SOMMERVILLE BRANCH
OF THE DRUMMOND-ELMSLEY DRAIN
PROPOSED PARTIAL REALIGNMENT
S. 78 (5) ENGINEER'S REPORT

PREPARED FOR

DRUMMOND/NORTH ELMSLEY TOWNSHIP
310 PORT ELMSLEY ROAD
PERTH, ON
K7H 3C7

PREPARED BY

SHADE GROUP INC
4625 MARCH ROAD
ALMONTE, ON
K0A 1A0

JULY 2025

EXECUTIVE SUMMARY

This Engineer's Report has been prepared under Section 78(5) of the *Drainage Act, R.S.O. 1990, c. D. 17* (henceforth referred to as *the Act*). Section 78(5) refers to 'minor improvements' which may be completed through an expedited process compared to 'major improvements' (Section 78(1)). This report has been prepared in reference to the process outlined in Ontario Regulation 500/21, which details the process to be undertaken for a 'minor improvement'. To undertake a 'minor improvement', the project must meet several conditions which have been discussed in further detail in Section 4.2 of this report.

The proposed 'minor improvement' is to re-align a portion of the Sommerville Branch, within the East Half of Lot 7, Concession 1, Geographic Township of Drummond/North Elmsley. The realignment impacts approximately 320m (1,045 ft) of the existing Sommerville Branch. In addition to the partial realignment, a new crossing will be installed where a new road crosses the realigned portion of the municipal drain. For an overview of the current and proposed alignment, refer to the Site Servicing & Grading Plan – Phase II as prepared by Stantec – found in Appendix B. A location plan showing the approximate location of the proposed works is enclosed in Appendix A.

The governing report for the Drummond-Elmsley Drain, which includes the Sommerville Branch of the Drummond-Elmsley Drain, is understood to be from March 1970 and authored by R.M. Kostuch Associates Ltd. The historical documentation also includes a July 1967 report, for which the 1970 report served as an addendum to, taking into consideration changes made during the course of construction.

Shade Group Inc. (Shade Group) was appointed as the engineer to prepare an Engineer's Report for the minor improvement on the Sommerville Branch under Section 78(5) of the Drainage Act. Shade Group was appointed by Resolution 25-15 on February 11, 2025. A copy of the resolution has been enclosed in Appendix E.

Engineering analysis for the realignment was conducted by Stantec as part of the subdivision design for Burn's Farm Subdivision. A copy of the Stormwater Management Report outlining the analysis can be found in Appendix C.

Future maintenance works shall be assessed in accordance with the assessment schedule found in the governing Engineer's Report for the Sommerville Branch. As both alignments are generally equivalent in overall length the associated maintenance costs would be generally unchanged. The new crossing would be expected to be assessed to the municipality for future replacement or maintenance, in fitting with Section 26 of the Drainage Act.

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1.0 OBJECTIVE

This Engineer's Report has been prepared under Section 78(5) of the *Drainage Act, R.S.O. 1990, c. D. 17* (henceforth referred to as *the Act*). Section 78(5) refers to 'minor improvements' which may be completed through an expedited process compared to 'major improvements' (Section 78(1)). This report has been prepared in reference to the process outlined in Ontario Regulation 500/21, which details the process to be undertaken for a 'minor improvement'. To undertake a 'minor improvement', the project must meet several conditions which have been discussed in further detail in Section 4.2 of this report.

The proposed 'minor improvement' is to re-align a portion of the Sommerville Branch, within the East Half of Lot 7, Concession 1, Geographic Township of Drummond/North Elmsley. The Sommerville Branch is part of the Drummond-Elmsley drainage scheme, referenced in the Engineer's Report for the Drummond-Elmsley Municipal Drain and Branches (refer to Section 2.0 of this report for more information). The realignment impacts approximately 320m (1,045 ft) of the existing Sommerville Branch. In addition to the partial realignment, a new crossing will be installed where the proposed road to service the new subdivision crosses the realigned portion of the municipal drain. For an overview of the current and proposed alignment, refer to the *Site Servicing & Grading Plan – Phase II* as prepared by Stantec – found in Appendix B. A location plan showing the approximate location of the proposed works is enclosed in Appendix A.

2.0 DRAIN HISTORY

The proposed development falls within the watershed of the Drummond-Elmsley Municipal Drain and Branches, which is understood to be governed by a March 1970 Engineer's Report authored by R.M. Kostuch Associates Ltd. The historical documentation also includes a July 1967 report, for which the 1970 report served as an addendum to, taking into consideration changes made during the course of construction. Per both reports, the Sommerville branch begins in Lot 6 of Concession 1 in the Geographic Township of Drummond and outlets into the Drummond-Elmsley Municipal Drain in Lot 8 of Concession 1.

Per the 1970 Engineer's Report, the Sommerville Branch has a design cross-section of 2.5ft bottom width and 1 ¼:1 side slopes from Stations 0+00 to 35+50; and 3ft bottom width and 1 ¼:1 side slopes from 35+50 to 55+75.

3.0 PROPOSED WORKS

A development (rural estate lot subdivision) is proposed on the East Half of Lot 7, Concession 1, Geographic Township of Drummond. The proposed 'minor improvement' is to re-align a portion of the Sommerville Branch within this Lot and Concession to better accommodate the new development. The realignment impacts approximately 320m (1,045 ft) of the existing Sommerville Branch. In addition to the partial realignment, a new crossing will be installed where

the newly constructed road crosses the realigned portion of the municipal drain. The new crossing has been specified as 2 x 16m – 900mm CSP culverts. Details of the proposed works can be found in Appendix B.

The realignment starts at approximately Station 26+50 and ends at approximately Station 37+40. Stations have been estimated based on measurements off Google Earth – in reference to the approximate starting point delineated on the 1967/1970 Engineer's Report map.

4.0 DRAINAGE ACT, 1990, PROCESS

4.1 TO DATE

Shade Group Inc. (Shade Group) was appointed as the engineer to prepare an Engineer's Report for a minor improvement on the Sommerville Branch under Section 78(5) of the Drainage Act. Shade Group was appointed by Resolution 25-15 on February 11, 2025. A copy of the resolution has been enclosed in Appendix E.

A site visit was conducted by the author on May 28, 2025, as per Section 8(3) of Ontario Regulation 500/21 at the project location.

4.2 CONDITIONS FOR MINOR IMPROVEMENT

As per Section 7 of Ontario Regulation 500/21 which outlines the approval process for a minor improvement under Section 78(5) of the Drainage Act, to undertake a minor improvement, the project must meet the following conditions:

1) The activity takes place on an individual property.

All works are to be performed on a single landowner's property: proposed on the East Half of Lot 7, Concession 1, Geographic Township of Drummond

The costs and fees associated with the activity, including the fees and expenditures of the engineer and the construction, contingency, incremental future maintenance, and eligible municipal administrative costs, are the responsibility, whether the activity proceeds or not, of,

i. the person initiating the activity,
ii. the Municipality in which the activity is taking place, or
iii. both the person initiating the activity and the Municipality in which the activity is taking place.

The initiating owner (developer) will be paying for all costs associated with the Section 78(5) undertaking, including (but not limited to) construction, permitting and engineering related fees.

3) The activity,

i. does not require construction access from neighbouring properties

ii. does require construction access from neighbouring properties and the person initiating the activity has,

A. obtained the consent for the construction access from all applicable owners of the neighbouring properties prior to beginning the activity, and

B. provided such proof of consent to the municipality as part of the application to carry out the activity.

The activity *will not* require construction access from the neighbouring property. The landowner is able to access the construction site area via the owner-owned lands by way of a public road (County Road 10).

4) The activity will not result in any changes to the way in which future repair and maintenance costs are allocated to other property owners in the watershed.

As the existing and proposed alignments are relatively similar, future repair and maintenance requirements would be generally unchanged. There are not anticipated to be any measurable changes to future maintenance costs; and as such, maintenance costs would be assessed in the same apportionment as those adopted in the Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches (1970).

For more detail on this, refer to Section 7.0 of this report.

5) The activity does not change existing drainage capacity or erosion capacity.

Detailed engineering design and review was conducted by Stantec – the developer's engineer – as part of the Planning Act Application for the development of the Burn's Farm Subdivision. Conclusions drawn from the Servicing and Stormwater Management Report (June 9, 2025) indicate that "the downstream system will not be impacted" by the development. The cross-section for the Sommerville Drain is proposed as a 2m flat bottom with 2.5:1 side slopes, which would be anticipated to be an improvement in terms of capacity and erosion; and not reasonably be expected to have any measurable negative change to capacity or erosion.

6) The activity does not result in the existing drainage works being enclosed.

The proposed realignment would remain as an open ditch. No enclosures are proposed. The new proposed culvert is not considered an enclosure.

7) The activity does not take place within any wetlands.

The proposed project does not take place within any wetlands.

Based on the above noted reasonings, it is my professional opinion that the proposed activity generally meets the intentions of Section 7 (1) Ontario Regulation 500/21.

5.0 DESIGN CONSIDERATIONS

Design analysis of the realigned channel and the proposed culvert can be found as part of the Servicing and Stormwater Management Report as prepared by Stantec. A copy of the June 9, 2025 (understood to be the latest version) has been enclosed in Appendix C.

6.0 EXISTING ALIGNMENT – ABANDONMENT

As the intention is to re-align the existing channel, not to create a diversion or overflow channel, the existing alignment is to be abandoned through the East Half of Lot 7, Concession 1, Geographic Township of Drummond. The new alignment is to be adopted under a new by-law and maintained as per the specifications provided herein. The former alignment will be abandoned, filled in and will no longer be maintained by the municipality.

7.0 ASSESSMENTS – FUTURE MAINTENANCE

Future maintenance works shall be assessed in accordance with the assessment schedule of the governing Engineer's Report. Both alignments (existing/proposed) are nearly the same length and as such, the associated maintenance costs would not be measurably changed.

Costs associated with the future replacement of the new culvert are expected to be borne by the Township, assuming the road is adopted as Township infrastructure in the foreseeable future. This is in fitting with Section 26 of the Drainage Act. Should the development application be abandoned and the Township not take over the road, the associated replacement would be borne by the owner of the lands on which the crossing is located.

As the lands are proposed to undergo development – it is expected that an overall update to the assessment schedule will be required to accommodate the new subdivided lands. This is to be done under a separate report under the appropriate process of the Drainage Act.

8.0 CONSTRUCTION – FUTURE MAINTENANCE

All specifications for maintenance shall be in accordance with the governing Engineer's Report **except for** the realignment and new crossing as outlined within the report. The specifications for maintenance for the realignment shall be in accordance with the details outlined in this report. Maintenance may also include routine flushing (as needed) and eventual replacement of the crossing; costs for which would be assessed to the municipality in fitting with Section 26 of the Drainage Act.

Maintenance shall include reinstatement of the open channel to the design specifications as described on the enclosed engineering plans (Appendix B).

9.0 AGENCY CONSULTATION

As part of the preparation of this report, the author conducted a review of AgMaps, the Geographic Information System managed by the Ministry of Agriculture, Food and Agribusiness. AgMaps improperly identifies the Sommerville Branch as the Drummond-Elmsley Drain, and the alignment shown on AgMaps is incorrect.

The Drummond-Elmsley Drain is identified as being a Class 'E' drain. Consultation with DFO staff via email suggest the (downstream) Drummond-Elmsley Drain would be a Class 'E1' Drain. Consultation with the landowner of the subject property suggests that the Sommerville Drain is generally dry for at least 3 months of the year, and works are proposed to be completed during the summer months – in the dry, low or no flow conditions.

No fisheries studies were conducted as part of Shade Group's scope.

9.1 RIDEAU VALLEY CONSERVATION AUTHORITY

The Engineer's Report was circulated to the Rideau Valley Conservation Authority (RVCA) for review and permit. RVCA provides permits under the Conservation Authorities Act, O. Reg. 170/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

A copy of the permit has been enclosed in Appendix F. Please note this permit is only for the initial construction. Future maintenance may require new permitting, subject to legislative requirements at the time of future maintenance works.

9.2 DEPARTMENT OF FISHERIES AND OCEANS

Consultation and permitting with Fisheries and Oceans Canada (DFO) was completed concurrent with the preparation of this report. A "Request for Review" application was submitted, and a copy of this report (and associated supporting documentation) was shared with DFO staff. Projects in or near water may require authorization under the Fisheries Act. A "letter of advice" was received from DFO on July 8, 2025 and a copy has been enclosed in **Appendix C**. The contractor will be responsible for adhering to all considerations denoted in the letter of advice at the time of construction.

It is expected that the realignment works can be completed in low or no flow conditions.

10.0 ENGINEERING COSTS

The engineering costs associated with this project are estimated to be $6,500 (plus applicable taxes). This estimate does not factor in any appeals or revisions to the report following its formal submission. Should there be appeals or requests for revisions, the total cost will be amended prior to the final adoption of this report.

The initiating landowner (the applicant) will be responsible for paying for all fees associated with this minor improvement, including all engineering fees.

11.0 CONSTRUCTION COSTS

As the initiating landowner will be undertaking all realignment work themselves (as a reputable, insured contractor), a construction cost estimate for the works has not been prepared.

Construction specifications have been included in Appendix D for the proposed works.

12.0 CLOSING

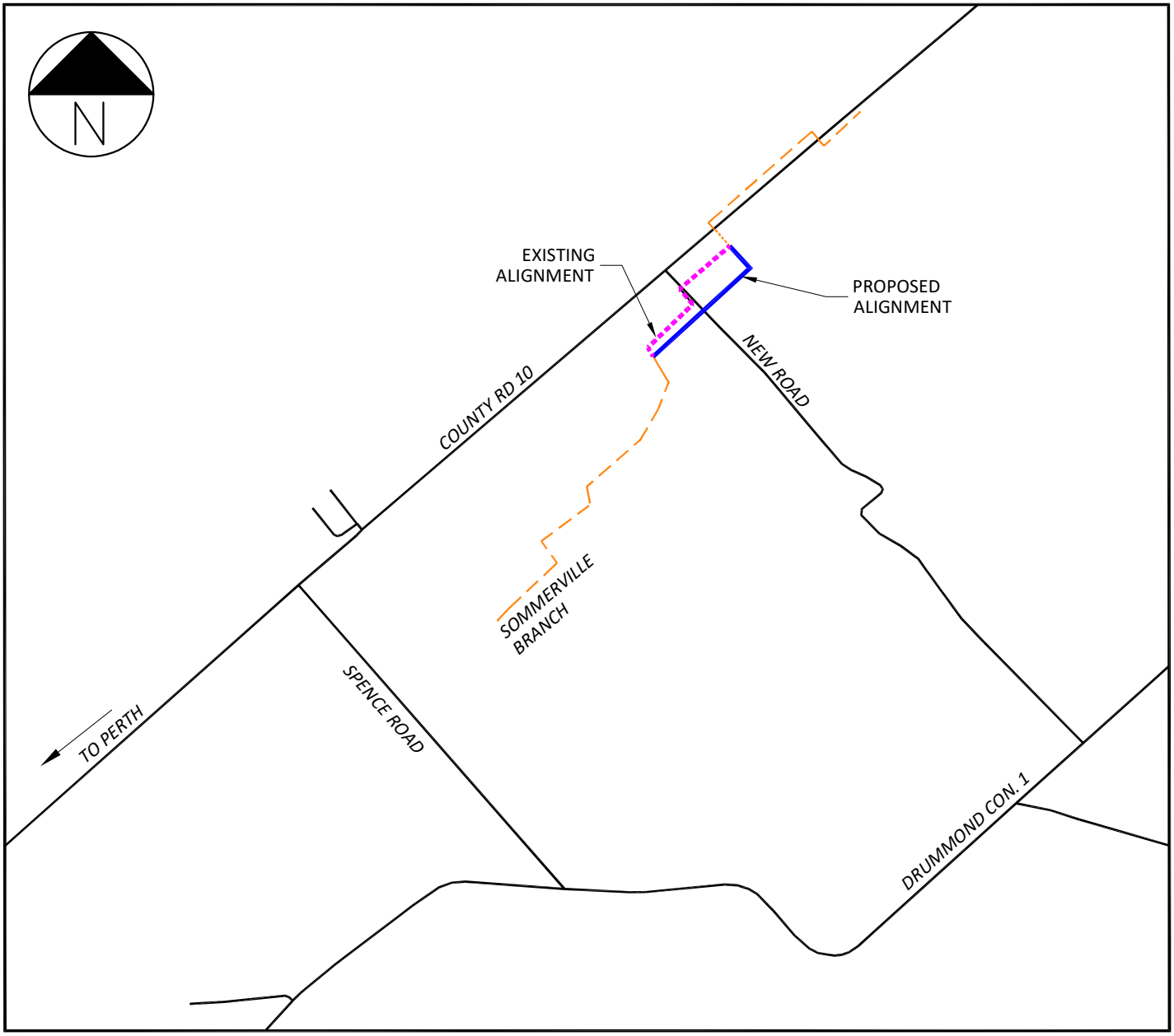
This report is respectfully submitted to the to Council for consideration this July 11, 2025. We understand that the report will go before the Committee of the Whole on August 12, 2025.

Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Monica Shade, P. Eng.
Drainage Engineer
Shade Group Inc.

