

EASTLAKE DRAIN
Municipality of West Elgin



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London, Ontario
April 20, 2023

EASTLAKE DRAIN
Municipality of West Elgin

To the Mayor and Council of
the Municipality of West Elgin

Mayor and Council:

We are pleased to present our report on the reconstruction of parts of the Eastlake Municipal Drain serving parts of Lot A, Concessions 10 and 11 (geographic Aldborough) in the Municipality of West Elgin and Lot 1, Concession S.M.R. and N.M.R. (geographic Orford) in the Municipality of West Elgin. The total watershed area contains approximately 91 hectares.

AUTHORIZATION

This report was prepared pursuant to Section 78 of the Drainage Act. Instructions were received from your Municipality with respect to a motion of Council. The work was initiated by a request signed by one of the affected landowners.

HISTORY

The Eastlake Drain was last reconstructed pursuant to a report submitted by H.H. Todgham, P. Eng., dated February 22, 1957, and consisted of approximately 1,219 lineal meters of open ditch reconstruction.

EXISTING DRAINAGE CONDITIONS

A site meeting was held with respect to the project and through later discussions, the owner reported the following:

- that the landowner, 571419 Ontario Ltd. (Roll No. 40-002), inquired as to the possibility of enclosing the open drain through a portion of their lands to improve the workability of them.

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

- that the existing open drain contains an upstream watershed area of that would permit an enclosure



EXISTING DRAINAGE CONDITIONS (cont'd)

- that the enclosure would require the replacement of the road crossing under McPherson Road and McDonald Line
- that the enclosure would greatly improve the workability of the lands requesting it

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. 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 38mm.

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.

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 Eastlake Drain - Open Portion be enclosed commencing at the McPherson Road and head northerly through the lands of 571419 Ontario Ltd. (Roll No. 40-002), with its head at the edge of the woods for a total length of approximately 226 lineal meters
- that the road crossing under McPherson Road and McDonald Line be replaced with new crossings and the work be constructed using open cut
- that catchbasins be installed at McPherson Road and the upstream end of the works to alleviate surface flow and allow the open portion at the top end to remain functioning.
- that the existing open drain between McDonald Line and McPherson Road be cleaned out with the excavated material levelled adjacent the drain
- that a pool and riffle be installed at the upstream end of the open portion of the works as requested by the Department of Fisheries.



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 Eastlake 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.

We have reviewed the proposed work with the Department of Fisheries and Oceans (File No. 23-HCAA-00011) and they recommend the following mitigation measure be followed in their letter of advice, the existing open drain is to be isolated prior to any backfilling by installing sediment and erosion controls at the bottom end of the work on the drain.

The proposal was also reviewed with the L.T.V.C.A. and they indicated the project was within their parameters and would issue a permit when it was required.

SUMMARY OF PROPOSED WORK

The proposed work consists of approximately 71 lineal meters of open drain cleanout, including a pool and riffle, 252 lineal meters of 600mm (24") diameter pipe, including related appurtenances, and two new road crossings consisting of 750mm dia. H.D.P.E, and 1400mm dia. C.S.P.

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 & 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 \$ 125,500.00. 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. 223031, 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 amount granted is based on \$3,613.00/ha. for closed drain installed with wheel machine. This base rate is multiplied by the hectares derived from the working widths shown on the plans and the applicable lengths.

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 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 \$45,000.00/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. For existing open ditches, the right-of-way to provide for the right to enter and restrictions imposed on those lands, is deemed to have already been granted.

Under this report no allowance for right-of-way has been given as the area gained by the enclosing of the open drain is deemed sufficient and transferable to the closed 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 D- Assessment for Maintenance. This entailed breaking down the costs of the drain into sections along its route.

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, 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, outlet, and for special assessment 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". We assess the cost of the enclosure to 571419 Ontario Inc, (Roll No.40-002) and this assessment is to be pro-rated on final costs.

