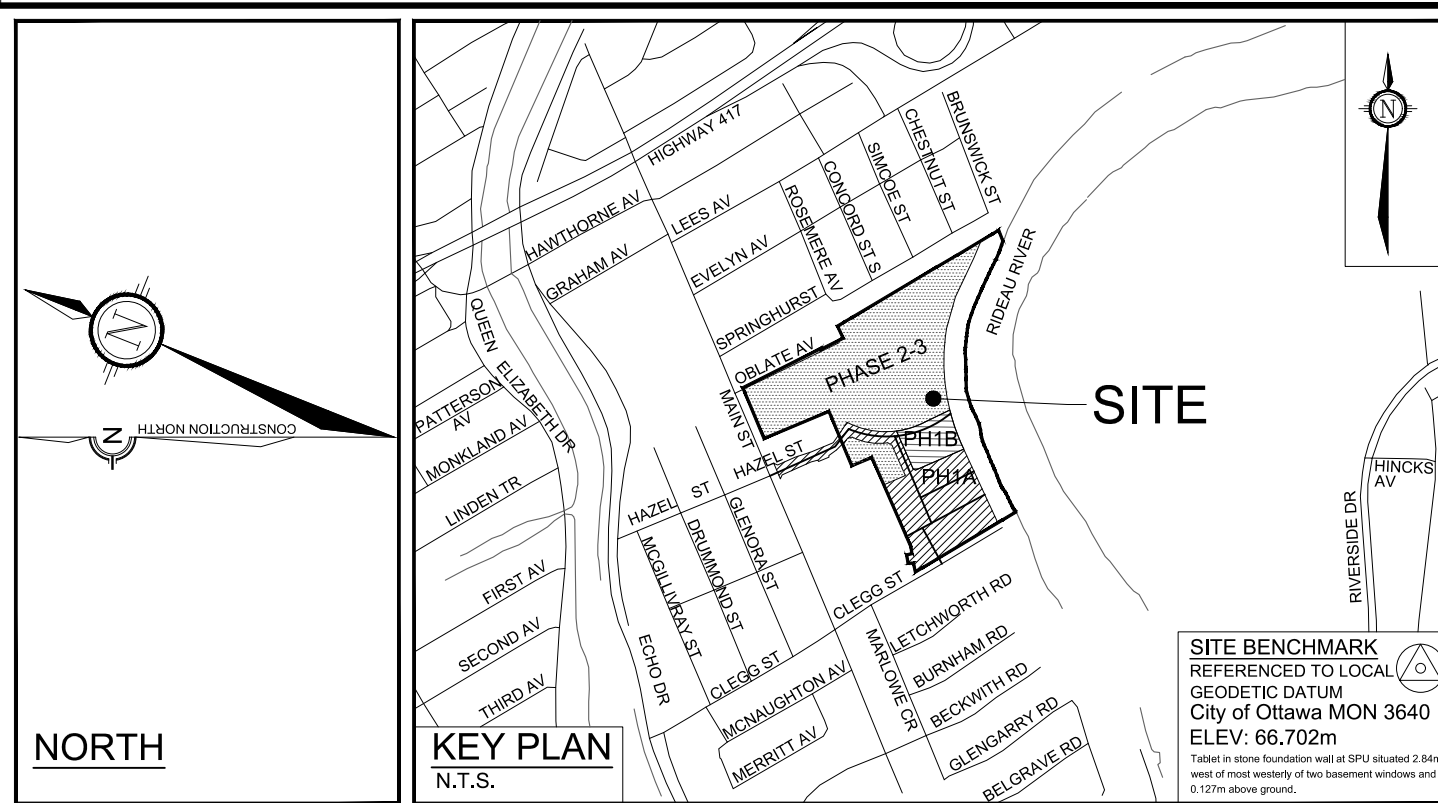
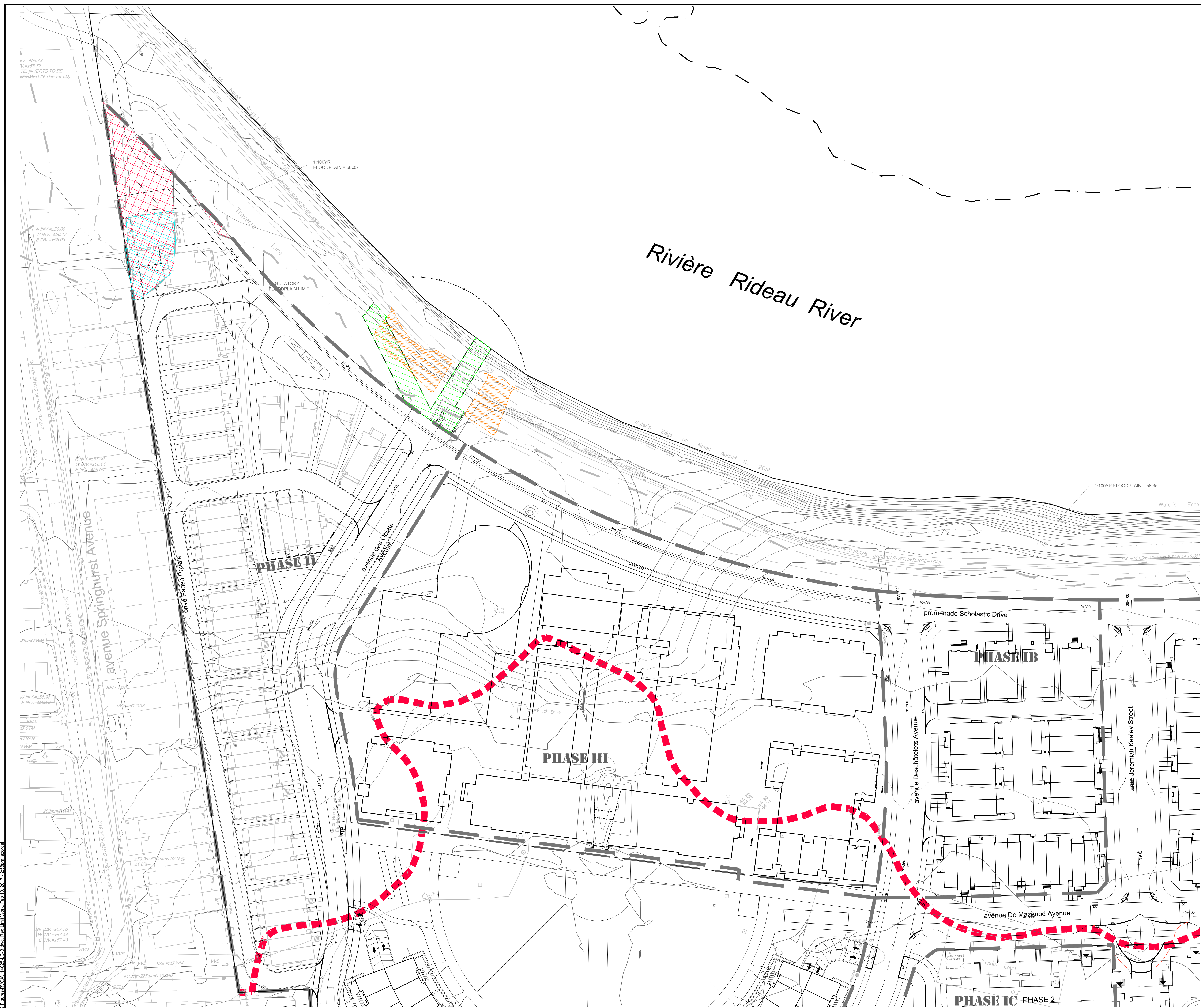


CITY OF OTTAWA
GREYSTONE VILLAGE
175 MAIN STREET

DRAWING NAME
**GENERAL PLAN OF SERVICES
PHASE 2 AND 3**

PROJECT No. 114025-00
REV # 1
DRAWING No. 114025-GP3-B

D07-16-15-0001 PHASE 2 AND 3



LEGEND

- SITE BOUNDARY
- PHASING LIMITS
- APPROXIMATE DEBRIS FILL BOUNDARY LIMIT
- 1:100YR FLOODPLAIN LIMIT
- FLOODPLAIN REGULATORY LIMIT
- 61.00' ORIGINAL GROUND CONTOUR LINE AND CONTOUR ELEVATION
- 20.00'
- REMEDATION AREA REQUIRING A RVCA PERMIT
- RESIDENTIAL DWELLING TO BE CONSTRUCTED REQUIRING A RVCA PERMIT
- STORM AND SANITARY OUTLETS TO BE CONSTRUCTED REQUIRING A RVCA PERMIT
- PREVIOUSLY APPROVED CUT COMPENSATION AREA

NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|------------------------|-----------|-----|
| 1. | ISSUED FOR RVCA PERMIT | FEB 13/17 | JAG |

| SCALE | DESIGN | CHECKED | DRAWN | CHECKED | APPROVED |
|-------|--------|---------|-------|---------|----------|
| 1:500 | JAG | JAG | MSP | JAG | JGR |

| FOR REVIEW ONLY | |
|-----------------|--|
| | |

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

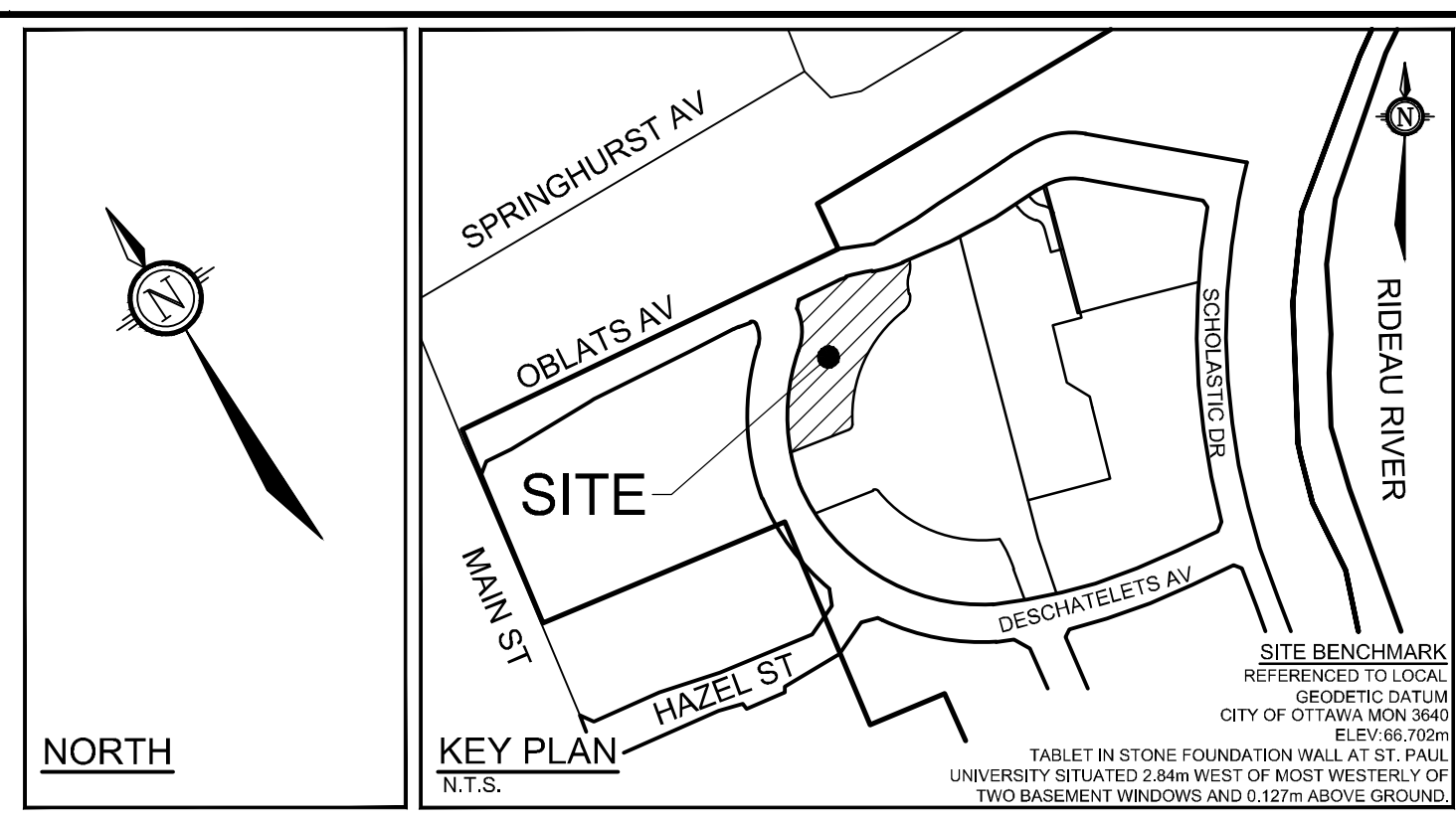
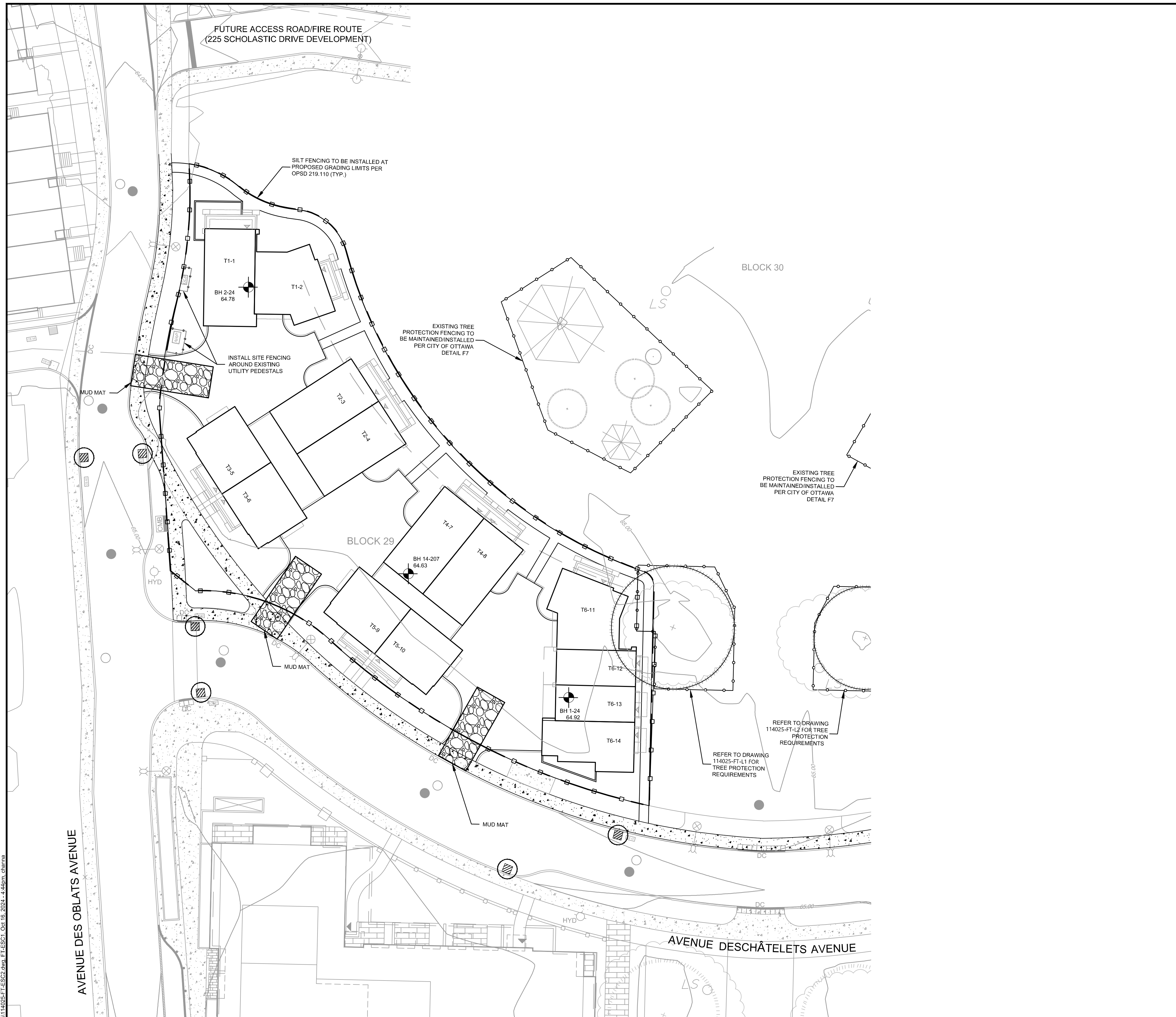
CITY OF OTTAWA
 GREYSTONE VILLAGE
 175 MAIN STREET

