Appendix N: Final Preferred Solutions Conceptual Designs – Dyments Creek Watershed
EX. SANITARY MAINTENANCE INFRASTRUCTURE AT RISK

BED EROSION / KNICKPOINT
BANK EROSION

EX. STORM MAINTENANCE

1:2 YEAR RETURN FREQUENCY LOW FLOW CHANNEL

SWMF RETROFIT No. 78 (SEE PROJECT No. 49)

REALIGN DYMENTS CREEK FROM SPROULE DR. TO SWMF RETROFIT No. 78

DYE MENTS CREEK (REACH Dy-1)

SPOULE DR

FAREW BERM TO 237.10m (MIN) AS REQUIRED

PROPERTY ACQUISITION: NONE

LEGEND

- BANK EROSION
- BED EROSION / KNICKPOINT
- INFRASTRUCTURE AT RISK
- PR. STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. SANITARY MAINTENANCE HOLE

EX. SANITARY SEWER
EX. WATERCOURSE
EX. WATERMAIN
EX. STORM MAINTENANCE HOLE
EX. STORM SEWER
EX. PROPERTY LINE
PROPERTY ACQUISITION

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DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION

PROJECT No. 49
WATERCOURSE IMPROVEMENT No. 29
DYMENTS CREEK WATERSHED

SCALE = 1:1,000
DATE: MARCH 2019
THE CITY IS TO PROGRESSIVELY ACQUIRE LAND OR EASEMENTS FOR DRAINS, WATERCOURSES AND STORAGE AREAS CROSSING OR UPON PRIVATE PROPERTY WHERE IT IS CONSIDERED IN THE CITY’s INTEREST TO DO SO (BY-LAW 90-92: TO PROHIBIT OBSTRUCTION OF DRAINS & WATERCOURSES). PROPERTY ACQUISITION VIA EASEMENT, BLOCK, LOT OR PARCEL IS TO THE CITY’s DISCRETION.

EX. SANITARY MAINTENANCE

234

EX. STORM MAINTENANCE

PR STORM MAINTENANCE

PR. LID

LEGEND

PR. STORM MAINTENANCE HOLE

EX. STORM MAINTENANCE HOLE

EX. SANITARY SEWER

EX. SANITARY MAINTENANCE HOLE

EX. WATERMAIN

EX. WATERCOUSE

EX. PROPERTY LINE

PROPERTY ACQUISITION

DYMENTS CREEK (REACH-Dy2b)

CONSTRUCT BERM TO ELEVATION 237.10 m (MIN.)

RAISE EXISTING BERM TO ELEVATION 237.10 m (MIN.) AS REQUIRED

CONSTRUCT 1.2 YEAR RETURN FREQUENCY LOW FLOW CHANNEL THROUGH SWMF

REMOVE EXISTING CULVERT

SWMF CREATION FOR PEAK FLOW ATTENUATION: ADDITIONAL ACTIVE STORAGE = 163,190 m³

SWMF DETAILS:

BOTTOM ELEVATION = 235.10 m

PERMANENT POOL ELEVATION = N/A

TOP ELEVATION = 237.10 m

SURFACE AREA = 108,750 m²

ACTIVE STORAGE = 16,310 m³

PEAK FLOW ATTENUATION = 5 yr THROUGH REGIONAL STORM

CONSTRUCT BERM TO ELEVATION 237.10 m (MIN.)

RAISE EXISTING BERM TO ELEVATION 237.10 m (MIN.)

PROPERTY ACQUISITION:

A) ADDRESS NOT AVAILABLE

MINIMUM RECOMMENDED PROPERTY ACQUISITION SHOWN.

