# MEMORANDUM

MORRISON HERSHFIELD

| | | | |
|---|---|---|---|
| **TO:** | Patrick Leo Dupont<br>Armco Capital Inc.<br>6848 Newman, Lasalle<br>QC H8N 9G7 | **FROM:** | James Fookes, P.Eng.<br>Morrison Hershfield |
| | | **PROJECT No.:** | MH ref. 210292799 |
| **RE**: | 1354 & 1376 Carling Avenue Development – Phase 2<br>Site Servicing and Storm Water Management for the Future City Park | **DATE:** | 6/16/2021 |

X:\PROJ\2021\210292700-1356 CARLING AVE PH2-CIVIL\12. DELIVERABLES\JUNE 18 2021 UPDATED PACKAGE\MEMO_1354 CARLING AVE SITE SERVICING DESIGN BRIEF PARK REV 1.DOCX

# 1. Introduction

## 1.1. Site Description and Proposed Development

This memo describes the site servicing and stormwater management design and calculations pertaining to the new park development to be constructed at 1354 Carling Avenue. The redevelopment of 1354 and 1376 Carling Avenue consists of multi-storey residential and commercial units. An Urban Design Review Panel (UDRP) review in 2017 found that the proposed development and the surrounding neighborhood lacked parkland and amenity spaces. The URDP recommend incorporating a larger park in a location that would be accessible from outside the site to help address these concerns. As a result, the proposed development was modified to include a park within the southwestern limits of the subject property accessible from Meath Street. The proposed park area will be separated from the main property parcel into new property parcel to be owned by the City.

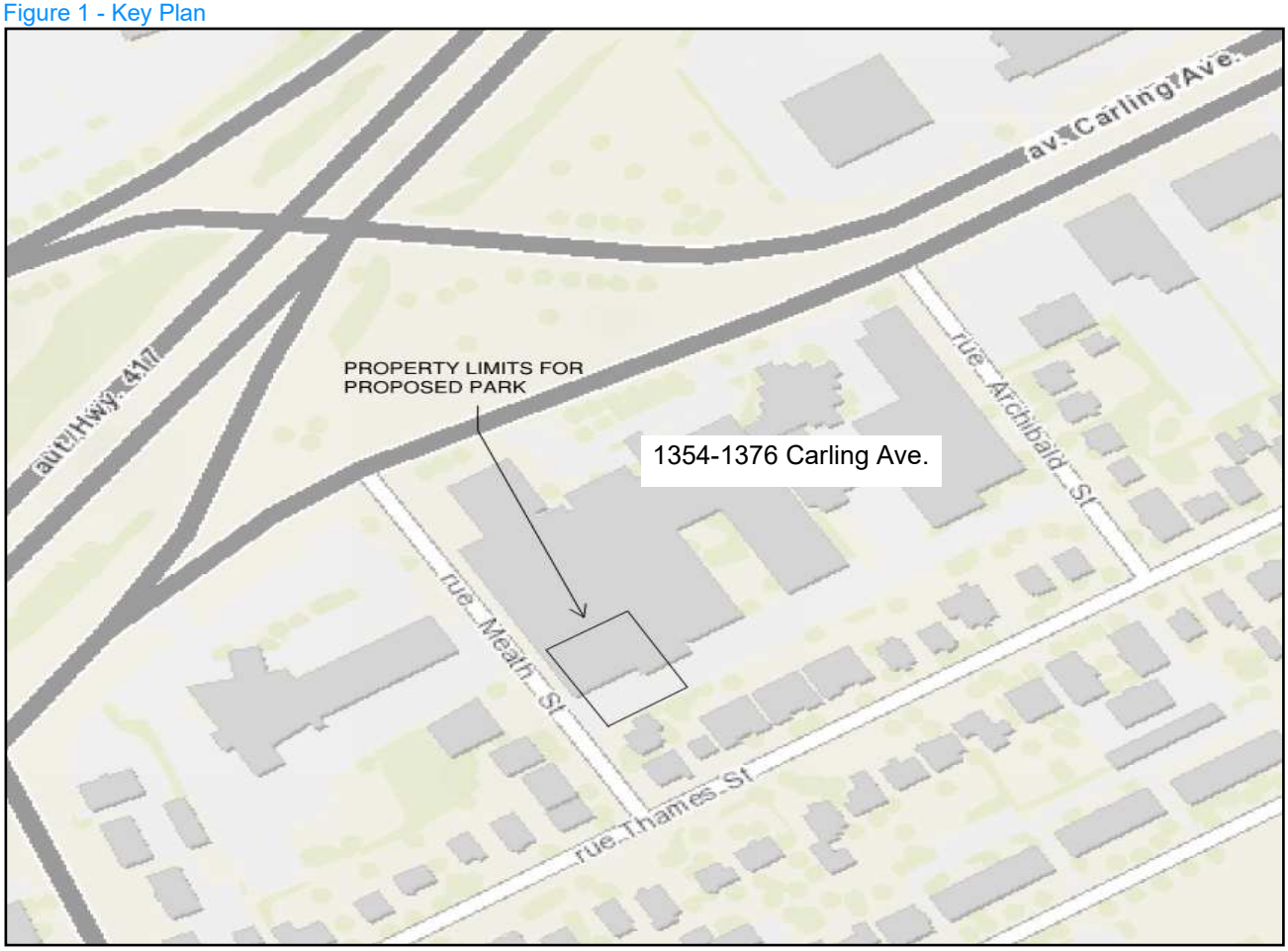
Existing infrastructure in the vicinity of the site is described in **Section 1.4** below. Design drawings for proposed site servicing, grading, and erosion control are provided in **Appendix A**.

## 1.2. Location Map and Plan

The location of the site is illustrated in **Figure 1**. A detailed site layout is illustrated on the drawings in **Appendix A**.

The proposed park development at 1354 Carling Ave. is entirely within the existing property parcels. The site is located within ward 16, occupied by Councillor Riley Brockington.

Figure 1 - Key Plan




### 1.3. Consultation and Permits

The Planning Committee of the City of Ottawa amended zoning by-law regulations in anticipation for the new development for 1354 Carling Avenue. The amendment consists of zoning the proposed park location to O-1 Parks and Open Space Zone.

