

ENGINEER'S REPORT
FOSTER DRAIN
TOWNSHIP OF MATILDA

1962

TO THE REEVE AND MEMBERS OF COUNCIL
TOWNSHIP OF MATILDA

Gentlemen:

The following report is respectfully submitted under Section 2 and Section 77 of The Municipal Drainage Act, R.S.O. 1960, in answer to your instructions regarding proposed maintenance work to be carried out on the above mentioned drain. The proposed work also includes the construction of a branch on Lots 13 and 14, Concession 2, Matilda Township.

The Foster Drain was originally constructed as a municipal drain under a report made by the late George L. Brown, C.E., dated February 28, 1931. The drain starts at the centre line of Lot 12, Concession 2, and runs in a general westerly direction to a point approximately 1,300 feet west of County Road No. 2. From this point the drain jogs alternately southward and westward and finally to the south again to empty into the Doran Drain at a point on the northern limit of the present Highway No. 401, close to the west limit of the East 3/4 of Lot 21, Concession 1. The total length of the drain is approximately 19,300 feet, and serves an area of approximately 1,200 acres.

At the request of owners, a branch has been laid out, starting at the centre line of Lot 14, some 750 feet north of the concession road between Concessions 1 and 2, and running in a northeasterly direction to its outlet in the Foster Drain. The length of the proposed branch is 3,616 feet.

PLAN

A plan of the watershed has been prepared showing the names of the owners on their respective properties. The limits of lands assessed for maintenance liability are as taken from the old plan by the late Mr. Brown, and are indicated by a yellow line on our plan. The general course and extent of the proposed work shown by means of a heavy blue line, and turns and intersections with property lines have been referenced to the hub line. The names of the present owners are also shown on the plan. The benefit area along the branch is shown outlined in red.

PROFILE

During our survey wooden stakes and numbered markers were driven at hundred foot intervals, called "Stations", in average ground bordering the course of the work. Levels and soundings were then taken, and their results were plotted to the scales shown, to form a profile of the work. The hub line, the present bottom of the ditch, and the proposed new grade are as shown thereon by the solid irregular line, the broken irregular line, and the red regular line respectively. Cuts from the hub line to reach the new grade are as shown in feet and decimals of a foot along the top of the profile. The depth of earth requiring removal from the bottom of the present ditch is shown coloured yellow. Our soundings would indicate that some hardpan will be encountered at several places along the drain. This hardpan is coloured brown on the profile.

It is intended that the accompanying plan, profile and specifications form a part of this report, and that they together govern the performance of the work.

WORK RECOMMENDED

Main Drain

The work recommended will involve the excavation of an estimated 9,397 cubic yards of earth and hardpan out of the main drain, and 1,936 cubic yards out of the proposed branch. From the concrete bridge in County Road No. 2 to the outlet in the Doran Drain, the bottom slope, or grade, of the drain has been increased from 0.035% as shown on the old profile, to 0.05%. This should speed the flow of water which at this time tends to lie stagnant in many places across Lots 19, 20 and 21. Because of this increased bottom slope, the lower 3,000 feet will be deepened to approximately two feet below the present ditch bottom, and in this way the present bottleneck eliminated. Also, it is proposed that between Station 180+00 and the northern boundary of the concession road between Concessions 1 and 2, the present drain be relocated approximately 25 feet westerly of the present course. At this time the drain runs between two farm buildings and very close to a number of other buildings owned by Mr. C. Serviss. Deepening of the drain at this point no doubt would cause damage to the foundations of these buildings.

From the northerly road fence the present drain runs inside the road allowance in a westerly direction for some 200 feet. As a deep municipal drain can not be tolerated within the boundaries of a township road allowance, this drain will be relocated off the road allowance so as to leave a distance of at least 33 feet between the centre line of the road and the south edge of the new drain. The old course will be filled and graded. Immediately south of the road culvert, a small loop will be cut off.

About 100 feet south of Highway No. 401 there is an old broken concrete farm bridge in the Doran Drain which partly blocks the water. Removal of this bridge is included in the work. The land at this time is owned by Ontario Hydro Electric Power Commission, and the bridge is not being used. If this obstruction were not removed, water would back up in the lower portion of the Foster Drain.