APPENDIX A

LOCATION PLAN



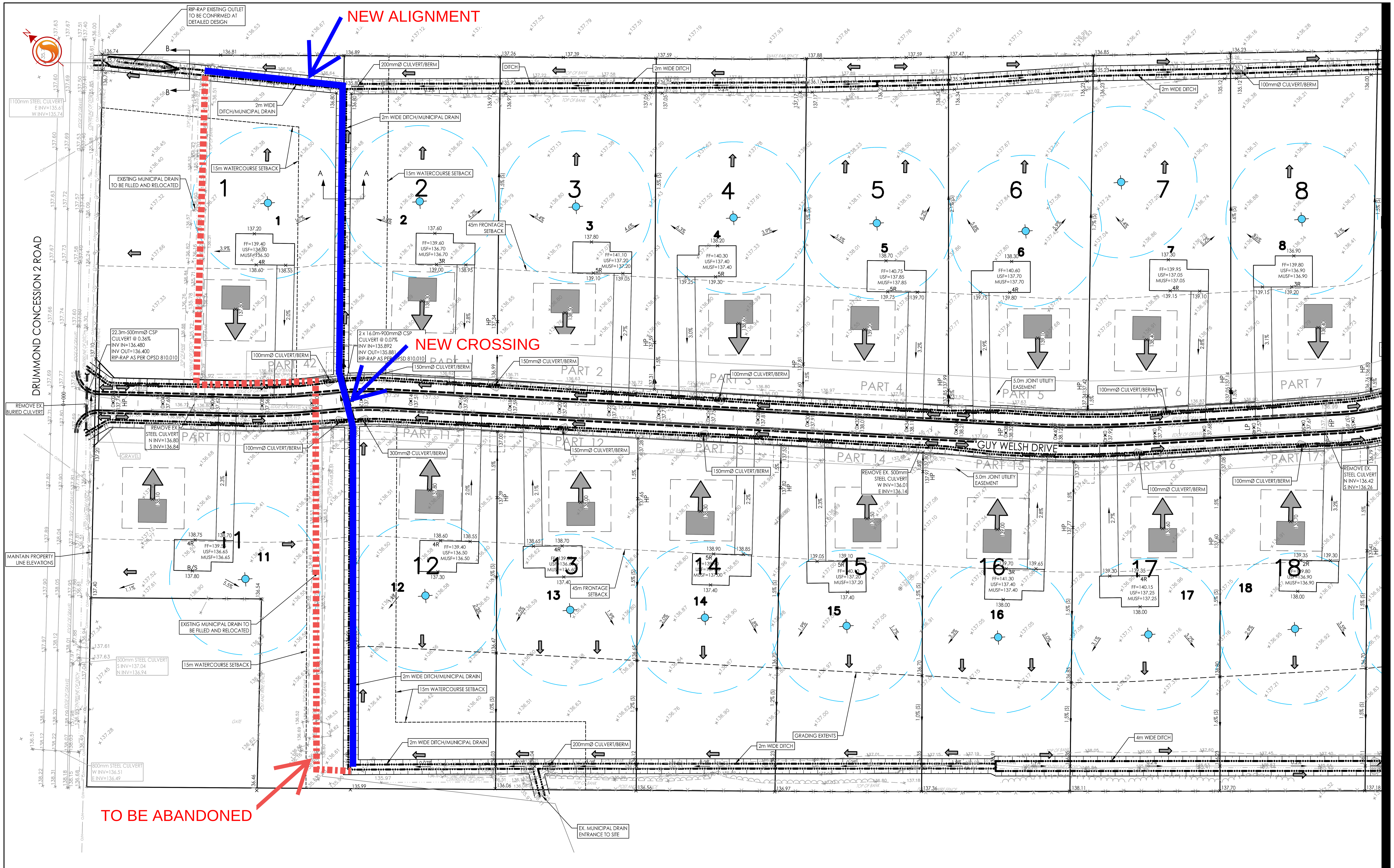
LOCATION PLAN
N.T.S.

SOMMERVILLE BRANCH
DRUMMOND-NORTH ELMSLEY TOWNSHIP

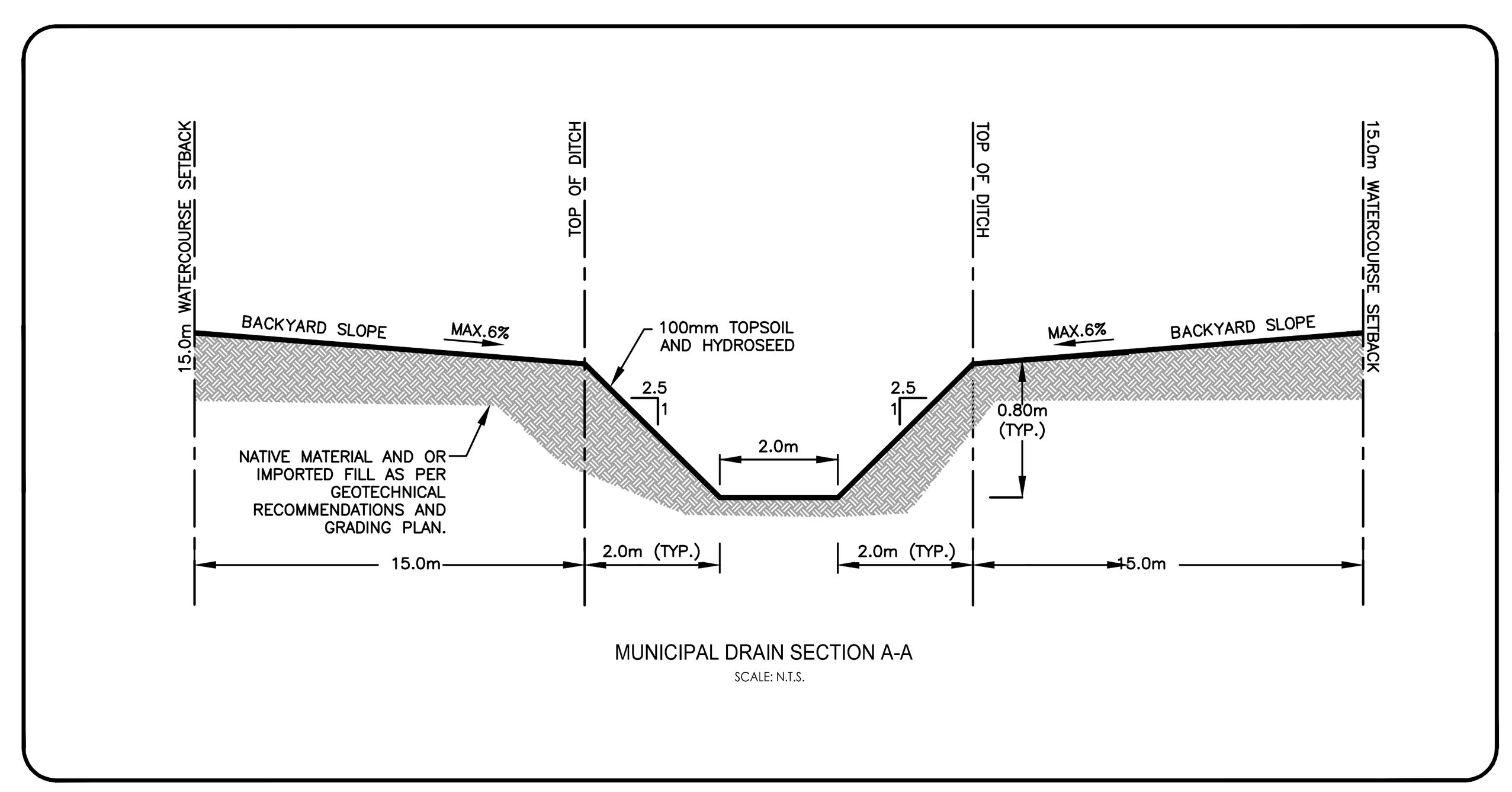
SHADE GROUP INC

APPENDIX B

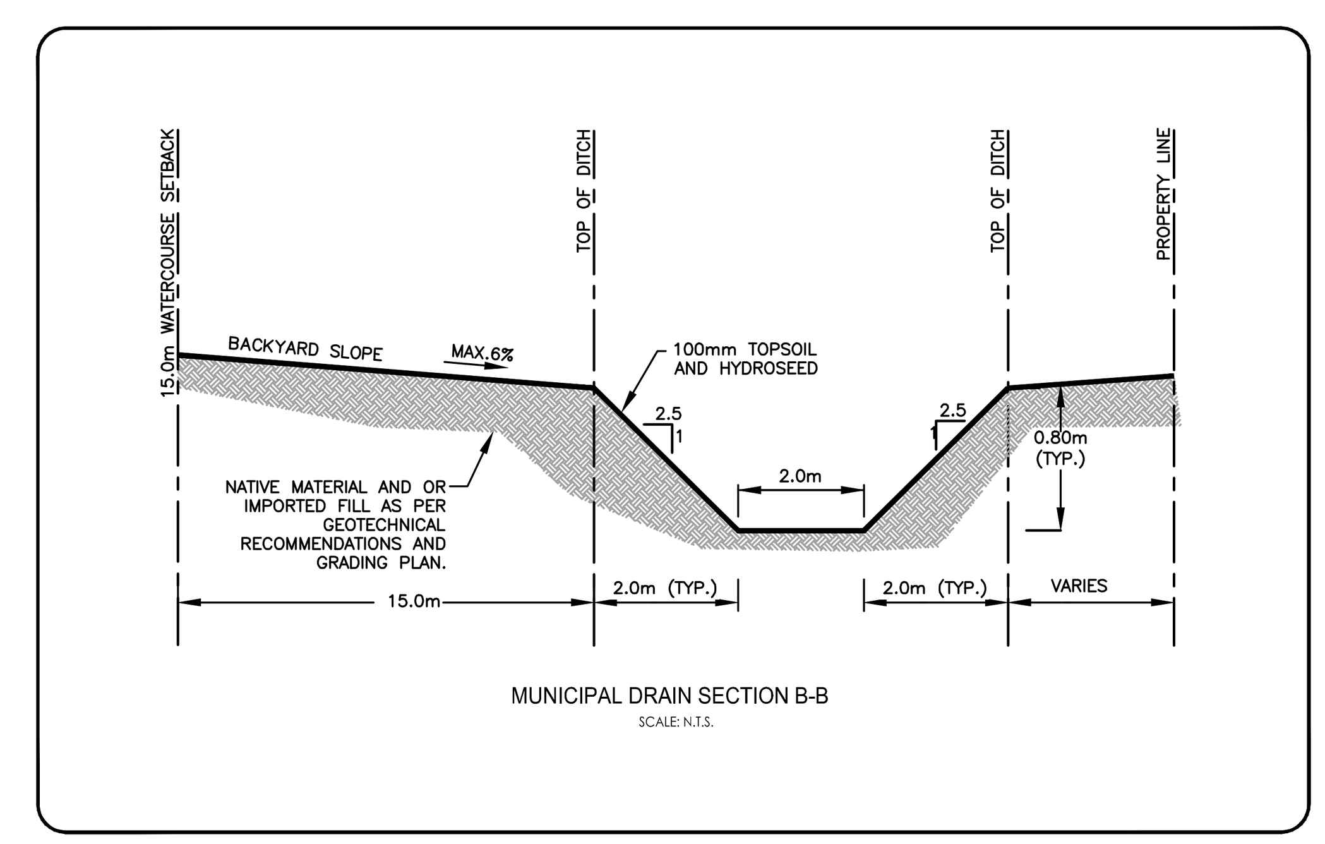
ENGINEERED PLANS



MARKUPS BY SHADE GROUP TO HIGHLIGHT EXTENT OF MUNICIPAL DRAIN REALIGNMENT WORK.
SEE NEXT PAGE FOR NON-MARKED UP PAGE (WITH VISIBLE DESIGN GRADING/SPECIFICATIONS)



MUNICIPAL DRAIN SECTION A-A



MUNICIPAL DRAIN SECTION B-B

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400 - 1331 Clyde Avenue
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www.stantec.com

Legend

- ORIGINAL GROUND ELEVATION
- PROPOSED ELEVATION
- FLOW DIRECTION AND GRADE
- PROPOSED SWALE SLOPE
- PROPOSED DITCH BOTTOM
- PROPOSED TOP OF SLOPE
- PROPOSED CULVERT
- PROPOSED BERM C/W CULVERT
- CONCEPTUAL SEPTIC BED LOCATION (25m x 35m)
- PROPOSED PRIVATE WELL

NOTES:

1. UNDERSIDE OF FOOTING (USF) ELEVATIONS SHALL BE 0.30M (MIN) ABOVE THE C/L DITCH ELEVATION TO KEEP UNIT ABOVE EXPECTED GROUNDWATER ELEVATION AND PREVENT EXCESSIVE PUMPING OF FOUNDATION DRAIN.
2. ALL UNITS TO BE EQUIPPED WITH BACKWATER VALVES AND SUMP PUMPS TO DISCHARGE FOUNDATION DRAIN.
3. MIN. USF ELEVATIONS TO BE ADJUSTED IN CONJUNCTION WITH ANY UPDATES TO HYDROGEOLOGY AND TERRAIN ANALYSIS, AS WELL AS UPDATED HOUSE SITINGS.
4. ALL RETAINING WALLS GREATER THAN 1.0m IN HEIGHT ARE TO BE DESIGNED, APPROVED, AND STAMPED BY STRUCTURAL ENGINEER.
5. FENCES OR RAILINGS ARE REQUIRED FOR RETAINING WALLS GREATER THAN 0.60m IN HEIGHT.
6. REFER TO SWM REPORT FOR PROPOSED DITCH ELEVATIONS.

2	ISSUED FOR REVIEW	ZW	KK	25.06.10
1	ISSUED FOR REVIEW	AT	KK	24.11.20
Revision		By	Appd.	YY.MM.DD

File Name: 160401646-G8.dwg	AT	KK	AT	24.11.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
16 June 2025
N. P. CODY
100125430
PROVINCE OF ONTARIO

Client/Project
CRAINS' CONSTRUCTION LTD.