### 1.4. Available Existing Infrastructure

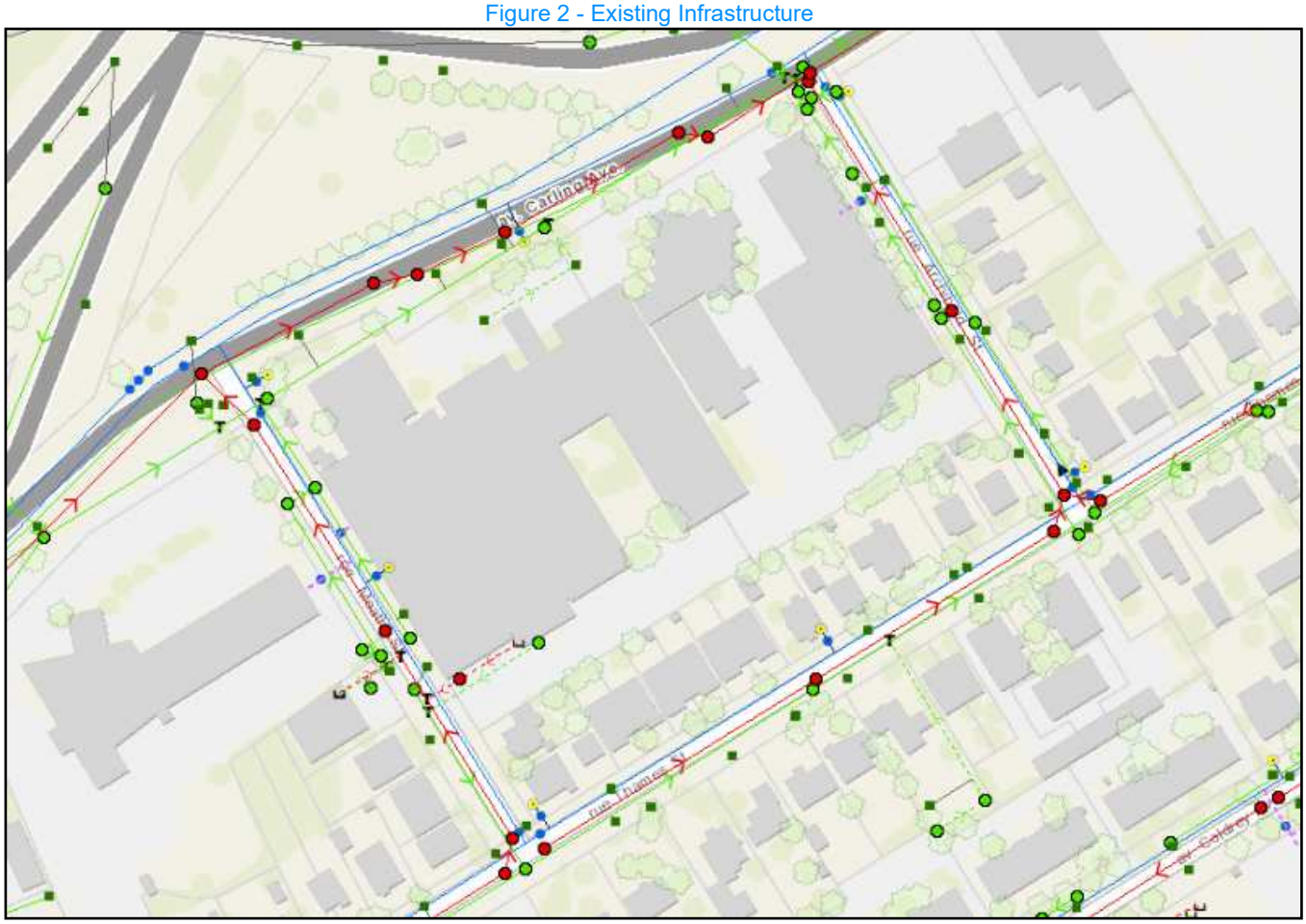
Sewer mapping collected from the City of Ottawa, and related documentation pertaining to the development of phase 1, indicate that the following infrastructure exists in and surrounding the subject site.

Meath Street

- 300mm diameter concrete storm sewer
- 400mm diameter PVC storm sewer
- 525mm diameter PVC storm sewer
- 300mm diameter concrete sanitary sewer
- 150mm diameter PVC watermain

Corresponding structures and services can be found in **Figure 2.**

Figure 2 - Existing Infrastructure


Carling Ave
Rue Rowena
Rue Rowena
Rue Rowena

## 2.2. Storm Servicing Strategy including Analysis of Existing Infrastructure

The stormwater management design has been completed by restricting the 100-year post-development flow to the 5-year pre-development runoff (calculated at a pre-development runoff coefficient of 0.5) to meet the capacity of downstream sewers. The 100-year flow will be detained on site. The required storage volume has been calculated using the Modified Rational Method. Storm water storage will be provided in accordance with the City of Ottawa Sewer Design Guidelines Section 8.3.11.1.

## 2.3. Proposed Storm Servicing

Proposed storm servicing is indicated on Drawing C801 in **Appendix A**. The proposed pre-development and post-development catchment areas, runoff coefficients and catchment total areas are indicated on the Drainage Area Plans, also in **Appendix A**.

## 2.4. Stormwater Quantity Control

### 2.4.1. Runoff Coefficient and Peak Flows

**Table 1** indicates the runoff coefficient for each catchment. The 100-year runoff coefficients include a 25% increase (to a maximum of 1.0) as required by the City of Ottawa Sewer Design Guidelines Section 5.4.5.2.1.

Table 1– Pre-development Runoff Coefficients (development area)

| | **Pre-Development Runoff Coefficients** | |
|---|---|---|
| Storm Event | **5-Year Storm** | **100-Year Storm** |
| Areas Description | **Existing** | **Existing** |
| Site Area (in ha) | 0.14 | 0.14 |
| Runoff Coefficient | 0.86 | 1.00 |

Intensity (i) is calculated using the formula:

$$i = \frac{A}{(T_d + C)^B}$$

Where A, B and C are all factors of the IDF Return Period, $T_d$ being the time of concentration and A the drainage area (Detailed calculations provided in **Appendix B**).

Time of concentration is determined using the inlet time graph (Appendix 5D Ottawa City Sewer Design Guidelines) which results in a value of 7 minutes (a minimum of 10 minutes shall be used). With the pre and post-development runoff coefficients and rainfall intensity, the peak flows for each drainage area can be calculated using the Rational Method. The results (using actual runoff coefficients) are summarized in **Table 2**.