Branch Drain

The new branch mainly follows the course of an existing small drain. The cost, estimated at \$1,520.00, is charged against both owners benefitting by its construction.

ROAD BRIDGES

Construction of only one road bridge is necessary in this scheme. This bridge in the concession road between Concessions 1 and 2, opposite Lot 21, should have a cross-sectional area of approximately 40 square feet. Consideration could be given to a bridge with a free span of approximately 10 feet, or a corrugated steel arch-abutment culvert of sufficient size.

No allowance has been made for the cost of construction of this bridge as it can be more readily done under The Highway Improvement Act, under which Act the Department of Highways pays an eighty percent subsidy on the cost of work approved by the Department of Highways.

FARM CROSSINGS

It appears that in the original construction report of 1931, no allowances were made to the several owners along the drain for the construction of farm crossings, or bridges.

For this reason, and also, because present crossings are either in a poor state of repair, or lacking altogether, I have made allowances for the construction of twenty farm crossings on the Main Drain, and four crossings on the Branch, as shown in Schedules "C" and "D".

Except where the size of a culvert is shown in these schedules, open bottom bridges are recommended, having a free span in feet equal to one-eleventh of the allowance made in dollars for each particular crossing. They should be built as high as the neighbouring banks, and constructed and maintained by their respective owners.

In the case of future maintenance, for each ten year interval between the date of construction and a subsequent maintenance scheme, the owner shall be allowed the equivalent of one-third of the farm bridge allowance as allowed by the Engineer at that time. This allowance shall not, however, be increased beyond one hundred percent of the normal payment, and shall not be paid unless the owner did construct a bridge of sufficient size for which an allowance is herein made, and has kept it in a proper state of repair. This will apply only when a large enough maintenance program is being carried out to require the service of an Engineer, and when the costs thereof are spread over the entire scheme.

PIPELINE CROSSINGS

The Foster Drain crosses the Trans-Canada Pipe Line in two locations.

- (a) In the East 1/2 of Lot number 13, Concession 2, at Station 22+77.
- (b) In the West 1/2 of Lot number 21, Concession 2, at Station 151+75.

At Station 22+77, as the clearance between the bottom of the ditch and the top of the pipe line is approximately six inches, it will be necessary to protect the pipe line by means of 10 feet of 24 inch diameter split steel casing. The cost of this installation is estimated at \$850.00, made up of \$700.00 for installation by Trans-Canada Pipe Lines Limited; \$100.00 extra Engineering Fees; and \$50.00 for Legal Fees.

As the new grade is very close to the original grade as laid out by the late George L. Brown in 1931, and also, for the reasons hereinafter stated, I have levied the full cost of this crossing against the Trans-Canada Pipe Lines Limited.

It is not expected that any special installation will be required at Station 151+75 as the clearance between the top of the pipe and the bottom of the ditch is more than 1-1/2 feet, and as the maximum velocity in the ditch will not exceed two feet per second which is considerably less than the scouring velocity.

However, as it is necessary to obtain the approval of the National Energy Board for this latter crossing which entails additional Engineering and Legal work, I have estimated the cost of this crossing at \$150.00, made up of \$100.00 extra Engineering Fees, and \$50.00 for Legal Fees. This charge has been levied against the Trans-Canada Pipe Lines Limited for the reasons hereinafter stated.

The Foster Drain also crosses the Trans-Northern Pipe Line at Station 196, in Lot number 21, Concession I, now in the Village of Iroquois. At this point the clearance between the bottom of the proposed drain and the top of the pipe is small, amounting to 0.8 feet, and it will be necessary to protect the Trans-Northern Pipe Line by means of a split steel

casing as shown on the drawing of this crossing. The estimated cost of this crossing amounts to \$450.00, made up as follows:

Installation of 16 inch split steel casing	\$300.00
Engineering Fees-Application to National Energy Board	100.00
Legal Fees	50.00

This cost of \$450.00 has been assessed against the Trans-Northern Pipe Line Company for the reasons hereinafter stated.

