

GRACE - LEWIS DRAIN
Municipality of North Middlesex



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London, Ontario
August 12, 2025

GRACE - LEWIS DRAIN
Municipality of North Middlesex

To the Mayor and Council of
the Municipality of North Middlesex

Mayor and Council:

We are pleased to present our report on the construction of the Grace-Lewis Municipal Drain serving parts of Lots 5 and 6, Concessions 11 and 12 (geographic McGillivray) in the Municipality of North Middlesex.

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 owners whose lands contain over 60 percent of the area requiring drainage.

DRAINAGE AREA

The total watershed area as described above contains approximately 32 hectares. The area requiring drainage for the Grace-Lewis Drain is described as the southwest corner of Lot 5, Concession 11, adjacent to Adare Drive.

HISTORY

This drain will be tributary to the Lewis Drain which was last reconstructed pursuant to a report submitted by S.W. Archibald, P. Eng., dated July 8, 1949. The report consisted of approximately 5,190 lineal meters of drain improvements, outletting into Mud Creek in Lot 20, North Boundary Concession, then headed east to Cassidy Road, and then south to its head in Lot 8, Concession 11.

EXISTING DRAINAGE CONDITIONS

A site meeting was held on January 30, 2025 with respect to the project and through later discussions the owners reported the following:

- that the owner, Grace Farms Ltd. (Roll No. 30-053), indicated that they recently systematically drained their farm and required an outlet at two locations on the southwest portion of their land



EXISTING DRAINAGE CONDITIONS (cont'd)

- that the owner, G. & E. & M. Van Hie (Roll No.'s 30-054 and 30-092), had also recently sub-surfaced drained their lands in 2020 and indicated that they had installed a private main to serve the upstream lands and connected their lands in this watershed to a private drain which outlets in the north road ditch on Adare Drive
- that the owner, D. & M. Lewis (Roll No. 30-093), indicated that, if a new drain was constructed through his lands, the drain be constructed around his outbuilding to avoid damage to his laneway and lawns

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

- that a new drain could easily be constructed to serve as an outlet for the requesting lands outletting at the Lewis Drain
- that a portion of the drain installed in the Van Hie lands in 2020 could be incorporated and serve as a municipal drain
- that the existing private drain outlet on the north side of Adare Drive in the roadside ditch
- that the natural low run in the lands of D. & M. Lewis (Roll No. 30-093) runs between his homestead and outbuilding

Preliminary design, cost estimates, and assessments were prepared and an informal public meeting was held August 8, 2025 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 "A GUIDE FOR ENGINEERS WORKING UNDER THE DRAINAGE ACT IN ONTARIO", Publication 852 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 50mm per 24 hours.

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" OMAFA Publication 852.



RECOMMENDATIONS

We are therefore recommending the following:

- that a new drain be constructed in the lands of D. & M. Lewis (Roll No. 30-093), outletting in the Lewis Drain, and head east through their lands, then south across Adare Drive, then east through the lands of G. & E. & M. Van Hie (Roll No. 30-092), then connect to the 200mm tile in the lands of G. & E. & M. Van Hie (Roll No. 30-054), then north across Adare Drive to just within the lands of Grace Farms Ltd. (Roll No. 30-053), for a total length of 1,176 lineal meters. This new drain shall be referred to as the Grace-Lewis Drain
- that a new branch drain be constructed, outletting in the Main Drain on the north side of Adare Drive, and head east through the lands of D. & M. Lewis (Roll No. 30-093), to just within the lands of Grace Farms Ltd. (Roll No. 30-053) for approximately 116 lineal meters and shall be referred to as the Grace Branch

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 Grace-Lewis 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.

SUMMARY OF PROPOSED WORK

The proposed work consists of approximately 1,092 lineal meters of 400mm (16") diameter concrete field tile, including related appurtenances, and the incorporation of 202 lineal meters of 200mm (8") tile.

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. In accordance with Section 31 of the Drainage Act, a further allowance is provided for the value of the existing drains incorporated as part of this drainage works, to those lands on which the existing drains are located.

Schedule 'B' - Cost Estimate. This schedule provides for a detailed cost estimate of the proposed work which is in the amount of \$162,000.00. This estimate includes engineering and administrative costs associated with this project.



SCHEDULES (cont'd)

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. 224322, 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 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 amount 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 amount granted is based on \$6,670.00/ha. through cropped lands. This value is multiplied by the hectares derived from the width granted for future maintenance and the applicable lengths.

EXISTING DRAIN Section 31 of the Drainage Act provides for the compensation to landowners for the value of existing private drains which are incorporated through this report as part of these drainage works.

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, increased crop production, improved appearance, better control of surface or sub-surface water, or any other advantages relating to the betterment of lands, roads, buildings, or other structures.