Table 2– Pre-Development Peak Flows

| | **Pre-Development Peak Flows (actual runoff coefficients)** | | | |
|---|---|---|---|---|
| **Return Period (Years)** | **Intensity, I (mm/hr)** | **Area (ha)** | **Runoff Coefficient, R (Note 1)** | **Runoff Rate, Q (L/s)** |
| 2 | 76.8 | 0.14 | 0.86 | 26.2 |
| 5 | 104.2 | 0.14 | 0.86 | 35.5 |
| 100 | 178.6 | 0.14 | 1.00 | 71.0 |
| *Note 1: For 100-year event, Runoff Coefficient is increased by 25% to a maximum of 1.0.* | | | | |

To calculate the allowable release rate, the following criteria are applied:

Return Period 5 year

| | | |
|---|---|---|
| Maximum Runoff Coefficient | 0.5 | |
| Time of Concentration | 10 | Minutes |

Table 3– Allowable Release Rate

| Return Period (Years) | Intensity, I (mm/hr) | Area (ha) | Runoff Coefficient, R | Runoff Rate, Q (L/s) |
|---|---|---|---|---|
| 5 | 104.2 | 0.14 | 0.50 | 20.7 |

**The allowable release rate for the site has been calculated to be 20.7 L/s.**

The project will result in the existing area being partially covered with impervious surfaces. The post-development runoff coefficients are indicated in **Table 4:**

Table 4– Overall Post-Development Runoff Coefficients

| | Overall Post-Development Runoff Coefficients | |
|---|---|---|
| Storm Event | **5-Year Storm** | **100-Year Storm** |
| Areas Description | **proposed park site** | **proposed park site** |
| Project Area (in ha) | 0.14 | 0.14 |
| **Weighted Runoff Coefficient** | **0.47** | **0.58** |

### 2.4.2. Stormwater Management Concept

The subject property limits are bounded by easements and zoning regulations and as a result stormwater runoff will be maintained within the property limits of the park.

**Table 5** provides a summary of the characteristics of the post-development peak flow rates.

Table 5– Post-Development Peak Flow Rates

| | Post-Development Peak Flow Rates | |
|---|---|---|
| Storm Event | **5-Year Storm** | **100-Year Storm** |
| Drainage area (ha) | 0.14 | 0.14 |
| Runoff Coefficient | 0.47 | 0.58 |
| Peak Flow (L/s) | 19.2 | 41.1 |

As a result, the post-development 100-year flow rate is required to be reduced by **20.4 L/s** to meet the allowable release rate of 20.7 L/s.

All stormwater within the proposed park site will be directed to a central catch basin. An ICD will be installed on the catch basin lead to control the flow to the allowable release rate. As indicated by the proposed storage calculations, the required surface storage was calculated to be 20.7 $m^3$. Storage will be provided through surface storage above the catch basin to a maximum ponding depth of 300mm. The extents of surface ponding are indicated on drawing C802 in **Appendix A**.

## Summary

Design calculations for the new storm service are provided in **Appendix B**.

**Table 6** summarizes the proposed release rates and confirms that the total release rate does not exceed the allowable release rate.

Table 6 – Post-Development Controlled Peak Flows

| | Post-Development Controlled Peak Flows (L/s) |
|---|---|
| Allowable Release Rate | 20.7 |
| Release Rate from Uncontrolled Drainage Areas | 41.1 |
| Release Rate from Controlled Drainage Areas | 0 |
| Total Release Rate | 41.1 |

### 2.5. 100 Year Flood Levels and Major Flow Routing

The site is not within a 100-year floodplain. A figure of the Ottawa river floodplain overlay extracted from the City's GeoOttawa resource is included in **Appendix C**.

### 2.6. Grading

The proposed grading plan is shown in Drawing C802 in **Appendix A**. The development will be tied into the existing grades on Meath St, phase 2 development, and the existing easement along the southern project limits.

## 3. Conclusions

In conclusion the proposed development meets all required servicing constraints and associated design criteria/requirements as well as the additional City of Ottawa requirements identified in the pre-consultation phase. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

Sincerely,

Morrison Hershfield Limited

James Fookes, P.Eng., C.Eng.
Senior Municipal Engineer

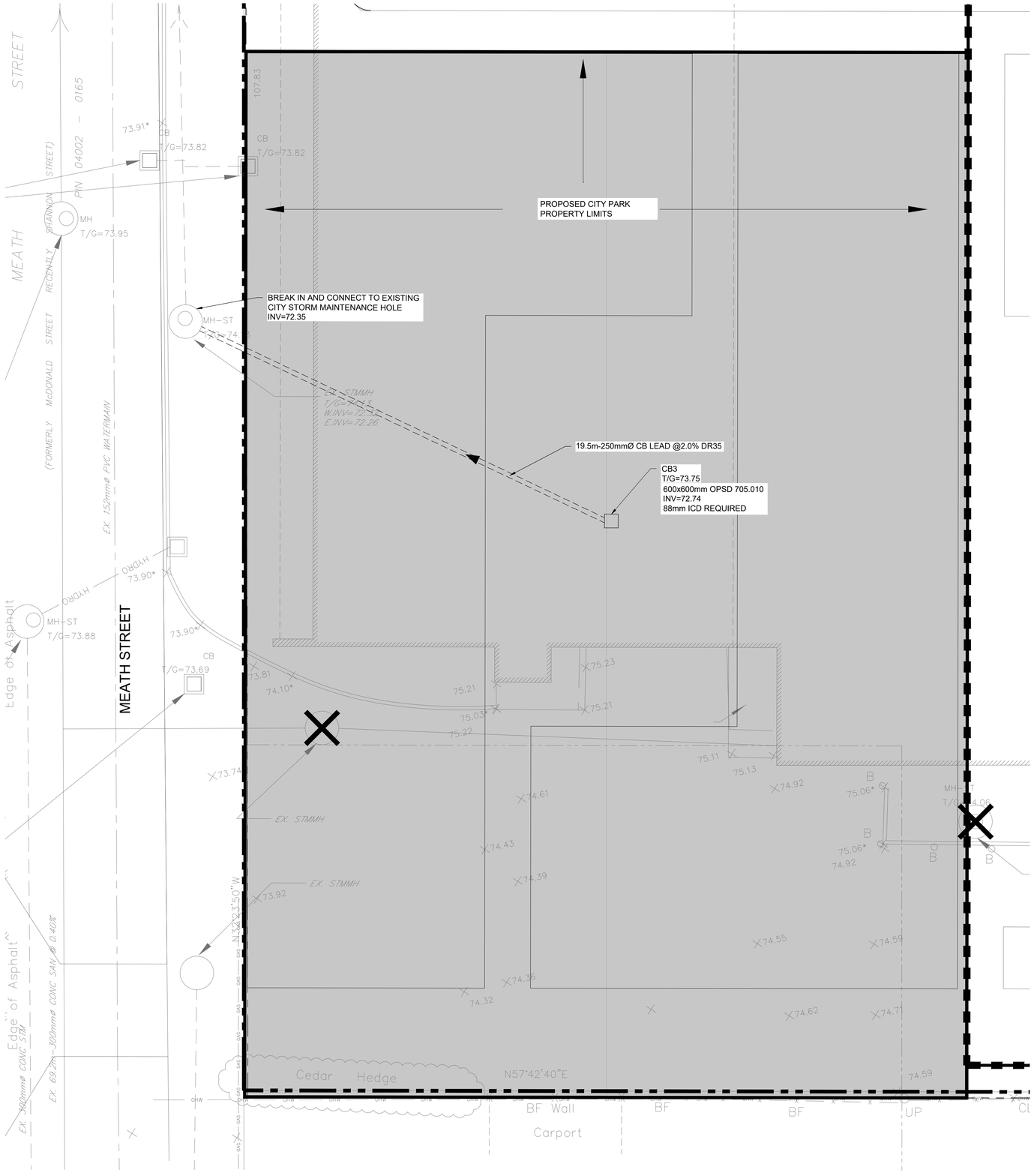
Dillon O'Neil, EIT
Municipal Engineer-in-Training