Both the Trans-Canada Pipe Lines Limited, and the Trans-Northern Pipe Line Company, are operating on a Dominion charter and come under the jurisdiction of the National Energy Board. Recently, the National Energy Board issued their General Order No. 2 which makes it necessary to apply to that Board for approval of any crossings over pipe lines. The wording in the Order is such that it applies to crossings by drainage ditches, in addition to other utilities. Subsection 7 of Section 8 of the National Energy Board Order No. 2 would indicate that all costs in connection with the crossings will be borne by the Township. This would mean that the cost to the Township of the three crossings above mentioned would amount to \$1,450.00, which would then have to be charged back to the owners in the drainage area in the proportion shown in Schedule "A"

However, Subsection 22 of Section 8 of The Municipal Drainage Act reads as follows:

"In addition to all other sums lawfully assessed against the property of the public utility under this Act, and even if the public utility is not otherwise assessable under This Act, the public utility shall be assessed for and shall pay all the increase of cost of such work or part, caused by the construction and operation of the public utility."

However, as a public utility is defined as including works for the production, transmission, distribution and supply of crude oil or liquid or gaseous hydrocarbons, etc., it appears that under this Act that both pipe line companies must be assessed for the full cost of these crossings.

The matter of jurisdiction in drainage matters as between Provincial and Federal Governments as allocated under The British North America Act is still a matter to be determined, and whether the municipality will be able to collect the above levies will probably hinge upon the determination of this legal question.

BELL TELEPHONE BURIED CABLE

The Foster Drain crosses two buried telephone cable lines. One on the Concession Road Allowance between the First and Second Concessions, and the second on the east side of County Road No. 2 in the Second Concession. I do not expect that this cable will interfere in any way with the proposed construction. However, the Bell Telephone Company has agreed to locate the cables prior to the construction of the drain.

FUTURE MAINTENANCE

After construction, that portion of the Main Drain lying between the centre line of Lot 12, Concession 2, and the southerly limit of the Road Allowance between the Second Concession of the Township of Matilda and the Village of Iroquois; together with the Branch Drain, shall be maintained by the Township of Matilda, at the expense of the lands and roads in any way assessed for construction and in the same relative proportion. That portion of the Main Drain lying within the limits of the Village of Iroquois shall be maintained by the said Village at the expense of the lands and roads in any way assessed for construction and in the same relative proportion.

ESTIMATE OF COST

Main Drain

8,503 cu.yds. Earth Excavation @ \$0.50 per cu.yd.	\$4,251.50
894 cu.yds. Hardpan Excavation @ \$1.00 per cu.yd.	894.00
Allowances for Farm Crossings	1,936.00
Pipe Line Crossings	1,450.00

Branch Drain

1,762 cu.yds. Earth Excavation @ \$0.50 per cu.yd.	881.00
174 cu.yds. Hardpan Excavation @ \$1.00 per cu.yd.	174.00
Allowances for Farm Crossings	330.00

Clerk's Fees-Township of Matilda	225.00
Preparing & Printing By-Laws	100.00
Court of Revision-Branch Drain	35.00
Engineering Fees-Report, Plans, Specifications	1,000.00
Supervision & Inspection	<u>150.00</u>
Total Estimated Cost	\$11,426.50

The cost of the Main Drain has been proportioned between the owners assessed for the original construction, and in the same relative proportion as contained in the original by-law. The cost of the new branch has been assessed against the new owners who will benefit by its construction.

This estimated cost of \$11,426.50 has, therefore, been apportioned in the following manner:

Maintenance Liability-Real Property-Matilda Twp.	\$ 7,987.97
Maintenance Liability-Roads-Matilda Twp.	167.95
Maintenance Liability-Roads-United Counties	151.22
Maintenance Liability-Real Property-Iroquois Vill.	105.92
Maintenance Liability-Roads-Iroquois Village	43.44
Pipeline Crossing-Trans-Canada Pipe Lines Ltd.	1,000.00
Pipeline Crossing-Trans-Northern Pipe Line Co.	450.00

Branch Drain

Outlet Liability-Real Property-Matilda Twp.	684.00
Benefit Liability-Real Property-Matilda Twp.	<u>836.00</u>
Total	\$11,426.50