DRAWING NAME
 RVCA REMEDIATION PERMIT PLAN
 (OUTLET WORK, RESIDENTIAL
 CONSTRUCTION AND PREVIOUSLY
 APPROVED CUT COMPENSATION
 LIMITS WITHIN REGULATORY LIMITS)

PROJECT NO.: 114025-00
 REV: REV # 1
 DRAWING NO.: 114025-LG-B

APPENDIX E

Drawings

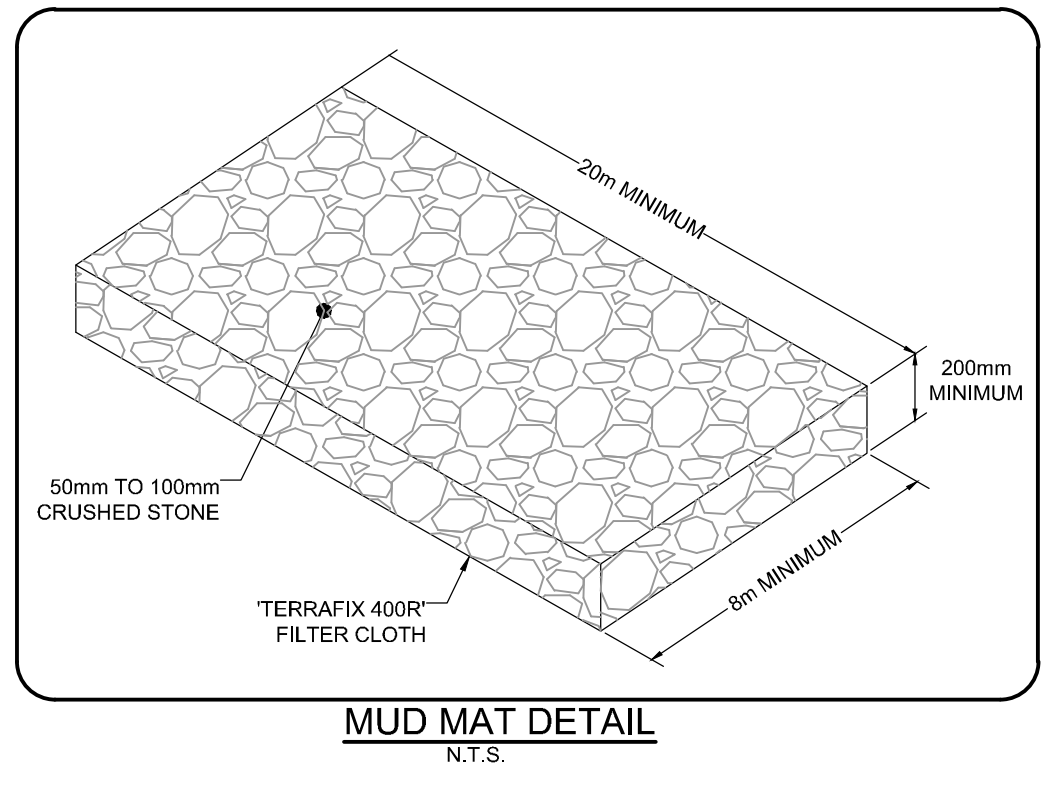


SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBECK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 VERTICAL DATUM: CGVD 1928-1978
 1. ANNIS, O-SULLIVAN, VOLLEBECK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 2. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

LEGEND

| | |
|--|---|
| | PROPERTY LINE |
| | MUD MAT |
| | BOREHOLE |
| | SILT FENCE PER OPSD 219.110 |
| | TERRAFIX SILT SOCK/SILT SACK (OR APPROVED EQUIVALENT INLET PROTECTION) INSTALLED AT CATCH BASIN |
| | TREE PROTECTION FENCING |
| | EXISTING CONTOUR LINES AND ELEVATIONS |
| | EXISTING SANITARY MANHOLE |
| | EXISTING STORM MANHOLE |
| | EXISTING CATCHBASIN |

- EROSION AND SEDIMENT CONTROL NOTES :**
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, THE MUNICIPALITY AND THE CONSERVATION AUTHORITY. THEY ARE TO BE APPROPRIATE TO THE SITE CONDITIONS, INSTALLED PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
 - TO PREVENT SURFACE EROSION FROM ENTERING THE STORM SYSTEM DURING CONSTRUCTION, TERRAFIX SILT SOCKS OR SILT SACKS, OR APPROVED EQUIVALENTS, WILL BE PLACED AROUND/UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED IN SELECTED LOCATIONS SHOWN ON THIS PLAN, AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
 - THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
 - 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.
 - THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
 - THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS.
 - THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS.
 - ALL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIAL SHALL BE REMOVED FROM IMPROVED AREAS UNLESS OTHERWISE DIRECTED BY ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL LEGISLATION REGARDING REMOVALS, INCLUDING EXCESS SOILS.



NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 2. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 1. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |

| SCALE | |
|-------|--|
| 1:250 | |

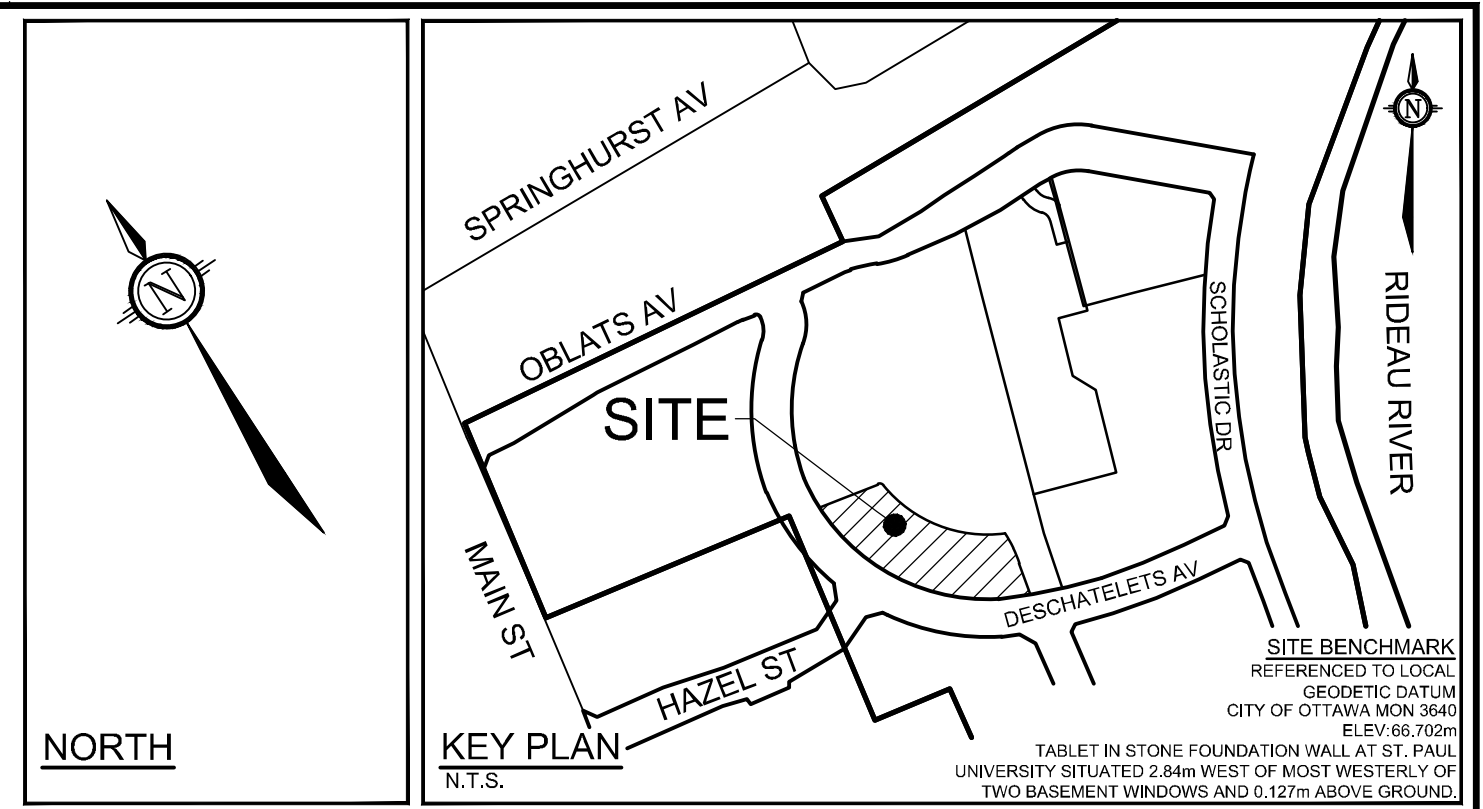
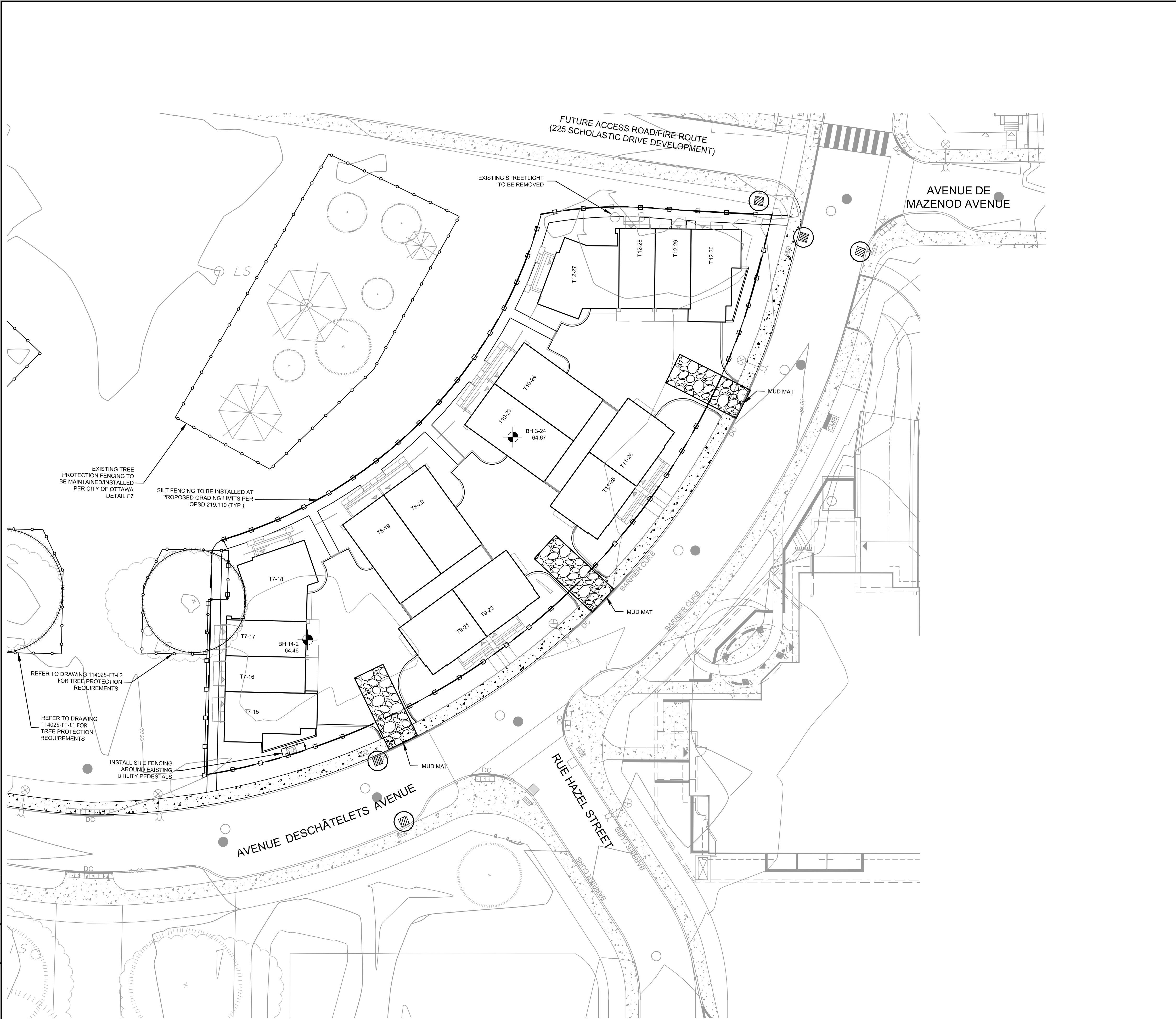
| DESIGN | CHECKED | DRAWN | CHECKED | APPROVED |
|--------|---------|-------|---------|----------|
| SAM | TJM | SAM | TJM | TJM |