ACTUAL PROPERTY ACQUISITION TO BE CONFIRMED AT DETAILED DESIGN

PROPOSED SWMF OUTLET CONTROLS:

1) 1 - 2438 mm X 914 mm CONC. BOX @ 0.5%, 15 m LONG, (U/S.INV. = 234.43 m, D/S.INV. = 234.36 m)
2) 1 - 3048 mm X 914 mm CONC. BOX @ 0.5%, 33 m LONG, (U/S.INV. = 234.25 m, D/S.INV. = 234.09 m)
3) 1 - 55 m WIDE EMERGENCY OVERFLOW WEIR (5:1 SIDE SLOPES, INV. = 236.40 m, T/BANK = 237.10 m)

DATE: MARCH 2019

DRAINAGE MASTER PLAN

FINAL PREFERRED ALTERNATIVE SOLUTION

PROJECT No. 181

SWMF RETROFIT No. 78

DYMENTS CREEK WATERSHED

SCALE = 1:2,500

TATHAM ENGINEERING

Barrie

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THE SUBJECT ROAD HAS BEEN IDENTIFIED FOR FUTURE ROAD WIDENING AS PART OF THE TRANSPORTATION MASTER PLAN. THE CULVERT IMPROVEMENT SHOWN HAS BEEN DESIGNED FOR THE EXISTING ROAD WIDTH. THE CULVERT LENGTH TO BE CONFIRMED AS PART OF DETAILED DESIGN IN COORDINATION WITH THE TRANSPORTATION MASTER PLAN.

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LEGEND
- PR. CULVERT
- PR. STORM SEWER
- PR STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. STORM MAINTENANCE HOLE
- WATERCOURSE
- EX. SANITARY SEWER
- EX. SANITARY MAINTENANCE HOLE
- EX. WATERMAIN
- EX. CULVERT
- EX. PROPERTY LINE
- PROPERTY ACQUISITION

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 182
CULVERT IMPROVEMENT No. 28
(DUNLOP ST. W.)
DYMENTS CREEK WATERSHED
SCALE = 1:500
DATE: MARCH 2019
THE CITY IS TO PROGRESSIVELY ACQUIRE LAND OR EASEMENTS FOR DRAINS, WATERCOURSES AND STORAGE AREAS CROSSING OR UPON PRIVATE PROPERTY WHERE IT IS CONSIDERED IN THE CITY’S INTEREST TO DO SO (BY-LAW 90-92: TO PROHIBIT OBSTRUCTION OF DRAINS & WATERCOURSES). PROPERTY ACQUISITION VIA EASEMENT, BLOCK, LOT OR PARCEL IS TO THE CITY’S DISCRETION.

Property Acquisition:
A) 416 Dunlop St. W. (portion of)
B) 100 Fernadale Dr. S. (portion of)
C) Address Not Available (portion of)
D) Address Not Available (portion of)

Minimum recommended property acquisition shown actual property acquisition to be confirmed at detailed design.

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FERNDALE DRIVE N.:
ROAD CLASSIFICATION = ARTERIAL
DESIGN FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: 2175 mm x 1275 mm CSPA CULVERT
CONVEYANCE CAPACITY = 3.7 m³/s (EXISTING FLOWS)

PROPOSED: 10.67 m OPEN BOTTOM SPAN STRUCTURE
CONVEYANCE CAPACITY = 12.3 m³/s (FUTURE FLOWS)

PROPERTY ACQUISITION: NONE

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LEGEND
- PR. CULVERT
- PR. STORM SEWER
- PR. OPEN BOTTOM SPAN STRUCTURE
- EX. SANITARY SEWER
- EX. WATERMAIN
- EX. SANITARY MAINTENANCE HOLE
- EX. STORM MAINTENANCE HOLE
- EX. PROPERTY LINE
- PROPERTY ACQUISITION

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 50
CULVERT IMPROVEMENT No. 29
(FERNDALE DR. N.)
DYMENTS CREEK WATERSHED
SCALE = 1:500
DATE: MARCH 2019
The City is to progressively acquire land or easements for drains, watercourses and storage areas crossing or upon private property where it is considered in the City’s interest to do so (by-law 90-92: to prohibit obstruction of drains & watercourses). Property acquisition via easement, block, lot or parcel is to the City’s discretion.

Property acquisition:
A) 105 Fern thermal Dr. N. (portion of)
B) 97 Fern thermal Dr. N. (portion of)
C) 30 Elliott Ave. (portion of)
D) 20 Elliott Ave. (portion of)
E) 8 Sarjeant Dr. (portion of)
F) 425 Dunlop St. W. (portion of)
G) 443 Dunlop St. W. (portion of)
H) 441 Dunlop St. W. (portion of)

Minimum recommended property acquisition shown. Actual property acquisition to be confirmed at detailed design.

