

VANDENBRINK - DAVIS DRAIN

Municipality of Central Elgin



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London, Ontario
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VANDENBRINK-DAVIS DRAIN

Municipality of Central Elgin

To the Mayor and Council of
the Municipality of Central Elgin

Mayor and Council:

We are pleased to present our report on the construction of the Vandenbrink-Davis Municipal Drain serving parts of Lots 15 to 17, Concession Range 1 S.E.R. and parts of Lot 18, Concession 9 (geographic Yarmouth) in the Municipality of Central Elgin.

AUTHORIZATION

This report was prepared pursuant to Section 4 of the Drainage Act. Instructions were received from your Municipality with respect to a motion of Council. The work was initiated by a petition signed by the majority of the owners in the area requiring drainage.

DRAINAGE AREA

The total watershed area as described above contains approximately 68 hectares. The area requiring drainage for the Vandenbrink-Davis Drain is described as Lots 16 and 17, Concession Range 1 S.E.R., consisting of the lands owned by H. & B. Vandenbrink (Roll No. 7-179) and J. & V. Davis (Roll No. 7-176-50).

HISTORY

The Paddon Drain, which this new drain will outlet into, was last reconstructed pursuant to a report submitted by Fred A. Bell, P. Eng., dated February 3, 1964, and consisted of the reconstruction of the existing open ditch extending the drain further in Lot 18, Concession 9, for a total length of approximately 1,219 lineal meters.

EXISTING DRAINAGE CONDITIONS

A site meeting was held on July 18, 2022 with respect to the project and through later discussions, the owners reported the following:

- that the owner, H. & B. Vandenbrink (Roll No. 7-179), indicated that they intend to systematically tile drain their lands in 2023 and require a legal outlet to do so



EXISTING DRAINAGE CONDITIONS (cont'd)

- that the owner, J. & V. Davis (Roll No. 1-176-50), indicated that they currently have a private drain in their property which lacks depth, capacity and does not have a proper outlet at the south end of their property. They also indicated intend to tile drain the south-east portion of their lands to this new drain and not to the Collins Drain which it is naturally tributary to.

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

- that a new drain could be constructed to serve the petitioning lands with this drain outletting into the Paddon Drain-Open Portion located in Lot 19, Concession 9

Preliminary design, cost estimates and assessments were prepared, and circulated to owners to review the findings and preliminary proposals. Further input and requests were provided by the affected owners at that time and at later dates. Based on the proposed design it was decided to proceed with the report.

DESIGN 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 38.1mm per 24 hrs.

We would like to point out that there have been no indications of any adverse soil conditions. It should be noted that no formal soil investigation has been made, with this information being provided by the owners.

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 a new open drain, to be referred to as the Vandenbrink-Davis Drain-Open Portion, be constructed from the Paddon Drain in Lot 18, Concession 9, and head north-easterly in the lands of Bonnefield Farmland Ontario (Roll No. 7-109-20) for a length of 94 lineal meters
- that a new closed drain, to be referred to as the Vandenbrink-Davis Drain-Closed Portion, be constructed from the above open drain and head north-easterly across the lands of Bonnefield Farmland Ontario (Roll No. 7-109-20) and the lands of J. & V. Davis (Roll No. 7-176-50), to its head just within the lands of H. & B. Vandenbrink (Roll No. 7-179), for a total length of 854 lineal meters.
- that catchbasins be installed at the top end of the drain to alleviate surface flow



ENVIRONMENTAL CONSIDERATIONS AND MITIGATION MEASURES

There are no significant wetlands or sensitive areas within the affected watershed area or along the route of the drains. The proposed construction of the Vandenbrink-Davis Drain includes quarry stone outlet protection and surface inlets which greatly help reduce the overland surface flows and any subsequent erosion. A temporary flow check of silt fencing is to be installed in the ditch downstream of the tile outlet for the duration of the construction. A pool and riffle are also being installed in the open portion upon the request of Catfish Creek Conservation Authority, to help dissipate flows into the open drain.

SUMMARY OF PROPOSED WORK

The proposed work consists of approximately 94 lineal meters of open ditch construction including quarry stone rip-rap bank protection, and bank seeding; approximately 854 lineal meters of 450mm (18") to 600mm (24") diameter concrete field tile, including related appurtenances.

SCHEDULES

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

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 \$122,000.00. 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.

Schedule 'D' - Assessment for Maintenance. In accordance with Section 38 of the Drainage Act, this schedule outlines the distribution of future repair and/or maintenance costs for portions of, or the entire drainage works.

Drawing No. 1 Job No. 222183 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

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 amounts granted are based on the following:

- a) for closed drain installed with wheel machine - \$3,613.00/ha.
- b) for open ditch work through bush with excavated material levelled adjacent to drain - \$2,500.00/ha.

These base rates are multiplied by the hectares derived from the working widths shown on the plans and the applicable lengths.



ALLOWANCES (cont'd)

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 \$6,670.00/ha. through cropped lands and \$2,500.00/ha. through bush. These values are multiplied by the hectares derived from the width granted for future maintenance and the applicable lengths.

