

**WINTERS DRAIN 2023**  
**Municipality of Strathroy-Caradoc**



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London, Ontario  
October 16, 2023

## **WINTERS DRAIN 2023**

### **Municipality of Strathroy-Caradoc**

To the Mayor and Council of  
The Municipality of Strathroy-Caradoc

Mayor and Council:

We are pleased to present our report on the reconstruction of parts of the Winters Municipal Drain serving parts of Lots 15 and 16, Concession 3 in the Municipality of Strathroy-Caradoc.

#### **AUTHORIZATION**

This report was prepared pursuant to Sections 4 and 78 of the Drainage Act in accordance with instructions received from your Municipality with respect to a motion of Council.

The work on the Main Drain was initiated by a request signed by one of the affected landowners. The Winters Drain Branch 'A' was initiated by a petition signed by the owner whose lands contain over 60 percent of the area requiring drainage.

#### **DRAINAGE AREA**

The total watershed area as described above contains approximately 39.6 hectares. The area requiring drainage for Branch 'A' is described as part of the north half of Lot 16, Concession 3.

#### **HISTORY**

The Winters Drain was originally constructed pursuant to a report submitted by A.S. Code, O.L.S. dated August 10, 1927.

It was subsequently reconstructed pursuant to a report submitted by A. J. DeVos, P. Eng. dated May 15, 1967 that replaced and extended the existing drain with 200mm to 450mm tile.

The drain extends southeast from its outlet in the McEvoy Drain just west of the centre of Lot 15, Concession 4. It continues south and east, crossing the Canadian Pacific Railway R.O.W. into the west half of Lot 15. It continues in this general direction crossing under Falconbridge Drive into Lot 15, Concession 3. It turns east and north running parallel to the road allowance before continuing southeast in the west half of Lot 16, Concession 3. Then continuing until its end in the northwest part of Lot 16, Concession 3.



## EXISTING DRAINAGE CONDITIONS

At a site meeting held with respect to the project and through later discussions the owners reported the following:

- that the drain is in poor working condition and has required frequent maintenance
- that the existing tile is close to a forested area and is plugged with roots
- that due to the installation of a new gasmain on Falconbridge Drive the tile had been damaged
- that the drain upstream of Falconbridge Drive needs to be replaced

A field investigation and survey were completed. Upon reviewing our findings we note the following:

- that the tile is in poor shape and is heavily plugged with roots

Preliminary design, cost estimates, and assessments were prepared and an informal public meeting was held to review the findings and preliminary proposals. Further input and requests were provided by the affected owners at that time and at later dates.

- an additional request was signed to extend the Branch 'A' Drain into the northeast part of Lot 16, Concession 3

## DESIGN CRITERIA AND CONSIDERATIONS

The Drainage Coefficient method contained in the "DRAINAGE GUIDE FOR ONTARIO", Publication 29 by the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) is typically used to design municipal drains. The Drainage Coefficient defines a depth of water that can be removed in a 24-hour period and is expressed in millimetres per 24 hours. The coefficient used to design this drain with respect to capacity was 21mm per 24 hrs.

It should be noted that no formal soil investigation has been made, however the owners reported sandy soil conditions.

The proposed design and report have been generally completed using the "GUIDE FOR ENGINEERS WORKING UNDER THE DRAINAGE ACT IN ONTARIO" OMAFRA Publication 852.

## RECOMMENDATIONS

We are therefore recommending the following:

- that the existing Winters Drain be replaced with a new 200mm to 375mm HDPE pipe, including related appurtenances, and that the existing tile be destroyed where possible
- that a new closed drain, to be known as the Winters Drain Branch 'A' and consisting of 200mm HDPE pipe, including related appurtenances, be constructed to provide a proper surface and sub-surface drainage outlet



## RECOMMENDATIONS (cont'd)

- that catchbasins be installed at various locations on the proposed drains to allow direct surface water entry into the tiles and thereby reduce surface flow and erosion

It is recommended that basement, cellar, or crawlspace drains be directed to a sump and then discharged onto the ground surface well away from foundations and septic systems or should owners desire to connect these drains to the new outlet drain, then it is suggested that they not be directly connected to the drains. Rather it is suggested that such a connection be made by an indirect method such as by sump pump with an open-air connection such as a mini-catchbasin, crushed stone filled excavation connected to a storm P.D.C. and should include a check valve and be piped above foundation level. It is noted that there is still a risk of flooding even with indirect methods of connection and any/all responsibility shall be borne by the owner. Downspouts from eavestroughs should be directed onto the ground surface well away from foundations and septic systems and are **not** permitted to be connected to the Municipal Drain.