Legend
- Bank erosion
- Bed erosion/knickpoint
- Infrastructure at risk
- Pr. Storm Maintenance hole
- Ex. Storm sewer
- Ex. Sanitary maintenance hole
- Ex. Storm Maintenance hole
- Ex. Watercourse
- Ex. Watermain
- Ex. Sanitary sewer
- Ex. Property line
- Property acquisition

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NOTE: THE LOCATION OF THE EXISTING UTILITIES ON SARJEANT DRIVE ARE UNKNOWN. THE ALIGNMENT OF THE PROPOSED CULVERT IMPROVEMENT IS TO BE REVIEWED AT THE DETAILED DESIGN.

LEGEND

CULVERT (PREFERRED ROUTE)
PR STORM SEWER
PR STORM MAINTENANCE HOLE
EX. STORM SEWER
EX. STORM MAINTENANCE HOLE
WATERCOURSE
EX. SANITARY SEWER
EX. SANITARY MAINTENANCE HOLE
EX. WATERMAIN
EX. CULVERT
EX. PROPERTY LINE
PROPERTY ACQUISITION

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION

PROJECT No. 52
CULVERT IMPROVEMENT No. 30 (SARJEANT DR.)
DYMENTS CREEK WATERSHED
SCALE = 1:1,000

DATE: MARCH 2019

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HART DRIVE:
ROAD CLASSIFICATION = MINOR COLLECTOR
DESIGN FLOOD FREQUENCY CRITERIA = 1.50 YEAR
MDP RECOMMENDED FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: 1500 mm ø CSP CULVERT
CONVEYANCE CAPACITY < 3.7 m³/s (EXISTING FLOWS)
DESIGN FLOOD FREQUENCY < 1:2 YEAR
DEPTH OF OVERTOPPING = 0.7m (REGULATORY EVENT)

PROPOSED: 9000 mm x 2000 mm CONC. BOX CULVERT
CONVEYANCE CAPACITY = 54.0 m³/s (FUTURE FLOWS)
DESIGN FLOOD FREQUENCY REGIONAL (HURRICANE HAZEL) STORM
DEPTH OF OVERTOPPING = 0.00 m (REGULATORY EVENT)

CONCEPTUAL DESIGNS OF CULVERT IMPROVEMENT No. 33 HAVE BEEN PREPARED UNDER A SEPARATE STUDY. (DRAWINGS AND HYDROLOGY REPORT – PRELIMINARY DESIGN HIGHWAY 400)

MTO PROPOSED CULVERT IMPROVEMENTS TO BE COMPLETED AS PART OF HIGHWAY 400 IMPROVEMENTS

THE CITY IS TO PROGRESSIVELY ACQUIRE LAND OR EASEMENTS FOR DRAINS, WATERCOURSES AND STORAGE AREAS CROSSING OR UPON PRIVATE PROPERTY WHERE IT IS CONSIDERED IN THE CITY’S INTEREST TO DO SO (BY-LAW 90-92: TO PROHIBIT OBSTRUCTION OF DRAINS & WATERCOURSES). PROPERTY ACQUISITION VIA EASEMENT, BLOCK, LOT OR PARCEL IS TO THE CITY’S DISCRETION.

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 54, 55 & 56
CULVERT IMPROVEMENT No. 32 & 33
& WATERCOURSE IMPROVEMENT No. 11
DYMENTS CREEK WATERSHED
SCALE = 1:1,000
DATE: MARCH 2019

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LEGEND

- PR. CULVERT
- PR. STORM SEWER
- PR STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. STORM MAINTENANCE HOLE
- WATERCOURSE
- EX. SANITARY SEWER
- EX. SANITARY MAINTENANCE HOLE
- EX. WATERMAIN
- EX. CULVERT
- EX. PROPERTY LINE
- PROPERTY ACQUISITION

D/S INV. 227.71
U/S INV. 228.80
DUNLOP ST W
HART DR
ST W
WATERCOURSE
HEADWALL/WINGWALLS
DYMENTS CREEK
(REACH DY-2)