PROFESSIONAL ENGINEER
 T. J. MCKAY
 100195434
 October 17, 2024
 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 GREYSTONE VILLAGE | PROJECT No. 114025 |
| DRAWING NAME BLOCK 29 EROSION, SEDIMENT CONTROL AND REMOVALS PLAN | REV # 2 |
| | DRAWING No. 114025-FT-ESC1 |

M:\2024\114025\CAD\Drawings\114025-FT-ESC1.dwg, F:\ESC1, Oct 16, 2024 - 4:44pm, channa

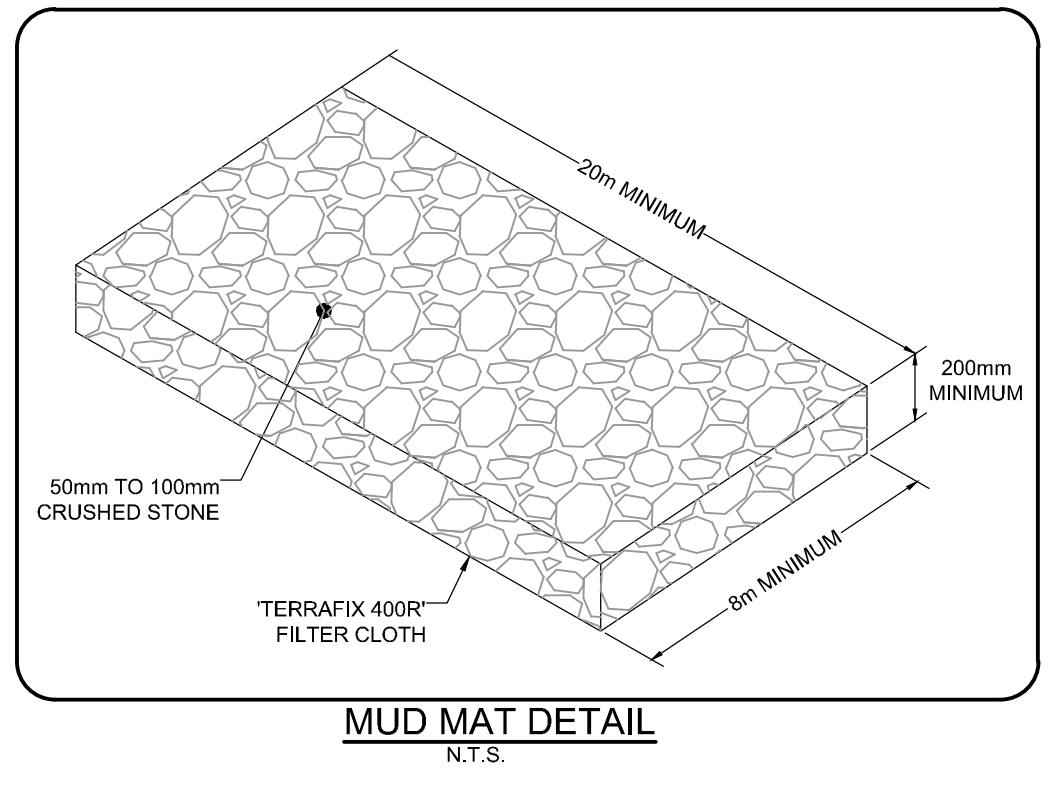


SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBEKK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 VERTICAL DATUM: CGVD 1928-1978
 1. ANNIS, O-SULLIVAN, VOLLEBEKK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 2. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

LEGEND

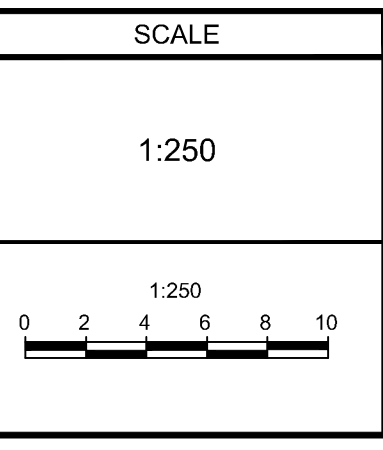
| | |
|--|---|
| | PROPERTY LINE |
| | MUD MAT |
| | BOREHOLE |
| | SILT FENCE PER OPSD 219.110 |
| | TERRAFIX SILT SOCK/SILT SACK (OR APPROVED EQUIVALENT INLET PROTECTION) INSTALLED AT CATCH BASIN |
| | TREE PROTECTION FENCING |
| | EXISTING CONTOUR LINES AND ELEVATIONS |
| | EXISTING SANITARY MANHOLE |
| | EXISTING STORM MANHOLE |
| | EXISTING CATCHBASIN |

- EROSION AND SEDIMENT CONTROL NOTES :**
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, THE MUNICIPALITY AND THE CONSERVATION AUTHORITY. THEY ARE TO BE APPROPRIATE TO THE SITE CONDITIONS, INSTALLED PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
 - TO PREVENT SURFACE EROSION FROM ENTERING THE STORM SYSTEM DURING CONSTRUCTION, TERRAFIX SILT SOCKS OR SILT SACKS, OR APPROVED EQUIVALENTS, WILL BE PLACED AROUND UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED IN SELECTED LOCATIONS SHOWN ON THIS PLAN, AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
 - THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
 - 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.
 - THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
 - THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS.
 - THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS.
 - ALL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIAL SHALL BE REMOVED FROM IMPROVED AREAS UNLESS OTHERWISE DIRECTED BY ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL LEGISLATION REGARDING REMOVALS, INCLUDING EXCESS SOILS.

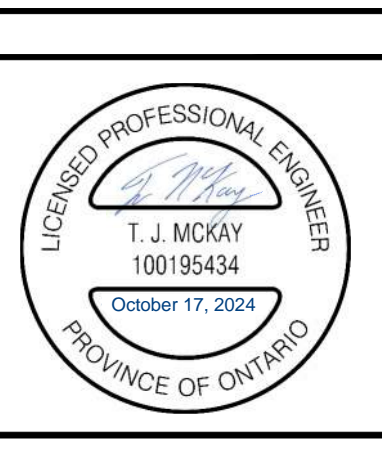


NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE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

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 2. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 1. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |



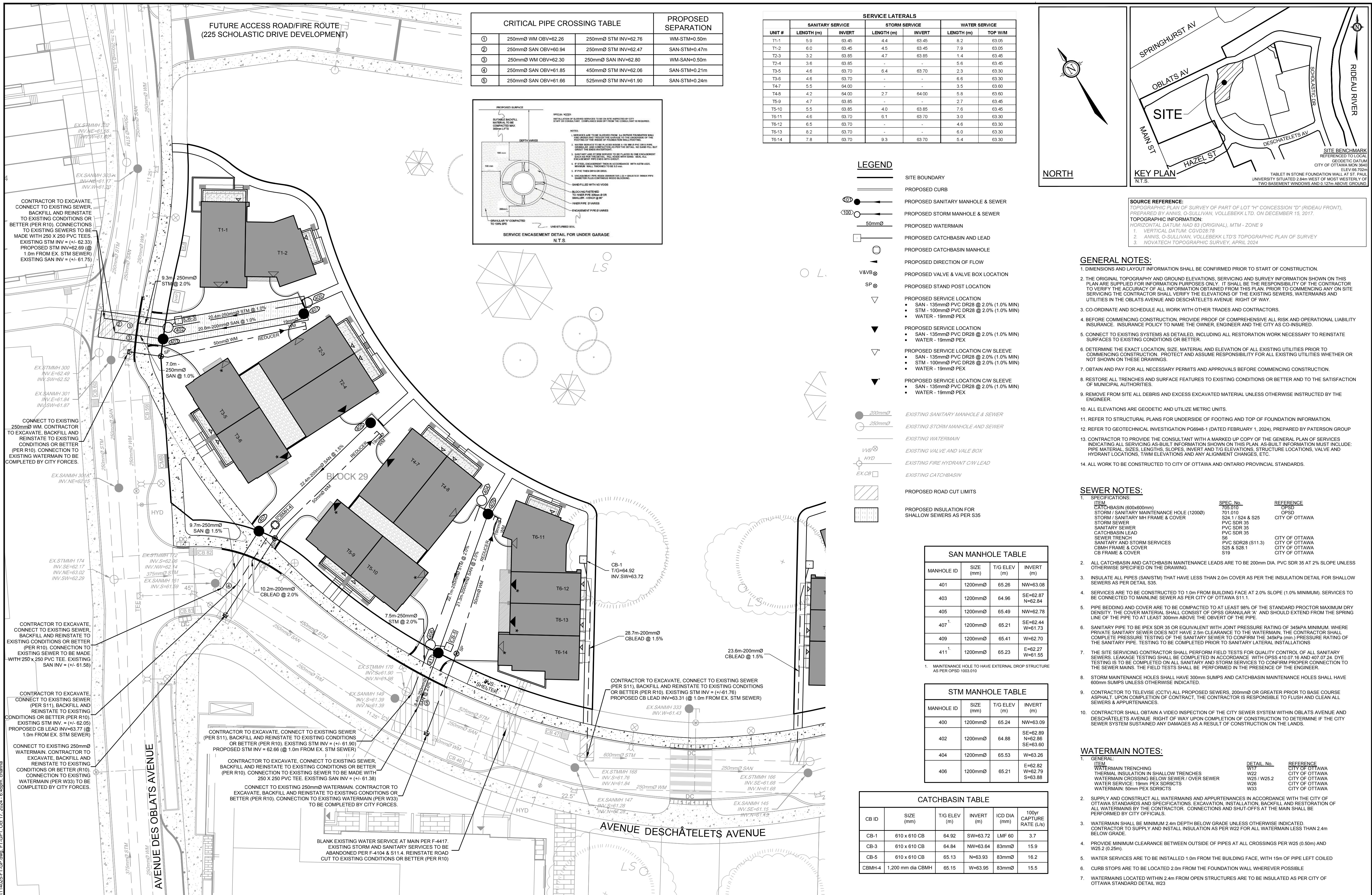
| | |
|----------|-----|
| DESIGN | SAM |
| CHECKED | TJM |
| DRAWN | SAM |
| CHECKED | TJM |
| APPROVED | TJM |