## 4. Appendices

Appendix A Site Servicing, Grading and Erosion and Sediment Control, Catchments Plans,
Appendix B Storm Sewer Design Calculations
Appendix C GeoOttawa 1-100 Year Floodplain and Correspondence

# Appendix A

# Site Servicing, Grading, Catchments Plans and Details




LEGEND

- NEW STORM SEWER
- NEW CATCH BASIN
- EXISTING MANHOLE
- EXISTING CATCH BASIN
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING LIGHT STANDARD
- REMOVALS
- PROPERTY EXTENTS
- UNDERGROUND PARKING GARAGE EXTENTS

HORIZONTAL
0m 2 4

**PRELIMINARY**
NOT FOR CONSTRUCTION

| No. | YYYY-MM-DD | ISSUED FOR SCHEMATIC DESIGN |
|---|---|---|
| 1 | 2021-06-17 | ISSUED FOR SITE PLAN CONTROL |

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LICENSED PROFESSIONAL ENGINEER
J.G. FOKKES
Jun 22, 2021
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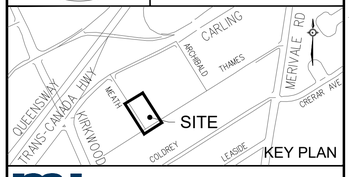


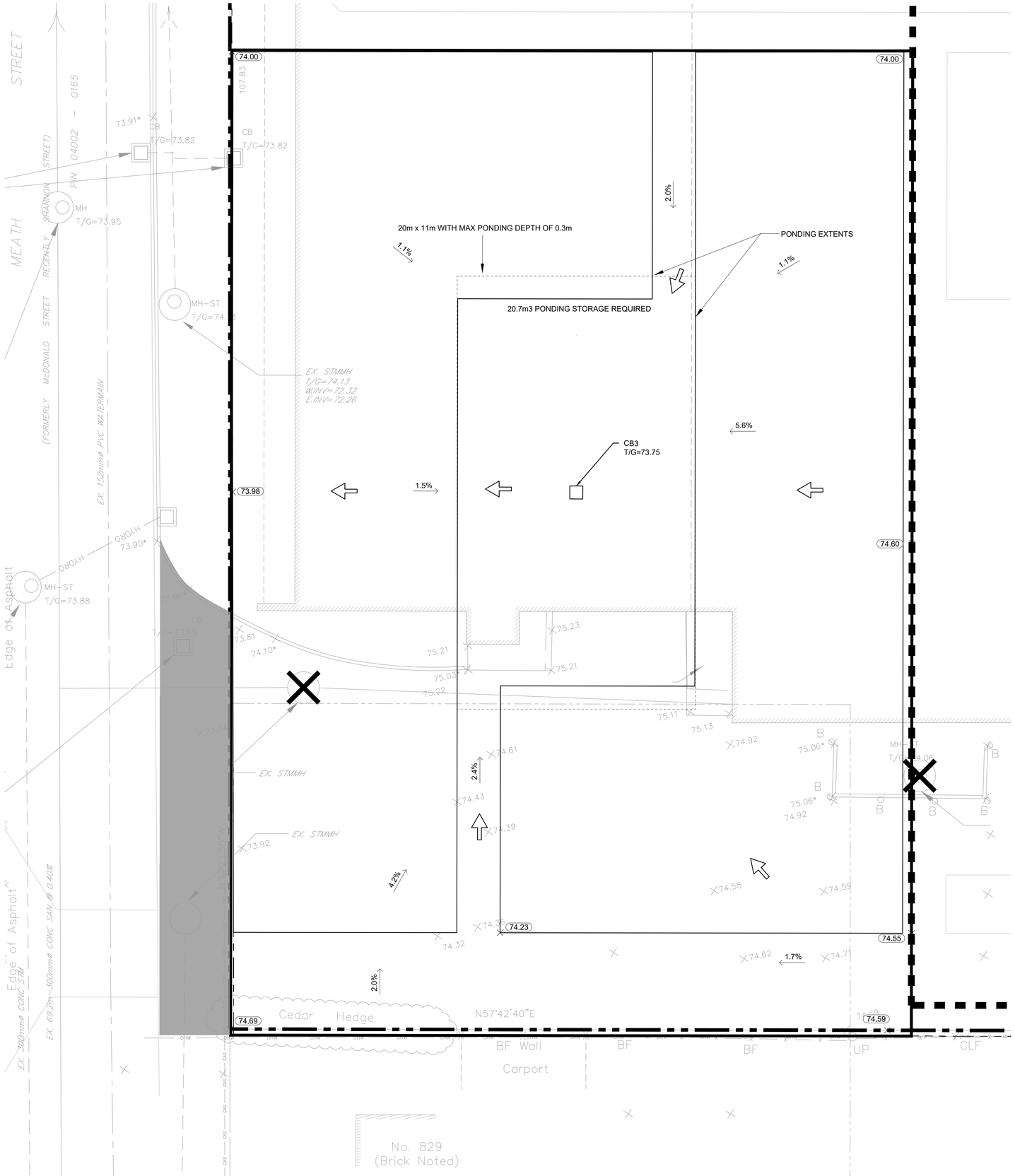
KEY PLAN

MORRISON HERSHFIELD
200 - 2932 Baseline Road
Ottawa, Ontario, K2H 1B1
Tel: (613) 739-2910

PROJECT
1354 & 1376 CARLING AVENUE
DEVELOPMENT - PROPOSED CITY PARK

DRAWING
SITE SERVICING PLAN - CITY PARK

| DESIGN | DATE | SCALE |
|---|---|---|
| DO | 2021-06-07 | 1:100 |
| DRAWN: SC | PROJECT NO.: 210292799 | |
| CHECKED: NC | DRAWING NO: C801 | VERSION |
| APPROVED: JF | | |




## LEGEND

- NEW CATCH BASIN
- 74.78 — PROPOSED ELEVATION
- 74.88 — EXISTING ELEVATION
- 7.9% — PROPOSED SLOPE DIRECTION
- 73.50T/G — PROPOSED FINISH GRADE AT TOP OF GRATE
- 75.00Ph1 — ELEVATION FROM PHASE-1
- DIRECTION OF MAJOR OVERLAND FLOW
- PONDING EXTENTS
- PROPERTY EXTENTS
- UNDERGROUND PARKING GARAGE EXTENTS
- NEW MONOLOTHIC CURB AND SIDEWALK (CITY STD DET SC2)