EX. SANITARY MAINTENANCE
PR STORM MAINTENANCE
HEADWALL/WINGWALLS
DUNLOP ST W
HEADWALL/WINGWALLS
D YMENTS CREEK
( REACH DY -2 )
GEORGE STREET:
ROAD CLASSIFICATION = LOCAL
DESIGN FLOOD FREQUENCY CRITERIA = 1:50 YEAR
MDP RECOMMENDED FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: 2960 mm 1730 mm H.E. CONC. CULVERT
CONVEYANCE CAPACITY = 6.8 m³/s (EXISTING FLOWS)
DESIGN FLOOD FREQUENCY = 1.2 YEAR
DEPTH OF OVERTOPPING = 0.70 m (REGULATORY EVENT)

PROPOSED: TWIN 3600 x 1800 mm CONC. BOX CULVERTS
CONVEYANCE CAPACITY = 33.7 m³/s (FUTURE FLOWS)
DESIGN FLOOD FREQUENCY 1:100 YEAR
DEPTH OF OVERTOPPING = 0.58 m (REGULATORY EVENT)

PROPOSED CULVERT SIZE TO BE REVIEWED AT DETAILED DESIGN TO REDUCE DEPTH OF OVERTOPPING

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EXISTING SWMF OUTLET CONTROLS:
1) 1 - 1050 mm ø OUTLET PIPE (INV. = 224.30 m)
2) 1 - EMERGENCY OVERFLOW WEIR
   (5:1 SIDE SLOPES, INV. = 225.90 m)

EXISTING SWMF OUTLET CONTROLS TO BE REMOVED

PROPOSED SWMF OUTLET CONTROLS:
3) 2 - 2100 mm X 2100 mm CONC. BOX CULVERTS

SWMF RETROFIT FOR WATER QUALITY TREATMENT
AND PEAK FLOW ATTENUATION:
LEVEL 2 "NORMAL" TREATMENT (70% TSS REMOVAL)
PHOSPHORUS REDUCTION = 0 kg/year

SWMF DETAILS:
BOTTOM ELEVATION = 223.00 m
PERMANENT POOL ELEVATION = 225.00 m
TOP ELEVATION = 227.75 m
SURFACE AREA = 30,457 m²
PERMANENT POOL VOLUME = 23,400 m³
ACTIVE STORAGE = 62,810 m³
PEAK FLOW ATTENUATION = 2 yr THROUGH 100 yr STORM
JOHN STREET AND ANNE STREET S.:
ROAD CLASSIFICATION = ARTERIAL
DESIGN FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: TWIN 2460 mm x 1720 mm CSPA CULVERTS
CONVEYANCE CAPACITY = 13.9 m³/s (EXISTING FLOWS)
DESIGN FLOOD FREQUENCY = 1:10 YEAR
DEPTH OF OVERTOPPING = 0.83 m (REGULATORY EVENT)

PROPOSED: TWIN 3000mm x 2100 mm CONC. BOX CULVERTS
CONVEYANCE CAPACITY = 28.9 m³/s (FUTURE FLOWS)
DESIGN FLOOD FREQUENCY 1:100 YEAR
DEPTH OF OVERTOPPING = 0.69 m (REGULATORY EVENT)

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TATHAM
Engineering
Barrie

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 58
CULVERT IMPROVEMENT No. 36
(ANNE ST. S. & JOHN ST.)
DYMENTS CREEK WATERSHED
SCALE = 1:500
DATE: MARCH 2019
INSTALL TOE TREATMENT TO ADDRESS BANK SCOUR AND UNDERCUTTING (SEE DETAILS)

LIMITS OF WATERCOURSE IMPROVEMENTS

EX. SANITARY SEWER
EX. WATERCOURSE
EX. WATERMAIN
EX. STORM MAINTENANCE HOLE
EX. STORM SEWER
EX. PROPERTY LINE
PROPERTY ACQUISITION: NONE

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LEGAL

BANK EROSION
BED EROSION/ KNICKPOINT
INFRASTRUCTURE AT RISK
PR. STORM MAINTENANCE HOLE
PR. STORM SEWER
EX. SANITARY MAINTENANCE HOLE