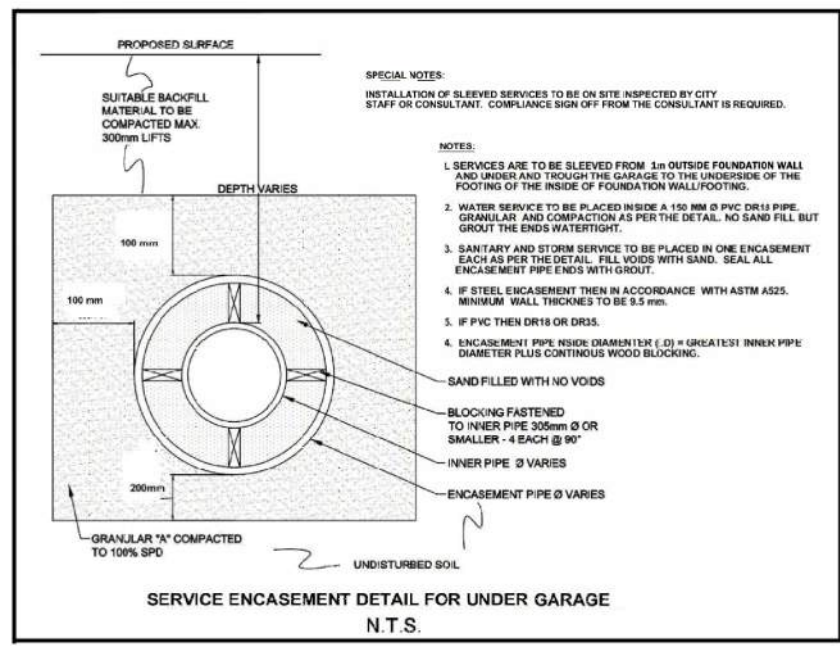
NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6
 Telephone: (613) 254-9643
 Facsimile: (613) 254-5867
 Website: www.novatech-eng.com

| | |
|--|-------------------------------|
| LOCATION CITY OF OTTAWA GREYSTONE VILLAGE | PROJECT No. 114025 |
| DRAWING NAME BLOCK 28 EROSION, SEDIMENT CONTROL AND REMOVALS PLAN | REV REV # 2 |
| | DRAWING No. 114025-FT-ESC2 |

M:\2014\114025-FT-ESC2\Drawings\114025-FT-ESC2.dwg, T:\ESC2, Aug 19, 2024, 3:38pm, channa



| CRITICAL PIPE CROSSING TABLE | | | PROPOSED SEPARATION |
|------------------------------|----------------------|----------------------|---------------------|
| ① | 250mmØ WM OBV=62.26 | 250mmØ STM INV=62.76 | WM-STM=0.50m |
| ② | 250mmØ SAN OBV=60.94 | 250mmØ STM INV=62.47 | SAN-STM=0.47m |
| ③ | 250mmØ WM OBV=62.30 | 250mmØ SAN INV=62.80 | WM-SAN=0.50m |
| ④ | 250mmØ SAN OBV=61.85 | 450mmØ STM INV=62.06 | SAN-STM=0.21m |
| ⑤ | 250mmØ SAN OBV=61.66 | 525mmØ STM INV=61.90 | SAN-STM=0.24m |



| UNIT # | SANITARY SERVICE | | | STORM SERVICE | | WATER SERVICE | |
|--------|------------------|--------|------------|---------------|------------|---------------|--|
| | LENGTH (m) | INVERT | LENGTH (m) | INVERT | LENGTH (m) | TOP W/M | |
| T1-1 | 5.9 | 63.45 | 4.4 | 63.45 | 8.2 | 63.05 | |
| T1-2 | 6.0 | 63.45 | 4.5 | 63.45 | 7.9 | 63.05 | |
| T2-3 | 3.2 | 63.85 | 4.7 | 63.85 | 1.4 | 63.45 | |
| T2-4 | 3.6 | 63.85 | - | - | 5.6 | 63.45 | |
| T3-5 | 4.6 | 63.70 | 6.4 | 63.70 | 2.3 | 63.30 | |
| T3-6 | 4.6 | 63.70 | - | - | 6.6 | 63.30 | |
| T4-7 | 5.5 | 64.00 | - | - | 3.5 | 63.60 | |
| T4-8 | 4.2 | 64.00 | 2.7 | 64.00 | 5.8 | 63.90 | |
| T5-9 | 4.7 | 63.85 | - | - | 2.7 | 63.45 | |
| T5-10 | 5.5 | 63.85 | 4.0 | 63.85 | 7.6 | 63.45 | |
| T6-11 | 4.6 | 63.70 | 6.1 | 63.70 | 3.0 | 63.30 | |
| T6-12 | 6.5 | 63.70 | - | - | 4.6 | 63.30 | |
| T6-13 | 8.2 | 63.70 | - | - | 6.0 | 63.30 | |
| T6-14 | 7.9 | 63.70 | 9.3 | 63.70 | 5.4 | 63.30 | |

- LEGEND**
- SITE BOUNDARY
 - PROPOSED CURB
 - PROPOSED SANITARY MANHOLE & SEWER
 - PROPOSED STORM MANHOLE & SEWER
 - PROPOSED WATERMAIN
 - PROPOSED CATCHBASIN AND LEAD
 - PROPOSED CATCHBASIN MANHOLE
 - PROPOSED DIRECTION OF FLOW
 - PROPOSED VALVE & VALVE BOX LOCATION
 - PROPOSED STAND POST LOCATION
 - PROPOSED SERVICE LOCATION
 - SAN - 135mmØ PVC DR28 @ 2.0% (1.0% MIN)
 - STM - 100mmØ PVC DR28 @ 2.0% (1.0% MIN)
 - WATER - 19mmØ PEX
 - PROPOSED SERVICE LOCATION CW SLEEVE
 - SAN - 135mmØ PVC DR28 @ 2.0% (1.0% MIN)
 - STM - 100mmØ PVC DR28 @ 2.0% (1.0% MIN)
 - WATER - 19mmØ PEX
 - PROPOSED SERVICE LOCATION CW SLEEVE
 - SAN - 135mmØ PVC DR28 @ 2.0% (1.0% MIN)
 - WATER - 19mmØ PEX
 - 200mmØ EXISTING SANITARY MANHOLE & SEWER
 - 250mmØ EXISTING STORM MANHOLE AND SEWER
 - EXISTING WATERMAIN
 - EXISTING VALVE AND VALVE BOX
 - EXISTING FIRE HYDRANT CW LEAD
 - EXISTING CATCHBASIN
 - PROPOSED ROAD CUT LIMITS
 - PROPOSED INSULATION FOR SHALLOW SEWERS AS PER S35

| MANHOLE ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) |
|------------------|-----------|--------------|---------------------|
| 401 | 1200mmØ | 65.26 | NW=63.08 |
| 403 | 1200mmØ | 64.96 | SE=62.87 N=62.84 |
| 405 | 1200mmØ | 65.49 | NW=62.78 |
| 407 ¹ | 1200mmØ | 65.21 | SE=62.44 W=61.73 |
| 409 | 1200mmØ | 65.41 | W=62.70 |
| 411 ¹ | 1200mmØ | 65.23 | E=62.27 W=61.55 |

1. MAINTENANCE HOLE TO HAVE EXTERNAL DROP STRUCTURE AS PER OPSD 1003.010

| MANHOLE ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) |
|------------|-----------|--------------|---------------------------------|
| 400 | 1200mmØ | 65.24 | NW=63.09 |
| 402 | 1200mmØ | 64.88 | SE=62.89 N=62.86 SE=63.60 |
| 404 | 1200mmØ | 65.53 | W=63.26 |
| 406 | 1200mmØ | 65.21 | E=62.62 W=62.79 S=63.88 |

| CB ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) | ICD DIA (mm) | 100yr CAPTURE RATE (L/s) |
|--------|------------------|--------------|------------|--------------|--------------------------|
| CB-1 | 610 x 610 CB | 64.92 | SW=63.72 | LMF 60 | 3.7 |
| CB-3 | 610 x 610 CB | 64.84 | NW=63.64 | 83mmØ | 15.9 |
| CB-5 | 610 x 610 CB | 65.13 | N=63.93 | 83mmØ | 16.2 |
| CBMH-4 | 1,200mm dia CBMH | 65.15 | W=63.95 | 83mmØ | 15.5 |

SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBEK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 1. VERTICAL DATUM: CGVD28.78
 2. ANNIS, O-SULLIVAN, VOLLEBEK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 3. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

- GENERAL NOTES:**
- DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO START OF CONSTRUCTION.
 - THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION 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 THIS PLAN. PRIOR TO COMMENCING ANY ON SITE SERVICING THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF THE EXISTING SEWERS, WATERMANS AND UTILITIES IN THE OBLATS AVENUE AND DESCHÂTELETS AVENUE RIGHT OF WAY.
 - CO-ORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
 - BEFORE COMMENCING CONSTRUCTION, PROVIDE PROOF OF COMPREHENSIVE ALL RISK AND OPERATIONAL LIABILITY INSURANCE. INSURANCE POLICY TO NAME THE OWNER, ENGINEER AND THE CITY AS CO-INSURED.
 - CONNECT TO EXISTING SYSTEMS AS DETAILED, INCLUDING ALL RESTORATION WORK NECESSARY TO REINSTATE SURFACES TO EXISTING CONDITIONS OR BETTER.
 - 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 THESE DRAWINGS.
 - OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS BEFORE COMMENCING CONSTRUCTION.
 - RESTORE ALL TRENCHES AND SURFACE FEATURES TO EXISTING CONDITIONS OR BETTER AND TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
 - REMOVE FROM SITE ALL DEBRIS AND EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.
 - ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
 - REFER TO STRUCTURAL PLANS FOR UNDERSIDE OF FOOTING AND TOP OF FOUNDATION INFORMATION.
 - REFER TO GEOTECHNICAL INVESTIGATION PG6948-1 (DATED FEBRUARY 1, 2024), PREPARED BY PATERSON GROUP
 - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A MARKED UP COPY OF THE GENERAL PLAN OF SERVICES INDICATING ALL SERVICE AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/W ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
 - ALL WORK TO BE CONSTRUCTED TO CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARDS.

SEWER NOTES:

- SPECIFICATIONS:

| ITEM | SPEC. No. | REFERENCE |
|---|---------------------|----------------|
| CATCHBASIN (600x600mm) | 705.010 | OPSD |
| STORM / SANITARY MAINTENANCE HOLE (1200Ø) | 701.010 | OPSD |
| STORM / SANITARY MH FRAME & COVER | S24.1 / S24.8 & S25 | CITY OF OTTAWA |
| STORM SEWER | PVC SDR 35 | CITY OF OTTAWA |
| SANITARY SEWER | PVC SDR 35 | CITY OF OTTAWA |
| CATCHBASIN LEAD | PVC SDR 35 | CITY OF OTTAWA |
| SEWER TRENCH | S8 | CITY OF OTTAWA |
| SANITARY AND STORM SERVICES | PVC SDR28 (S11.3) | CITY OF OTTAWA |
| CBMH FRAME & COVER | S25 & S28.1 | CITY OF OTTAWA |
| CB FRAME & COVER | S19 | CITY OF OTTAWA |

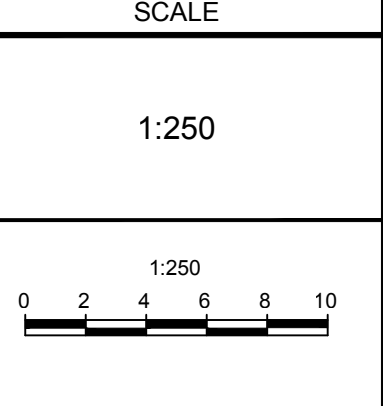
- ALL CATCHBASIN AND CATCHBASIN MAINTENANCE LEADS ARE TO BE 200mm DIA. PVC SDR 35 AT 2% SLOPE UNLESS OTHERWISE SPECIFIED ON THE DRAWING.
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER AS PER THE INSULATION DETAIL FOR SHALLOW SEWERS AS PER DETAIL S35.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM BUILDING FACE AT 2.0% SLOPE (1.0% MINIMUM). SERVICES TO BE CONNECTED TO MAINLINE SEWER AS PER CITY OF OTTAWA S11.1.
- PIPE BEDDING AND COVER ARE TO BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE COVER MATERIAL SHALL CONSIST OF OPSS GRANULAR 'A' AND SHOULD EXTEND FROM THE SPRING LINE OF THE PIPE TO AT LEAST 300mm ABOVE THE OVERTOP OF THE PIPE.
- SANITARY PIPE TO BE IPEX SDR 35 OR EQUIVALENT WITH JOINT PRESSURE RATING OF 345kPa MINIMUM. WHERE PRIVATE SANITARY SEWER DOES NOT HAVE 2.5m CLEARANCE TO THE WATERMAIN, THE CONTRACTOR SHALL COMPLETE PRESSURE TESTING OF THE SANITARY SEWER TO CONFIRM THE 345kPa (mm.) PRESSURE RATING OF THE SANITARY PIPE. TESTING TO BE COMPLETED PRIOR TO SANITARY LATERAL INSTALLATIONS.
- THE SITE SERVICING CONTRACTOR SHALL PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPS 410.07.16 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY AND STORM SERVICES TO CONFIRM PROPER CONNECTION TO THE SEWER MAINS. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
- STORM MAINTENANCE HOLES SHALL HAVE 300mm SLUMPS AND CATCHBASIN MAINTENANCE HOLES SHALL HAVE 600mm SLUMPS UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
- CONTRACTOR SHALL OBTAIN A VIDEO INSPECTION OF THE CITY SEWER SYSTEM WITHIN OBLATS AVENUE AND DESCHÂTELETS AVENUE RIGHT OF WAY UPON COMPLETION OF CONSTRUCTION TO DETERMINE IF THE CITY SEWER SYSTEM SUSTAINED ANY DAMAGES AS A RESULT OF CONSTRUCTION ON THE LANDS.