## ENVIRONMENTAL CONSIDERATIONS AND MITIGATION MEASURES

Based on the information available, there are no significant wetlands, sensitive areas, or endangered species along the route of the drains. The proposed construction of the Winters Drain 2023 includes surface inlets which greatly help reduce the overland surface flows and any subsequent erosion.

## SUMMARY OF PROPOSED WORK

The proposed work consists of approximately 560 lineal meters of 200mm to 375mm plastic field tile and HDPE sewer pipe, including related appurtenances.

## SCHEDULES

Three schedules are attached hereto and form part of this report, being Schedule 'A' - Allowances, Schedule 'B' - Cost Estimate, and Schedule 'C' - Assessment for Construction.

Schedule 'A' - Allowances. In accordance with Sections 29 and 30 of the Drainage Act, allowances are provided for right-of-way and damages to lands and crops along the route of the drain as defined below.

Schedule 'B' - Cost Estimate. This schedule provides for a detailed cost estimate of the proposed work which is in the amount of \$110,400.00. This estimate includes engineering and administrative costs associated with this project.

Schedule 'C' - Assessment for Construction. This schedule outlines the distribution of the total estimated cost of construction over the roads and lands which are involved.

Drawing No. 1, Job No. 222065 and specifications form part of this report. They show and describe in detail the location and extent of the work to be done and the lands which are affected.

## ALLOWANCES

**RIGHT-OF-WAY:** Section 29 of the Drainage Act provides for an allowance to the owners whose land must be used for the construction, repair, or future maintenance of a drainage works.

For tile drains where the owners will be able to continue to use the land, the allowance provides for the right to enter upon such lands, and at various times for the purpose of inspecting such drain, removing obstructions, and making repairs. Also, the allowance provides for the restrictions imposed on those lands to protect the right-of-way from obstruction or derogation. The amounts granted for right-of-way on tile drains is based on a percentage of the value of the land designated for future maintenance. Therefore, the amounts granted are based on \$9,000.00/ha. This value is multiplied by the hectares derived from the width granted for future maintenance and the applicable lengths. No right-of-way was previously provided for any of the existing drains being replaced or twinned.

**DAMAGES:** Section 30 of the Drainage Act provides for the compensation to landowners along the drain for damages to lands and crops caused by the construction of the drain. The amount granted is based on \$5,500.00/ha for closed drains installed with a wheel machine. This base rate is multiplied by the hectares derived from the working widths shown on the plans and the applicable lengths.

## ASSESSMENT DEFINITIONS

In accordance with the Drainage Act, lands that make use of a drainage works are liable for assessment for part of the cost of constructing and maintaining the system. These assessments are known as benefit, outlet liability and special benefit as set out under Sections 22 and 23 of the Act.

### SECTION 22

**Benefit** as defined in the Drainage Act means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair, or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface water, or any other advantages relating to the betterment of lands, roads, buildings, or other structures.

### SECTION 23

**Outlet** liability is assessed to lands or roads that may make use of a drainage works as an outlet either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse.

In addition, a Public Utility or Road Authority shall be assessed for and pay all the increased cost to a drainage works due to the construction and operation of the Public Utility or Road Authority. This may be shown as either benefit or special assessment.

**ASSESSMENT**

A modified "Todgham Method" is typically used to calculate the assessments shown on Schedule 'C'- Assessment for Construction. This entails breaking down the costs of the drain into sections along its route where warranted and then extracting Special Assessments and Special Benefit Assessments from each section.

The remainder is then separated into Benefit and Outlet Assessments. The Benefit is distributed to those properties receiving benefit as defined under "Assessment Definitions", with such properties usually being located along or close to the route of the drain. The Outlet is distributed to all properties within the watershed area of that section on an adjusted basis. The areas are adjusted for location along that section and relative run-off rates. Due to their different relative run-off rates forested lands are assessed for outlet at lower rates than cleared lands. Also, roads and residential properties are assessed for outlet at higher rates than cleared farmlands.