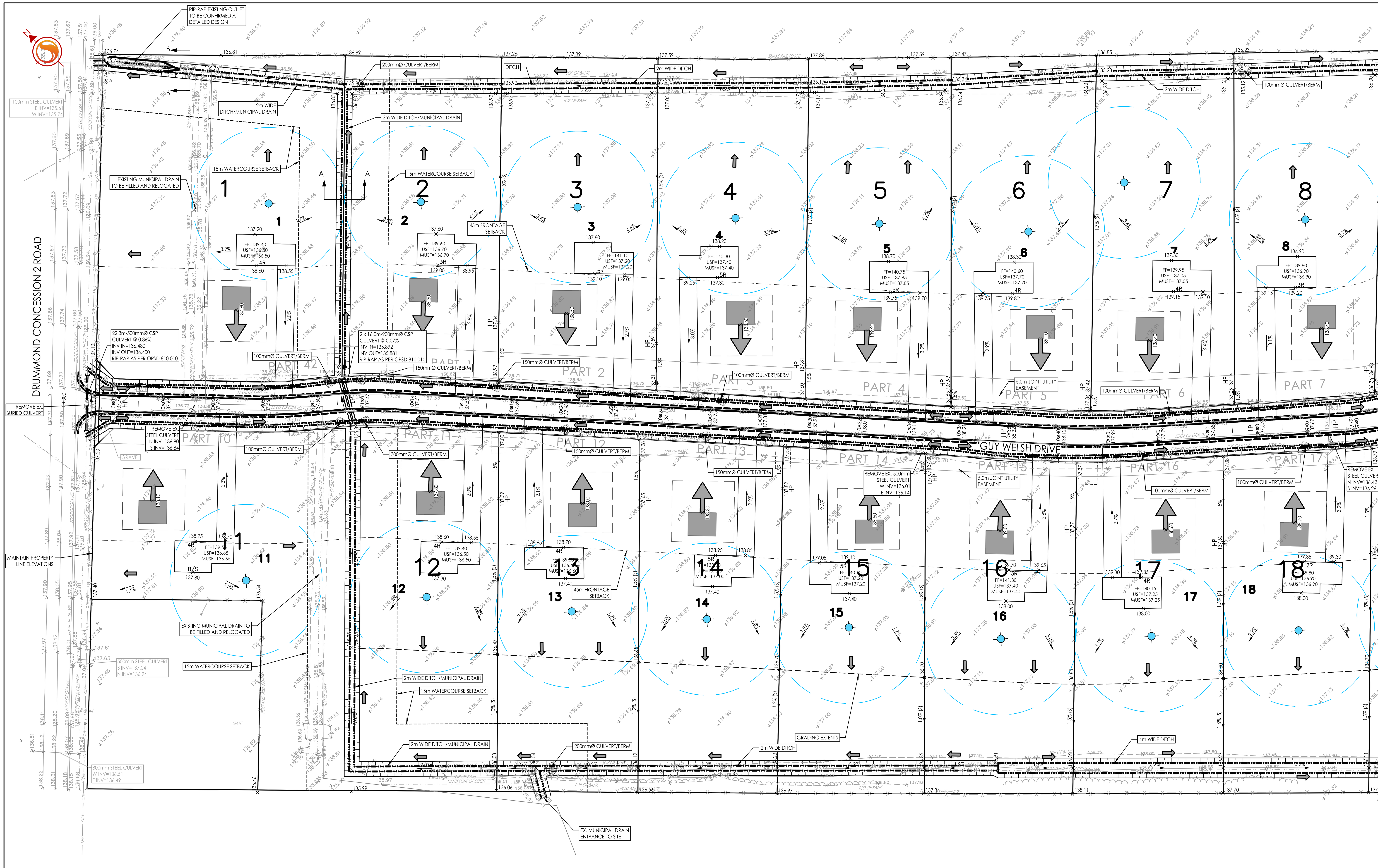
BURN'S FARM SUBDIVISION

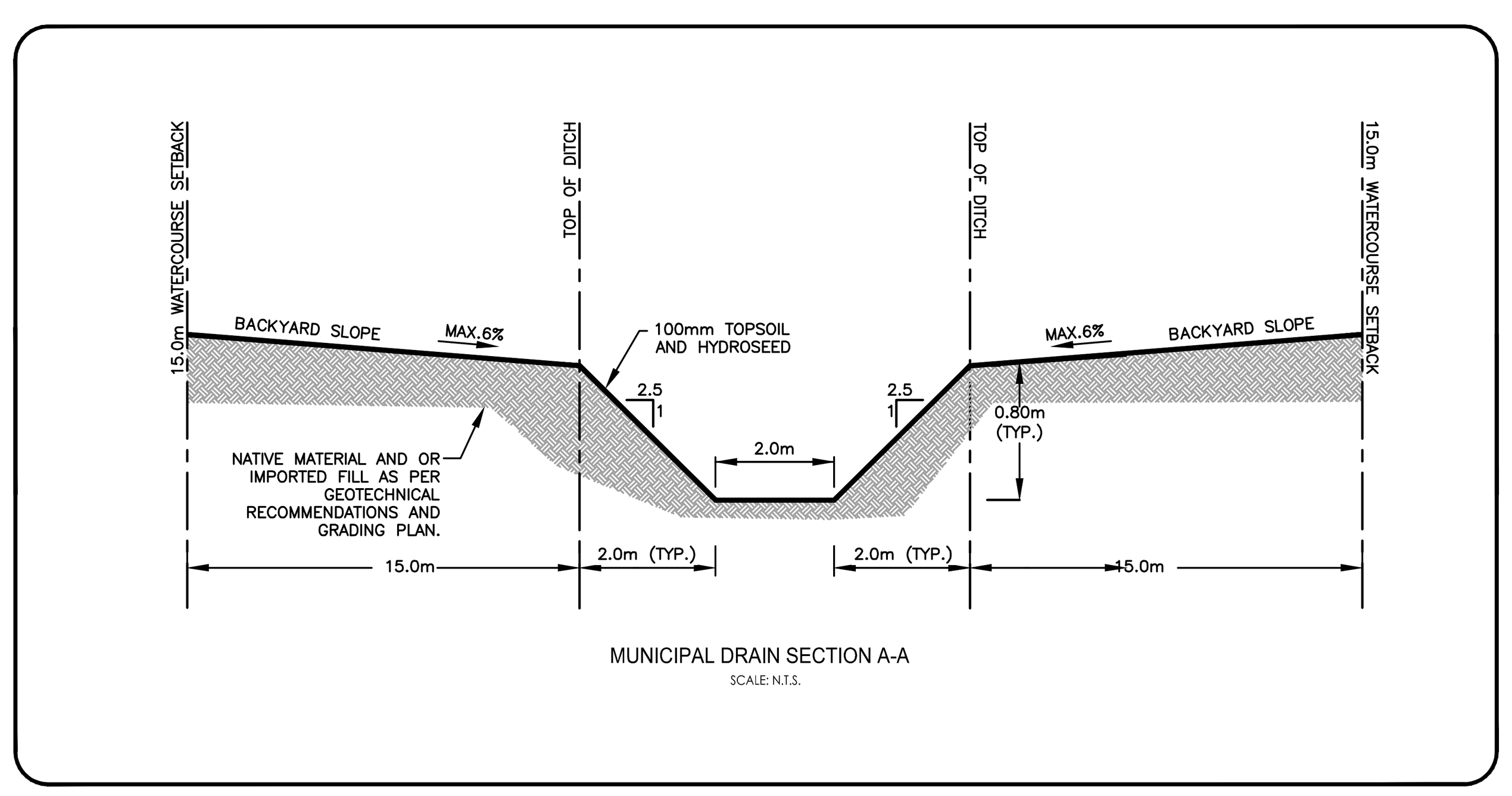
LANARK, ON

Title
SITE SERVICING & GRADING PLAN PHASE II

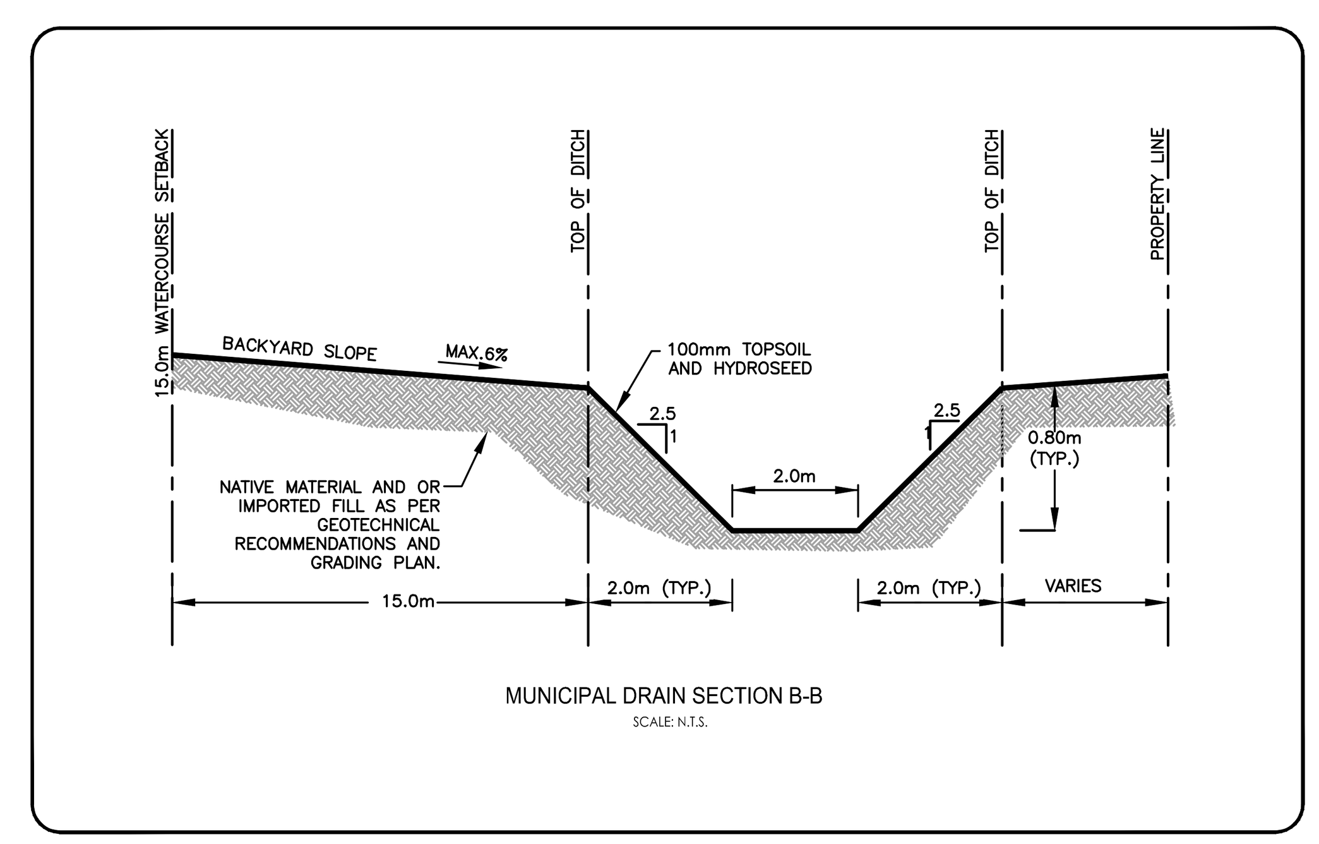
Project No. 160401646
Scale 1:750

Drawing No. SSGP-1
Sheet 1 of 15
Revision 2





MUNICIPAL DRAIN SECTION A-A
SCALE N.T.S.



MUNICIPAL DRAIN SECTION B-B
SCALE N.T.S.

Stantec

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Legend

- ORIGINAL GROUND ELEVATION
- PROPOSED ELEVATION
- FLOW DIRECTION AND GRADE
- PROPOSED SWALE SLOPE
- PROPOSED DITCH BOTTOM
- PROPOSED TOP OF SLOPE
- PROPOSED CULVERT
- PROPOSED BERM C/W CULVERT
- CONCEPTUAL SEPTIC BED LOCATION (25m x 35m)
- PROPOSED PRIVATE WELL

NOTES:

1. UNDERSIDE OF FOOTING (USF) ELEVATIONS SHALL BE 0.30M (MIN) ABOVE THE C/L DITCH ELEVATION TO KEEP UNIT ABOVE EXPECTED GROUNDWATER ELEVATION AND PREVENT EXCESSIVE PUMPING OF FOUNDATION DRAIN.
2. ALL UNITS TO BE EQUIPPED WITH BACKWATER VALVES AND SUMP PUMPS TO DISCHARGE FOUNDATION DRAIN.
3. MIN. USF ELEVATIONS TO BE ADJUSTED IN CONJUNCTION WITH ANY UPDATES TO HYDROGEOLOGY AND TERRAIN ANALYSIS, AS WELL AS UPDATED HOUSE SITINGS.
4. ALL RETAINING WALLS GREATER THAN 1.0m IN HEIGHT ARE TO BE DESIGNED, APPROVED, AND STAMPED BY STRUCTURAL ENGINEER.
5. FENCES OR RAILINGS ARE REQUIRED FOR RETAINING WALLS GREATER THAN 0.60m IN HEIGHT.
6. REFER TO SWM REPORT FOR PROPOSED DITCH ELEVATIONS.

Revision		By	Appd.	YY.MM.DD
2	ISSUED FOR REVIEW	ZW	KK	25.06.10
1	ISSUED FOR REVIEW	AT	KK	24.11.20

File Name: 160401646-GB.dwg	AT	KK	AT	24.11.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
16 June 2025
N. P. CODY
100125430
PROVINCE OF ONTARIO

Client/Project

CRAINS' CONSTRUCTION LTD.

BURN'S FARM SUBDIVISION

LANARK, ON

Title

SITE SERVICING & GRADING PLAN PHASE II

Project No.	Scale
160401646	1:750 (0 7.5 22.5 37.5m)

Drawing No.	Sheet	Revision
SSGP-1	1 of 15	2

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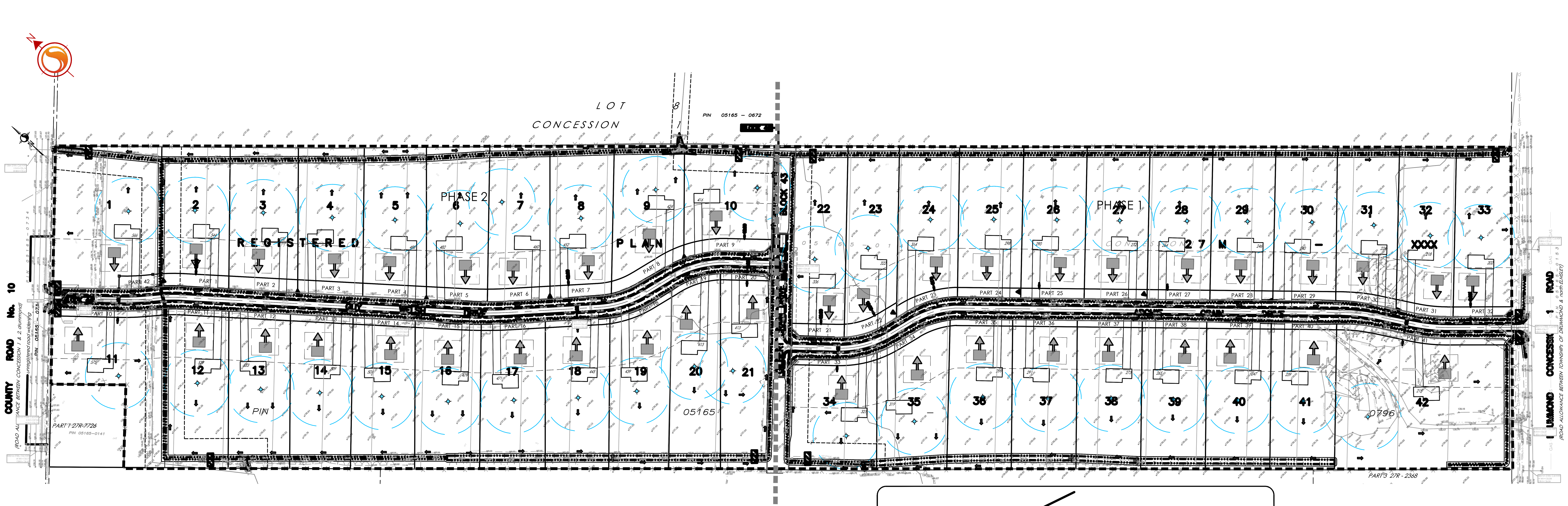
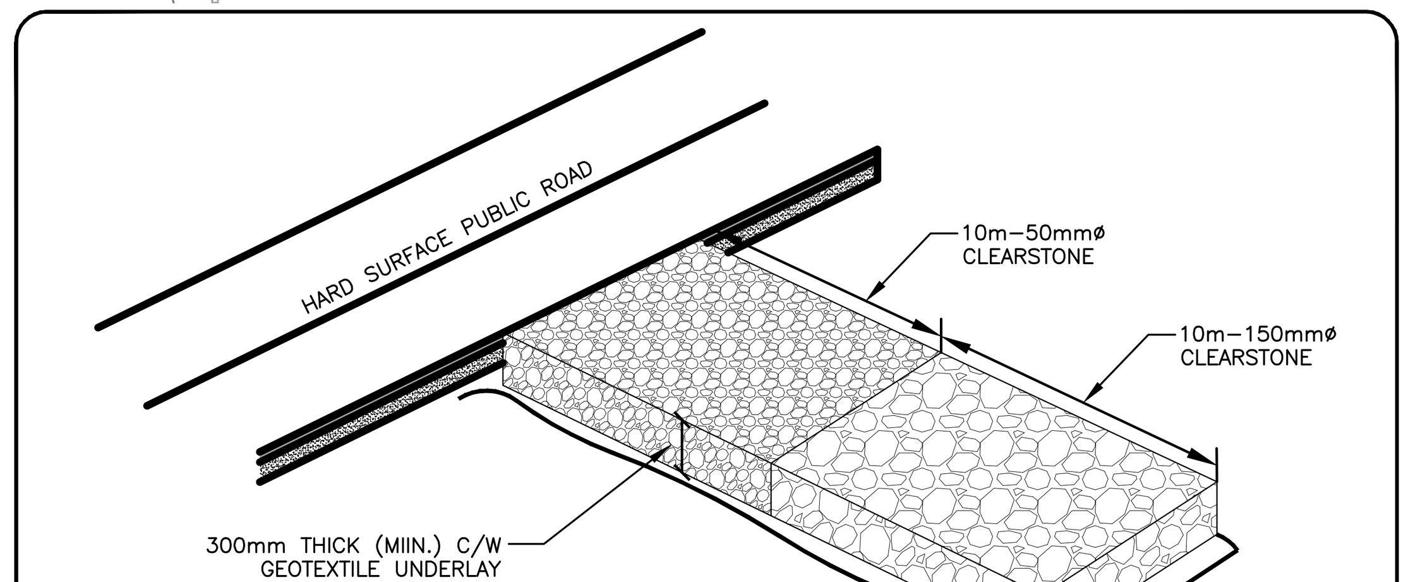
2025/06/16 10:44 AM By: Wang, Zyi

ORIGINAL SHEET - ARCH D

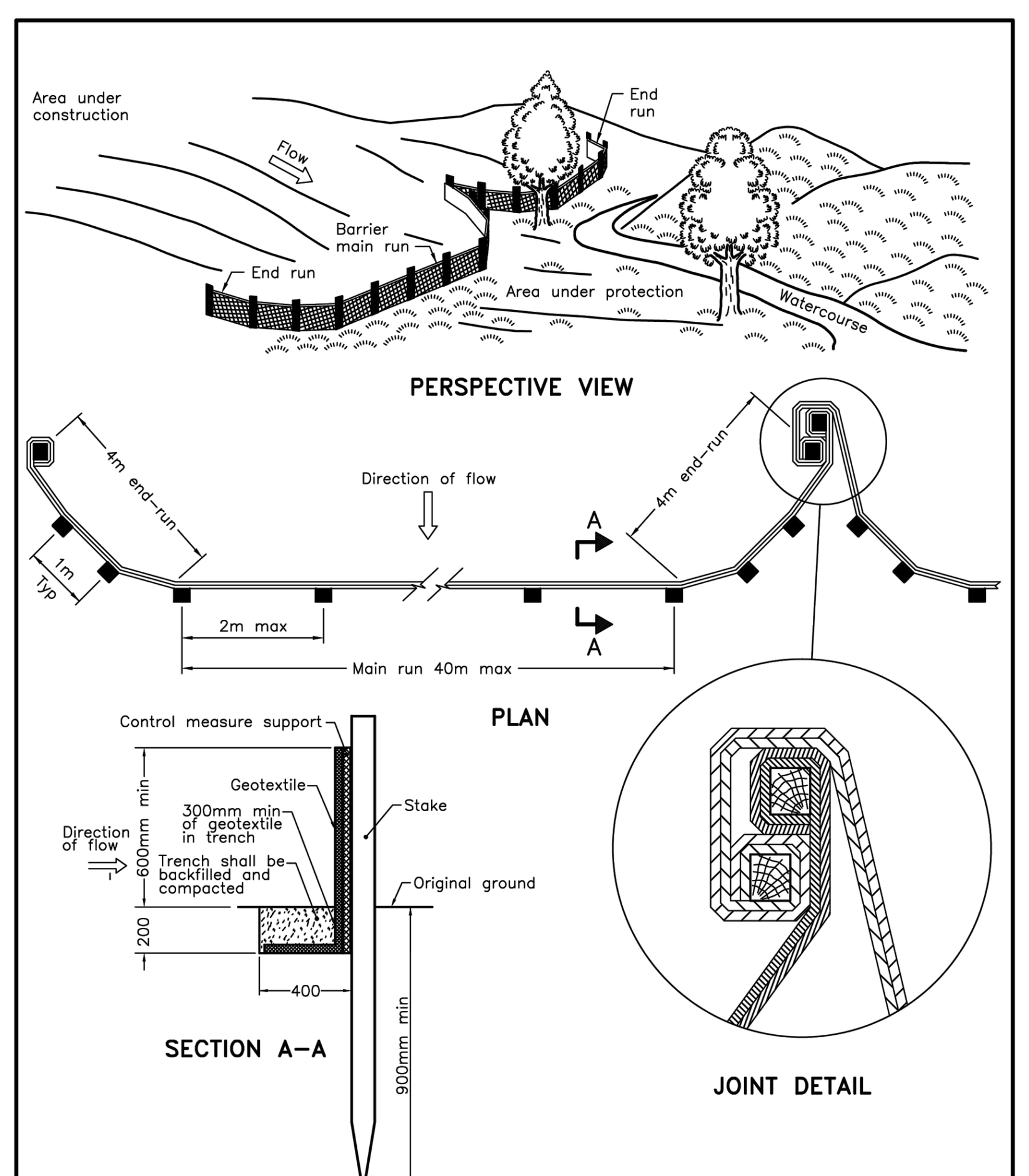




NOTES:

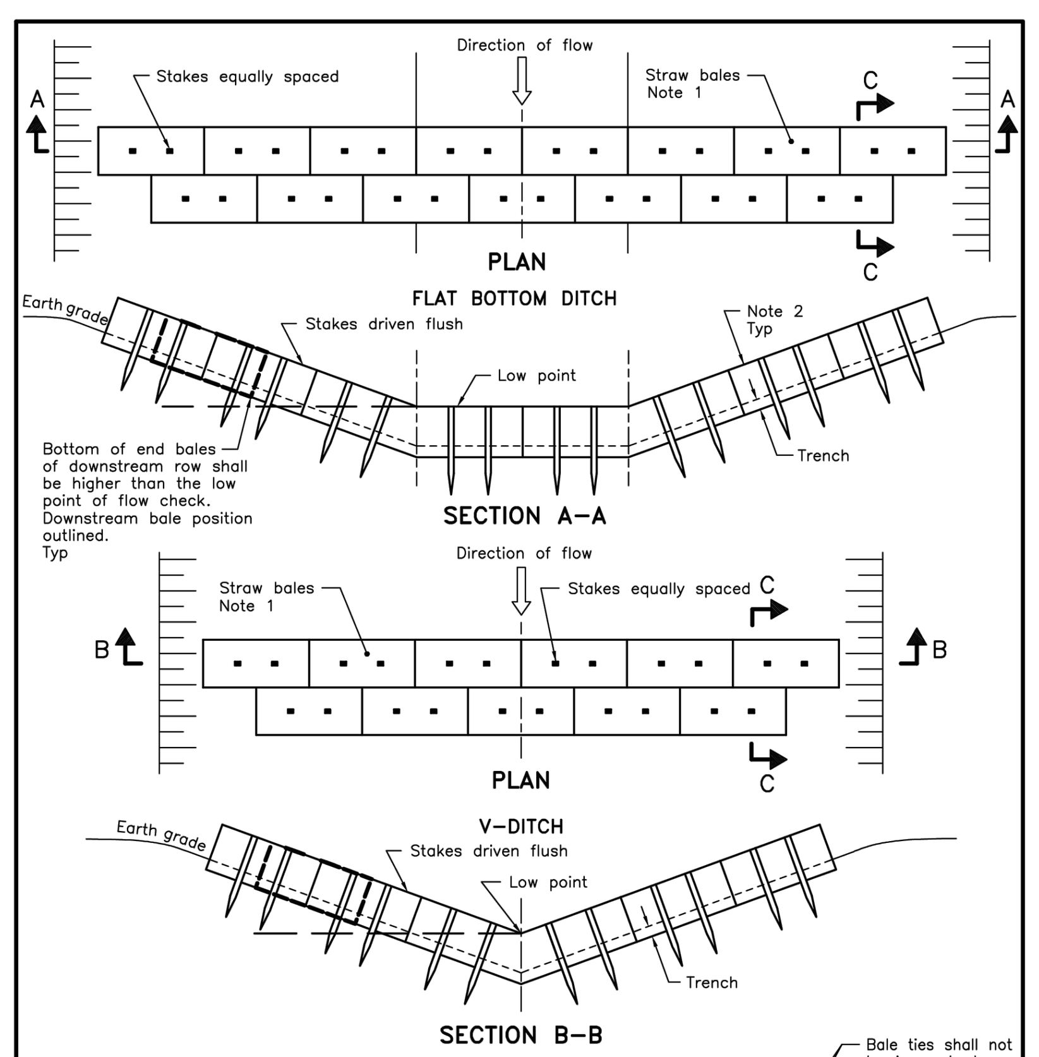
1. MUD MAT TO BE INSTALLED AT ALL CONSTRUCTION ENTRANCES
2. MUD MAT TO EXTEND FULL WIDTH OF ENTRANCE
3. IN THE CASE THAT THE ACCESS CROSSES A CULVERT OR DITCH, SEDIMENT FENCING SHOULD BE INSTALLED ALONG THE EDGES OF THE ACCESS TO PREVENT SEDIMENT FROM BEING WASHED AWAY WITH RUNOFF.
4. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
5. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
6. STORM INLETS BOTH ON AND IN THE PROXIMITY OF THE SITE SHALL BE PROTECTED WITH INLET CONTROL MEASURES PRIOR TO ROAD CLEANING ACTIVITIES.

MUD MAT ENTRANCE DETAIL
SCALE: N.T.S.



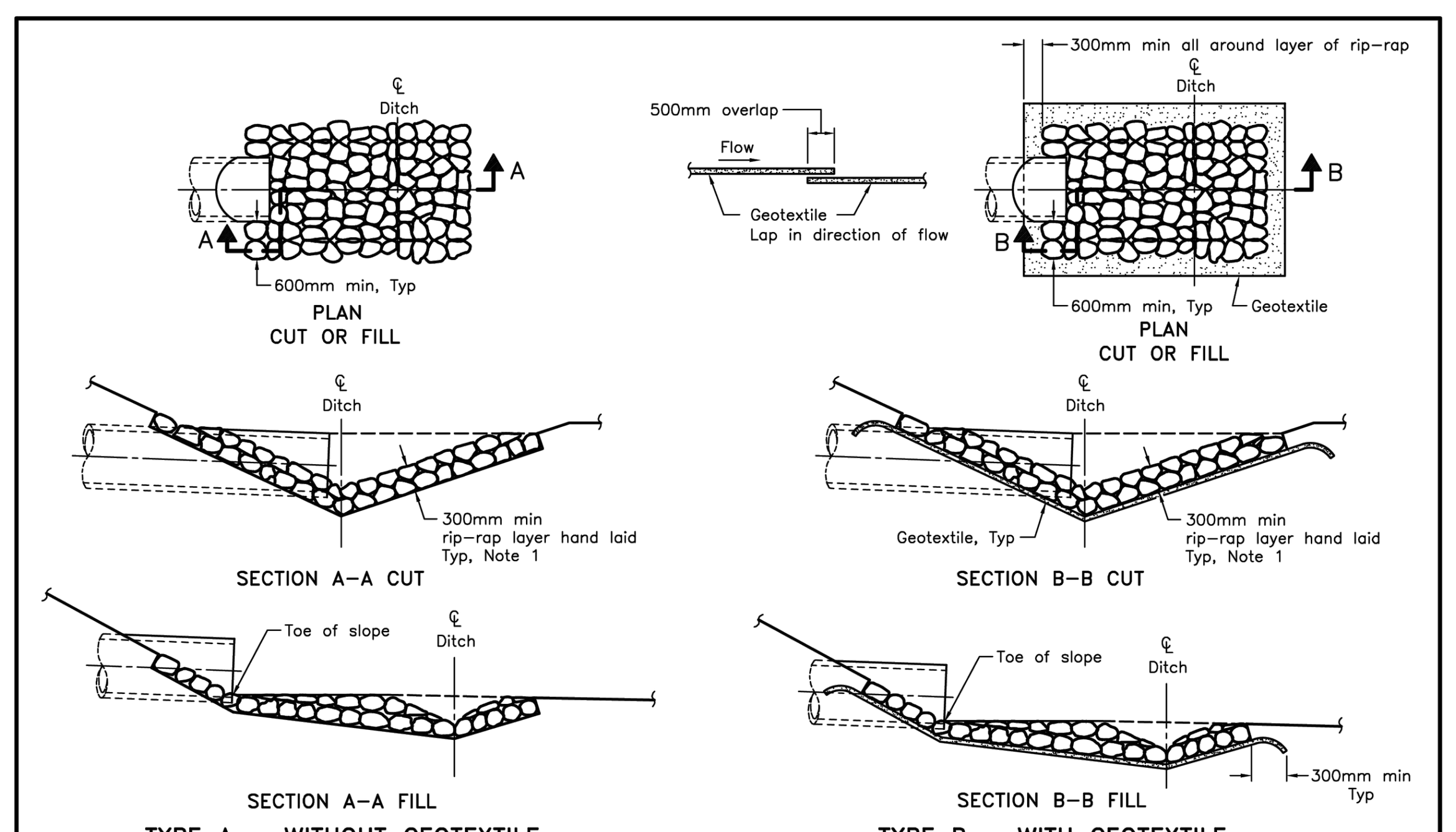
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2021 — Rev 3
HEAVY–DUTY SILT FENCE BARRIER
OPSD 219.130



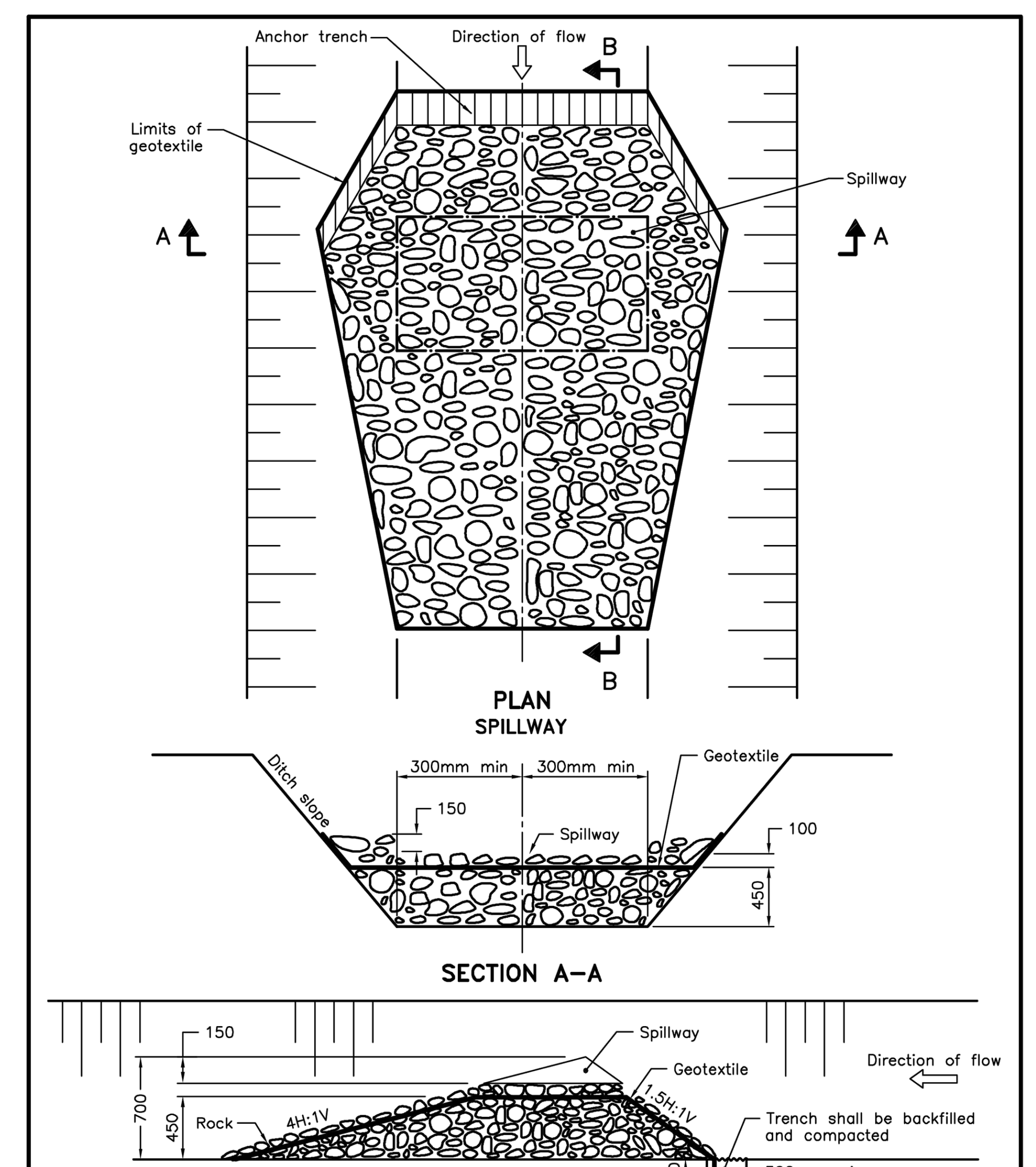
NOTES:
1 Number of bales varies and shall suit ditch.
2 Straw bales shall be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow through barrier.
A Fill and compact gaps with loose straw.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2021 — Rev 3
STRAW BALE FLOW CHECK DAM
OPSD 219.180



NOTES:
1 The thickness of the rip–rap layer shall be at least 1.5 times the rip–rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2018 — Rev 3
GENERAL RIP–RAP LAYOUT FOR SEWER AND CULVERT OUTLETS
OPSD 810.010



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2015 — Rev 2
TEMPORARY ROCK FLOW CHECK DAM FLAT BOTTOM DITCH
OPSD 219.211

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Legend

- POTENTIAL SILT FENCE BOUNDARY
- POTENTIAL STRAW BALE LOCATION
- TP–4 TEST PIT LOCATION BASED ON PATTERSON GEOTECHNICAL INVESTIGATION PG-0486-1
- PHASE LINE
- POTENTIAL MUD MAT LOCATION

Revision		By	Appd.	YY.MM.DD
2	ISSUED FOR REVIEW	ZW	KK	25.06.10
1	ISSUED FOR REVIEW	AT	KK	24.11.20

File Name: 160401646-EC.dwg	AT	KK	AT	24.11.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

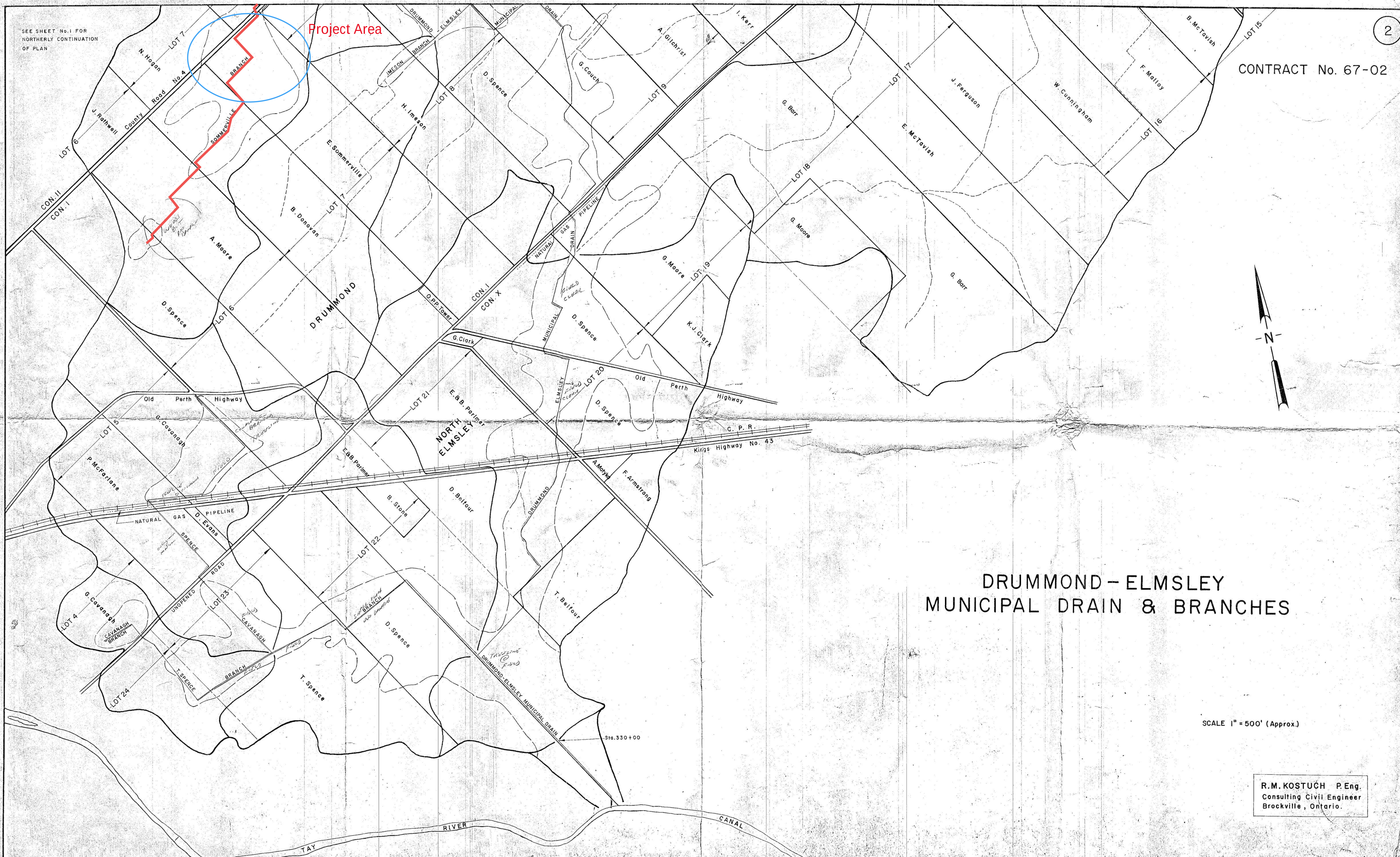
LICENSED PROFESSIONAL ENGINEER — 16 June 2025 — N. P. CODY 100125430 — PROVINCE OF ONTARIO