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No.59
WATERCOURSE IMPROVEMENT No. 12
DYMENTS CREEK WATERSHED

SCALE = 1:1,000
DATE: MARCH 2019
INNISFIL STREET:
ROAD CLASSIFICATION = MINOR COLLECTOR
DESIGN FLOOD FREQUENCY CRITERIA = 1:50 YEAR
MDP RECOMMENDED FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: 2000 mm x 1000 mm CONC. BOX CULVERT
CONVEYANCE CAPACITY = 4.2 m³/s (EXISTING FLOWS)
DESIGN FLOOD FREQUENCY = 1.2 YEAR
DEPTH OF OVERTOPPING = 1.01 m (REGULATORY EVENT)

PROPOSED: 6.71 m OPEN BOTTOM SPAN STRUCTURE
CONVEYANCE CAPACITY = 26.0 m³/s (FUTURE FLOWS)
DESIGN FLOOD FREQUENCY 1:50 YEAR
DEPTH OF OVERTOPPING = 0.78 m (REGULATORY EVENT)

PROPOSED CULVERT SIZE TO BE REVIEWED AT DETAILED DESIGN TO REDUCE DEPTH OF OVERTOPPING

Property Acquisition: None

Legend:
- PR. CULVERT
- PR. STORM SEWER
- PR STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. STORM MAINTENANCE HOLE
- WATERCOURSE
- EX. SANITARY SEWER
- EX. SANITARY MAINTENANCE HOLE
- EX. WATERMAIN
- EX. CULVERT
- EX. PROPERTY LINE
- PROPERTY ACQUISITION

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DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 60
CULVERT IMPROVEMENT No. 37
(INNISFIL STREET)
DYMENTS CREEK WATERSHED
SCALE = 1:400
DATE: MARCH 2019

THE SUBJECT ROAD HAS BEEN IDENTIFIED FOR FUTURE ROAD WIDENING AS PART OF THE TRANSPORTATION MASTER PLAN. THE CULVERT IMPROVEMENT SHOWN HAS BEEN DESIGNED FOR THE EXISTING ROAD WIDTH. THE CULVERT LENGTH TO BE CONFIRMED AS PART OF DETAILED DESIGN IN COORDINATION WITH THE TRANSPORTATION MASTER PLAN.
CONC. 20 m - 4200 mm x 2100 mm

CONC. BOX CULVERT

EX. TWIN 1350 mm ø CSP CULVERTS
(TO BE REMOVED)

CHANNEL RE-GRADING TO INNISFIL
STREET CROSSING TO PROVIDE
POSITIVE GRADE AND CHANNEL
WIDENING AT CULVERT ENTRANCE

HEADWALL/WINGWALLS

HEADWALL/WINGWALLS

PROPERTY ACQUISITION:
A) 95 SANFORD ST. (PORTION OF)
B) 100 SANFORD ST. (PORTION OF)
MINIMUM RECOMMENDED
PROPERTY ACQUISITION SHOWN
ACTUAL PROPERTY ACQUISITION
TO BE CONFIRMED AT DETAILED DESIGN

THE CITY IS TO PROGRESSIVELY ACQUIRE
LAND OR EASEMENTS FOR DRAINS,
WATERCOURSES AND STORAGE AREAS
CROSSING OR UPON PRIVATE PROPERTY
WHERE IT IS CONSIDERED IN THE CITY’S
INTEREST TO DO SO (BY-LAW 90-92: TO
PROHIBIT OBSTRUCTION OF DRAINS &
WATERCOURSES). PROPERTY ACQUISITION
VIA EASEMENT, BLOCK, LOT OR PARCEL IS
TO THE CITY’S DISCRETION.