- WATERMAIN NOTES:**
- GENERAL:

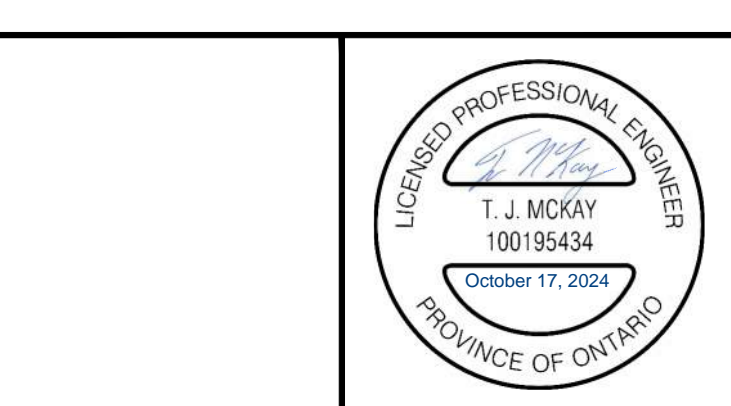
| ITEM | DETAIL No. | REFERENCE |
|---|-------------|----------------|
| WATERMAIN TRENCHING | W17 | CITY OF OTTAWA |
| THERMAL INSULATION IN SHALLOW TRENCHES | W22 | CITY OF OTTAWA |
| WATERMAIN CROSSING BELOW SEWER / OVER SEWER | W25 / W25.2 | CITY OF OTTAWA |
| WATER SERVICE: 19mm PEX SDR3CTS | W26 | CITY OF OTTAWA |
| WATERMAIN: 50mm PEX SDR9CTS | W33 | CITY OF OTTAWA |
 - SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN SHALL BE PERFORMED BY CITY OFFICIALS.
 - WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. CONTRACTOR TO SUPPLY AND INSTALL INSULATION AS PER W22 FOR ALL WATERMAIN LESS THAN 2.4m BELOW GRADE.
 - PROVIDE MINIMUM CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS PER W25 (0.50m) AND W26 (0.25m).
 - WATER SERVICES ARE TO BE INSTALLED 1.0m FROM THE BUILDING FACE, WITH 15m OF PIPE LEFT COILED.
 - CURB STOPS ARE TO BE LOCATED 2.0m FROM THE FOUNDATION WALL WHEREVER POSSIBLE.
 - WATERMANS LOCATED WITHIN 2.4m FROM OPEN STRUCTURES ARE TO BE INSULATED AS PER CITY OF OTTAWA STANDARD DETAIL W23.

NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 3. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 2. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |
| 1. | ISSUED FOR DISCUSSION | APR 26/24 | TJM |



| DESIGN | SAM |
|----------|-----|
| CHECKED | TJM |
| DRAWN | SAM |
| CHECKED | TJM |
| APPROVED | TJM |



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 GREYSTONE VILLAGE |
|--------------|--------------------------------------|
| DRAWING NAME | BLOCK 29 GENERAL PLAN OF SERVICES |
| PROJECT No. | 114025 |
| REV | REV # 3 |
| DRAWING No. | 114025-FT-GP1 |

M:\2014\114025\CAD\Design\Drawings\114025-FT-GP.dwg, FT.GP1, Oct 17, 2024, 6:49pm, channa

LEGEND

| | |
|--|--|
| | SITE BOUNDARY |
| | PROPOSED CURB |
| | PROPOSED SANITARY MANHOLE & SEWER |
| | PROPOSED STORM MANHOLE & SEWER |
| | PROPOSED WATERMAIN |
| | PROPOSED DIRECTION OF FLOW |
| | PROPOSED VALVE & VALVE BOX LOCATION |
| | PROPOSED STAND POST LOCATION |
| | PROPOSED SERVICE LOCATION |
| | SAN - 135mm PVC DR28 @ 2.0% (1.0% MIN) |
| | STM - 100mm PVC DR28 @ 2.0% (1.0% MIN) |
| | WATER - 19mm PEX |
| | PROPOSED SERVICE LOCATION CW SLEEVE |
| | SAN - 135mm PVC DR28 @ 2.0% (1.0% MIN) |
| | STM - 100mm PVC DR28 @ 2.0% (1.0% MIN) |
| | WATER - 19mm PEX |
| | EXISTING SANITARY MANHOLE & SEWER |
| | EXISTING STORM MANHOLE AND SEWER |
| | EXISTING WATERMAIN |
| | EXISTING VALVE AND VALVE BOX |
| | EXISTING FIRE HYDRANT CW LEAD |
| | EXISTING CATCHBASIN |
| | PROPOSED ROAD CUT LIMITS |

SAN MANHOLE TABLE

| MANHOLE ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) |
|------------|-----------|--------------|----------------------|
| 413 | 1200mmØ | 65.14 | SW=62.44 |
| 415 | 1200mmØ | 64.76 | NE=62.02 SW=61.21 |
| 417 | 1200mmØ | 64.81 | SW=62.10 |
| 419 | 1200mmØ | 64.52 | NE=61.70 SW=61.03 |
| 421 | 1200mmØ | 64.54 | S=61.82 |
| 423 | 1200mmØ | 64.09 | N=61.38 S=60.95 |

STM MANHOLE TABLE

| MANHOLE ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) |
|------------|-----------|--------------|-------------------------------|
| 408 | 1200mmØ | 65.24 | SW=62.98 |
| 410 | 1200mmØ | 64.76 | NE=62.56 SW=62.45 |
| 412 | 1200mmØ | 64.56 | S=62.28 |
| 414 | 1200mmØ | 64.15 | N=61.93 S=61.90 E=62.77 |

CATCHBASIN TABLE

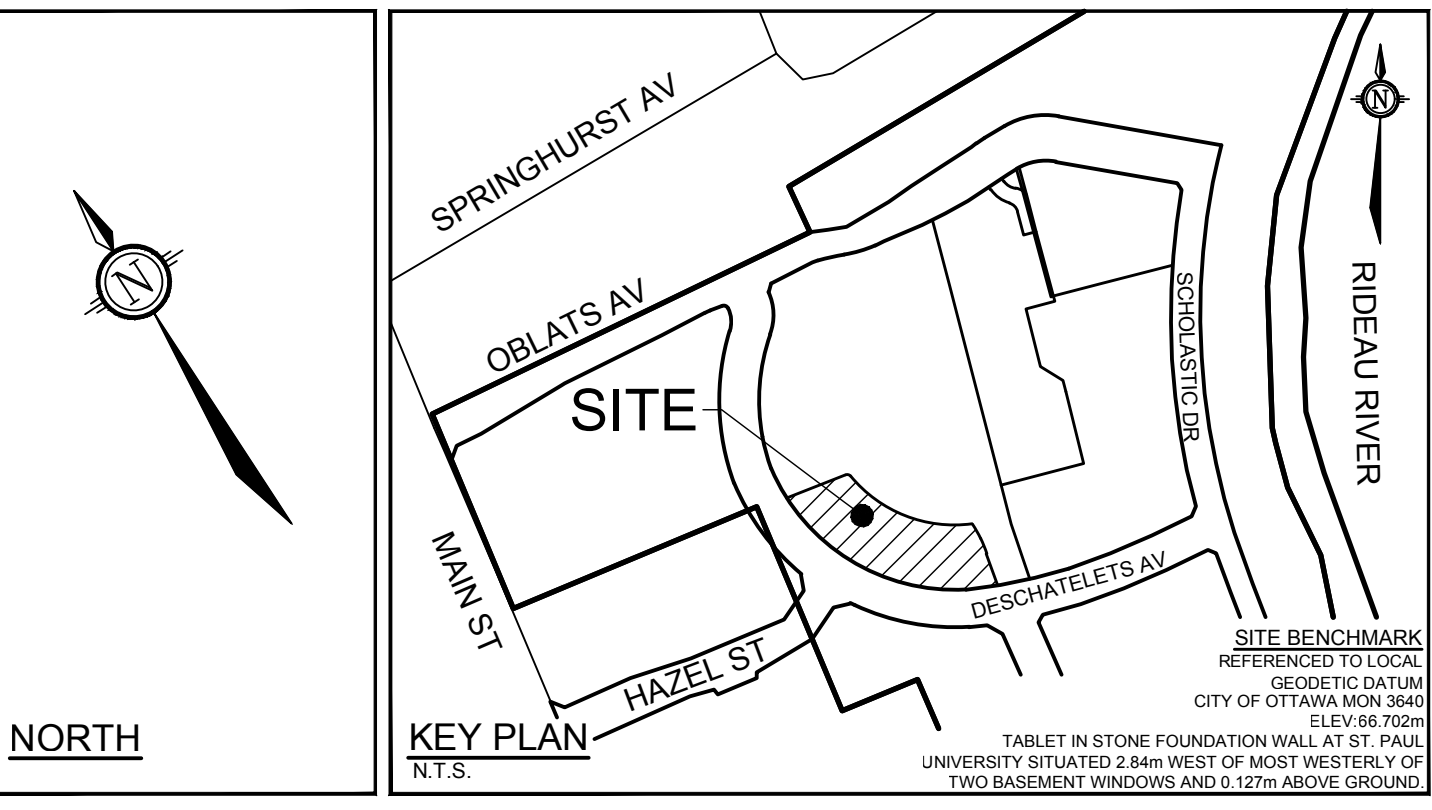
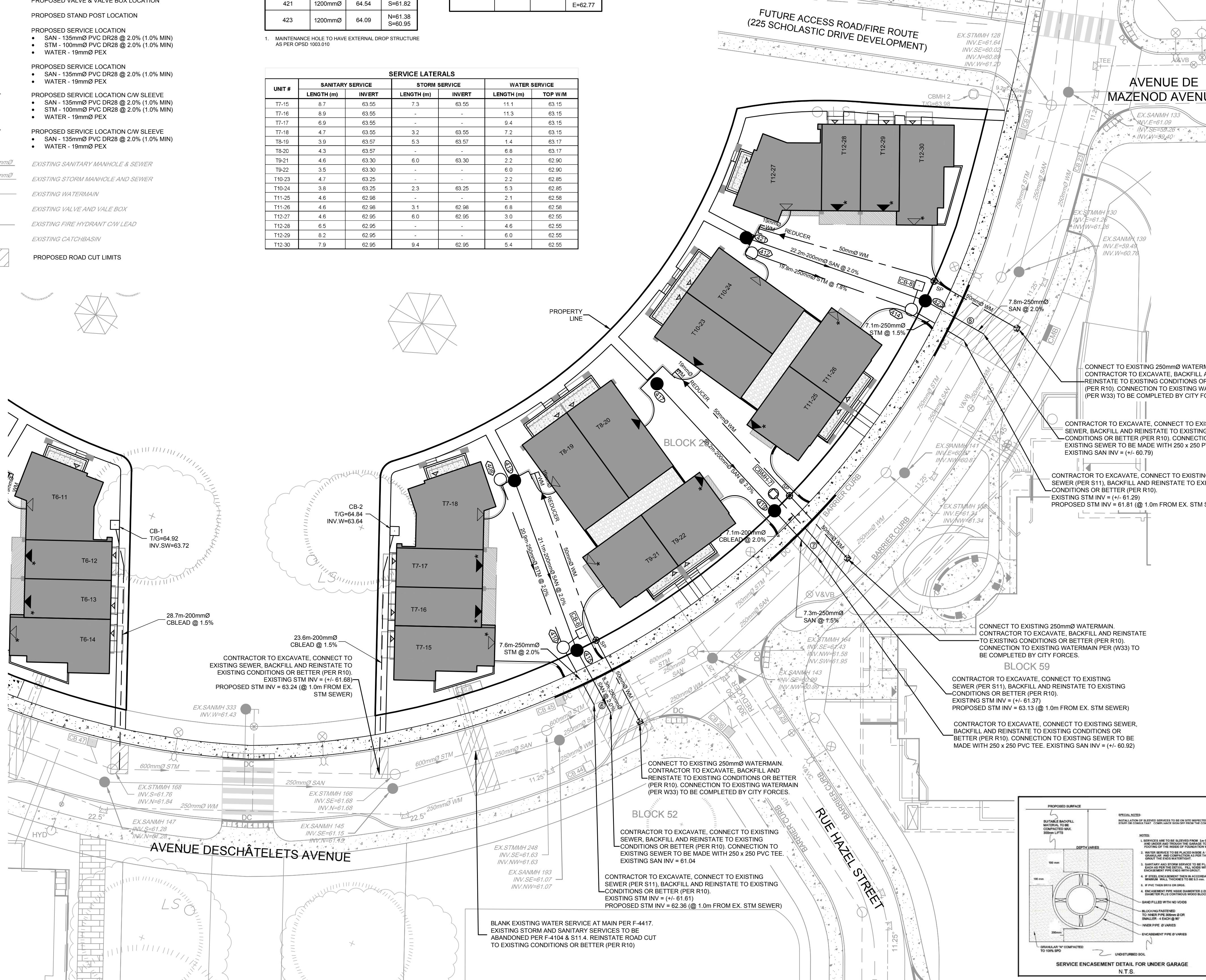
| CB ID | SIZE (mm) | T/G ELEV (m) | INVERT (m) | ICD DIA (mm) | 100yr CAPTURE RATE (L/s) |
|--------|-------------------|--------------|------------|--------------|--------------------------|
| CB-2 | 610 x 610 CB | 64.84 | W=63.64 | LMF 60 | 3.9 |
| CB-6 | 610 x 610 CB | 64.71 | NW=63.51 | LMF 105 | 12.1 |
| CB-8 | 610 x 610 CB | 64.03 | W=62.83 | 83mmØ | 16.6 |
| CBMH-7 | 1,200 mm dia CBMH | 64.45 | SW=63.25 | 83mmØ | 16.2 |