The actual cost of the work involving this report, with the exception of Special Assessments, is to be assessed on a pro-rata basis against the lands and roads liable for assessment for benefit and outlet as shown in detail below and on Schedule 'C' - Assessment for Construction. The Special Assessments shall be levied as noted in the Section "Special Assessment".

The cost to restore water supply for any well determined to be impacted by any construction covered under this report shall become part of this report and be pro-rated with the costs provided for in this report.

**SPECIAL ASSESSMENT**

In accordance with Section 26 of the Drainage Act, Special Assessments have been made against the Municipality of Strathroy-Caradoc being the increased cost to the drainage work for installing a new 375mm diameter sub-surface sewer pipe and 600mm diameter surface culvert across their road allowance on the Main Drain, due to the construction and operation of Falconbridge Drive. The Special Assessments shall be made up of the actual cost of this work and both the final and estimated values of the Special Assessment are to be calculated as follows:

Crossing	Cost of Work	Less Equivalent Drain Cost (Fixed)	Plus Administration Cost	Plus Interest, Contract Security, & Net H.S.T.	Special Assessment
375mm sub-surface and 600mm surface pipe	\$25,100.00	\$1,220.00	\$5,480.00	\$1,610.00	\$30,970.00

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against Enbridge Gas for the cost of locating and determining the elevation of their gas mains on the Falconbridge Drive road allowance, being the increased cost to the drainage works due to the construction and operation of their utilities. The Special Assessment shall be as shown on Schedule 'C'.

If any additional work is required to the drainage works due to the existence of buried utilities such as gas/water/oil pipelines, communications cables, etc. or if any of the utilities require relocation or repair, then, the extra costs incurred shall be borne by the utility involved in accordance with the provisions of Section 26 of the Drainage Act.

## GRANTS

In accordance with the provisions of Section 85 of the Drainage Act, a grant **may** be available for assessments against privately owned parcels of land which are used for agricultural purposes and eligible for the Farm Property Class Tax rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of completion of this drain. The Municipality will then deduct the grant from the assessments prior to collecting the final assessments.

## MAINTENANCE

Upon completion of construction, all owners are hereby made aware of Sections 80 and 82 of the Drainage Act which forbid the obstruction of or damage or injury to a municipal drain. This includes tree roots penetrating tiles from trees planted by owners or naturally occurring. For perforated tiles through bush areas, we recommend the owner maintain the cleared space by either mowing (hay) or growing a crop over it. If no maintenance is completed over several years, we recommend the Municipality complete the mowing/clearing as part of maintenance at the discretion of the Drainage Superintendent.

After completion, the entire Winters Drain shall be maintained by the Municipality of Strathroy-Caradoc at the expense of all upstream lands and roads assessed in Schedule 'C' - Assessment for Construction and in the same relative proportions until such time as the assessment is changed under the Drainage Act.

Special Assessments shall **not** be pro-rated for future maintenance purposes but shall be applied as an actual cost special if part of the maintenance. Special Benefit Assessments shall only be pro-rated for future maintenance purposes, if the work assessed for special benefit is part of the maintenance.

Repairs or improvements to any road culvert or bridge or sub-surface road crossing shall be the responsibility of the applicable Road Authority, entirely at their cost.

Respectfully submitted,

SPRIET ASSOCIATES LONDON LIMITED

M.P. DeVos, P. Eng.



MPD:bv



## SCHEDULE 'A' - ALLOWANCES

## WINTERS DRAIN 2023

## Municipality of Strathroy - Caradoc

In accordance with Section 30 of the Drainage Act, we determine the allowances payable to owners entitled thereto as follows:

CON.	LOT	ROLL NUMBER (Owner)	Section 29 Right-of-way	Section 30 Damages	TOTALS
<b>MAIN DRAIN</b>					
3	E½ 15	014-070-149-10 (D. G. D'Hoine)	\$	\$ 1,020.00	\$ 1,020.00
3	Pt.N½N½ 16	014-070-151(D. McLelland)		4,270.00	4,270.00
3	Pt.N½N½ 16	014-070-152-01 (J. Bujnowski)		20.00	20.00
Total Allowances			\$	\$ 5,310.00	\$ 5,310.00
<b>TOTAL ALLOWANCES ON MAIN DRAIN</b>					<b>\$ 5,310.00</b>
<b>BRANCH A</b>					
3	Pt.N½N½	014-070-151(D. McLelland)	\$ 410.00	\$ 500.00	\$ 910.00
3	Pt.N½N½	014-070-152-01 (J. Bujnowski)	50.00	70.00	120.00
Total Allowances			\$ 460.00	\$ 570.00	\$ 1,030.00
<b>TOTAL ALLOWANCES ON BRANCH A</b>					<b>\$ 1,030.00</b>
<b>TOTAL ALLOWANCES ON WINTERS DRAIN 2023</b>					<b>\$ 6,340.00</b>



SCHEDULE 'B' - COST ESTIMATE

WINTERS DRAIN 2023

Municipality of Strathroy - Caradoc

We have made an estimate of the cost of the proposed work which is outlined in detail as follows:

MAIN DRAIN

Mobilization of equipment		\$	1,000.00
Installation of the following coilable dual wall solid plastic pipe by approved drainage plow, including stripping and redistribution of topsoil for scalping if required and supply, installation and compactions of bedding materials for sewer pipe.			
178 meters of 200mm dia. solid plastic pipe		\$	3,810.00
302 meters of 300mm dia. solid plastic pipe		\$	9,240.00
9 meters of 375mm dia. sewer pipe		\$	830.00
Supply of the above listed pipe		\$	13,250.00
Redistributed and fine grade topsoil through lawn and grassed areas		\$	1,420.00
20.0 meters of 375mm sewer pipe as subsurface pipe			
18.0 meters of 600mm dia. Aluminized helical C.S.P. with 68mm x 13mm corrugations - 2.0mm thickness			
Supply		\$	4,900.00
Installation under Falconbridge Drive by open cut		\$	12,200.00
Restore asphalt surface		\$	8,000.00
Supply and install three 600mm x 600mm standard catchbasins including grates, leads, ditching, removal and disposal of existing catchbasins		\$	9,900.00
Exposing and locating existing tile drain	(construction)	\$	450.00
Exposing and locating existing utilities	(construction)	\$	700.00
Tile connections as noted on plan		\$	500.00
Clearing & Grubbing		\$	2,000.00
Contract security financing		\$	1,030.00
Tile connections and contingencies		\$	2,550.00
Allowances under Sections 29 & 30 of the Drainage Act		\$	5,310.00

BRANCH A

Mobilization of equipment		\$	300.00
Installation of the following coilable dual wall solid plastic pipe by approved drainage plow, including stripping and redistribution of topsoil for scalping if required			
51 meters of 200mm dia. solid plastic pipe		\$	1,180.00
Supply of the above listed tile/pipe		\$	960.00

## SCHEDULE 'B' - COST ESTIMATE (cont'd)

**WINTERS DRAIN 2023  
Municipality of Strathroy - Caradoc****BRANCH A (Cont.)**

Supply and install one 600mm dia. HDPE catchbasin including grate and connections	\$	900.00
Redistributed and grade toposil through lawn and grassed areas	\$	260.00
Clearing & Grubbing	\$	300.00
Tile connections as noted on plan	\$	300.00
Contract security financing	\$	60.00
Tile connections and contingencies	\$	300.00
Allowances under Sections 29 & 30 of the Drainage Act	\$	1,030.00

**ADMINISTRATION**

Conservation Authority Review Fee	\$	300.00
Interest and Net Harmonized Sales Tax	\$	3,931.00
Survey, Plan and Final Report	\$	15,747.00
Expenses	\$	1,442.00
Supervision and Final Inspection	\$	<u>6,300.00</u>