ASSESSMENT DEFINITIONS (cont'd)

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. Special Assessments were then extracted from each section.

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 assessments 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".

SPECIAL ASSESSMENT

In accordance with Section 26 of the Drainage Act, Special Assessments have been made against the Municipality of North Middlesex 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 Adare 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 Assessments are to be calculated as follows:

Drain	Cost of Work	Less Equivalent Drain Cost (Fixed)	Plus Administration Cost	Plus Interest & Net H.S.T.	Special Assessment
300mm (sub-surface)	\$8,300.00	\$1,200.00	\$2,400.00	\$330.00	\$9,830.00
200mm (sub-surface) & 375mm (surface)	\$10,200.00	\$1,000.00	\$2,400.00	\$410.00	\$12,010.00

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



SPECIAL ASSESSMENT (cont'd)

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. The cost to upsize the drains to the 50mm coefficient design is shown separately and is not eligible for grant

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 Grace-Lewis Drain shall be maintained by the Municipality of North Middlesex 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.

Special Assessments shall **not** be pro-rated for future maintenance purposes.

Repairs or improvements to any road culvert or 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.



BW:

Respectfully submitted,

SPRIET ASSOCIATES LONDON LIMITED

B. Widner, P.Eng.



GRACE-LEWIS DRAIN**Municipality of North Middlesex**

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

MAIN DRAIN

6 meters of 450mm dia., H.D.P.E. plastic sewer pipe including rodent gate,
quarry stone rip-rap protection around pipe and end of ditch
(Approximately 6m³ quarry stone rip-rap req'd)

Supply	\$	1,200.00
Installation	\$	2,200.00

Installation of the following concrete tile and H.D.P.E. pipe, including supply and installation
of geotextile around tile joints, and bedding and backfill materials where required.

8 meters of 200mm dia. H.D.P.E. pipe	\$	300.00
92 meters of 300mm dia. H.D.P.E. pipe	\$	4,600.00
694 meters of 400mm dia. concrete tile	\$	22,600.00
Supply of the above listed tile / pipe	\$	25,900.00

Strip, stockpile and releve topsoil from tile trench and adjacent working area
(4m wide) specified on drawings (approx. 794m)

\$ 4,800.00

16 meters of 200mm dia. H.D.P.E. pipe (subsurface)
14 meters of 375mm dia. H.D.P.E. pipe (surface)

Supply	\$	2,700.00
Installation under Adare Drive by open cut	\$	7,500.00

16 meters of 300mm dia. H.D.P.E. pipe (subsurface)

Supply	\$	1,400.00
Installation under Adare Drive by open cut	\$	6,900.00

Supply and install five 600mm x 600mm on-line ditch inlet catchbasins including grate,
berm, ditching, and removal of existing hickenbottom

\$ 12,000.00

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

\$ 10,690.00

Allowances under Section 31 of the Drainage Act

Incorporation of 142m of 200mm dia. concrete tile, and 200m of
200mm dia. H.D.P.E. pipe

\$ 13,800.00

GRACE-LEWIS DRAIN**Municipality of North Middlesex****GRACE BRANCH**

Installation of the following concrete tile and H.D.P.E. pipe, including supply and installation of geotextile around tile joints, and bedding and backfill materials where required.

118 meters of 400mm dia. concrete tile	\$	3,800.00
Supply of the above listed tile / pipe	\$	3,800.00

Supply and install one 600mm x 600mm on-line ditch inlet catchbasins including grate, berm, and connection of existing drains	\$	2,400.00
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Strip, stockpile and releve topsoil from tile trench and adjacent working area (4m wide) specified on drawings (approx. 118m)	\$	700.00
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Exposing and locating existing tile drains and utilities	\$	900.00
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Tile connections and contingencies	\$	600.00
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Allowances under Sections 29 & 30 of the Drainage Act	\$	1,320.00
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ADMINISTRATION

Interest and Net Harmonized Sales Tax	\$	3,290.00
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Survey, Plan and Final Report	\$	18,400.00
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Expenses	\$	1,190.00
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Supervision and Final Inspection	\$	<u>4,110.00</u>
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TOTAL ESTIMATED COST	\$	<u><u>162,000.00</u></u>
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SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION

GRACE-LEWIS DRAIN

Municipality of North Middlesex

Job No. 224322

August 12, 2025

* = Non-agricultural

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
MAIN DRAIN						
11	Pt. 5	13.51	30-053 (Grace Farms Ltd.)	\$	\$ 21,847.00	\$ 21,847.00
*			**Non-Grantable**		2,130.00	2,130.00
11	Pt. 6	7.30	30-054 (G. & E. & M. Van Hie)	21,990.00	9,735.00	31,725.00
*			**Non-Grantable**	2,100.00	950.00	3,050.00
12	Pt. 5	9.59	30-093 (D. & M. Lewis)	27,670.00	7,229.00	34,899.00
*			**Non-Grantable**	2,700.00	710.00	3,410.00
12	Pt. 6	0.07	30-092 (G. & E. & M. Van Hie)	1,570.00	65.00	1,635.00
*			**Non-Grantable**	200.00	10.00	210.00
TOTAL ASSESSMENT ON LANDS				\$ 56,230.00	\$ 42,676.00	\$ 98,906.00
Adare Road				0.98	Municipality of North Middlesex	\$ 20,300.00 \$ 4,754.00 \$ 25,054.00
TOTAL ASSESSMENT ON ROADS				\$ 20,300.00	\$ 4,754.00	\$ 25,054.00

SPECIAL ASSESSMENT against the Municipality of North Middlesex for the increased cost of installing a 300mm H.D.P.E. subsurface pipe under Adare Drive via open cut.

\$ 9,830.00

SPECIAL ASSESSMENT against the Municipality of North Middlesex for the increased cost of installing a 200mm H.D.P.E. subsurface pipe and 375mm H.D.P.E. surface pipe under Adare Drive via open cut.

\$ 12,010.00

TOTAL ASSESSMENT ON THE MAIN DRAIN**\$ 145,800.00**

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
GRACE BRANCH						
11	Pt.	5	11.22	30-053 (Grace Farms Ltd.)	\$ 2,200.00	\$ 4,896.00
*				**Non-Grantable**	640.00	1,420.00
12	Pt.	5	0.18	30-093 (D. & M. Lewis)	2,790.00	82.00
*				**Non-Grantable**	810.00	20.00
TOTAL ASSESSMENT ON LANDS					\$ 6,440.00	\$ 6,418.00
Adare Road					\$ 2,990.00	\$ 352.00
TOTAL ASSESSMENT ON ROADS					\$ 2,990.00	\$ 352.00
TOTAL ASSESSMENT ON THE GRACE BRANCH						\$ 16,200.00
TOTAL ASSESSMENT ON THE GRACE-LEWIS DRAIN						\$ 162,000.00

SCHEDULE 'D' - ASSESSMENT FOR MAINTENANCE

GRACE-LEWIS DRAIN**Municipality of North Middlesex**

Job No. 224322

August 12, 2025

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	PERCENTAGE OF MAINTENANCE COST
MAIN DRAIN				
11	Pt. 5	13.51	30-053 (Grace Farms Ltd.)	28.7 %
11	Pt. 6	7.30	30-054 (G. & E. & M. Van Hie)	27.2
12	Pt. 5	9.59	30-093 (D. & M. Lewis)	27.7
				=====
TOTAL ASSESSMENT ON LANDS				83.6 %
				=====
Adare Road		0.98	Municipality of North Middlesex	16.4 %
				=====
TOTAL ASSESSMENT ON ROADS				16.4 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE ON THE MAIN DRAIN				<u>100.0 %</u>
GRACE BRANCH				
11	Pt. 5	11.22	30-053 (Grace Farms Ltd.)	64.3 %
12	Pt. 5	0.18	30-093 (D. & M. Lewis)	15.8
				=====
TOTAL ASSESSMENT ON LANDS				80.1 %
				=====
Adare Road		0.24	Municipality of North Middlesex	19.9 %
				=====
TOTAL ASSESSMENT ON ROADS				19.9 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE ON THE GRACE BRANCH				<u>100.0 %</u>

SCHEDULE OF NET ASSESSMENT

GRACE-LEWIS DRAIN

Municipality of North Middlesex

(FOR INFORMATION PURPOSES ONLY)

Job No. 224322

August 12, 2025

* = Non-agricultural

ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
30-053 (Grace Farms Ltd.)	\$ 28,943.00	\$ 9,648.00	\$ 70.00	\$ 19,225.00
* **Non-Grantable**	4,190.00			4,190.00
30-054 (G. & E. & M. Van Hie)	31,725.00	10,575.00	16,080.00	5,070.00
* **Non-Grantable**	3,050.00			3,050.00
30-093 (D. & M. Lewis)	37,771.00	12,590.00	9,660.00	15,521.00
* **Non-Grantable**	4,240.00			4,240.00
30-092 (G. & E. & M. Van Hie)	1,635.00	545.00		1,090.00
* **Non-Grantable**	210.00			210.00
* Adare Road	28,396.00			28,396.00
* * Special Assessment	12,010.00			12,010.00
* * Special Assessment	9,830.00			9,830.00
TOTALS	\$ 162,000.00	\$ 33,358.00	\$ 25,810.00	\$ 102,832.00