CRITICAL PIPE CROSSING TABLE

| NO. | PIPE SIZE | DEPTH (m) | PROPOSED SEPARATION |
|-----|----------------------|----------------------|---------------------|
| ① | 250mmØ SAN/0BV=61.32 | 600mmØ STM INV=61.61 | SAN-STM=0.29m |
| ⑦ | 250mmØ SAN 0BV=61.20 | 750mmØ STM INV=61.38 | SAN-STM=0.18m |
| ⑧ | 250mmØ SAN 0BV=61.07 | 750mmØ STM INV=61.28 | SAN-STM=0.21m |

SERVICE LATERALS

| UNIT # | SANITARY SERVICE | | STORM SERVICE | | WATER SERVICE | |
|--------|------------------|--------|---------------|--------|---------------|--------|
| | LENGTH (m) | INVERT | LENGTH (m) | INVERT | LENGTH (m) | TOP WM |
| T7-15 | 8.7 | 63.95 | 7.3 | 63.95 | 11.1 | 63.15 |
| T7-16 | 8.9 | 63.95 | - | - | 11.3 | 63.15 |
| T7-17 | 6.9 | 63.95 | - | - | 9.4 | 63.15 |
| T7-18 | 4.7 | 63.95 | 3.2 | 63.95 | 7.2 | 63.15 |
| T8-10 | 3.9 | 63.97 | 5.3 | 63.97 | 1.4 | 63.17 |
| T8-20 | 4.3 | 63.97 | - | - | 6.8 | 63.17 |
| T9-21 | 4.6 | 63.30 | 6.0 | 63.30 | 2.2 | 62.90 |
| T9-22 | 3.5 | 63.30 | - | - | 6.0 | 62.90 |
| T10-23 | 4.7 | 63.25 | - | - | 2.2 | 62.85 |
| T10-24 | 3.8 | 63.25 | 2.3 | 63.25 | 5.3 | 62.85 |
| T11-25 | 4.6 | 62.98 | - | - | 2.1 | 62.58 |
| T11-26 | 4.6 | 62.98 | 3.1 | 62.98 | 6.8 | 62.58 |
| T12-27 | 4.6 | 62.95 | 6.0 | 62.95 | 3.0 | 62.55 |
| T12-28 | 6.5 | 62.95 | - | - | 4.6 | 62.55 |
| T12-29 | 8.2 | 62.95 | - | - | 6.0 | 62.55 |
| T12-30 | 7.9 | 62.95 | 9.4 | 62.95 | 5.4 | 62.55 |



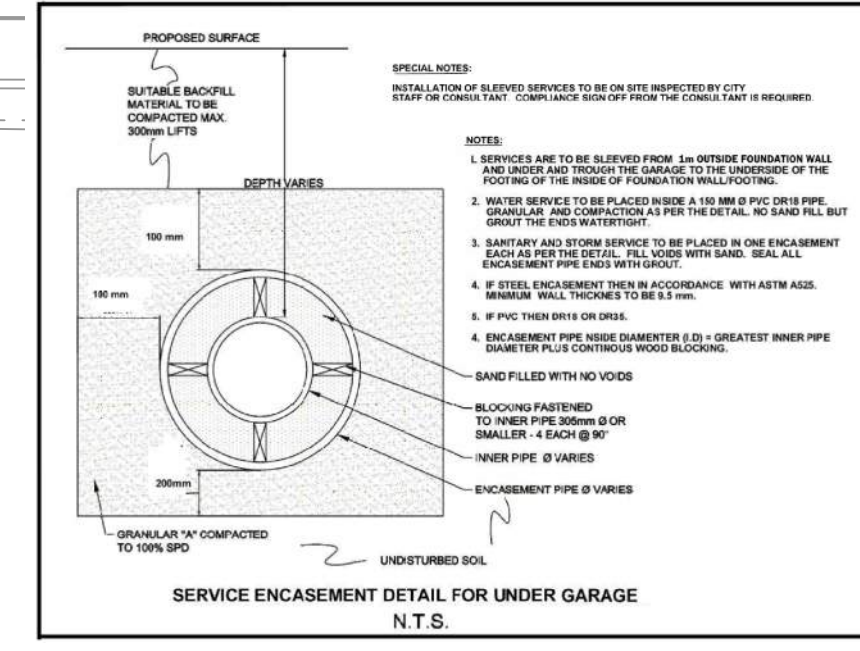
SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBEK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 VERTICAL DATUM: CGVD2878
 1. ANNIS, O-SULLIVAN, VOLLEBEK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 2. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

- GENERAL NOTES:**
- DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO START OF CONSTRUCTION.
 - THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION 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 THIS PLAN. PRIOR TO COMMENCING ANY ON-SITE SERVICING THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF THE EXISTING SEWERS, WATERMANS AND UTILITIES IN THE OBLATS AVENUE AND DESCHATELETS AVENUE RIGHT OF WAY.
 - CO-ORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
 - BEFORE COMMENCING CONSTRUCTION, PROVIDE PROOF OF COMPREHENSIVE ALL RISK AND OPERATIONAL LIABILITY INSURANCE. INSURANCE POLICY TO NAME THE OWNER, ENGINEER AND THE CITY AS CO-INSURED.
 - CONNECT TO EXISTING SYSTEMS AS DETAILED, INCLUDING ALL RESTORATION WORK NECESSARY TO REINSTATE SURFACES TO EXISTING CONDITIONS OR BETTER.
 - 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 THESE DRAWINGS.
 - OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS BEFORE COMMENCING CONSTRUCTION.
 - RESTORE ALL TRENCHES AND SURFACE FEATURES TO EXISTING CONDITIONS OR BETTER AND TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
 - REMOVE FROM SITE ALL DEBRIS AND EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.
 - ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
 - REFER TO STRUCTURAL PLANS FOR UNDERSIDE OF FOOTING AND TOP OF FOUNDATION INFORMATION.
 - REFER TO GEOTECHNICAL INVESTIGATION 06P846-1 (DATED FEBRUARY 1, 2024), PREPARED BY PATERSON GROUP.
 - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A MARKED UP COPY OF THE GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
 - ALL WORK TO BE CONSTRUCTED TO CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARDS.

- SEWER NOTES:**
- ITEM SPEC. No. REFERENCE
 CATCHBASIN (600x600mm) 735.010 OPSD CITY OF OTTAWA
 STORM / SANITARY MAINTENANCE HOLE (12000) 701.010 OPSD CITY OF OTTAWA
 STORM / SANITARY MH FRAME & COVER PVC SDR 35
 STORM SEWER PVC SDR 35
 SANITARY SEWER PVC SDR 35
 CATCHBASIN LEAD TO TOWER PVC SDR 35
 SANITARY AND STORM SERVICES PVC SDR28 (S11.3) CITY OF OTTAWA
 CBMH FRAME & COVER S25 & S28.1 CITY OF OTTAWA
 CB FRAME & COVER S19 CITY OF OTTAWA
 - ALL CATCHBASIN AND CATCHBASIN MAINTENANCE LEADS ARE TO BE 200mm DIA. PVC SDR 35 AT 2% SLOPE UNLESS OTHERWISE SPECIFIED ON THE DRAWING.
 - INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER AS PER THE INSULATION DETAIL FOR SHALLOW SEWERS AS PER DETAIL S35.
 - SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM BUILDING FACE AT 2.0% SLOPE (1.0% MINIMUM). SERVICES TO BE CONNECTED TO MAINLINE SEWER AS PER CITY OF OTTAWA S11.1.
 - PIPE BEDDING AND COVER ARE TO BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE COVER MATERIAL SHALL CONSIST OF OPSS GRANULAR 'A' AND SHOULD EXTEND FROM THE SPRING LINE OF THE PIPE TO AT LEAST 300mm ABOVE THE OVERTOP OF THE PIPE.
 - SANITARY PIPE TO BE IPEX SDR 35 OR EQUIVALENT WITH JOINT PRESSURE RATING OF 345kPa MINIMUM. WHERE PRIVATE SANITARY SEWER DOES NOT HAVE 2.5m CLEARANCE TO THE WATERMAIN, THE CONTRACTOR SHALL COMPLETE PRESSURE TESTING OF THE SANITARY SEWER TO CONFIRM THE 345kPa (min.) PRESSURE RATING OF THE SANITARY PIPE. TESTING TO BE COMPLETED PRIOR TO SANITARY LATERAL INSTALLATIONS.
 - THE SITE SERVICING CONTRACTOR SHALL PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSD 410.07.15 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY AND STORM SERVICES TO CONFIRM PROPER CONNECTION TO THE SEWER MAINS. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
 - STORM MAINTENANCE HOLES SHALL HAVE 300mm SLUMPS AND CATCHBASIN MAINTENANCE HOLES SHALL HAVE 600mm SLUMPS UNLESS OTHERWISE INDICATED.
 - CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
 - CONTRACTOR SHALL OBTAIN A VIDEO INSPECTION OF THE CITY SEWER SYSTEM WITHIN OBLATS AVENUE AND DESCHATELETS AVENUE RIGHT OF WAY UPON COMPLETION OF CONSTRUCTION TO DETERMINE IF THE CITY SEWER SYSTEM SUSTAINED ANY DAMAGES AS A RESULT OF CONSTRUCTION ON THE LANDS.

- WATERMAIN NOTES:**
- GENERAL:

| | | |
|---|-------------|----------------|
| ITEM | DETAIL No. | REFERENCE |
| WATERMAIN TRENCHING | W17 | CITY OF OTTAWA |
| THERMAL INSULATION IN SHALLOW TRENCHES | W22 | CITY OF OTTAWA |
| WATERMAIN CROSSING BELOW SEWER / OVER SEWER | W25 / W25.2 | CITY OF OTTAWA |
| WATER SERVICE: 19mm PEX SUBRACKS | W26 | CITY OF OTTAWA |
| WATERMAIN: 50mm PEX SDR35 | W33 | CITY OF OTTAWA |
 - SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN SHALL BE PERFORMED BY CITY OFFICIALS.
 - WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. CONTRACTOR TO SUPPLY AND INSTALL INSULATION AS PER W22 FOR ALL WATERMAIN LESS THAN 2.4m BELOW GRADE.
 - PROVIDE MINIMUM CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS PER W25 (0.50m) AND W25.2 (0.25m).
 - WATER SERVICES ARE TO BE INSTALLED 1.0m FROM THE BUILDING FACE, WITH 15m OF PIPE LEFT COILED.
 - CURB STOPS ARE TO BE LOCATED 2.0m FROM THE FOUNDATION WALL WHEREVER POSSIBLE.
 - WATERMANS LOCATED WITHIN 2.4m FROM OPEN STRUCTURES ARE TO BE INSULATED AS PER CITY OF OTTAWA STANDARD DETAIL W23



NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 3. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 2. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |
| 1. | ISSUED FOR DISCUSSION | APR 26/24 | TJM |