**TOTAL ESTIMATED COST** **\$ 110,400.00**

## SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION

## WINTERS DRAIN 2023

## Municipality of Strathroy-Caradoc

Job No. 222065

October 16, 2023

\* = Non-agricultural

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
<b>MAIN DRAIN</b>						
3	W½ 15	0.5	014-070-149 (Cuddy Farms Ltd 2008)	\$	\$ 32.00	\$ 32.00
3	E½ 15	7.6	014-070-149-10 (D. G. D'Hoine)	2,540.00	539.00	3,079.00
* 3	Pt.N½N½ 16	6.1	014-070-151(D. McLelland)	18,250.00	2,361.00	20,611.00
3	Pt.N½N½ 16	9.4	014-070-152-01 (J. Bujnowski)	2,030.00	9,349.00	11,379.00
* 3	Pt.N½N½ 16	0.05	014-070-153 (T. Morrison)		48.00	48.00
* 3	Pt.N½N½ 16	0.12	014-070-153-02 (K. Neves)		111.00	111.00
3	Pt.N½S½ 16	11.4	014-070-156 (Vibrent Farms Ltd.)		17,430.00	17,430.00
3	S½ 16	1.5	014-030-015 (J. & J. Szucsko)		1,664.00	1,664.00
TOTAL ASSESSMENT ON LANDS				\$ 22,820.00	\$ 31,534.00	\$ 54,354.00
* Falconbridge Drive	1.2	Municipality of Strathroy-Caradoc		\$ 14,720.00	\$ 776.00	\$ 15,496.00
TOTAL ASSESSMENT ON ROADS				\$ 14,720.00	\$ 776.00	\$ 15,496.00
<b>SPECIAL ASSESSMENT</b> against the Municipality of Strathroy-Caradoc for the increased cost of installing a 375mm (15") smooth sewer pipe through Falconbridge Drive.						\$ 30,970.00
<b>SPECIAL ASSESSMENT</b> against Ebridge Gas for the increased cost of locating and exposing their Gas Mains on the Falconbridge Drive road allowance.						\$ 1,210.00
<b>TOTAL ASSESSMENT ON THE MAIN DRAIN</b>						<b>\$ 102,030.00</b>
<b>BRANCH A</b>						
* 3	t.N½N½ 16		014-070-151(D. McLelland)	1,320.00		1,320.00
3	t.N½N½ 16	8.0	014-070-152-01 (J. Bujnowski)	3,440.00	3,370.00	6,810.00
* 3	t.N½N½ 16	0.05	014-070-153 (T. Morrison)		21.00	21.00
* 3	t.N½N½ 16	0.12	014-070-153-02 (K. Neves)		51.00	51.00
3	t.N½S½ 16	0.8	014-070-156 (Vibrent Farms Ltd.)		168.00	168.00
TOTAL ASSESSMENT ON LANDS				\$ 4,760.00	\$ 3,610.00	\$ 8,370.00
<b>TOTAL ASSESSMENT ON THE BRANCH A</b>						<b>\$ 8,370.00</b>
<b>TOTAL ASSESSMENT ON THE WINTERS DRAIN 2023</b>						<b>\$ 110,400.00</b>

SCHEDULE OF NET ASSESSMENT

WINTERS DRAIN 2023

Municipality of Strathroy - Caradoc

Job No. 222065

October 16, 2023

\* = Non-agricultural

ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
014-070-149 (Cuddy Farms Ltd 2008)	\$ 32.00	\$ 11.00		\$ 21.00
014-070-149-10 (D. G. D'Hoine)	3,079.00	1,026.00	1,020.00	1,033.00
* 014-070-151(D. McLelland)	21,931.00		5,180.00	16,751.00
014-070-152-01 (J. Bujnowski)	18,189.00	6,063.00	140.00	11,986.00
* 014-070-153 (T. Morrison)	69.00			69.00
* 014-070-153-02 (K. Neves)	162.00			162.00
014-070-156 (Vibrent Farms Ltd.)	17,598.00	5,866.00		11,732.00
014-030-015 (J. & J. Szucsko)	1,664.00	555.00		1,109.00
* Falconbridge Drive	\$ 15,496.00	\$	\$	\$ 15,496.00
<i>Nonprorated Special Assessments</i>				
Falconbridge Drive	30,970.00			30,970.00
Enbridge Gas	1,210.00			1,210.00
<hr/>				
	<b>\$ 110,400.00</b>	<b>\$ 13,521.00</b>	<b>\$ 6,340.00</b>	<b>\$ 90,539.00</b>