1:100
HORIZONTAL
0m 2 4

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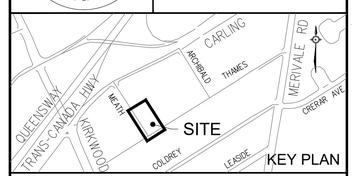


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Tel: (613) 739-2910

PROJECT
1354 & 1376 CARLING AVENUE
DEVELOPMENT - PROPOSED CITY PARK

DRAWING
GRADING PLAN - CITY PARK

| DESIGN | DATE | SCALE |
|---|---|---|
| DO | 2021-06-07 | 1:100 |
| DRAWN: SC | PROJECT NO.: 210292799 | |
| CHECKED: NC | DRAWING NO: C802 | VERSION: |
| APPROVED: JF | | |

PROPOSED CITY PARK PROPERTY LIMITS

EXISTING
0.14 | 0.86

CB T\G=73.82
CB T\G=73.82
MH T\G=73.95
CB T\G=73.63
MH-S T\G=74.13
MH-ST T\G=73.88
CB T\G=73.69
MH-ST T\G=74.06
CB

73.74 73.91* 73.81 73.82 73.78 73.76 73.73 73.74 73.76 73.75 73.74 73.81 73.90* 73.90* 73.86 73.87 73.84 73.84 73.85 73.87 73.92 73.96 73.88 73.84 73.89 73.99 73.81 74.10* 75.21 75.23 75.21 75.03* 75.22 75.11 75.13 74.92 74.61 74.43 74.39 75.06* 74.92 75.07* 75.07* 74.93 74.78 74.75 74.55 74.59 74.67 74.36 74.32 74.62 74.71 74.76 74.73 74.59 74.91 75.5 74.31 74.15

Edge of Asphalt
Edge of Asphalt
N32°32'50"W
N57°42'40"E
Cedar Hedge
BF Wall
Carport
OHW
CLF
UP
LS
BF

HORIZONTAL
0m 2 4

LEGEND

AREA ID — DRAINAGE AREA CHARACTERISTICS
RUNOFF COEFFICIENT — % — AREA ha

EXISTING CATCHMENTS

| No. | YYYY-MM-DD | ISSUED |
|---|---|---|
| 1 | 2021-06-17 | ISSUED FOR SITE PLAN CONTROL |

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KEY PLAN

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200 - 2932 Baseline Road
Ottawa, Ontario, K2H 1B1
Tel: (613) 739-2910

PROJECT
1354 & 1376 CARLING AVENUE
DEVELOPMENT - PHASE 2

DRAWING
EXISTING STORM DRAINAGE AREA PLAN

| DESIGN | DATE | SCALE |
|---|---|---|
| DO | | 1:100 |
| DRAWN | PROJECT NO. | |
| SC | 210292799 | |
| CHECKED | DRAWING NO | VERSION |
| NC | C804 | |
| APPROVED | | |
| JF | | |

LEGEND

AREA ID — AREA ha

RUNOFF COEFFICIENT %

DRAINAGE AREA CHARACTERISTICS

EXTENTS FOR PHASE 2 DEVELOPMENT

PROPOSED CATCHMENTS

PROPERTY LINE

PARK

0.14 | 0.47

CITY PARK

PROPOSED UNDERGROUND PARKING LIMITS

EX. CB T/L=73.82

EX. CBMH T/L=73.63

EX. SANMH N.INV=71.18 S.INV=71.19

EX. STMMH T/G=73.88 INV=72.50

EX. CB T/G=73.69

CB T/G=73.82

MH T/G=73.95

MH-ST T/G=74.

MH-ST T/G=73.88

CB T/G=73.69

EX. STMMH T/G=75.06

MEATH STREET (FORMERLY MCDONALD STREET RECENTLY SHANNON STREET) PIN 04002 - 0165

Edge Asphalt

Cedar Hedge

BF Wall

Carport

BF

BF

UP

CLF

BF

LS

N57°42'40"E

HORIZONTAL

0m 2 4

| | | |
|---|---|---|
| 1 | 2021-06-17 | ISSUED FOR SITE PLAN CONTROL |
| No. | YYYY-MM-DD | ISSUED |

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KEY PLAN

MORRISON HERSHFIELD
200 - 2932 Baseline Road
Ottawa, Ontario, K2H 1B1
Tel: (613) 739-2910

PROJECT

1354 & 1376 CARLING AVENUE
DEVELOPMENT - PHASE 2

DRAWING

PROPOSED STORM DRAINAGE AREA PLAN

| | | |
|---|---|---|
| DESIGN DO | DATE | SCALE 1:100 |
| DRAWN SC | PROJECT NO. 210292799 | |
| CHECKED NC | DRAWING NO C805 | VERSION |
| APPROVED JF | | |

# Appendix B

# Storm Sewer Design Calculations

# 1. Existing Conditions & Release Rate

## 1354 Carling Ave. Phase II, Proposed Park

| | |
|---|---|
| Project No. | 210292700 |
| Date | 9-Jun-21 |
| Prepared By: | D O'Neil |
| Checked By | J Fookes |

### Existing Drainage Area Characteristics

| Drainage Area | Area, A (ha) | Runoff Coefficient, R |
|---|---|---|
| Building | 0.078 | 0.90 |
| Grass | 0.010 | 0.30 |
| Asphalt | 0.052 | 0.90 |
| Concrete | 0.003 | 0.90 |
| Total | 0.143 | 0.86 |

| | |
|---|---|
| Asphalt Area: | R = 0.90 |
| Grassy Area: | R = 0.30 |
| Building Area: | R = 0.90 |
| Gravel Area | R = 0.50 |
| Concrete Area: | R = 0.90 |