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Legend

- PR. CULVERT
- PR. STORM SEWER
- PR STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. STORM MAINTENANCE HOLE
- WATERCOURSE
- EX. SANITARY SEWER
- EX. SANITARY MAINTENANCE HOLE
- EX. WATERMAIN
- EX. CULVERT
- EX. PROPERTY LINE
- PROPERTY ACQUISITION

SANFORD STREET:
ROAD CLASSIFICATION = URBAN LOCAL
DESIGN FLOOD FREQUENCY CRITERIA = 1:50 YEAR
MDP RECOMMENDED FLOOD FREQUENCY CRITERIA = 1:100 YEAR

EXISTING: TWIN 1350 mm ø CSP CULVERTS
CONVEYANCE CAPACITY = 9.0 m³/s (EXISTING FLOW)
DESIGN FLOOD FREQUENCY = 1.5 YEAR
DEPTH OF OVERTOPPING = 0.76 m (REGULATORY EVENT)

PROPOSED: 4200 mm X 2100 mm CONC. BOX CULVERT
CONVEYANCE CAPACITY = 26.3 m³/s (FUTURE FLOWS)
DESIGN FLOOD FREQUENCY = 1:50 YEAR
DEPTH OF OVERTOPPING = 0.77 m (REGULATORY EVENT)

PROPOSED CULVERT SIZE TO BE REVIEWED AT DETAILED
DESIGN TO REDUCE DEPTH OF OVERTOPPING

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 61
CULVERT IMPROVEMENT No. 38
(SANFORD ST.)
DYMENTS CREEK WATERSHED
SCALE = 1:400

DATE: MARCH 2019
**PR. OPEN BOTTOM SPAN STRUCTURE**
SPAN = 10.67 m
LENGTH = 35 m
CLEAR HEIGHT = 1.9 m

**EX. 98.0 m - 5400 mm x 1800 mm**
CSPA CULVERT (TO BE REMOVED)

**HEADWALL/WINGWALLS**

**WATERCOURSE IMPROVEMENTS TO SANFORD ST. TO ACCOMMODATE CROSSING, IMPROVE HYDRAULICS AND REINSTATE WATERCOURSE**

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**LEGEND**
- **PR. CULVERT**
- **PR. STORM SEWER**
- **PR STORM MAINTENANCE HOLE**
- **EX. STORM SEWER**
- **EX. STORM MAINTENANCE HOLE**
- **WATERCOURSE**
- **EX. SANITARY SEWER**
- **EX. SANITARY MAINTENANCE HOLE**
- **EX. WATERMAIN**
- **EX. CULVERT**
- **EX. PROPERTY LINE**
- **PROPERTY ACQUISITION**

**DRAINAGE MASTER PLAN**
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 62
CULVERT IMPROVEMENT No. 39
(BRADFORD STREET)
DYMENTS CREEK WATERSHED
SCALE = 1:500

**DATE:** MARCH 2019

The city is to progressively acquire land or easements for drains, watercourses and storage areas crossing or upon private property where it is considered in the city’s interest to do so (by-law 90-92: to prohibit obstruction of drains & watercourses). Property acquisition via easement, block, lot or parcel is to the city’s discretion.

The subject road has been identified for future road widening as part of the transportation master plan. The culvert improvement shown has been designed for the existing road width. The culvert length to be confirmed as part of detailed design in coordination with the transportation master plan.

Property acquisition:
A) 176 Bradford St.
Minimum recommended property acquisition shown.
Actual property acquisition to be confirmed at detailed design.

Bradford Street:
Road classification = arterial
Design flood frequency criteria = 1:100 year
MMD recommended flood frequency criteria = regulatory storm

Existing:
- 5400 mm x 1800 mm CSPA culvert
- Conveyance capacity = 21.5 m³/s (existing flows)
- Design flood frequency = 1:25 year
- Depth of overtopping = 0.86 m (regulatory event)

Proposed:
- 10.67 m open bottom span structure
- Conveyance capacity = 30.1 m³/s (future flows)
- Design flood frequency = 1:100 year
- Depth of overtopping = 0.37 m (regulatory event)
Disclaimer
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LEGEND
- BANK EROSION
- BED EROSION/ KNICKPOINT
- INFRASTRUCTURE AT RISK
- PR. STORM MAINTENANCE HOLE
- EX. STORM MAINTENANCE HOLE
- EX. STORM SEWER
- EX. SANITARY MAINTENANCE HOLE
- PROPERTY ACQUISITION

DRAINAGE MASTER PLAN
FINAL PREFERRED ALTERNATIVE SOLUTION
PROJECT No. 63
WATERCOURSE IMPROVEMENT No. 28
DYMENT'S CREEK WATERSHED

SCALE = 1:1,000
DATE: MARCH 2019