1922 02,257.00

02,257.00
00.00

1922

00.00
00.00

00.00
00.00
00.00
00.00
00.00
00.00

00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

00.00
00.00

Under the provisions of The Provincial Aid to Drainage Act, 1960, R.S.O., the Province of Ontario pays a grant of one-third of the cost of municipal drains. In this case, with an estimated cost of \$11,426.50, this grant would amount to \$3,808.83, leaving a total of \$7,617.67 to be paid by the lands and roads herein assessed. The attached schedules of assessment have been prepared to show the cost which would be borne by the individual ratepayers were there no such grant. Each owner assessed herein will, therefore, be entitled to a one-third reduction in his assessment upon receipt of this grant.

Trusting that this report will meet with your approval
Gentlemen,

We have the honour to be

Your obedient servant,

STIDWILL & ASSOCIATES LIMITED

Per ... *S. P. Stidwill* ...
C.E., O.L.S.

Cornwall, Ontario, February 26, 1962

SCHEDULE OF ASSESSMENT

SCHEDULE "A"

MAIN DRAIN

TOWNSHIP OF MATILDA

Name of Owner	Con.	Lot or Part	Acres Owned	Acres Drained	Maintenance
L. McGinnis ✓	2	S.E. 1/4 Lot 11		11	\$123.11
L. McGinnis	2	S 60ac. W $\frac{1}{2}$ Lot 11	60	28.8	297.30
C. McAllister ✓	2	S 3/8-E $\frac{1}{2}$ Lot 12	60	41.7	430.48
C. Seeley ✓	2	S $\frac{1}{2}$ -N 2/5-W $\frac{1}{4}$ Lot 12		1.75	18.01
C. Seeley	2	S $\frac{1}{2}$ -N 2/5-E $\frac{1}{2}$ -W $\frac{1}{2}$ Lot 12		1.5	15.44
C. McAllister	2	S 3/5-W $\frac{1}{2}$ -Lot 12	60	42.8	545.04
P. Vedder ✓	2	S 65ac. E $\frac{1}{2}$ -Lot 13	65	55	693.38
P. Vedder	2	N 2/3-S 3/5 W $\frac{1}{2}$ -13	40	40	550.00
H. Brontmire ✓	2	N 2/5-W $\frac{1}{2}$ -Lot 13		5.9	60.84
E. O. Foster ✓	2	S 20ac. W $\frac{1}{2}$ -Lot 13		14.3	147.57
E. O. Foster	2	S 135ac. Lot 14		104	954.33
R. Barnhart ✓	2	S.E. 1/4 Lot 15		23.75	163.81
R. Barnhart	2	S 10ac. N.E. $\frac{1}{4}$ Lot 15		10	94.64
R. Barnhart	2	S 20ac. N $\frac{1}{2}$ -E $\frac{1}{2}$ -W $\frac{1}{2}$ -20	15 15	6	56.71
H. Milligan ✓	2	N $\frac{1}{2}$ -W $\frac{1}{4}$ -Lot 15		7.5	71.00
H. Milligan	2	Pt. SW $\frac{1}{4}$ Lot 15		24	165.56
H. Milligan	2	Pt. E 1/2 Lot 16		41.1	239.96
O. Ault ✓	2	E.Pt. SW $\frac{1}{4}$ Lot 16		14	60.68
O. Ault	2	W.Pt. SW $\frac{1}{4}$ Lot 16		14	60.68
R. Ault ✓	2	N $\frac{1}{2}$ -E $\frac{1}{2}$ -W $\frac{1}{2}$ -Lot 16		8.75	54.61
R. Ault	2	N $\frac{1}{2}$ -W $\frac{1}{4}$ -Lot 16		10.75	63.63
V. Ault ✓	2	S.Pt. E $\frac{1}{2}$ -Lot 17		49	274.97
V. Ault	2	S.W. 1/4 Lot 17		24	103.86
C. Harkness ✓	2	N.W. 1/4 Lot 17		36	190.49
V. Ault	2	S.E. 1/4 Lot 18		29.75	128.83
C. Harkness ✓	2	N.E. 1/4 Lot 18		29.75	147.85