### Existing Conditions

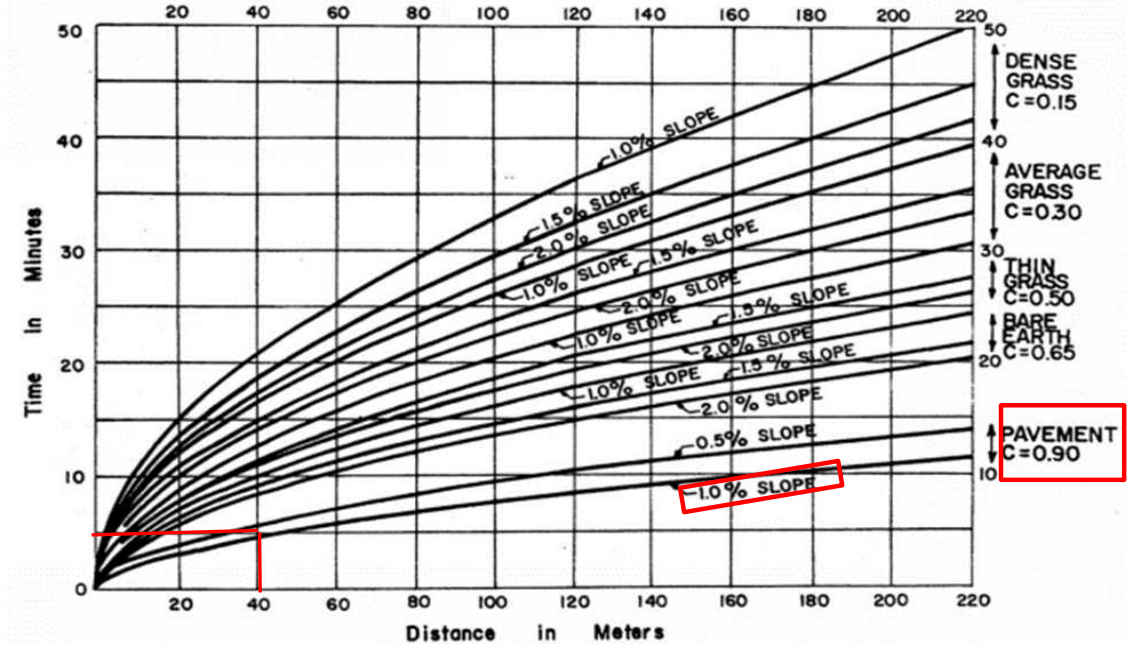
Q = RAIN where Q = runoff rate (L/s)
R = runoff coefficient
i = rainfall intensity (mm/hr)
A = drainage area (ha)
N = 2.78

and $i = \frac{A}{(T_d + C)^B}$

Determinination of Time of Concentration, using Inlet Time Graph (City of Ottawa Sewer Design Guidelines, Appendix 5D):

Existing drainage area with longest flow path = Asphalt
Approx. length of longest flow path (remote point to point of entry) = 40 m
Surface type = Pavement
Approximate surface slope = <1%

RELATIONSHIP BETWEEN DISTANCE OF REMOTE POINT IN TRIBUTARY AREA TO POINT OF ENTRY TO SEWER AND TIME TAKEN FOR PARTICLE OF WATER TO TRAVEL THIS DISTANCE FOR VARIOUS SURFACE SLOPES AND IMPERVIOUSNESS



$T_d$ = Time of Concentration = 10 (min)

| Return Period (Years) | A | B | C | Intensity, I (mm/hr) | Area (ha) | Runoff Coefficient, R (Note 1) | Runoff Rate, Q (L/s) |
|---|---|---|---|---|---|---|---|
| 2 | 732.951 | 0.81 | 6.199 | 76.8 | 0.14 | 0.86 | 26.2 |
| 5 | 998.071 | 0.814 | 6.053 | 104.2 | 0.14 | 0.86 | 35.5 |
| 100 | 1735.688 | 0.82 | 6.014 | 178.6 | 0.14 | 1.00 | 71.0 |

Note 1: For 100-year event, Runoff Coefficient is increased by 25% to a maximum of 1.0.

**Allowable Release Rate**

Criteria for calculation of allowable release rate:

| | | |
|---|---|---|
| Return Period | 5 | year (to suit capacity of downstream sewers) |
| Maximum Runoff Coefficient | 0.5 | |
| Time of Concentration | 10 | minutes |

| Return Period (Years) | A | B | C | Intensity, I (mm/hr) | Area (ha) | Runoff Coefficient, R | Runoff Rate, Q (L/s) |
|---|---|---|---|---|---|---|---|
| 5 | 998.071 | 0.814 | 6.053 | 104.2 | 0.14 | 0.50 | 20.7 |

**Allowable release rate from site in 100-year storm is 20.7 L/s**

# 2. Proposed Conditions & Peak Flows

**1354 Carling Ave. Phase II, Proposed Park**

| | |
|---|---|
| Project No. | 210292700 |
| Date | 9-Jun-21 |
| Prepared By: | D O'Neil |
| Checked By | J Fookes |

**Proposed Drainage Area Characteristics**

| Drainage Area | Area, A (ha) | Runoff Coefficient, R |
|---|---|---|
| Grass Area | 0.05 | 0.3 |
| | 0.05 | 0.3 |
| Concrete | 0.04 | 0.9 |
| **Total** | 0.14 | 0.47 |

| | |
|---|---|
| Asphalt Area: | R = 0.90 |
| Grassy Area: | R = 0.30 |
| Building Area: | R = 0.90 |
| Gravel Area | R = 0.50 |
| Concrete Area: | R = 0.90 |

**Proposed Conditions**

Q = RAIN where Q = runoff rate (L/s)
R = runoff coefficient
i = rainfall intensity (mm/hr)
A = drainage area (ha)
N = 2.78

Park Area = 1424.7 m2
0.1425 ha

and $i = \frac{A}{(T_d + C)^B}$

$T_d$ = Time of Concentration = 10 mins

| Return Period (Years) | A | B | C | Intensity, I (mm/hr) | Area (ha) | Runoff Coefficient, R (Note 1) | Runoff Rate, Q (L/s) |
|---|---|---|---|---|---|---|---|
| 2 | 732.951 | 0.81 | 6.199 | 76.8 | 0.142 | 0.47 | 14.2 |
| 5 | 998.071 | 0.814 | 6.053 | 104.2 | 0.142 | 0.47 | 19.2 |
| 100 | 1735.688 | 0.82 | 6.014 | 178.6 | 0.142 | 0.58 | 41.1 |

Note 1: For 100-year event, Runoff Coefficient is increased by 25% to a maximum of 1.0.