SCALE

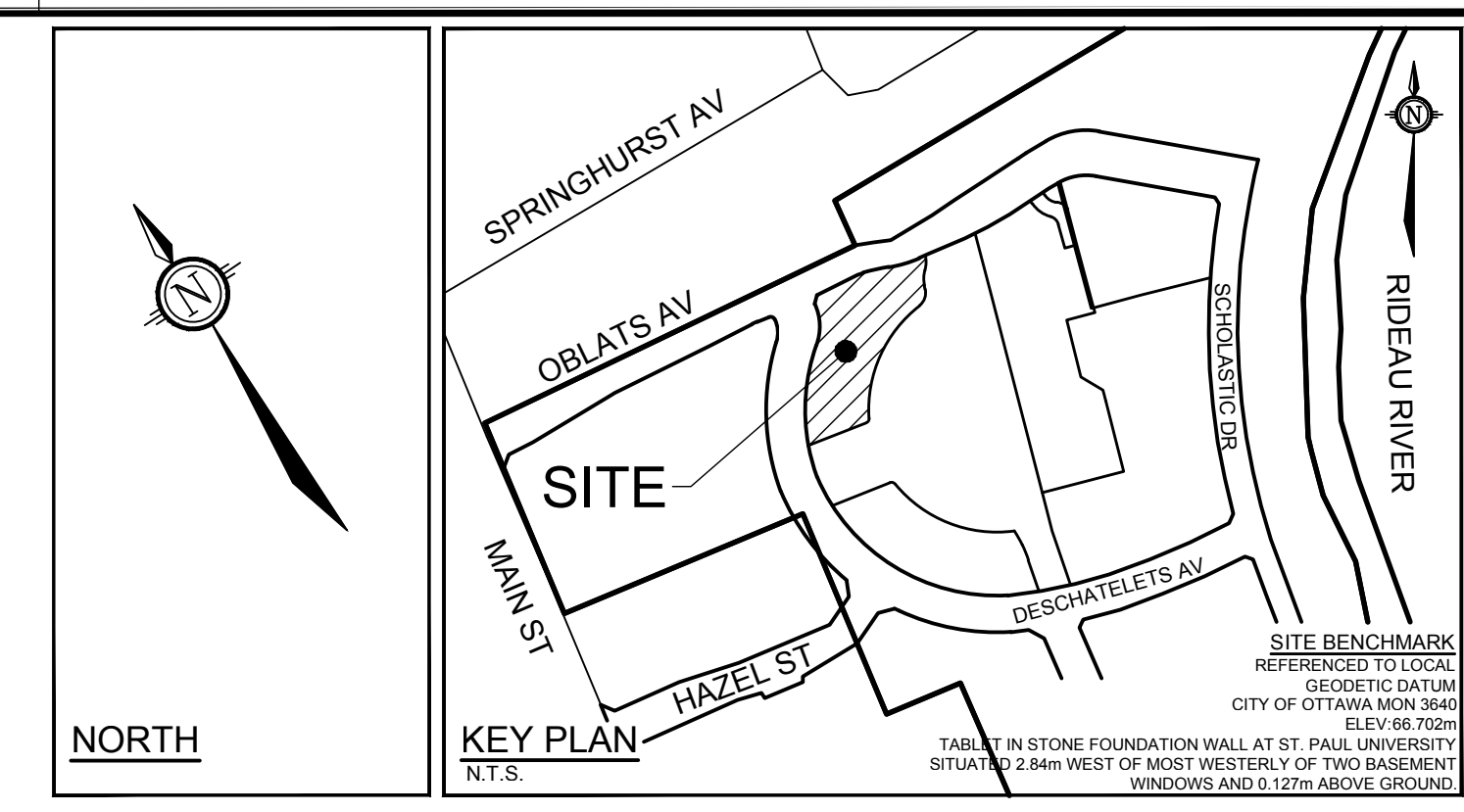
1:250

DESIGN: SAM
 CHECKED: TJM
 DRAWN: SAM
 CHECKED: TJM
 APPROVED: TJM

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 GREYSTONE VILLAGE
 DRAWING NAME: BLOCK 28 GENERAL PLAN OF SERVICES
 PROJECT No.: 114025
 REV: REV # 3
 DRAWING No.: 114025-FT-GP2

M:\2014\114025\CAD\Design\Drawings\114025-FT-GP.dwg, FT-GP2, Oct 15, 2024, 6:09pm, channa



SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBEKK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 VERTICAL DATUM: CGVD2878
 1. ANNIS, O-SULLIVAN, VOLLEBEKK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 2. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

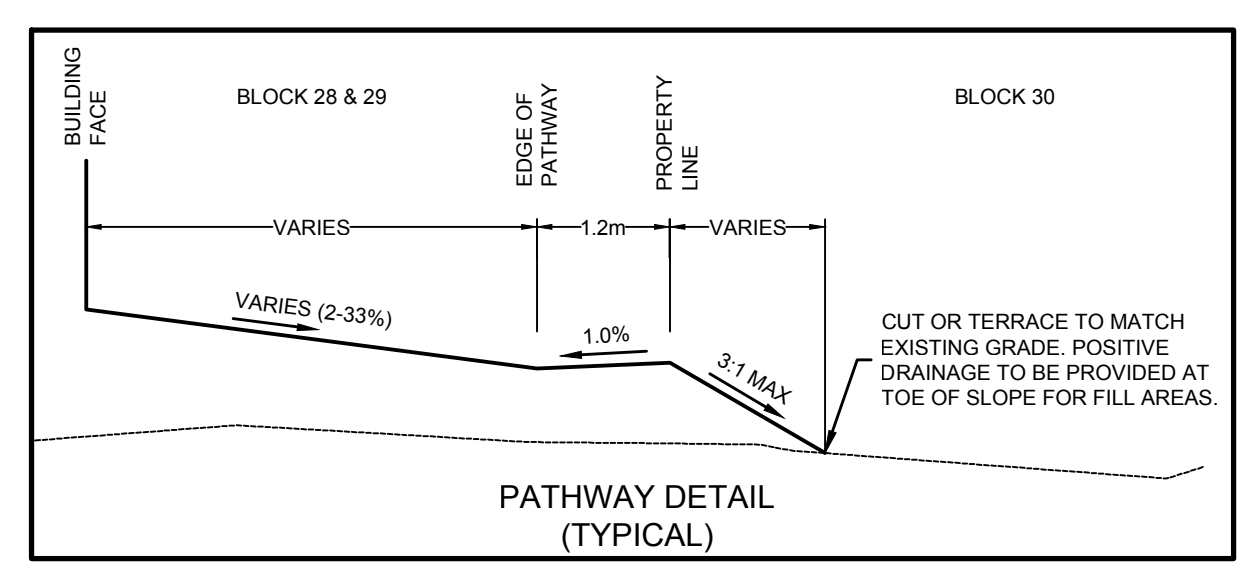
LEGEND

| | | | |
|-------|------------------------------------|-----|--|
| 97.00 | PROPOSED ELEVATION | ● | EXISTING SANITARY MAINTENANCE HOLE |
| 96.50 | EXISTING GROUND ELEVATION | ○ | EXISTING STORM MAINTENANCE HOLE |
| 97.00 | PROPOSED ELEVATION | □ | EXISTING CATCHBASIN |
| 96.50 | PROPOSED ELEVATION (SUBDIVISION) | ⊗ | EXISTING VALVE & VALVE BOX LOCATION |
| --- | EXISTING CONTOUR AND ELEVATION | ⊕ | EXISTING HYDRANT |
| | TERRACE TO EXISTING (3:1 MAX) | DC | EXISTING DEPRESSED CURB |
| --- | PROPOSED GRADING TIE-IN LIMITS | ⊗ | EXISTING STREET LIGHT |
| ● | PROPOSED SANITARY MAINTENANCE HOLE | --- | LEAN CONCRETE REQUIRED UNDER FOOTING TO 3.5m BELOW FINISHED GRADE (FOOTING WITHIN 4.5m OF PROPOSED TREE) |
| ○ | PROPOSED STORM MAINTENANCE HOLE | | |
| □ | PROPOSED CATCHBASIN | | |
| SP | PROPOSED STAND POST LOCATION | | |
| DC | DEPRESSED CURB | | |

PAVEMENT STRUCTURE:

| | |
|-------------------------------|-------------------------------|
| DESCHÂTELETS AVENUE | CAR COURT AREAS |
| 40mm ASPHALT SP12.5 (LEVEL B) | 50mm ASPHALT SP12.5 (LEVEL B) |
| 50mm ASPHALT SP19.0 (LEVEL B) | 150mm GRANULAR "A" |
| 50mm ASPHALT SP19.0 (LEVEL B) | 300mm GRANULAR "B" |
| 450mm GRANULAR "B" | 500mm TOTAL DEPTH |
| 740mm TOTAL DEPTH | |

- GRADING AND PAVEMENT NOTES:**
- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED HARD SURFACE (i.e. PAVEMENT, CURB, SIDEWALK, ETC.) AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
 - EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE HEAVILY PROOF ROLLED WITH A LARGE (10 TON) VIBRATORY STEEL DRUM ROLLER UNDER DRY CONDITIONS AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
 - 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.
 - THE GRANULAR BASE SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 88% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
 - SUBGRADE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION TO REVIEW IF A WOVEN GEOTEXTILE IS REQUIRED BELOW THE GRANULAR MATERIALS, AND TO CONFIRM THE DEPTH AND COMPACTION OF GRANULAR "B".
 - PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT, THE CONTRACTOR SHALL ADJUST ALL STRUCTURES TO FINAL GRADE PER CITY OF OTTAWA STANDARDS.
 - MINIMUM OF 2% GRADE FOR ALL GRASSED AREAS UNLESS OTHERWISE NOTED.
 - MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
 - ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
 - ALL CURBS SHALL BE BARRIER CURB UNLESS OTHERWISE NOTED AND CONSTRUCTED PER CITY OF OTTAWA STANDARD (SC1.1).
 - ALL SIDEWALKS ARE TO HAVE 2% CROSSFALL UNLESS OTHERWISE NOTED. CROSSFALL IS TO BE DIRECTED AWAY FROM BUILDINGS AND PROPERTY LINES UNLESS OTHERWISE NOTED. WHERE PATHWAY TO HAVE 1% CROSSFALL, LONGITUDINAL FALL IS TO BE 2% MINIMUM.
 - REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
 - DESCHÂTELETS AVENUE IS A COLLECTOR ROADWAY. ALL ASPHALT USED FOR ROAD CUT REINSTATEMENTS SHALL BE LEVEL B (PG 58-34) PER R10 AND THE APPROVED SUBDIVISION PLANS.
 - ASPHALT TO BE PLACED IN LIFT THICKNESSES NOT EXCEEDING 60mm OR AS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
 - REFER TO "GEOTECHNICAL INVESTIGATION - PROPOSED RESIDENTIAL DEVELOPMENT - 295 & 355 DESCHÂTELETS AVENUE, PREPARED BY PATERSON GROUP, DATED FEBRUARY 1, 2024" FOR ADDITIONAL INFORMATION.



NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 3. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 2. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |
| 1. | ISSUED FOR DISCUSSION | APR 26/24 | TJM |

| SCALE | |
|-------|--|
| 1:250 | |
| | |

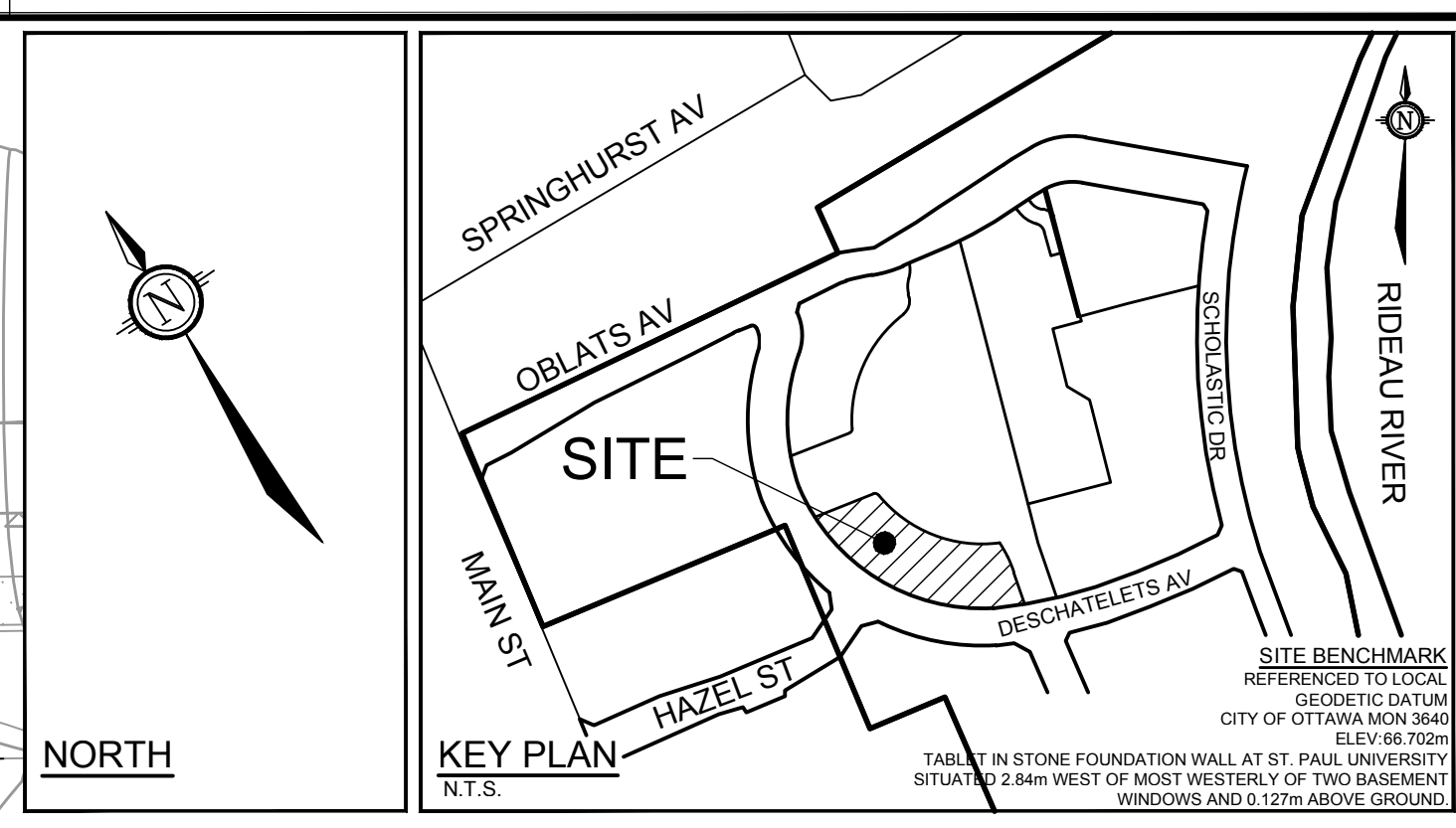
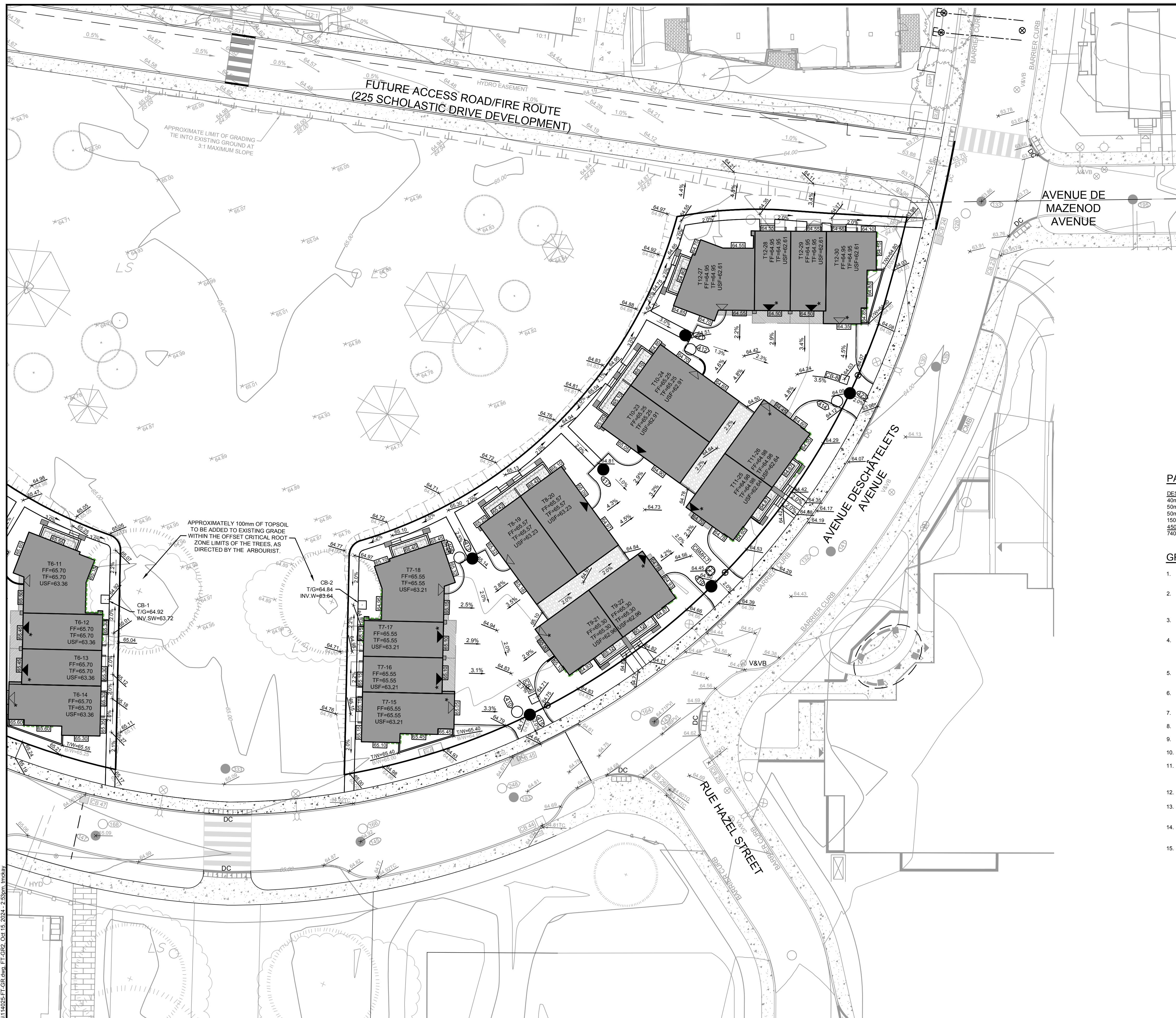
| DESIGN | CHECKED | DRAWN | APPROVED |
|--------|---------|-------|----------|
| SAM | TJM | SAM | TJM |