SPECIAL ASSESSMENT

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against the Municipality of Chatham-Kent being the increased cost to the drainage work for installing a new surface and sub-surface crossing across their road allowance on the Main Drain due to the construction and operation of McDonald Line. The Special Assessment 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:

Open Portion	Cost of Work	Plus Administration Cost	Plus Interest & Net H.S.T.	Special Assessment
1,400mm Dia. C.S.P.	\$17,900.00	\$3,400.00	\$540.00	\$21,840.00

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against the Municipality of Chatham-Kent and the Municipality of West Elgin being the increased cost to the drainage work for installing H.D.P.E. pipes across their road allowance on the Main Drain due to the construction and operation of McPherson Road. The Special Assessment 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:



SPECIAL ASSESSMENT (cont'd)

Drain	Cost of Work	Less Equivalent Drain Cost (Fixed)	Plus Administration Cost	Plus Interest & Net H.S.T.	Special Assessment
750m dia. Surface 600m dia. Sub-Surface	\$17,500.00	\$2,720.00	\$3,400.00	\$460.00	\$18,640.00

The special Assessment to McPherson Road shall be borne equally by both Municipality of Chatham-Kent and the Municipality of West Elgin as shown in Schedule 'C' – Assessment for Construction.

The above special assessments shall not apply for future maintenance purposes.

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.

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.

Repairs or improvements to any road culvert or bridge sub-surface road crossing required by the performance of this work and for future repair and/or replacement, shall be the responsibility of the applicable Road Authority, entirely at their cost.

After completion, the Eastlake Drain, enclosed in this report, shall be maintained by the Municipality of West Elgin at the expense of all the 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



J.M. Spriet, P.Eng.



SCHEDULE 'A' - ALLOWANCES

EASTLAKE DRAIN

Municipality of West Elgin

In accordance with Sections 29 & 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
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MAIN DRAIN

Municipality of West Elgin

11	A & B	40-002 (571419 Ontario Ltd.)		\$ 1,190.00	\$ 1,190.00
			=====		
Total Allowances				\$ 1,190.00	\$ 1,190.00
			=====		

TOTAL ALLOWANCES IN THE MUNICIPLAITY OF WEST ELGIN **\$ 1,190.00**

Municipality of Chatham - Kent

S.M.R.	1	5-137 (S. & M. Smith)	\$ 260.00	\$ 450.00	\$ 710.00
			=====		
Total Allowances			\$ 260.00	\$ 450.00	\$ 710.00
			=====		

TOTAL ALLOWANCES IN THE MUNICIPLAITY OF CHATHAM - KENT **\$ 710.00**

TOTAL ALLOWANCES ON THE EASTLAKE DRAIN **\$ 1,900.00**

EASTLAKE DRAIN**Municipality of West Elgin**

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

MAIN DRAIN

Open Drain Cleanout, including brushing as required. (Approx 71m)	\$ 1,000.00
Levellling of excavated material	\$ 300.00
Quarry stone rip-rap protection around pipe and end of ditch and installation of rodent gate, as well as construction of pool and riffle structure at outlet as per detail (Approximately 12m ³ quarry stone req'd)	
Supply	\$ 300.00
Installation	\$ 1,800.00
Installation of the following pipe, including supply and installation of geotextile around tile joints or bedding as required	
226 meters of 600mm diameter pipe	\$ 7,900.00
Supply of the above listed pipe	\$ 30,500.00
Backfilling and Regrading of existing open ditch using on-site materials from ditch banks	\$ 13,000.00
26 meters of 600mm dia., H.D.P.E. Sewer pipe (subsurface)	
22 meters of 750mm dia., H.D.P.E. pipe (surface)	
Supply	\$ 8,500.00
Installation under Mcpherson Road by open cut	\$ 9,000.00
Supply & delivery of 14m - 1400mm dia, 2.8mm thick aluminized, 125mm x 25mm cor. C.S.P.	\$ 8,400.00
Installation of pipe under McDonald Road including supply and installation of bedding and backfill material and disposal of any unacceptable material including traffic control	\$ 7,000.00
Supply and installation of quarry stone riprap (Approx. 12m ³ Q.S. required)	\$ 2,500.00
Supply and install two 900mm x 1200mm on-line ditch inlet catchbasins, including grates, berms, ditching, and any required prefab fittings	\$ 6,000.00
Exposing and locating existing tile drains and utilities	\$ 500.00
Tile connections and contingencies	\$ 4,000.00
Allowances under Sections 29 and 30 of the Drainage Act	\$ 1,900.00