Client/Project
CRAINS' CONSTRUCTION LTD.
BURN'S FARM SUBDIVISION
LANARK, ON

Title
EROSION CONTROL PLAN

Project No. 160401646
Scale 1:2000 (0 20 60 100m)
Drawing No. EC-1
Sheet 11 of 15
Revision 2

ORIGINAL SHEET - ARCH D



Project Area
SEE SHEET No.1 FOR NORTHERLY CONTINUATION OF PLAN
2
CONTRACT No. 67-02
DRUMMOND - ELMSLEY
MUNICIPAL DRAIN & BRANCHES
SCALE 1" = 500' (Approx.)
R.M. KOSTUCH P. Eng.
Consulting Civil Engineer
Brockville, Ontario.
N
DRUMMOND
NORTH ELMSLEY
CON. II
CON. I
CON. X
County Road No. 4
Old Perth Highway
C. P. R.
Kings Highway No. 43
NATURAL GAS PIPELINE
UNOPENED ROAD
SOMMERVILLE BRANCH
IMESON BRANCH
CAVANAGH BRANCH
SPENCE BRANCH
DRUMMOND-ELMSLEY MUNICIPAL DRAIN
Sta. 330+00
TAY RIVER CANAL
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
LOT 20
LOT 21
LOT 22
LOT 23
LOT 24
N. Hogan
J. Rothwell
A. Moore
D. Spence
E. Sommerville
B. Donovan
H. Imeson
G. Couch
A. Gilchrist
I. Kerr
G. Barr
J. Ferguson
E. McTavish
W. Cunningham
F. Malloy
B. McTavish
G. Moore
K.J. Clark
G. Clark
O.P.P. Tower
E.&B. Parimer
G. Cavanagh
P. McFarlane
D. Evans
B. Stone
D. Belfour
A. McIntyre
F. Armstrong
T. Belfour
T. Spence

APPENDIX C

STORMWATER MANAGEMENT REPORT - STANTEC

Servicing and Stormwater Management Report: Burn's Farm Subdivision

Project No. 160401646

June 9, 2025

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SERVICING AND
STORMWATER MANAGEMENT REPORT: BURN'S FARM SUBDIVISION

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1.0 INTRODUCTION

1.1 BACKGROUND

Stantec Consulting Ltd. has been retained to complete the draft servicing and stormwater management (SWM) design of the Crain subdivision lands located in Drummond North Elmsley fronting onto Drummond Concession 1 & 2 Roads in the County of Lanark. The proposed development property is located just outside Perth and occupies the east half of Lot 7, Concession 1 in the Geographic Township of Drummond / North Elmsley. The proposed subdivision is currently undeveloped, except for an existing road constructed within the property that connects both Concession Roads. The subject area is generally bounded by agricultural lands. However, a large wetland exists north-west of Drummond Concession Road 2. The 39.3-ha site will consist of a rural residential development and associated accessing infrastructure as shown on **Drawings SSGP-1** to **SSGP-3**.

1.2 OBJECTIVE & SCOPE

This stormwater management (SWM) report and analysis has been prepared to demonstrate adherence to established design criteria and support Mr. Crain's development plan for the Draft Approval Phase of the Submission with the County of Lanark and Rideau Valley Conservation Authority (RVCA). The results of the SWM analysis, preliminary SWM servicing plans and grading plans are summarized in this report. This report does not include a detailed design of a stormwater management facility or detailed design of offsite drainage ditches that do not form part of the proposed subdivision.

1.3 BACKGROUND RESOURCES

The following studies, standards and GIS resources were referenced in the preparation of this report:

- *City of Ottawa Sewer Design Guidelines and Technical Bulletin Amendment*, 1st Ed., City of Ottawa, November 2004 amended January 31st, 2012
- *Stormwater Management Planning and Design Manual*, MOE (Ontario), March 2003
- *Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches.* Township of Drummond, Township of North Elmsley. July 1967.
- *Addendum to the Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches*. Township of Drummond, Township of North Elmsley. March 1970.
- Digital Elevation Model (DEM), 2 m resolution, 2014.
- *Topographical Site Survey*. October 2021. And additional survey conducted in April 2025.

- *Constructed Drains Dataset*. Ontario Geo Hub. January 1st, 1990, amended 2022.
- *Consolidated Hydrogeological Investigation & Terrain Analysis – Proposed Residential Subdivision Phase 1, Part of Lot 6 and Lot 7 Concession 1 Drummond Township, Ontario*, GEMTEC, July 11st, 2023

1.4 PREVIOUS DRAFT PLAN REPORT SUBMISSION

The stormwater management section of this Servicing and SWM Report is based on the previous Draft Plan of Subdivision and Stormwater Management Report for Burn's Farm subdivision that was submitted on March 28, 2024.

2.0 WATER SUPPLY SERVICING

Water supply for the Crain subdivision will be provided by drilled wells into the bedrock aquifer for each individual lot. GEMTEC has conducted a Hydrogeological Investigation and Terrain Analysis Study that includes an assessment of water well design requirements for the site.

Drawings SSGP-1 to **SSGP-3** illustrate the potential lot development and private well locations with a minimum of 30 m distance to separate from proposed private septic tanks.

The existing groundwater quantity will be sufficient for the proposed residential development usage, according to GEMTEC's study. The water supply assessment recommended an extended well casings length of 36.6 m below ground surface, to avoid zones possibly impacted by nitrates. For the same reason, on-site monitoring wells were also recommended to monitor concentrations; however, the detectable nitrate concentrations remain well below the guideline standards.

The groundwater quality is considered to be treatable to meet the drinking water regulations, it was recommended that conventional residential water softener and manganese filter to be installed to remove hardness and manganese concentrations. The newly drilled water wells should be chlorinated following completion of the well drilling and pumping.

Fire suppression storage tanks/supply wells have not been considered for the development. As the site is located approximately 5.5 km from the Town of Perth, it is anticipated that fire suppression requirements will be provided by Fire Services in the Town.

3.0 WASTEWATER SERVICING

The Crain subdivision is located in a non-serviced rural area remote from any existing urban wastewater collection system. Residentials in the area are in general serviced by using private services. Each lot in the future development area will be serviced via septic tank as per Ontario Building Code (OBC) requirements. GEMTEC has conducted a Hydrogeological Investigation and Terrain Analysis Study that includes an assessment of septic system construction for the site.

The proposed private septic service will have a separation distance of 30 m between the well and septic as recommended by GEMTEC. In area with think overburden that is less than 0.15 m deep, it was recommended a minimum of 150 mm thick silty clay seal be placed beneath the septic bed.

Drawings SSGP-1 to **SSGP-3** illustrate the potential lot development strategy to meet the offset requirements that adequate space is provided on each lot to accommodate the proposed private septic services. Lot specific designs, such as tank capacity, will be required prior to construction.

4.0 STORMWATER SERVICING

4.1 DESIGN CRITERIA

The stormwater management criteria were established through review of the background documentation, conversations with Rideau Valley Conservation Authority (RVCA) staff, and is supplemented with current design practices outlined by the City of Ottawa (2012) and MOE (2003) guidelines.

- 100-year water depths in roadside ditches cannot cause surface flooding on any building or structure
- Roadside ditches and realigned channels to be sized to convey the 100-year 24-hour SCS storm and the 100-year 24-hour SCS storm with City of Ottawa IDF parameters increased by 20% to account for climate change
- Post development runoff up to and including 100-year storm to be restricted to pre-development levels both at the Sommerville municipal drain north of the site and at the point where runoff from the southeast end of the proposed subdivision joins the Drummond-Elmsley Municipal Drain.
- Culverts along the roadside ditch to be sized to convey the 100-year 24-hour SCS storm without overtopping the roads
- Provide adequate emergency overflow conveyance off-site
- Divert all rooftop drainage onto the green grass along the property, some of which would get infiltrated and the rest drained onto the proposed ditches.

4.2 TARGET DISCHARGE DETERMINATION

The allowable discharge rates from the development property must be determined in order to successfully design a stormwater management plan. This involves assessing the peak runoff from the site's existing conditions and determining the capacity of the existing municipal drains.

4.3 EXISTING DRAINAGE CONDITIONS

The current land use for the site is agricultural. The topography of the southeast corner of the site generally falls southeast towards Concession 1 Road. Drainage across the remaining site is facilitated through the Sommerville Branch and Imeson Branch of the Drummond-Elmsley Municipal Drain for the northwest and central portions, respectively.

4.4 EXISTING CONDITIONS MODEL

4.4.1 MODEL METHODOLOGY

A comprehensive hydrologic modeling exercise was completed with PC-SWMM version 7.6.3695 to generate pre-development runoff response from the site and external areas. The pre-development stage model is shown in **Figure 4.1.** The overall area was sub-divided into several subcatchments tributary to the system of roadside ditches, culverts and municipal drains. Due to the rural drainage area, the 100-year 24-hour SCS storm event was used to generate surface runoff from the site and external areas under the pre-development stage. The pre-development stage peak flows were obtained at three outlet locations as indicated in **Figure 1**:

1) Northwest outlet, as part of Sommerville Branch, a culvert leaving the site into Concession 2 Road ditch.

2) Central outlet, leaving the site at the mid-point of the subject site's northeastern property line discharging to a seemingly private infrastructure or natural watercourse before reaching Imeson Branch in the next property lot.

3) Southeast outlet, a channel at the southeast corner of the subject site's boundary, onto Concession 1 Road.

Within the site three subcatchments of total 6.6 ha are initially routed to the downstream of Imeson branch, whose runoffs would bypass the central outlet. In order to account for this runoff into the complete on-site runoff, they have been intentionally re-directed to the upstream of the central outlet as shown in **Figure 4.1**.

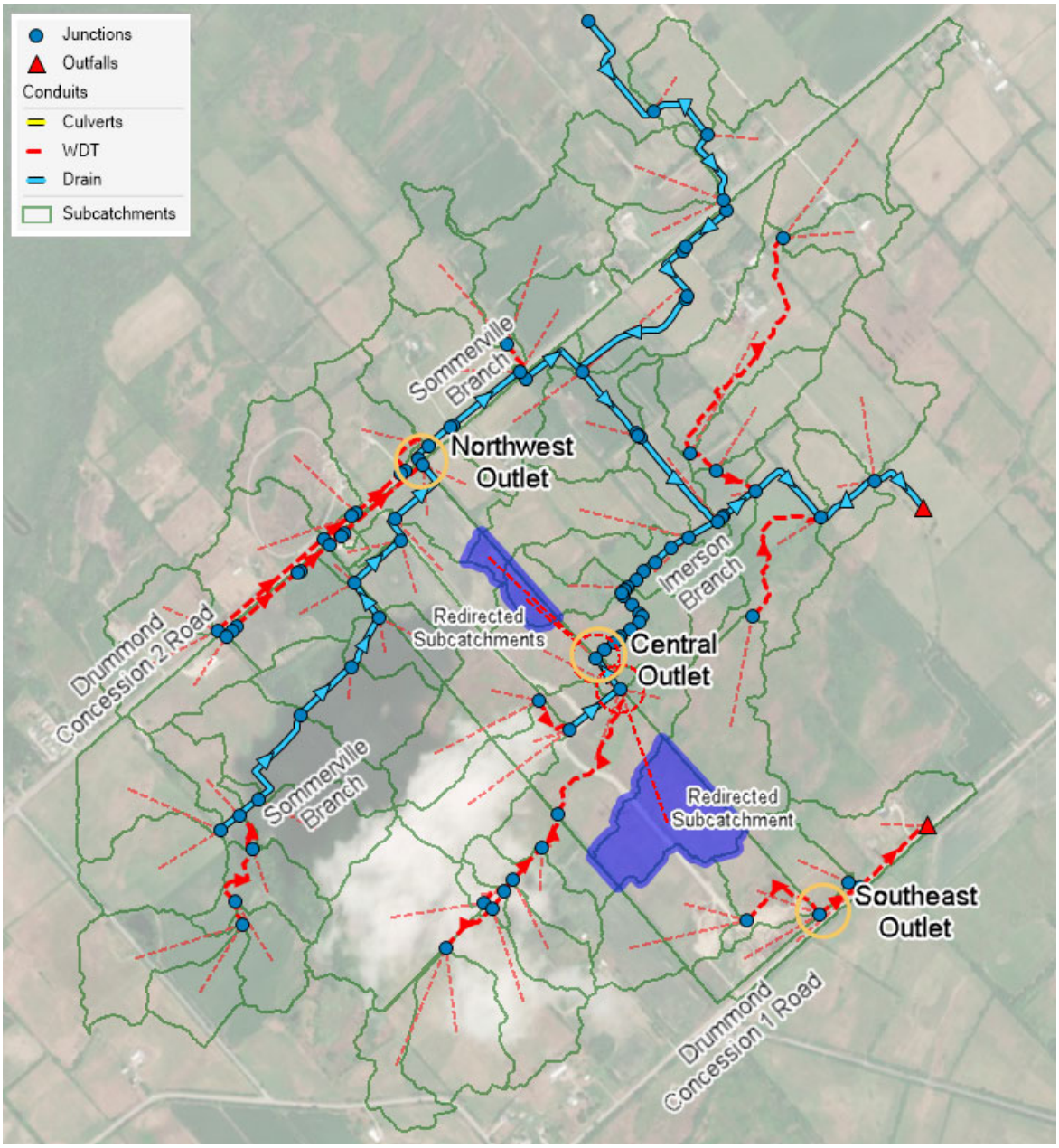

Figure 4.1. Existing Conditions Model Layout

The following assumptions were applied to the existing conditions model:

- Hydrologic parameters as per Ottawa Sewer Design Guidelines, including Manning's 'n', initial abstraction and depression storage values (see **Appendix A.1**)

- The SCS Method was used to calculate CN values for each subcatchment based on existing land use and available soil information (see **Appendix B.2**)
- Land use across the site was obtained from aerial photographs as shown in **Figure 4.1**
- Subcatchment and drainage system were delineated using DEM data, in conjunction with survey data
- Ditch cross sections were estimated based on 2k mapping and Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches
- Model downstream system is truncated downstream on the Drummond-Elmsley Municipal Drain and it is assumed that the downstream system will not back up. It is believed that this is a reasonable assumption as the Township of Drummond / North Elmsley is not aware of any flooding or damage due to flooding in the area of the. Sommerville Branch, Imeson Branch or Concession 1 roadside ditch having occurred in the past (see **Appendix B** for correspondence).

4.4.2 MODEL RESULTS

The pre-development model was run with 100-year 24-hour SCS storm event entirely. The simulated maximum flow is shown in **Table 4.1**. An alternative version of the model is also made, in which the northwest and central outlets are set to discharge freely without the downstream boundary condition. The maximum flows with the downstream boundary condition and with the free outlet will be used to compare the post-development at these two locations. The Southeast outlet remains no change.

The post-development peak flows up to the 100-year 24-hour SCS storm event must be restricted to be less than or equal to these target flow rates.

Table 4.1 Target Release Rate

Outlet Location	Allowable Discharge Rate with Boundary Condition (m^3/s)	Allowable Discharge Rate with Free Outlet (m^3/s)
Northwest outlet	1.029	1.488
Central outlet	2.225*	1.833
Southeast outlet	0.557	0.557

* Flow larger than free outlet Q: the 2.225 m3/s with high spikes likely due to tailwater effect.

It is shown that the 220 m long channel between the central outlet and the start of Imeson Branch exhibits inconsistent grading where some sections are reverse sloped based on 2025 surveying data. Channel flow will be obstructed at these locations. Moreover, the three existing 600 mm diameter culverts along the channel cause high surcharge.

4.5 PROPOSED CONDITIONS

The following sections describe the proposed conditions for the post-development stage and the stormwater management plan for the Crain subdivision in the context of the background documents and governing criteria.

Stormwater from the subdivision will be collected in roadside and backyard ditches and ultimately directed to the Drummond-Elmsley Municipal Drain, through the three outlets.

4.6 MODELLING

4.6.1 MODEL METHODOLOGY

The post-development model (**Figure 4.2**) was built on top of the pre-development existing model. It includes new ditches along the future roadside and backyard of lots.

To meet the stormwater discharge criteria for the proposed development, the roadside and backyard ditches will be used as stormwater storage with earthen berms and control outlets. Multiple berms are effective way to preserve storage volume in a sloped ditch. A control outlet pipe, located near the bottom of a berm will restrict the amount of flow discharge and reduce total peak discharge leaving the site.

Conveyance ditches are ditches that connect the southwest upstream drainages and traverse the site to the downstream Drummond-Elmsley Municipal Drain. Considered as part of the municipal drains, these ditches and culverts are sized to have no flow restriction. The northwest conveyance ditches will be connected between the upstream and downstream of Sommerville Branch, and the central conveyance ditches to the Imeson Branch. The southeast ditch will tie to the southeast corner channel into Concession 1 Road.

Typical ditch dimension will be depth of 0.8 m, side slope at 2.5 to 1 and varied bottom width from 1.0 m to 4.0 m. Some exception will be at depth between 1.0 m and 1.1 m at major ditches immediately upstream of the outlets to handle tailwater effect. The northwest backyard ditches are generally larger in sizes because they are intended to capture external runoffs from the southwest upstream off-site areas as well. Ditch depth may be slightly deeper to 1.0 m at junction of Gilbert Crain Drive/Archie Crain Drive and Gilbert Crain Drive/Guy Welsh Drive for slope consistency.

Additional survey was conducted following from central outlet to about halfway of Imeson Branch, and a culvert at downstream of northwest outlet. The new surveying data is generally 0.5 m lower than the DEM. Since the DEM data tends to be rougher, it is assumed that, starting from the end of the survey points, the remaining downstream system would be consistent with the slopes from the Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches. If the actual state of the Drain is in disrepair or not in conformance with the Engineer's Report, it should be cleaned out or reinstated to the design as per the Engineer's Report.