For open ditches, the allowance provides for the loss of land due to the construction provided for in the report. The amounts granted are based on the value of the land, and the rate used was \$33,360.00/ha. When any buffer strip is incorporated and/or created, the allowance granted is for any land beyond a 1.8-meter width deemed to have always been part of the drain.

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 liabilities are known as benefit, outlet liability and special benefit liability as set out under Sections 22, 23, 24 and 26 of the Act.

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 or sub-surface water, or any other advantages relating to the betterment of lands, roads, buildings, or other structures.

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" was used to calculate the assessments shown on Schedule 'C'- Assessment for Construction. This entailed breaking down the costs of the drain into sections along its route.



ASSESSMENT (cont'd)

The remainder is then separated into Benefit and Outlet costs. The Benefit cost 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 Costs are 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 have been assessed for outlet at lower rates than cleared lands. Also, roads and residential properties have been assessed for outlet at higher rates than cleared farmlands.

The actual cost of the work involving this report 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.

SPECIAL ASSESSMENT

If any additional work is required to the drainage works due to the existence of buried utilities such as gas 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.

After completion, the entire Vandenbrink-Davis Drain shall be maintained by the Municipality of Central Elgin at the expense of all upstream lands and roads assessed in Schedule 'D' - Assessment for Maintenance and in the same relative proportions until such time as the assessment is changed under the Drainage Act.



Respectfully submitted,

SPRIET ASSOCIATES LONDON LIMITED

B. Widner, P.Eng.



SCHEDULE 'A' - ALLOWANCES

VANDENBRINK - DAVIS DRAIN

Municipality of Central Elgin

In accordance with Sections 29 and 30 of the Drainage Act, we determine the allowances payable to owners entitled thereto as follows:

CONCESSION	LOT	ROLL NUMBER (Owner)	Section 29 Right-of-Way	Section 30 Damages	TOTALS
MAIN DRAIN - OPEN PORTION					
9	16	7-109-20 (Bonnefield Farmland Ont.)	\$ 380.00	\$ 660.00	\$ 1,040.00
			=====	=====	=====
			\$ 380.00	\$ 660.00	\$ 1,040.00
			=====	=====	=====
TOTAL ALLOWANCES ON THE MAIN DRAIN - OPEN PORTION					\$ 1,040.00
MAIN DRAIN - CLOSED PORTION					
9	16	7-109-20 (Bonnefield Farmland Ont.)	\$ 40.00	\$ 30.00	\$ 70.00
R.1 S.E.R.	15 & 16	7-176-50 (J. & V. Davis)	5,660.00	4,600.00	10,260.00
R.1 S.E.R.	16 & 17	7-178 (H. & B.Vandenbrink)	40.00	30.00	70.00
			=====	=====	=====
Total Allowances			\$ 5,740.00	\$ 4,660.00	\$ 10,400.00
			=====	=====	=====
TOTAL ALLOWANCES ON THE MAIN DRAIN - CLOSED PORTION					\$ 10,400.00
TOTAL ALLOWANCES ON THE VANDENBRINK - DAVIS DRAIN					\$ 11,440.00

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

MAIN DRAIN - OPEN PORTION

Clearing & grubbing of ditch bank (Approx. 94m)	\$	1,900.00
94 meters of open ditch reconstruction	\$	1,200.00
Levelling of excavated material	\$	500.00
Seeding of ditch banks and buffer strips (Approx 280m ²)	\$	500.00
Supply and Installtion of Pool and Riffle (Approx 8m ³ quarry stone req'd)	\$	1,900.00
Contingency	\$	500.00
Allowances under Sections 30 of the Drainage Act	\$	1,040.00

MAIN DRAIN - CLOSED PORTION

6 meters of 600mm dia., H.D.P.E. plastic sewer pipe including rodent gate, quarry stone rip-rap protection around pipe and end of ditch (Approximately 8m ³ quarry stone req'd)		
Supply	\$	1,100.00
Installation	\$	1,500.00
Installation of the following concrete field tile including supply & installation of geotextile around tile joints (approx. 2300m req'd)		
298 meters of 450mm dia. concrete tile	\$	8,900.00
166 meters of 525mm dia. concrete tile	\$	5,000.00
384 meters of 600mm dia. concrete tile	\$	11,500.00
Supply of the above listed tile	\$	42,100.00
Strip, stockpile and relevel topsoil from tile trench and adjacent working area (4m wide) specified on drawings (approx. 854m)	\$	5,100.00
Supply and install one 600mm x 600mm ditch inlet catchbasin including grates, leads, ditching, removal and disposal of existing catchbasin, including supply and installation of concrete blocks, prefabricated fittings, wyes, and rip-rap	\$	2,400.00
Exposing and locating existing tile drains and utilities	\$	900.00
Tile connections and contingencies	\$	4,000.00
Allowances under Sections 29 & 30 of the Drainage Act	\$	10,400.00