LICENSED PROFESSIONAL ENGINEER
 T. J. MCKAY
 100195434
 October 17, 2024
 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 | | DRAWING NAME | |
|-------------------------------------|--------|--------------------------|---------|
| CITY OF OTTAWA GREYSTONE VILLAGE | | BLOCK 29 GRADING PLAN | |
| PROJECT No. | 114025 | REV | REV # 3 |
| DRAWING No. | | 114025-FI-GR1 | |

M:\2014\114025\CAD\Drawings\Towns\114025-FI-GR.dwg, FT.GRI, Oct 15, 2024, 2:53pm, tmckay



SOURCE REFERENCE:
 TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT "H" CONCESSION "D" (RIDEAU FRONT), PREPARED BY ANNIS, O-SULLIVAN, VOLLEBEKK LTD. ON DECEMBER 15, 2017.
TOPOGRAPHIC INFORMATION:
 HORIZONTAL DATUM: NAD 83 (ORIGINAL), MTM - ZONE 9
 VERTICAL DATUM: CGVD2878
 1. ANNIS, O-SULLIVAN, VOLLEBEKK LTD'S TOPOGRAPHIC PLAN OF SURVEY
 2. NOVATECH TOPOGRAPHIC SURVEY, APRIL 2024

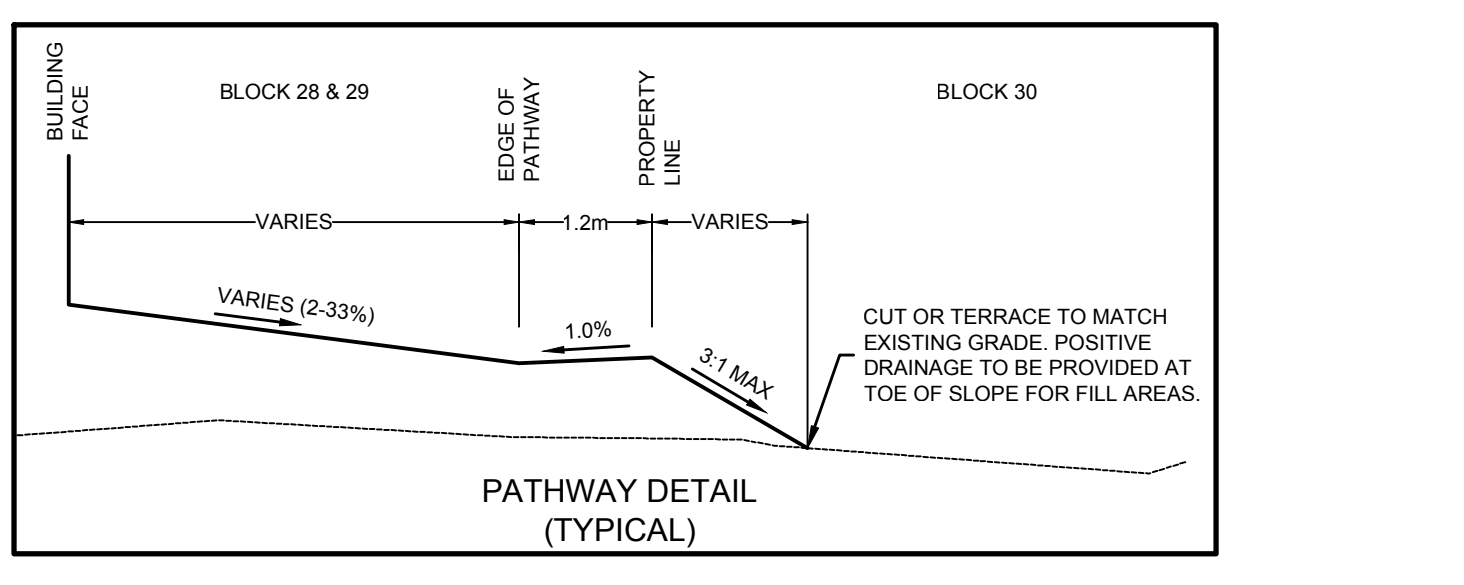
LEGEND

| | | | |
|--|------------------------------------|--|--|
| | PROPOSED ELEVATION | | EXISTING SANITARY MAINTENANCE HOLE |
| | EXISTING GROUND ELEVATION | | EXISTING STORM MAINTENANCE HOLE |
| | PROPOSED ELEVATION (SUBDIVISION) | | EXISTING CATCHBASIN |
| | EXISTING CONTOUR AND ELEVATION | | EXISTING VALVE & VALVE BOX LOCATION |
| | TERRACE TO EXISTING (3.1 MAX) | | EXISTING HYDRANT |
| | PROPOSED GRADING TIE-IN LIMITS | | EXISTING DEPRESSED CURB |
| | PROPOSED SANITARY MAINTENANCE HOLE | | EXISTING STREET LIGHT |
| | PROPOSED STORM MAINTENANCE HOLE | | LEAN CONCRETE REQUIRED UNDER FOOTING TO 3.5m BELOW FINISHED GRADE (FOOTING WITHIN 4.5m OF PROPOSED TREE) |
| | PROPOSED CATCHBASIN | | |
| | PROPOSED STAND POST LOCATION | | |
| | DEPRESSED CURB | | |

PAVEMENT STRUCTURE:

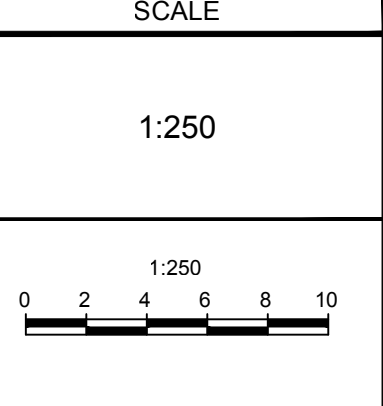
| | |
|-------------------------------|-------------------------------|
| DESCHÂTELETS AVENUE | CAR COURT AREAS |
| 40mm ASPHALT SP12.5 (LEVEL B) | 50mm ASPHALT SP12.5 (LEVEL B) |
| 50mm ASPHALT SP19.0 (LEVEL B) | 150mm GRANULAR "A" |
| 50mm ASPHALT SP19.0 (LEVEL B) | 300mm GRANULAR "B" |
| 150mm GRANULAR "A" | 500mm TOTAL DEPTH |
| 450mm GRANULAR "B" | |
| 740mm TOTAL DEPTH | |

- GRADING AND PAVEMENT NOTES:**
- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED HARD SURFACE (i.e. PAVEMENT, CURB, SIDEWALK, ETC.) AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
 - EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE HEAVILY PROOF ROLLED WITH A LARGE (10 TON) VIBRATORY STEEL DRUM ROLLER UNDER DRY CONDITIONS AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
 - 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.
 - THE GRANULAR BASE SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
 - SUBGRADE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION TO REVIEW IF A WOVEN GEOTEXTILE IS REQUIRED BELOW THE GRANULAR MATERIALS, AND TO CONFIRM THE DEPTH AND COMPACTION OF GRANULAR "B".
 - PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT, THE CONTRACTOR SHALL ADJUST ALL STRUCTURES TO FINAL GRADE PER CITY OF OTTAWA STANDARDS.
 - MINIMUM OF 2% GRADE FOR ALL GRASSED AREAS UNLESS OTHERWISE NOTED.
 - MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
 - ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
 - ALL CURBS SHALL BE BARRIER CURB UNLESS OTHERWISE NOTED AND CONSTRUCTED PER CITY OF OTTAWA STANDARD (SC1.1).
 - ALL SIDEWALKS ARE TO HAVE 2% CROSSFALL UNLESS OTHERWISE NOTED. CROSSFALL IS TO BE DIRECTED AWAY FROM BUILDINGS AND PROPERTY LINES UNLESS OTHERWISE NOTED. WHERE PATHWAY IS TO HAVE 1% CROSSFALL, LONGITUDINAL FALL IS TO BE 2% MINIMUM.
 - REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
 - DESCHÂTELETS AVENUE IS A COLLECTOR ROADWAY. ALL ASPHALT USED FOR ROAD CUT REINSTATEMENTS SHALL BE LEVEL B (PG 58-34) PER R10 AND THE APPROVED SUBDIVISION PLANS.
 - ASPHALT TO BE PLACED IN LIFT THICKNESSES NOT EXCEEDING 60mm OR AS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
 - REFER TO "GEOTECHNICAL INVESTIGATION - PROPOSED RESIDENTIAL DEVELOPMENT - 295 & 355 DESCHÂTELETS AVENUE, PREPARED BY PATERSON GROUP, DATED FEBRUARY 1, 2024" FOR ADDITIONAL INFORMATION.



NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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.

| No. | REVISION | DATE | BY |
|-----|----------------------------------|-----------|-----|
| 3. | RE-ISSUED FOR SITE PLAN APPROVAL | OCT 17/24 | TJM |
| 2. | ISSUED FOR SITE PLAN APPROVAL | AUG 14/24 | TJM |
| 1. | ISSUED FOR DISCUSSION | APR 26/24 | TJM |



| | |
|----------|-----|
| DESIGN | SAM |
| CHECKED | TJM |
| DRAWN | SAM |
| CHECKED | TJM |
| APPROVED | TJM |

LICENSED PROFESSIONAL ENGINEER
 T. J. MCKAY
 100195434
 October 17, 2024
 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 GREYSTONE VILLAGE |
| DRAWING NAME | BLOCK 28 GRADING PLAN |
| PROJECT No. | 114025-00 |
| REV | REV # 3 |
| DRAWING No. | 114025-FI-GR2 |

M:\2014\114025\CAD\Drawings\Grading\114025-FI-GR2.dwg, FT-GR2, Oct 15, 2024, 2:53pm, tmckay