ADMINISTRATION

Interest and Net Harmonized Sales Tax	\$ 2,940.00
Survey, Plan and Final Report	\$ 16,500.00
Expenses	\$ 930.00
Supervision and Final Inspection	\$ 2,530.00
TOTAL ESTIMATED COST	\$ 125,500.00

SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION

EASTLAKE DRAIN

Municipality of West Elgin

Job No. 223031

April 20, 2023

* = Non-agricultural

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
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MAIN DRAIN

Municipality of West Elgin

11	A & B	5.00	40-002 (571419 Ontario Ltd.)	\$ 81,330.00	\$	\$ 81,330.00
TOTAL ASSESSMENT ON LANDS				\$ 81,330.00	\$	\$ 81,330.00
McPherson Road 50%		0.30	Municipality of West Elgin	\$ 3,690.00	\$	\$ 3,690.00
TOTAL ASSESSMENT ON ROADS				\$ 3,690.00	\$	\$ 3,690.00

SPECIAL ASSESSMENT against the Municipality of West Elgin
for the increased cost of installing 600mm dia. subsurface Sewer Pipe and a 750mm dia.
surface culvert across McPherson Road \$ 9,320.00

TOTAL ASSESSMENT IN THE MUNICIPALITY OF WEST ELGIN \$ 94,340.00

Municipality of Chatham-Kent

SPECIAL ASSESSMENT against the Municipality of Chatham-Kent
for the increased cost of installing 600mm dia. subsurface Sewer Pipe and a 750mm dia.
surface culvert across McPherson Road \$ 9,320.00

SPECIAL ASSESSMENT against the Municipality of Chatham-Kent
for the increased cost of installing a 1400mm dia. C.S.P. surface culvert across McDonald Line \$ 21,840.00

TOTAL ASSESSMENT IN THE MUNICIPALITY OF CHATHAM-KENT \$ 31,160.00

TOTAL ASSESSMENT ON THE MAIN DRAIN \$ 125,500.00

SCHEDULE 'D' - ASSESSMENT FOR MAINTENANCE

EASTLAKE DRAIN

Municipality of West Elgin

Job No. 223031

April 20, 2023

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	PERCENTAGE OF MAINTENANCE COST
MAIN DRAIN				
Municipality of West Elgin				
10	A	39.4	30-126 (G. & C. Ingratta Farm Ltd.)	26.3 %
10	Pt. A	0.6	30-126-02 ()	0.4
11	A	34.5	40-001 (R. & A. Devries Farms Ltd.)	23.0
11	A	1.2	40-001-10 (H. & E. Mezenberg)	0.8
11	B	5.0	40-002 (571419 Ontario Ltd.)	34.8
TOTAL ASSESSMENT ON LANDS				85.3 %
Thompson Line				1.4
McPherson Road 50%				1.6
Municipality of West Elgin				3.3 %
Municipality of West Elgin				3.7
TOTAL ASSESSMENT ON ROADS				7.0 %
Municipality of Chatham-Kent				
N.M.R.	1	5.3	5-267 (P. & M. Tazier)	3.5 %
TOTAL ASSESSMENT ON LANDS				3.5 %
Thompson Line				0.2
McPherson Road 50%				1.6
Municipality of Chatham-Kent				0.5 %
Municipality of Chatham-Kent				3.7
TOTAL ASSESSMENT ON ROADS				4.2 %
TOTAL ASSESSMENT FOR MAINTENANCE ON THE MAIN DRAIN				100.0 %

SCHEDULE OF NET ASSESSMENT

EASTLAKE DRAIN

Municipality of West Elgin

(FOR INFORMATION PURPOSES ONLY)

Job No. 223031

April 20, 2023

* = Non-agricultural

ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
Municipality of West Elgin				
40-002 (571419 Ontario Ltd.)	\$ 81,330.00	\$	\$ 1,190.00	\$ 80,140.00
McPherson Road 50%	3,690.00			3,690.00
Special Assessment	9,320.00			9,320.00
Municipality of Chatham-Kent				
5-137 (S. & M. Smith)			710.00	-710.00
McPherson Road 50%				
Special Assessment	9,320.00			9,320.00
McDonald Line				
Special Assessment	21,840.00			21,840.00
TOTALS	\$ 125,500.00	\$	\$ 1,900.00	\$ 123,600.00