# 3. Proposed Storage

## 1354 Carling Ave. Phase II, Proposed Park

| | |
|---|---|
| Project No. | 210292700 |
| Date | 9-Jun-21 |
| Prepared By: | Dillon O'Neil |
| Checked By | J. Fookes |

**Proposed Controlled Drainage Area Characteristics**

Allowable Release Rate from storage (100-year event) = 20.7 (L/s)
Average release rate during 100-year event = 10.36 (L/s)
74.56 (m3/h)

**Orifice Sizing**

Q = CA(2gH)^0.5
C = 0.61
Design Flow Rate = 20.7 (L/s)
Proposed 100-year water depth = 1.68 (m) (Depth of CB plus 0.3m ponding depth)
Proposed 100-year head above centreline of orifice = 1.56 (m)
Orifice Area = 6147 (mm2)
Orifice diameter = 88 (mm) (if <75mm then vortex ICD required)

**Release Rates during 5-year event**

Water depth during 5-year event = 0.64 (m) (based on result of Req. Storage Vol. calc below)
Proposed 5-year head above centreline of orifice = 0.51 (m)
Maximum release rate during 5-year event = 13.27 (L/s) (based on orifice calculation)
Average release rate during 5-year event = 6.64 (L/s)

**Required Storage Volume (using Modified Rational Method)**

Q = RAIN

Q = runoff rate (L/s) $i = \frac{A}{(T_d + C)^B}$ where i = Rainfall Intensity (mm/hr)
R = runoff coefficient $T_d$ = Time of Concentration (min)
i = rainfall intensity (mm/hr)
A = drainage area (ha)
N = 2.78

| | 5-Year Event | | | | 100-Year Event | | | |
|---|---|---|---|---|---|---|---|---|
| Time, Td (min) | Intensity (mm/hr) | Peak Flow (L/s) | Average Release Rate (L/s) | Storage Volume ($m^3$) | Intensity (mm/hr) | Peak Flow (L/s) | Average Release Rate (L/s) | Storage Volume ($m^3$) |
| 5 | 141.18 | 26.0 | 6.64 | 5.8 | 242.70 | 55.9 | 10.36 | 13.7 |
| 10 | 104.19 | 19.2 | 6.64 | 7.5 | 178.56 | 41.1 | 10.36 | 18.5 |
| 15 | 83.56 | 15.4 | 6.64 | 7.9 | 142.89 | 32.9 | 10.36 | 20.3 |
| 20 | 70.25 | 12.9 | 6.64 | 7.6 | 119.95 | 27.6 | 10.36 | 20.7 |
| 25 | 60.90 | 11.2 | 6.64 | 6.9 | 103.85 | 23.9 | 10.36 | 20.4 |
| 30 | 53.93 | 9.9 | 6.64 | 5.9 | 91.87 | 21.2 | 10.36 | 19.5 |
| 40 | 44.18 | 8.1 | 6.64 | 3.6 | 75.15 | 17.3 | 10.36 | 16.7 |
| 50 | 37.65 | 6.9 | 6.64 | 0.9 | 63.95 | 14.7 | 10.36 | 13.1 |

minimum time = time of concentration

| | | | |
|---|---|---|---|
| Storage volume used | 7.9 $m^3$ | Storage volume used | 20.7 $m^3$ |

**A storage tank with a minimum volume of 20.7 $m^3$ is required**

## 4. PROPOSED STORM SEWER CALCULATION SHEET

**1354 Carling Ave. Phase II**

| LOCATION | | | | | INDIVIDUAL | | | | | | | CUMULATIVE | | DESIGN | | | | | PROPOSED SEWER | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | From | Top of Cover | To | Top of Cover | Asphalt Area | Lawn Areas | Bldg. Area | Green Roof | Conc. Area | Total | R*A*N | Area | R*A*N | Time of Conc. | Storm Event Return Period | Rainfall Intensity | Peak Flow | | Length | Size | Area | Grade | Minimum Slope | Full Capacity | Full Velocity | Time of Flow | Reserve Capacity | Q/Qfull | Upstream Invert | Downstream Invert | Notes |
| | | (m) | | (m) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | | (ha) | | (min.) | (year) | (mm/hr) | (L/s) | ($m^3$/s) | (m) | (mm) | ($m^2$) | (%) | (%) | (L/s) | (m/s) | (min) | (L/s) | (%) | (m) | (m) | |
| R1 | CB01 | 73.75 | Ex. MH | 64.13 | 0.000 | 0.103 | 0.000 | 0.000 | 0.039 | 0.142 | 0.184 | 0.142 | 0.184 | 10.00 | 5.00 | 104.19 | 19.2 | 0.019 | 19 | 250 | 0.049 | 2.000 | 0.43 | 84.1 | 1.71 | 0.18 | 64.9 | 0.2 | 72.37 | 71.99 | |

Q = RAIN, where

Q = Peak flow (L/s)
R = Runoff coefficient
A = Area (ha)
I = Rainfall intensity (mm/hr)
N = 2.78

Asphalt Area: R = 0.90
Grassy Area: R = 0.30
Building Area: R = 0.90
Green Roof R = 0.50
Concrete Area: R = 0.90

Mannings Roughness Coefficient = 0.013

Prepared By: Dillon O'Neil

Checked by: James Fookes

Date: June 9, 2021

Project No. 210292700

# Appendix C

# Correspondence and Floodplain

## Alison Gosling

**From:** Diamond, Emily (MOECC) <Emily.Diamond@ontario.ca>
**Sent:** Tuesday, March 28, 2017 5:53 PM
**To:** Alison Gosling
**Subject:** RE: 1354-1376 Carling Avenue - ECA Requirement

Hi Alison,

Yes, I agree with your assumption that this project will meet the exemption set out under Ontario Regulation 525/98 section 3 once the parcels are amalgamated into one.

Regards,

*Emily Diamond*
Environmental Officer
Ministry of the Environment and Climate Change

Ottawa District Office
2430 Don Reid Drive
Ottawa, Ontario, K1H 1E1
Tel: 613-521-3450 ext 238
Fax: 613-521-5437
e-mail: emily.diamond@ontario.ca

---

**From:** Alison Gosling [mailto:AGosling@dsel.ca]
**Sent:** March-24-17 10:41 AM
**To:** Diamond, Emily (MOECC)
**Cc:** Robert Freel
**Subject:** 1354-1376 Carling Avenue - ECA Requirement

Good morning Emily,

We just wanted to touch base with you regarding a proposed development we are working on located at 1354-1376 Carling Avenue.

Currently comprised of two parcels of land, the existing 1.9ha site currently consists of two lodging buildings and is zoned Arterial Main Street and Residential Fourth Density. Please note that the parcels will be amalgamated into one parcel of land prior to construction.

The phased development proposes to construct four residential/commercial buildings with incremental demolition of the existing buildings. The full build-out will consist of approximately 2,437 m² of commercial space and 914 residential units.

It appears that the existing stormwater management system currently directs flow towards the municipal infrastructure within Meath Street and Archibald Street.

Proposed stormwater controls will use subsurface storage, and surface ponding to attenuated the release rate to City of Ottawa requirements.

As the proposed sewage works and stormwater management facility will be servicing a single parcel of land which will be owned and operated by a single entity, does not discharge to a combined sewer system, and is not proposed to be used for industrial purposes, it is assumed this falls within the exemption requirements for an Environmental Compliance Approval as per O.Reg 525/98, Section 3 (a) & Ontario Water Resources Act Section 53. 6 (c).

I hope you could comment on my assumption that this property would be exempt from requiring an ECA. Please feel free to call to discuss this further.