VANDENBRINK - DAVIS DRAIN
Municipality of Central Elgin

ADMINISTRATION

Interest and Net Harmonized Sales Tax	\$ 2,690.00
Survey, Plan and Final Report	\$ 13,900.00
Expenses	\$ 1,220.00
Supervision and Final Inspection	\$ <u>3,750.00</u>
TOTAL ESTIMATED COST	\$ <u>122,000.00</u>

SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION

VANDENBRINK - DAVIS DRAIN

Municipality of Central Elgin

Job No. 222183

July 21, 2022

* = Non-agricultural

CON.	HECTARES LOT AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
MAIN DRAIN - OPEN PORTION					
9	16	0.40 7-109-20 (Bonniefield Farmland Ont.)	\$ 5,500.00	\$ 16.00	\$ 5,516.00
R.1 S.E.R.	16	0.25 7-176 (M. & P. Hiepleh)		20.00	20.00
R.1 S.E.R.	15 & 16	42.90 7-176-50 (J. & V. Davis)		3,320.00	3,320.00
R.1 S.E.R.	16 & 17	23.80 7-178 (H. & B.Vandenbrink)		1,897.00	1,897.00
TOTAL ASSESSMENT ON LANDS			\$ 5,500.00	\$ 5,253.00	\$ 10,753.00
* Edgware Line	1.03	Municipality of Central Elgin	\$	\$ 247.00	\$ 247.00
TOTAL ASSESSMENT ON ROADS			\$	\$ 247.00	\$ 247.00

TOTAL ASSESSMENT ON THE MAIN DRAIN - OPEN PORTION \$ 11,000.00

MAIN DRAIN - CLOSED PORTION

R.1 S.E.R.	16	0.25 7-176 (M. & P. Hiepleh)	\$	\$ 116.00	\$ 116.00
R.1 S.E.R.	15 & 16	42.90 7-176-50 (J. & V. Davis)	57,120.00	22,039.00	79,159.00
R.1 S.E.R.	16 & 17	23.80 7-178 (H. & B.Vandenbrink)	3,930.00	25,181.00	29,111.00
TOTAL ASSESSMENT ON LANDS			\$ 61,050.00	\$ 47,336.00	\$ 108,386.00
* Edgware Line	1.03	Municipality of Central Elgin	\$	\$ 2,614.00	\$ 2,614.00
TOTAL ASSESSMENT ON ROADS			\$	\$ 2,614.00	\$ 2,614.00

TOTAL ASSESSMENT ON THE MAIN DRAIN - CLOSED PORTION \$ 111,000.00TOTAL ASSESSMENT ON THE MAIN DRAIN \$ 122,000.00

SCHEDULE 'D' - ASSESSMENT FOR MAINTENANCE

VANDENBRINK - DAVIS DRAIN

Municipality of Central Elgin

Job No. 222183

July 21, 2022

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	PERCENTAGE OF MAINTENANCE COST
MAIN DRAIN - OPEN PORTION				
9	16	0.4	7-109-20 (Bonniefield Farmland Ont.)	33.5 %
R.1 S.E.R.	16	0.3	7-176 (M. & P. Hiepleh)	0.2
R.1 S.E.R.	15 & 16	42.9	7-176-50 (J. & V. Davis)	40.2
R.1 S.E.R.	16 & 17	23.8	7-178 (H. & B.Vandenbrink)	23.0
				=====
TOTAL ASSESSMENT ON LANDS				96.9 %
				=====
* Edgware Line		1.0	Municipality of Central Elgin	3.1 %
				=====
TOTAL ASSESSMENT ON ROADS				3.1 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE OF THE MAIN DRAIN - CLOSED PORTION				<u>100.0 %</u>
MAIN DRAIN - CLOSED PORTION				
R.1 S.E.R.	16	0.3	7-176 (M. & P. Hiepleh)	0.1 %
R.1 S.E.R.	15 & 16	42.9	7-176-50 (J. & V. Davis)	62.9
R.1 S.E.R.	16 & 17	23.8	7-178 (H. & B.Vandenbrink)	33.7
				=====
TOTAL ASSESSMENT ON LANDS				96.7 %
				=====
* Edgware Line		1.0	Municipality of Central Elgin	3.3 %
				=====
TOTAL ASSESSMENT ON ROADS				3.3 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE OF THE MAIN DRAIN - CLOSED PORTION				<u>100.0 %</u>

SCHEDULE OF NET ASSESSMENT

VANDENBRINK - DAVIS DRAIN

Municipality of Central Elgin

(FOR INFORMATION PURPOSES ONLY)

Job No. 222183

July 21, 2022

* = Non-agricultural

	ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
	7-109-20 (Bonniefield Farmland Ont.)	\$ 5,516.00	\$ 1,839.00	\$ 1,040.00	\$ 2,637.00
*	7-176 (M. & P. Hiepleh)	136.00			136.00
	7-176-50 (J. & V. Davis)	82,479.00	27,493.00	10,260.00	44,726.00
	7-178 (H. & B. Vandenbrink)	31,008.00	10,336.00	70.00	20,602.00
*	Edgeware Line	\$ 2,861.00	\$	\$	\$ 2,861.00
TOTALS		\$ 122,000.00	\$ 39,668.00	\$ 11,370.00	\$ 70,962.00