The channel between the central outlet and the start of Imeson Branch will be proposed to regrade at 0.08% slope, based on the Imeson Branch slope. The existing 600 mm diameter culverts along the channel will be replaced with double-barrel of 900 mm diameter.

For modeling the free outlet with no boundary conditions, the Northeast and Central outlet ditches are assumed to have a normal depth at a slope of 0.2%. For the Southeast, DEM and survey elevations were available and so were used in this location.

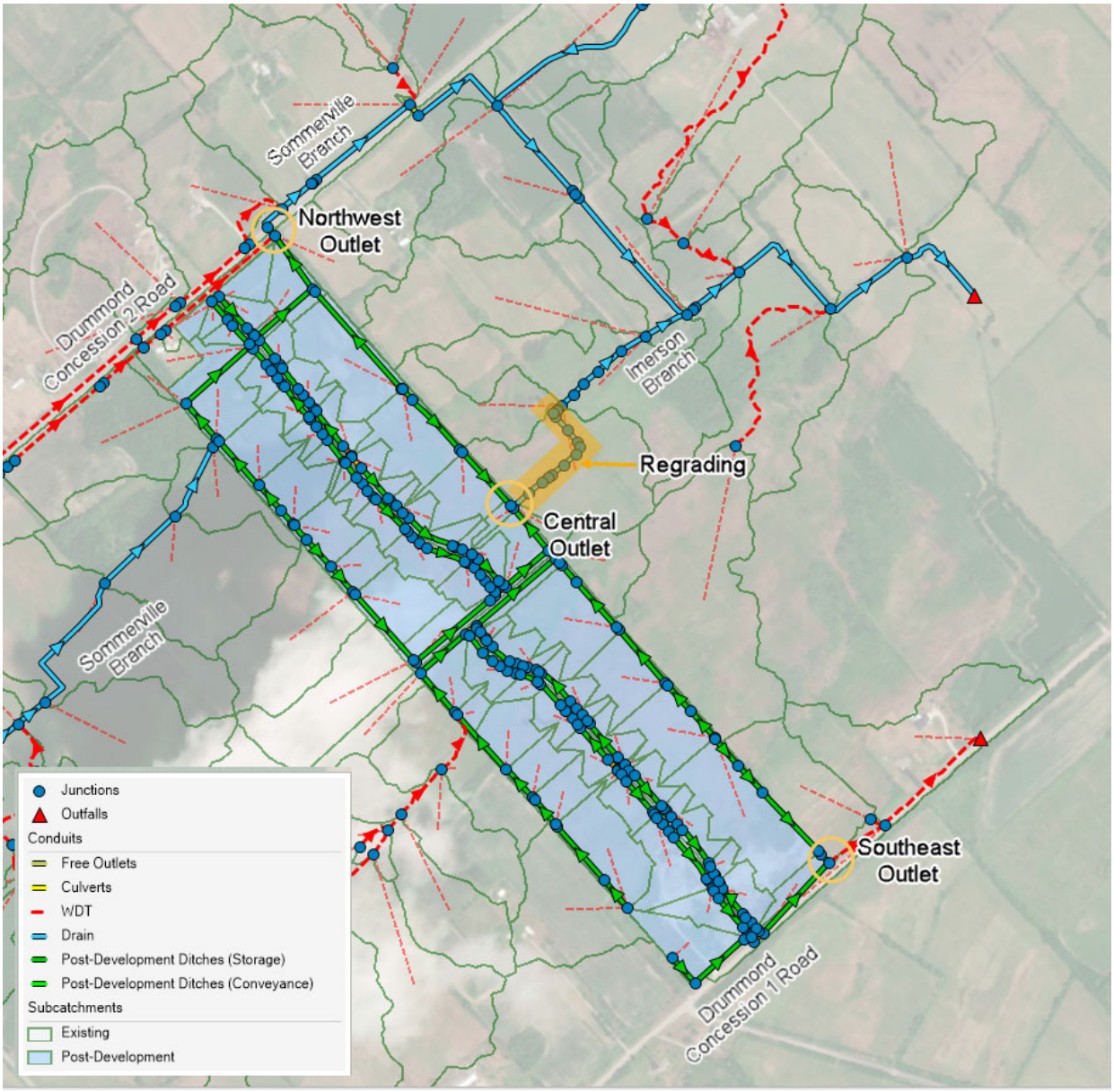

Figure 4.2: Proposed Conditions Model Layout

4.6.2 MODEL RESULTS

The post-development model was simulated with 100-year 24-hour SCS rainfall event. Flow discharge will be regulated to meet the allowable discharge rates of the pre-development stage and future roadside and backyard ditches in the area will serve as storage to retain the waters during and after the rainfall event. For the model with the boundary condition, ponding water level is generally kept below 0.8 m in most ditches while due to downstream tailwater affect some locations near the outlets result in a maximum of 1.1 m deep. **Table 4.2** outlines the

maximum discharge flows at the three locations, in comparison with the flowrates at the pre-development stage.

Table 4.2 100-Year Maximum Release Rates with Boundary Condition

Outlet Location	Allowable Discharge Rate with Boundary Condition (m^3/s)	Maximum Discharge Flow (m^3/s)	Pre-Development Discharge Volume (m^3)	Post-Development Discharge Volume (m^3)	Volume % Change
Northwest outlet	1.029	0.925	13,450	14,090	4.7%
Central outlet	2.225	1.287	10,800	12,040	11.4%
Southeast outlet	0.557	0.214	2,110	1,720	-18.4%

Hydrographs discharging at the three outlets with boundary condition are plotted in **Figure 4.3** for comparison between the pre and post conditions. The overall flow pattern remains closely before and after the development, including time to peak and total duration. The pre-development central flow discharge is seen much larger is because of flow fluctuation at peak. Total discharge flow volumes are increased due to development as shown in and they are being retained and discharged after the occurrence of peak flow. The downstream system will not be impacted. The post-development peak flow and volume of the southeast outlet is a lot less than that of pre-development because close to 4 ha area is routed to the central outlet and that explains the reason the central outlet yields a higher volume increase among all.

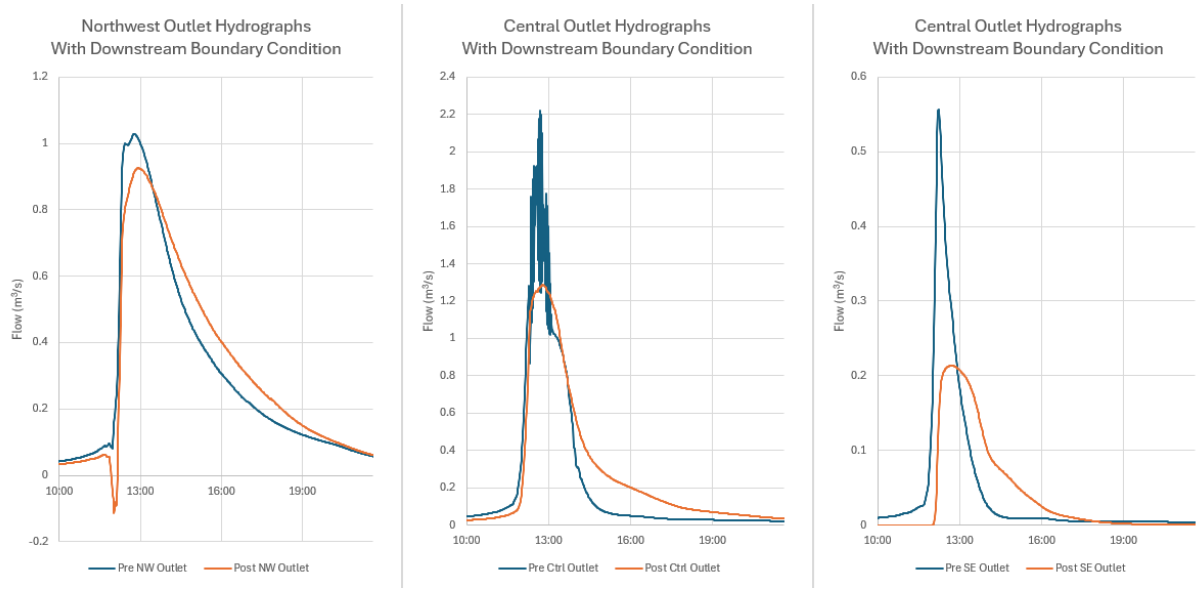

Figure 4.3 100-Year Outlet Hydrographs with Boundary Condition

The proposed regraded downstream channel from central outlet to Imeson Branch will carry more flow from the pre-development 0.835 m^3/s to 1.425 m^3/s at post-development stage at entrance of Imeson Branch. It should be noted that the discharge flow at pre-development is somewhat limited due to the inconsistent channel grading and the culvert size. The regrading and the larger culverts will effectively lower water level in the channel.

For the model with free outlet, ponding water level is kept at the maximum of 0.8 m deep in all ditches. **Table 4.3** outlines the maximum discharge flows at the three locations, in comparison with the flowrates at the pre-development stage. Modeled with free outlet without restriction by downstream tailwater effect, an outlet discharge tends to be higher at the northwest and central outlets in post-development. The reason that the pre-development central outlet flow with boundary condition is larger (2.225 m^3/s) than that of free outlet (1.833 m^3/s) is possibly due to the spikes by flow fluctuation at the junction.

The hydrographs at the three outlets with free outlet are plotted in **Figure 4.4**, including the pre and post conditions.

Table 4.3 100-Year Maximum Release Rates with Free Outlet

Outlet Location	Allowable Discharge Rate with Free Outlet (m^3/s)	Maximum Discharge Flow (m^3/s)	Pre-Development Discharge Volume (m^3)	Post-Development Discharge Volume (m^3)	Volume % Change
Northwest outlet	1.488	1.487	13,560	14,220	4.9%

Central outlet	1.833	1.768	10,840	12,090	11.5%
Southeast outlet	0.557	0.214	2,110	1,720	-18.4%

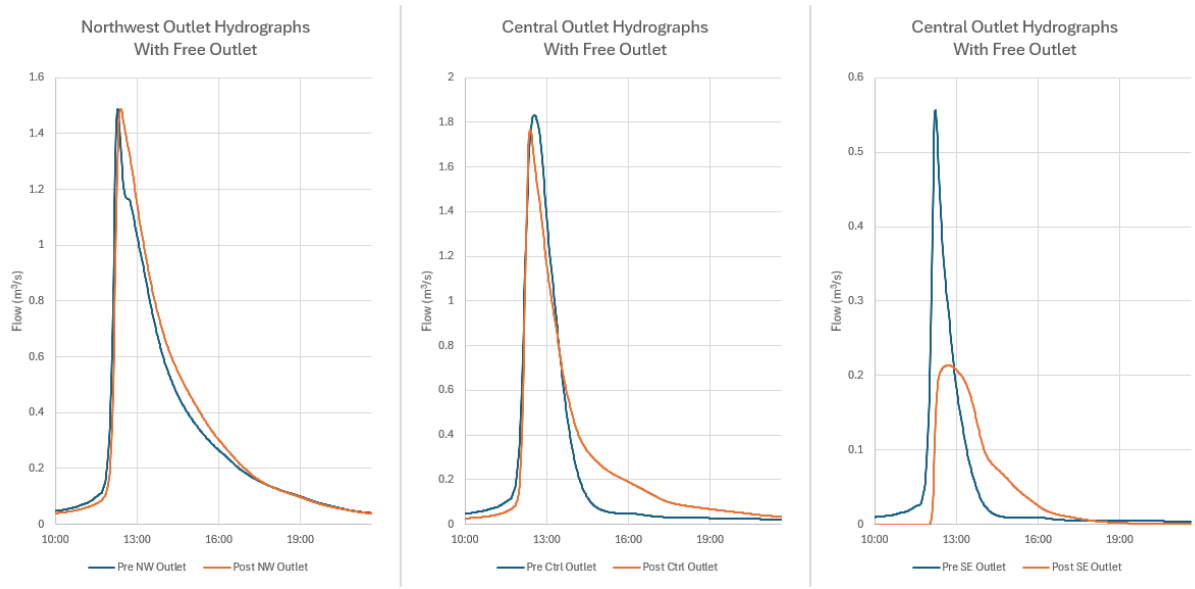

Figure 4.4 100-Year Outlet Hydrographs with Free Outlet

As can be seen from the tables and figures, the post-development discharge rates at each of the outlet is all at or below the pre-development allowable discharge rates. The proposed ditches have sufficient storage to detain the volumes generated.

4.6.3 MODEL RESULTS – CLIMATE CHANGE

The post-development model was also evaluated with 100-year 24-hour SCS rainfall event with 20% increase for potential climate change impact. **Table 4.4** outlines the maximum discharge flows with the boundary condition, that are less than or equal to the flowrates at the pre-development stage. With the increased rainfall volume, ponding water will reach top of berms (typically at 0.8 m high) and overflow to the next downstream ditches. During overflow, water may surcharge to slightly extend onto property line. The ponding depth, measuring from ditch bottom, and time are shown in **Table 4.4**.

The hydrographs at the three outlets are plotted in **Figure 4.5**, including the pre and post conditions.

Table 4.4: 100-Year 20% Increase Maximum Release Rates with Boundary Condition

Outlet Location	Allowable Discharge Rate with Boundary Condition (m^3/s)	Maximum Discharge Flow (m^3/s)	Pre-Development Discharge Volume (m^3)	Post-Development Discharge Volume (m^3)	Volume % Change	Maximum Ponding Depth (m)	Maximum Ponding Time (min)
Northwest outlet	1.396	1.266	19,370	20,050	3.5%	1.33	236
Central outlet	3.360	1.495	15,590	15,630	0.2%	1.45	334
Southeast outlet	0.668	0.325	3,040	2,400	-21.1%	0.92	47

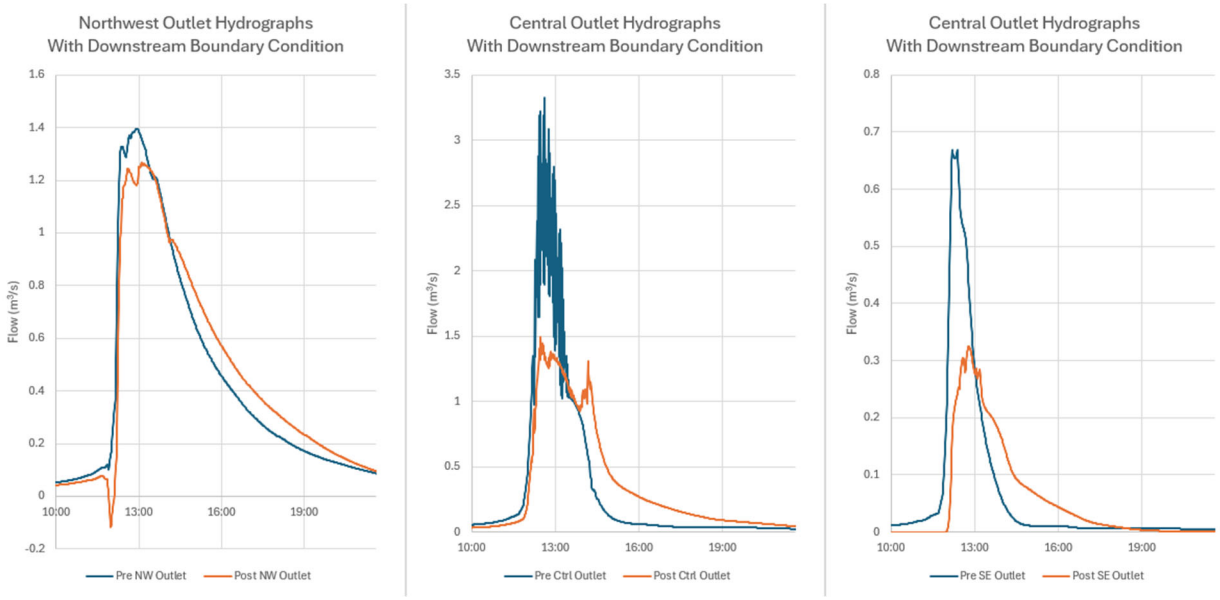

Figure 4.5 100-Year 20% Increase Outlet Hydrographs with Boundary Condition

For the model with free outlet, **Table 4.5** outlines the maximum discharge flows with the climate change impact at the three locations, that are less than or equal to the flowrates at the pre-development stage. With the increased rainfall volume, ponding water will reach top of berms (typically at 0.8 m high) and overflow to the next downstream ditches. During overflow, water may surcharge to slightly extend onto property line. The maximum ponding depth, measuring from ditch bottom, and time duration are shown in **Table 4.5**.

The hydrographs at the three outlets are plotted in **Figure 4.6**, including the pre and post conditions.