Thank you,

Alison Gosling, E.I.T.
Project Coordinator / Junior Designer

**DSEL**
**david schaeffer engineering ltd.**

120 Iber Road, Unit 103
Stittsville, ON  K2S 1E9

**phone:** (613) 836-0856 ext.542
**fax**:  (613) 836-7183
**email**:  agosling@DSEL.ca

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## Alison Gosling

**From:** Jocelyn Chandler <jocelyn.chandler@rvca.ca>
**Sent:** Thursday, October 27, 2016 3:49 PM
**To:** Alison Gosling
**Subject:** RE: 1376 Carling Ave - RVCA

**Follow Up Flag:** Follow up
**Flag Status:** Completed

Hello Alison,
Our records concur with the information you have provided. Given that the stormwater from this site will travel greater than 2 km before outletting to the receiver (the Ottawa River), the RVCA advises that we will not be requiring water quality controls on the stormwater management design for the redevelopment of this site.
Jocelyn

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**From:** Alison Gosling [mailto:AGosling@dsel.ca]
**Sent:** Thursday, October 27, 2016 3:26 PM
**To:** Jocelyn Chandler <jocelyn.chandler@rvca.ca>
**Cc:** Robert Freel <RFreel@dsel.ca>
**Subject:** 1376 Carling Ave - RVCA

Good afternoon Jocelyn,

We wanted to touch base with you regarding a mixed-use development at 1376 Carling Avenue. The development proposes residential towers and at grade commercial units.

The existing stormwater on site discharges to the Carling Avenue storm sewer. Based on the information available, the existing storm sewers servicing the site travels 3.5-3.8 km to an outlet into the Ottawa River, as shown by the figure below.

Can you provide a comment regarding quality controls that maybe required for the site?

Please feel free to call if you have any questions or you would like to discuss.

Thanks in advance,

Alison Gosling, E.I.T.
Project Coordinator / Junior Designer

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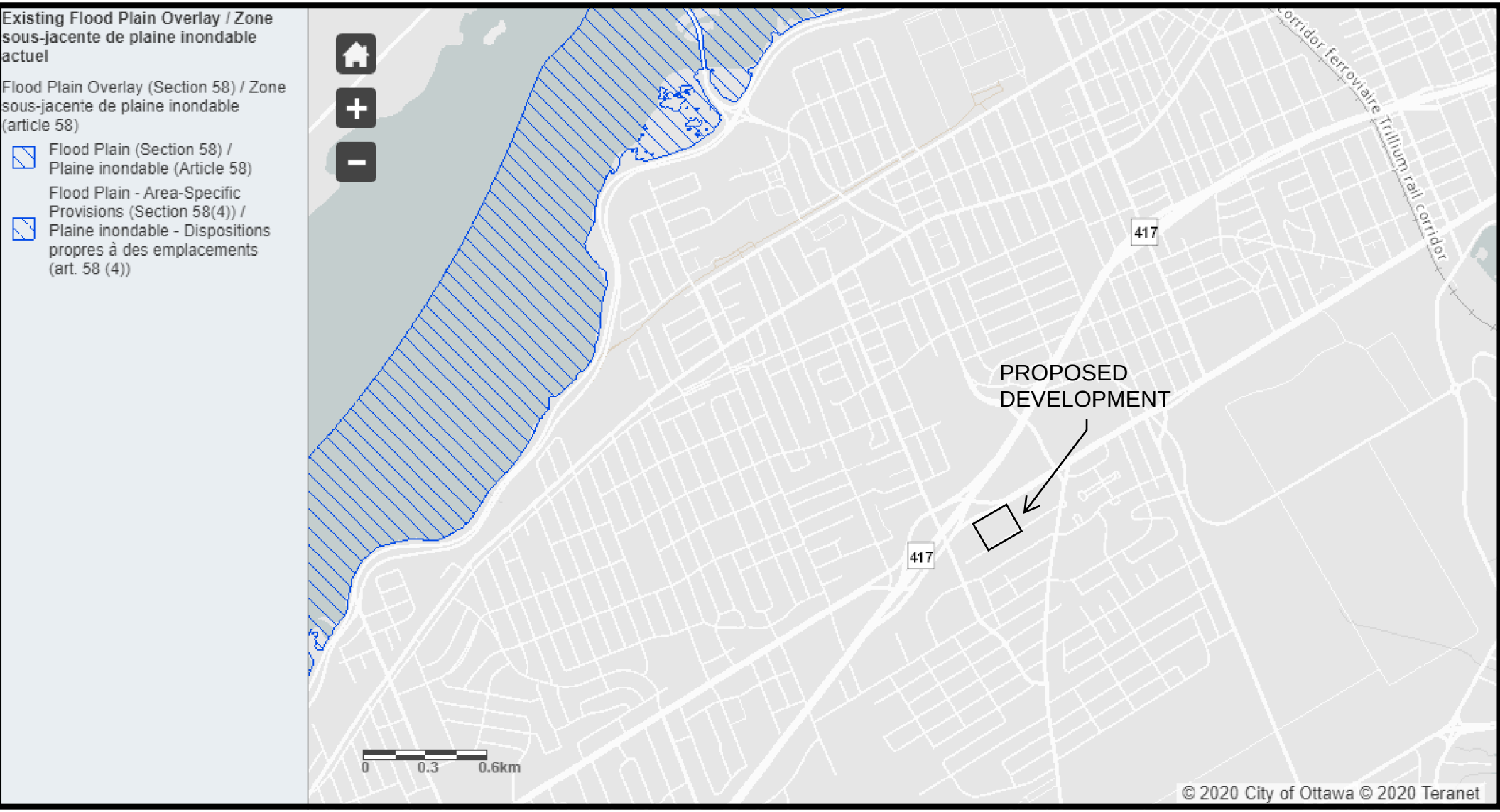
Fig 1: Sanitary

Fig 2: Storm

av. Carling Ave.
WAT43565
406mm
WAT43568
152mm
WAT22799
WAT04470
152mm
WAT51168
152mm
WAT51167
203mm
WAT51166
203mm
WAT43699
WAT43564
406mm
rue Meath St
rue Thames St
1365
1330
815
819
821
1320
1273
1354
835
1376
1291
1293
1301
1305
1307
1311
1313
1319
1321
1325
1327
1329
1331
1286
1282
1290
1292
1294
1302
1304
1308
1310
1400
824
826
50 m

Fig 3: Water


Existing Flood Plain Overlay / Zone sous-jacente de plaine inondable actuel
Flood Plain Overlay (Section 58) / Zone sous-jacente de plaine inondable (article 58)
Flood Plain (Section 58) / Plaine inondable (Article 58)
Flood Plain - Area-Specific Provisions (Section 58(4)) / Plaine inondable - Dispositions propres à des emplacements (art. 58 (4))
417
417
PROPOSED DEVELOPMENT
Corridor ferroviaire Trillium rail corridor
0
0.3
0.6km
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