Table 4.5 100-Year 20% Increase Maximum Release Rates with Free Outlet

Outlet Location	Allowable Discharge Rate with Free Outlet (m^3/s)	Maximum Discharge Flow (m^3/s)	Pre-Development Discharge Volume (m^3)	Post-Development Discharge Volume (m^3)	Volume % Change	Maximum Ponding Depth (m)	Maximum Ponding Time (min)
Northwest outlet	2.080	2.063	19,510	20,230	3.7%	1.03	65
Central outlet	2.572	2.342	15,630	16,360	4.7%	1.09	108
Southeast outlet	0.668	0.242	3,040	2,230	-26.8%	0.92	47

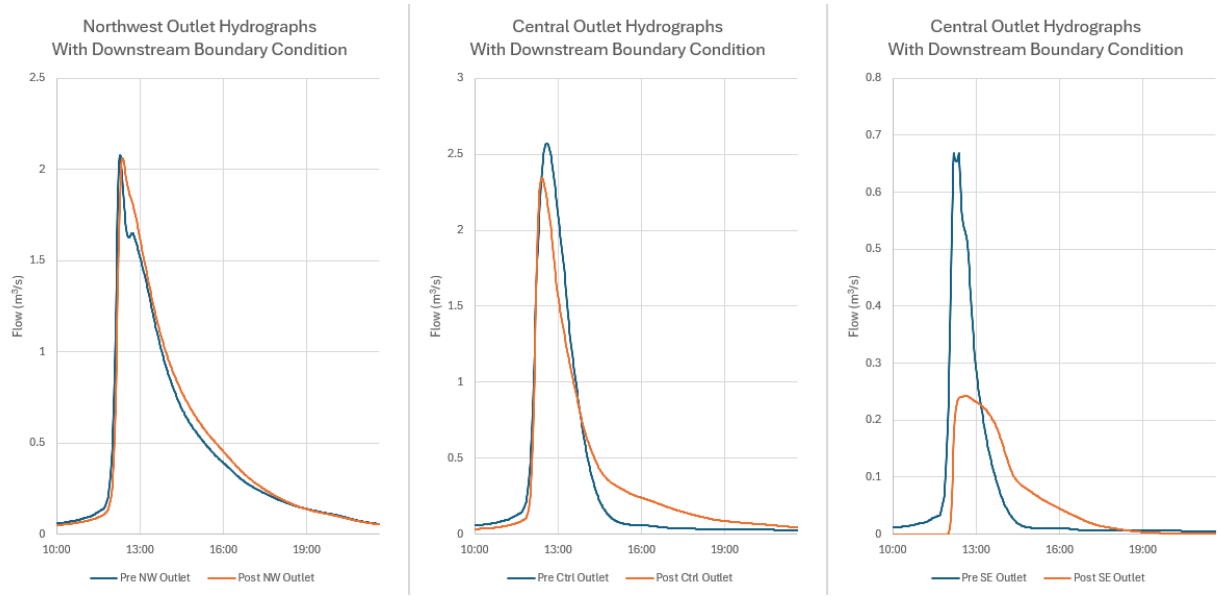

Figure 4.6 100-Year 20% Increase Outlet Hydrographs with Free Outlet

5.0 SITE GRADING AND DRAINAGE

The existing stormwater drainage plan as well as survey gradings of the site are shown in drawing **EX-SD-1**. The proposed site grading plan can be found in drawings **SSGP-1** to **SSGP-3** that is to facilitate stormwater management plan on the site. In general, stormwater runoff will drain toward the proposed roadside and backyard ditches, in the front yard and back yard, respectively.

6.0 UTILITIES

6.1 HYDRO

Hydro overhead power lines exist along Drummond Concession 1 & 2 Roads. It is anticipated that the existing infrastructure will be sufficient to provide a means of power distribution to the site. Consultation with Hydro One is occurring and a composite utility plan is being generating illustrating an overhead pole line located within a 5m easement within private property has been proposed.

6.2 GAS & TELECOMMUNICATIONS

Enbridge gas and Bell communications will provide service to the site. Bell Canada communication lines will be installed overhead along the Hydro One pole lines within the proposed easement. Enbridge Gas lines will be installed within the municipal right of way as per the cross section shown on Dwg DS-1.

7.0 EROSION AND SEDIMENT CONTROL

In order to control erosion and migration of sediment-laden runoff off site during construction, an erosion and sediment control plan will be required for the subdivision. Therefore, an appropriate inspection and maintenance program is necessary that will be employed by the contractor, and will consider the following goals:

- Minimizing erosion and release of sediment from the site
- Proposed channels to be dug well in advance of any other construction activities to ensure the banks are stabilized with vegetation prior to connections and flow conveyance
- Minimizing the risk of environmental damage
- Immediate stabilization and containment of any exposed soil and/or stockpiles
- Frequent inspection of all controls during construction and after significant rainfall events (greater than 13 mm) for sediment accumulation and erosion
- Protecting adjacent areas, watercourses, and other environmentally sensitive receptors
- Immediate repair of all noticeable erosion, with investigation into the cause so implementation of mitigation measures is done to prevent recurrence
- Complying with all applicable environmental regulatory requirements
- Maintenance of the erosion control measures during construction
- Preparation of monitoring reports outlining the condition of erosion control works, their overall performance, and any actions such as repairs, replacement or modification

The ESC Plan should preserve vegetation; establish construction access; control the flow rates; include site specific sediment controls; stabilize soils, channels and outlets; protect slopes and drain inlets; control pollutants and dewatering and finally maintain best management practices at all times.

8.0 APPROVALS

The Rideau Valley Conservation Authority (RVCA) will need to be consulted in order to obtain municipal approval for site development and any permitting for alterations of watercourse. A Requirement for an MECP ECA will also be required for Stormwater Management works for the proposed development.

8.1 REALIGNMENT OF MUNICIPAL DRAINS

The proposed stormwater plan will involve changes to the existing municipal drains and natural watercourse.

The northwest outlet will involve realignment of a section of the Sommerville Branch on-site. The work of realignment of municipal drains must be completed under the specifications of the Drainage Act, and require options such as:

1) Minor Improvement (according to Section 78 (5) of Drainage Act) and compliance with the requirements of Ontario Regulation 500/21 – Section 7 (prescribed activities).

2) Filing a New Petition (Section 4 of Drainage Act) for the realignment of the Sommerville Branch

The central outlet will be first through a 220 m long channel that appears as a private infrastructure or natural watercourse before reaching the Imeson Branch drain. Should that be the case, the channel will not be governed by the Drainage Act and the Township of Drummond / North Elmsley would not be responsible for enforcement and maintenance. Further consideration will be required to secure the central outlet as a legal and sufficient outlet, with options such as

1) A New Petition Drain (Section 4 of Drainage Act) to adjoin the 220 m long channel to the Imeson Branch

2) A Mutual Agreement Drain (Section 2 of Drainage Act) to cooperate with the owner of the next lot to maintain/improve the channel

3) An alternative private drainage easement between the central outlet and start of Imeson Branch

8.2 UPDATE OF ASSESSMENT SCHEDULES

The proposed subdivision of the site into multiple residential lots will require an update of the Assessment Schedule J, initially adopted under the *Engineer's Report on the Drummond-Elmsley Municipal Drain and Branches* (1967/1970). The site (noted as Sommerville, part of Lot 7, Conc. 1) was assessed for 40.5 ha (100 acres), $332.15 of Benefit, $548.92 of Outlet Liability and 1.82% of Owner's Percentage.

An update to the assessment schedules, to reflect the proposed single lot division into multiple lots, should be included as part of the subdivision process, as listed in the Drainage Act under Section 65 or Section 76. The liability costs will be redistributed among the new lots as well the new roads.

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 WATER SUPPLY SERVICING

Water supply will be serviced by drilled wells into the bedrock aquifer for each individual lot. A detailed assessment of water well design requirements for the proposed site was conducted by GEMTEC in the Hydrogeological Investigation & Terrain Analysis Study.

9.2 WASTEWATER SERVICING

The site will be serviced by individual private septic tanks per Ontario Building Code (OBC) requirements. GEMTEC has conducted a Hydrogeological Investigation and Terrain Analysis Study that includes an assessment of septic system construction for the site. The site servicing and grading plans illustrate potential lot development strategy to meet the separation requirement between wells and septic systems. Lot specific design will be required prior to construction.

9.3 STORMWATER MANAGEMENT

The stormwater management plan provided can effectively control on-site runoff and meet the target allowable release rate. Ditches in the drainage system will be served as storage for retention of excess water volume by controlling the expected post-development 100-year storm run-off from the proposed development area to the existing 100-year storm runoff release rate.

The ultimate storm outlets for the site are split between three outlet locations i.e., the northwest outlet (culvert to Drummond Concession 2 Road), central outlet (Imeson Branch ditch) and the southeast outlet (southeast corner channel to Drummond Concession 1 Road). Realignment of municipal drains at northwest outlet and use of central outlet must be completed under the specifications of the Drainage Act. A pre- and post-development models were simulated with 100-year 24-hour SCS rainfall event. Flow discharge will be regulated to meet the allowable discharge rate of the pre-development stage and future ditches in the area will serve as storage to retain the waters during and after the rainfall event. Moreover, the post-development model was also evaluated with potential climate change impact. The drainage system will be able to maintain at discharge rate of the pre-development stage, with water overflowing on top of berms level to the next ditch and slightly extending to property line.

9.4 EROSION AND SEDIMENT CONTROL

An Erosion and Sediment Control plan is required to control erosion and migration of sediment-laden runoff off site during construction. All the elements of the ESC must be followed to adhere to the guidelines and protecting the adjacent areas, watercourses, and other environmentally sensitive areas.

9.5 APPROVALS/PERMITS

The Rideau Valley Conservation Authority (RVCA) will need to be consulted to obtain municipal approval for site development and MECP Environmental Compliance certificate will be required. That includes approval of municipal drain realignment and update of assessment schedules.

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APPENDICES

Appendix A Hydrological Parameters and SCS Method

A.1 HYDROLOGICAL PARAMETERS

HYDROLOGICAL PARAMETERS

1. Inlet Time / Time of Concentration

- an Inlet time of 10 minutes has been used for all land uses and lot grading configurations.

2. Runoff Coefficent

- the runoff coefficient (C) as applied in the Rational Method accounts for the process of hydrologic abstractions and runoff diffusion.
- the hydrologic abstractions include interception, infiltration, surface storage, evaporation, and evapotranspiration.

3. Imperviousness Ratio

- The imperviousness ratio (imp) provides the percentage of impervious area in relation to the total area.
- The following equation provides the basis for determining a blended runoff coefficient when a basin consists of a mixture of impervious and pervious areas:

$$\text{imp} = \frac{\text{impervious area}}{\text{total area}}$$

$$C = imp \times \left[C_{\text{impervious}} \right] + \frac{\text{perviousarea}}{\text{total area}} \times \left[C_{\text{pervious}} \right]$$

$$C = imp \times \left[C_{\text{impervious}} \right] + (0 - \text{imp}) \times \left[C_{\text{pervious}} \right]$$

4. Depression Storage

- If the intensity of the rainfall reaching the ground exceeds the ground's infiltration capacity, the excess will begin to fill the small depressions on the ground surface. For impervious surfaces, this will occur almost immediately. Once these tiny depressions have been filled, overland flow will start and will contribute to runoff.
- In the Ottawa Area, typical default values for depression storage are 1.57mm for impervious areas and 4.67 mm for pervious grassed areas.

5. Infiltration

- The Horton Method provides a hydrologic based approach to calculating infiltration rates and is commonly applied in urban drainage models. The Horton Method is described in this section since it is the most widely used when computer modeling urban basins.

- The Horton infiltration equation defines the infiltration capacity of the soil in time based on a decay function ranging from a initial maximum infiltration rate that changes to a lower limiting rate as the storm progresses.

$f = f_c + (f_o - f_c)e^{-k(t)}$

where: $f =$ infiltration rate at time t (mm/hr)

$f_c =$ final infiltration rate (mm/hr)

$f_o =$ initial infiltration rate (mm/hr)

$k =$ decay coefficient (t^{-1})

Typically in the Ottawa area the default values are:

$f_c =$ 13.2 mm/hr

$f_o =$ 76.2 mm/hr

$k =$ 0.00115 s^{-1}

A.2 SCS METHOD – CN VALUES AND RUNOFF COEFFICIENT

Runoff Coefficients for Various Soil Conditions

Topography and Vegetation	Soil Texture		
	Open Sandy Loam	Clay and Silt Loam	Tight Clay
Woodland			
Flat 0-5 % Slope	0.10	0.30	0.40
Rolling 5-10 % Slope	0.25	0.35	0.50
Hilly 10-30 % Slope	0.30	0.50	0.60
Pasture			
Flat 0-5 % Slope	0.10	0.30	0.40
Rolling 5-10 % Slope	0.16	0.36	0.55
Hilly 10-30 % Slope	0.22	0.42	0.60
Cultivated			
Flat 0-5 % Slope	0.30	0.50	0.60
Rolling 5-10 % Slope	0.40	0.60	0.70
Hilly 10-30 % Slope	0.53	0.72	0.82

- For paved areas and roofs use: 0.9, gravel surfaces: 0.25 to 0.7 and road shoulders: 0.7
- For 25-year storms add 10%, 50 year storms add 20 % and 100 year storms add 25 % to C value

CN Values for Various Soil Groups

Cover Type and Hydrologic Condition	Hydrologic Soil Group			
	A	B	C	D
Open space: (lawns, parks, golf courses, cemeteries)				
Poor condition (grass cover < 50%)	68	79	86	89
Fair condition (grass cover 50% to 75%)	49	69	79	84
Good condition (grass cover >75%)	39	61	74	80
Impervious areas:				
Paved parking lots, roofs, driveways, etc.	98	98	98	98
(excluding right-of-way)				
Streets and roads:				
Paved; curbs and storm sewers excluding ROW	98	98	98	98
Paved; open ditches (including right-of-way)	83	89	92	93
Gravel (including right-of-way)	76	85	89	91
Dirt (including right-of-way)	72	82	87	89

Source: Hydrology, Engineering Handbook, USDA, Soil Conservation Services (1968)
NOTE: Assume AMC II and $I_a = 0.2S$

Appendix B Township Correspondence

From: Clint Bron <clbron@dnetownship.ca>
Sent: Friday, May 30, 2025 1:18 PM
To: Kilborn, Kris <kris.kilborn@stantec.com>
Cc: Brady McGlade <bmcglade@dnetownship.ca>; Laura Code <lcode@dnetownship.ca>
Subject: RE: FW: Request for Review - Sommerville Branch Realignment - Drummond/North Elmsley Township

Hello Kris,

The Township of Drummond/ North Elmsley is not aware of any flooding or damage due to flooding in the areas mentioned. Sommerville Branch, Imeson Branch and Concession 1 roadside ditch. I hope this helps.

Thank you,

Clint Bron

Public Works Manager

Township of Drummond/ North Elmsley

310 Port Elmsley Rd.

Perth, Ontario K7H 3C7

Phone: (613) 267-6500 ext. 250

clbron@dnetownship.ca

From: Brady McGlade <bmcglade@dnetownship.ca>
Sent: Tuesday, May 27, 2025 11:15 AM
To: Laura Code <lcode@dnetownship.ca>; Clint Bron <clbron@dnetownship.ca>

Subject: Fw: FW: Request for Review - Sommerville Branch Realignment - Drummond/North Elmsley Township

Perhaps we can discuss or PW can respond regarding questions below.

Thank you,

Brady

From: Kilborn, Kris <kris.kilborn@stantec.com>
Sent: May 27, 2025 9:45 AM
To: Brady McGlade <bmcglade@dnetownship.ca>; Laura Code <lcode@dnetownship.ca>
Cc: Wilburt Crain <wilburt@crainsconstruction.com>; Monica Shade <monica@shadegroup.ca>
Subject: RE: FW: Request for Review - Sommerville Branch Realignment - Drummond/North Elmsley Township

Good morning Brady and hope all is well.

We are in the final stages of getting the Municipal Drain information to Monica at the Shade group for the Burns Farm Subdivision.

In speaking with Monica on Monday we were hoping that you could provide some information on the existing Imerson Municipal Drain, Sommerville Drain and Drummond Concession 1 roadside ditch.

Has there been any known flooding that the Township is aware of or backups or damage to existing properties that the Township could confirm in any of the drains or roadside ditches outlined above.

If you could review and let me know at your earliest possible convenience it would be appreciated.

I have attached a sketch of the areas outlined above.

Please don't hesitate to call if you have any questions

Sincerely

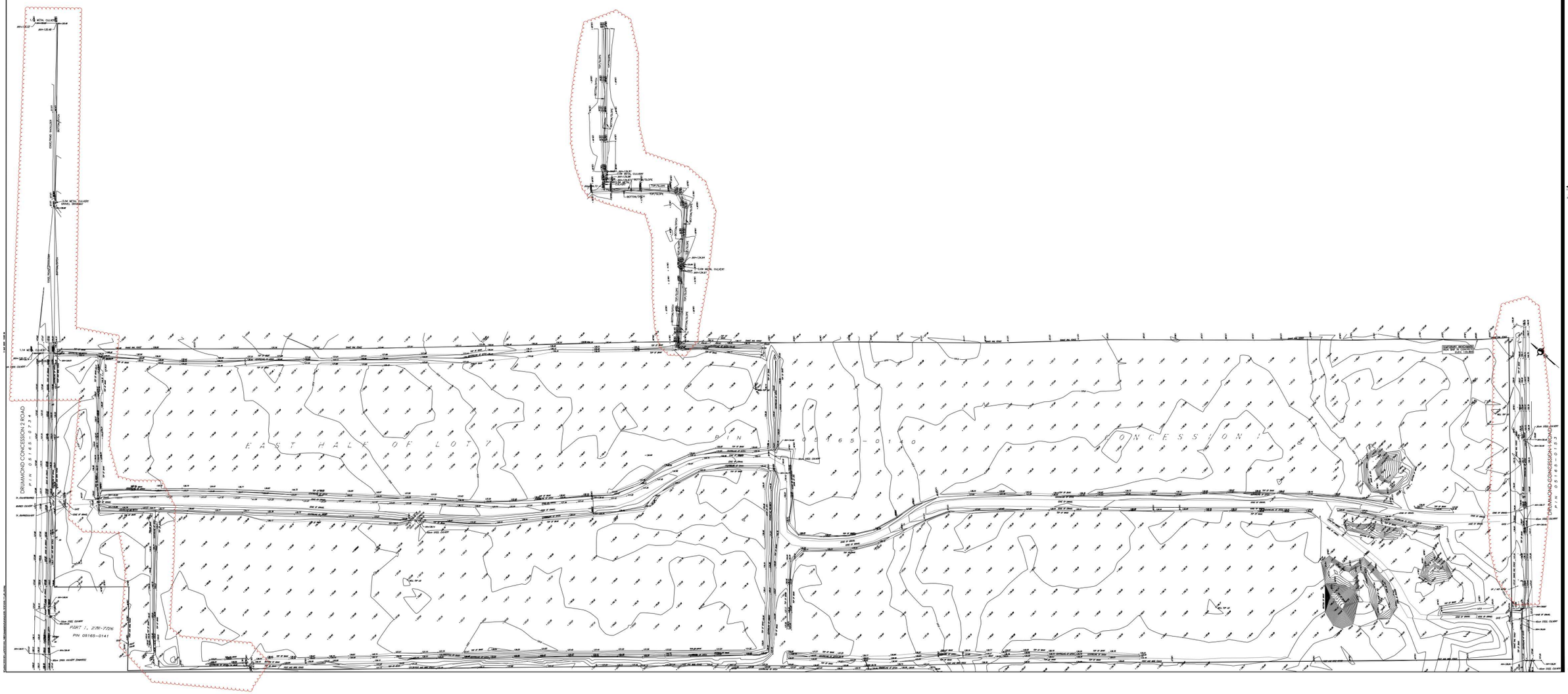
Kris Kilborn

Principal, Community Development

Business Center Practice Lead

Mobile: 613 297-0571
Fax: 613 722-2799
kris.kilborn@stantec.com

Stantec
300 - 1331 Clyde Avenue
Ottawa ON K2C 3G4



Stantec

Stantec Geomatics Ltd.
400-1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

TOPOGRAPHIC SKETCH OF
EAST HALF OF LOT 7
CONCESSION 1
(GEOGRAPHIC TOWNSHIP OF DRUMMOND)

MUNICIPALITY OF THE TOWNSHIP OF DRUMMOND/NORTH ELMSLEY

COUNTY OF LANARK

Scale 1:750
20 0 20 40 METRES

Stantec Geomatics Ltd.

METRIC CONVERSION
DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

VERTICAL DATUM NOTE
ELEVATIONS ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928:1978) AND ARE DERIVED FROM BENCHMARK MONUMENT No. 01019806705, HAVING A PUBLISHED ELEVATION OF 139.940 METRES.

HORIZONTAL DATUM NOTE
PROJECTION: UNIVERSAL TRANSVERSE MERCATOR
(MTM, ZONE 9, CM76°30'W)
DATUM: NAD 83 (CSRS) (2010.0)

DISTANCES ON THIS PLAN MAY BE CONVERTED TO GROUND DISTANCES BY DIVIDING BY A COMBINED SCALE FACTOR OF 0.99990545.

LEGEND

■	DENOTES	FOUND MONUMENTS
□	"	SET MONUMENTS
IB	"	IRON BAR
IBø	"	ROUND IRON BAR
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
CC	"	CUT CROSS
CP	"	CONCRETE PIN
WIT	"	WITNESS
PIN	"	PROPERTY IDENTIFICATION NUMBER
M/MEAS	"	MEASURED
PROP	"	PROPORTIONED
OU	"	ORIGIN UNKNOWN
STANTEC	"	STANTEC GEOMATICS LTD.
◄ AN	"	ANCHOR
○ UP	"	UTILITY POLE

BUSHLINE

SURVEYOR'S CERTIFICATE
I CERTIFY THAT :
1. THE SURVEY WAS COMPLETED ON THE 8th DAY OF APRIL, 2021.

April 2, 2025
DATE

Francis Lau
FRANCIS LAU
ONTARIO LAND SURVEYOR

DRAWN: TMT CHECKED: FL PM: FL FIELD: CA/AW PROJECT No.: 161600000-111

APPENDIX D

CONSTRUCTION SPECIFICATIONS

Please refer to the following construction specifications and instructions for the proposed minor improvement works.

Earth Moving Operations

Earth moving operations shall be considered all works associated with the excavation of the new channel and backfill of the existing channel, as per the supplied engineered plans enclosed in Appendix B of this Engineer's Report.

Excavation of New Ditch

The new bottom of the ditch shall be excavated to an even grade so that no water may lie stagnant therein.

The new channel shall be excavated in conformance with the specifications outlined herein and in conformance with the engineered plans included in Appendix B of the Engineer's Report.

Design Criteria	Specification
Side Slopes	2.5 Horizontal to 1 Vertical
Grade	0.07%
Bottom Width	2m

The excavated material shall be used to backfill the existing channel alignment; but only after the entire length of the new channel has been constructed, so as not to block flow within the existing channel. This order of construction may be altered only through written approval from the applicable permitting agencies.

Works shall be completed in low or no flow conditions. Works shall be completed as efficiently as possible; works should not be left partially started and unattended for long periods of time. It is expected that the duration of the contract shall be no more than 2 week from start-to-finish, unless otherwise authorized by the Township's Drainage Superintendent, the applicable permitting agencies or the engineer.

Works shall be completed in conformance with the permit specifications from the applicable approval agencies. Permits received have been enclosed with **Appendix F** and are to be read in full by the contractor prior to commencing construction. Copies of the permits are to be kept on-site during construction.

Backfill of Existing Ditch

The contractor shall fill in the abandoned ditch throughout its entire length from shoulder to shoulder with the excavated material taken from the drain. In some cases, this work may entail transportation of the excavated material from one end of the field to the other by trucks or other equipment. Should additional fill material be required, material used for fill shall be appropriate clean fill.

Backfill of the existing ditch shall not occur until after the realignment construction is complete so as not to cause any blockages of the existing channel.

Seeding

The newly excavated channel is to be seeded as soon as possible after excavation. Seed may be hand spread or hydroseeded.

Seed mix shall be in conformance with OPSS.Muni 804: Crown Vetch Mix or Lowland Mix. Should the contractor wish to deviate from the specifications, it will need to be demonstrated that the proposed seed mix is appropriate for the intended application.

Seed shall not be placed from November 1 through April 30 of any calendar year. Should excavation occur between November 1 and April 30, seeding shall be done as soon as possible after April 30, or as directed by the Township's Drainage Superintendent or the Drainage Engineer.

Temporary Erosion and Sediment Control Measures

Temporary erosion and sediment control measures shall include the erection of silt fencing around the base of excavated stockpiles. Connection of the realignment to the existing channel shall not occur until after the entire realignment has been excavated. Additional temporary erosion and sediment control measures shall include the placement of strawbale check dams within the work area.

Additional temporary measures may also be required to the satisfaction of the permitting agencies or at the direction of the engineer or Drainage Superintendent. It shall be the contractor's responsibility to maintain these measures after every rainfall event (>10mm) and as required throughout construction to ensure they are operating as per standard industry practice. On-going maintenance of the temporary erosion and sediment control measures is to be continued until such a time as sufficient vegetation has established to stabilize the banks and bottom of the system; to the satisfaction of the engineer, permitting agencies or Drainage Superintendent. Eventual removal and proper disposal of the erosion and sediment control measures, following site stabilization, shall be considered part of the contract. The Erosion Control Plan prepared by Stantec for the subdivision has been included in Appendix B.

APPENDIX E

RESOLUTION + BY-LAW

REPORT OF THE COMMITTEE OF THE WHOLE
REPORT #1 CoW – February 11, 2025

To the Members of Council

We, the Members of your Committee of the Whole beg leave to report Section "A" as information and Section "B" as follows:

"A"1. **Municipal Drain Improvements – Sommerville Branch.**

"B"1. **THAT,** Council accepts the Minor Improvement request to realign part of the Sommerville Branch of the Drummond-Elmsley Drain under section 78 (5) of the Drainage Act; and

FURTHERMORE THAT, Shade Group Inc. be appointed as the Engineer on record to prepare a report that addresses the Minor Improvement of the Sommerville Branch of the Drummond-Elmsley Drain.

All of which is respectfully submitted by:

Paul Coutts

Councillor Paul Coutts

Direction by the Head of council:
Council may remove items in Section "B" to be voted on separately prior to introducing a motion to accept the report in its entirety.

Resolution #: 25-15

Moved and Seconded by:

Paul Coutts
Moved By

Seconded By

BE IT RESOLVED THAT, Report #1 CoW – February 11, 2025 is hereby adopted this 25th day of February, 2025.

Steve Fournier, Reeve

APPENDIX F

AGENCY CONSULTATION

Development Activity Permit —

O. Reg. 41/24, S. 28 *Conservation Authorities Act* 1990, as Amended.

3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504
F 613-692-0831 | www.rvca.ca

Date: June 24, 2025
File: RV1-1025
Contact: eric.lalande@rvca.ca; 613-692-3571 x1137

1394706 Ontario Inc.
1098 2nd Conc North Sherbrook
McDonalds Corners, ON K0G 1M0

Permit for: Interference with a Watercourse under Section 28 of the Conservation Authorities Act for a watercourse realignment, at 1660 Drummond Concession 1, Lot 7, Concession 1, former Township of Drummond North Elmsley, Lanark County.
Roll Number: 919010033000000

Dear Mr. Crain,

The Rideau Valley Conservation Authority has reviewed the application and understands the proposal to be for:

a) **Realignment of a portion of a watercourse (Sommerville Branch Municipal Drain**
b) **A crossing of a proposed subdivision road.**

This proposal was reviewed under Ontario Regulation 41/24, the "Prohibited Activities, Exemptions and Permits" regulation and the RVCA's Development Policies, specifically Section 3.6.2 Watercourse Development Activity Policies.

The proposal is not expected to impact the control of flooding, erosion, dynamic beaches or unstable soil or bedrock providing conditions are followed.

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:
    a. Servicing and Stormwater Management Report: Burn's Farm Subdivision completed by Stantec, , dated June 9, 2025, Project #160401646
    b. Site and Servicing Grading Plan, prepared by Stantec, Dated June 10, 2025, Project Number 160401646, Drawing Number SSGP-1 (revision 2).

2. The supervising engineer shall provide in writing a certification to the Conservation Authority within 90 days of project completion verifying the proposed development is in compliance with the approved plans (i.e., building elevations, structural components related to floodproofing requirements).

3. A finished grading plan prepared by a Professional Engineer, Certified Engineering Technologist, or Ontario Land Surveyor shall be submitted prior to completion of the work to confirm the channel is constructed on the property prior to connection to the natural watercourse.

4. Any changes to the proposed work must be submitted in writing to the Conservation Authority for review and approval prior to implementation. No conditions are subject to change/revision by the on-site contractor(s).

5. All excavated material not utilized for the purposes of the approved development (if appropriate material) must be removed from the property to a suitable disposal site outside of any 1:100-year floodplain, wetland, and regulated area.

6. No grade changes are permitted other than those explicitly permitted by approved drawings identified in Condition 1.

7. Any on-site drainage works should not disrupt natural drainage patterns. Other site specific drainage shall be in accordance with the approved stormwater management report.

8. To mitigate erosion or unstable soil, the constructed banks of the new install a vegetated buffer consisting of a mixture of native vegetation and non-manicured grasses is to be retained in a natural state and vegetation removal is limited to what is necessary to complete the work. Any vegetation that is removed shall be re-established.

9. Any disturbed areas must be stabilized by sodding or seeding and mulching to prevent soil erosion and to help seeds germinate. If there is insufficient time (at least four weeks) in the growing season remaining for the seeds to germinate, the site should be stabilized (i.e., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.

10. Sediment control will be established to ensure no sediment migration from the site. All grubbing and equipment storage and operation will be limited to the development envelope. All areas located outside the development envelope will be left untouched. No fill including topsoil, sand, etc. will be placed outside the development envelope for any reason. No equipment will be permitted to disturb area outside the development envelope.

11. 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. In-water work will require the use of a properly secured silt curtain. Soil type, slope of land, drainage area, weather, predicted sediment load and deposition should be considered when selecting the type of sediment/erosion control.

12. The applicant must notify the RVCA two business days prior to project commencement.

13. 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 permit.

14. A new application must be submitted should any work as specified in this letter be ongoing or planned for or after two (2) years from the date of issuance.

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. 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 Drainage Act, the Endangered Species Act, the Ontario Water Resources Act, Environmental Protection Act, Public Lands Act, or the Fisheries Act.

This permit is not transferable to subsequent property owners.

Should you have any questions regarding this permit, please contact Eric Lalande, Senior Planner at the contact information above.

Glen McDonald MCIP, RPP
Conservation Authority S. 28 Signing delegate
O. Reg. 41/24

Owner's Acknowledgement of Conditions

- Pursuant to the provisions of S. 28.1(5) 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. 30.5(1) of the Act.
- Commencement of the work and/or a signed and dated copy of this letter indicates acknowledgement and acceptance of the conditions of the RVCA's approval letter concerning the application and the undertaking and scope of the project.
- **Where a permit has been issued pursuant to the *Conservation Authorities Act* (R.S.O. 1990, as amended.) the person to whom it is issued shall have the permit or a copy of it posted at all times throughout the duration of the project in a conspicuous place on the property in respect of which the permit was issued.**

Name: _____(print)

Signed: _____ Date: _____

Fisheries and Oceans Canada
Pêches et Océans Canada

Ontario and Prairie Region
Fish and Fish Habitat Protection Program
867 Lakeshore Rd.
Burlington, ON
L7S 1A1

Région de l'Ontario et des Prairies
Programme de protection du poisson et de son habitat
867 chemin Lakeshore
Burlington, ON
L7S 1A1

June 27, 2025

Our file *Notre référence*
25-HCAA-01005

Monica Shade
Shade Group Inc.
4625 March Road
Almonte, ON K0A 1A0

Subject: Drain Realignment, Drummond-Elmsley Municipal Drain, Township of Drummond/North Elmsley (25-HCAA-01005) – Implementation of Measures to Avoid and Mitigate the Potential for Prohibited Effects to Fish and Fish Habitat

Dear Monica Shade:

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on May 23, 2025. We understand that you propose to:

- Abandon and fill approximately 420m of the Sommerville Branch of the Drummond-Elmsley Municipal Drain (footprint below ordinary high water mark of <1300m^2);
- Excavate and construct a new channel (approximately 335m), tying in to the existing alignment of the Sommerville Branch of the Drummond-Elmsley Municipal Drain upstream and downstream;
- Install a crossing on the new alignment, consisting of two 0.9 x 16m culverts;
- Work in isolation of flowing water to prevent sedimentation of the watercourse; and,
- Stabilize and revegetate disturbed banks.

Our review considered the following information:

- Request for Review form and associated documents submitted on May 23, 2025;
- Email correspondence with Monica Shade on June 25, 2025, confirming additional project details;

Your proposal has been reviewed to determine whether it is likely to result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*; and,
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*.

The aforementioned impacts are prohibited unless authorized under their respective legislation and regulations.

To avoid and mitigate the potential for prohibited effects to fish and fish habitat (as listed above), we recommend implementing the measures listed below:

- Limit the duration of in-water works, undertakings and activities;
- Capture fish trapped within an isolated or enclosed area and relocate them to the same watercourse or water body;
    - Dewater gradually to reduce the potential for stranding fish;
    - Capture and relocate any fish as per applicable permits;
- Screen intake pipes during all phases of the project;
    - Use interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater;
- Maintain hydrological conditions (i.e., flow) for bypass channels during all phases of the project;
- Maintain a functioning vegetated riparian zone between the project site and the ordinary high water mark;
    - Limit vegetation removal, pruning and grubbing to the area required for accessing the project site;
    - Reinstate stream banks and slopes of the affected riparian zone;
    - Re-vegetate the affected riparian zone with native species suitable for the project site;
- Limit operation of vehicles and machinery to the area required to carry out the project;
- Develop and implement an erosion and sediment control plan for all phases of the project;
    - Conduct all operations in isolation of open or flowing water;
        - Follow Interim standard for in-water site isolation;
    - Regularly observe the watercourse or water body for signs of suspended sediment during all phases of the project and take corrective action when and where required;
    - Inspect the erosion and sediment controls regularly during all phases of the project;
    - Dispose of, and stabilize, all excavated material above the ordinary high water mark or top of bank of nearby watercourses or water bodies;

  - Keep the erosion and sediment controls in place until all disturbed ground has been stabilized and suspended sediments have settled;
  - Operate machinery on land, from barges or on ice during all phases of the project;
- Develop a plan to prevent deleterious substances from entering a watercourse or water body;
  - Maintain all machinery on site in a clean condition and free of fluid leaks;
  - Wash, refuel and service machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body;
  - Store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body;
  - Implement a response plan immediately in the event of a spill of a deleterious substance (including sediment);
  - Stop all works, undertakings and activities;
  - Report spill immediately when a deleterious substance enters a watercourse or water body;
  - Contain water with deleterious substances;
  - Clean-up and dispose of water contaminated with deleterious substances;
  - Use an emergency spill kit;
- Aquatic invasive species are introduced and spread through transporting water, sands and sediments and using contaminated construction equipment. To prevent the spread of aquatic invasive species during construction in aquatic environments:
  - Ensure all equipment arrives on site clean and free of invasive species;
  - Clean, drain and dry any equipment used in the water; and,
  - Never move organisms or water from one body of water to another.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal is not likely to result in the contravention of the above mentioned prohibitions and requirements.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (Projects near water (dfo-mpo.gc.ca)) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to remain in compliance with the *Fisheries Act*, the *Species at Risk Act* and the *Aquatic Invasive Species Regulations.*

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of fish habitat. Such notifications should be directed to DFO.OPHabitat.MPO@dfo-mpo.gc.ca or 1-855-852-8320.

We recommend that you notify this office at least 10 days before starting your project and that a copy of this letter be kept on site while the work is in progress. Send your notification to the DFO 10 day notification mailbox: DFO.OP.10DayNotification-Notification10Jours.OP.MPO@dfo-mpo.gc.ca. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Deborah Silver at Deborah.Silver@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

Deborah Silver
Biologist, Triage and Planning
Fish and Fish Habitat Protection Program

COPY LIST:
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