675.10x

Name of Owner	Con.	Lot or Part	Acres Owned	Acres Drained	Maintenance
Mrs; D. Sahver ✓	2	Pt. W 1/2 Lot 18		60.25	\$345.09
<small>REVISED ASSESSMENT</small> C. Armstrong ✓	2	Pt. S 4/5-E $\frac{1}{2}$ -19	13.96	18.10 62.56	324.21
U. THALMANN	2	PT. S 4/5-E $\frac{1}{2}$ -19	11.96	6.	309.76
G. Shaver ✓	2	S 4/5-W $\frac{1}{2}$ -Lot 19		62.25	373.33
J. Brouse ✓	2	Pt. S 4/5-E $\frac{1}{2}$ -20		63	285.16
J. Brouse	2	S 7/10-W $\frac{1}{2}$ -20		66	260.10
A. Curran ✓	2	N 3/10-W $\frac{1}{2}$ -20		2.5	6.02
W. & Winnifred Gibbons ✓	2	N 1/2 Lot 21		33.5	80.67
J. Brouse	2	E 16ac. S $\frac{1}{2}$ -21		14.75	58.58
C. Serviss ✓	2	W 84ac. S $\frac{1}{2}$ -21		83	395.12
J. Brouse	2	S 1/2 Lot 22		58.5	140.90
W. & Winnifred Gibbons	2	N.E. 1/4 Lot 22		2.5	6.01
				<u>508.25</u>	
<u>Township of Matilda</u> ✓					
Road Allowance btwn. Lots 12-13, Con. 2					124.50
1/2 Road Allowance btwn. Cons. 1-2					43.45
<u>United Counties-Stormont, Dundas & Glengarry</u> ✓					
County Road No. 2					151.22

MAIN
 $\therefore 508.25 + 675.10 = 1183.35$
 BEAVER + $\frac{77.30}{1260.65}$ FROM

MAIN DRAIN

VILLAGE OF IROQUOIS

Name of Owner	Con.	Lot or Part	Acres Owned	Acres Drained	Maintenance
Ontario Hydro Electric Power Commission <i>Department of Highways</i>	1	Pt. Lots 21-22		22	\$105.92
<i>Transferred to Dept of Hwys.</i>					
<u>Village of Iroquois</u>					
1/2 Concession Road Allw. Btwn. Concessions 1 & 2					43.44

Name of Owner	Con.	Lot or Part	Assessment
---------------	------	-------------	------------

Trans-Canada Pipe Lines Limited

Pipe Line Crossing-Lot 13, Concession 2 \$850.00

Pipe Line Crossing-Lot 21, Concession 2 150.00

Trans-Northern Pipe Line Company

Pipe Line Crossing Lot 21, Concession 1 450.00

~~18~~ 1950

SCHEDULE "B"

BRANCH DRAIN

Name of Owner	Con.	Lot or Part	Acres Owned	Acres Drained	Outlet Liability	Benefit
E. O. Foster	2	S 135ac. Lot 14		26	\$266.09	\$244.44
E. O. Foster	2	S 20ac. W $\frac{1}{2}$ Lot 13		14.3	132.34	221.00
P. Vedder	2	N 2/3-S 3/5-W $\frac{1}{2}$ Lot 13		13	103.88	169.66
P. Vedder	2	S 65ac. E $\frac{1}{2}$ Lot 13		24	181.69	200.90
				<u>77.30</u>		

SCHEDULE "C"

FARM BRIDGES

MAIN DRAIN

<u>Name of Owner</u>	<u>Lot or Part</u>	<u>Size</u>	<u>Allowance</u>
C. McAllister	S 3/5-W $\frac{1}{2}$ Lot 12, Con. 2	24"	\$77.00
P. Vedder	S 65ac. E $\frac{1}{2}$ Lot 13, & N 2/3-S-3/5-W $\frac{1}{2}$ Lot 13, Con. 2 - 2 Bridges		176.00
E. O. Foster	S 135ac. Lot 14, Con. 2 2 Bridges		176.00
R. Barnhart	SE 1/4 Lot 15 & S 10ac. NE 1/4 Lot 15, Con. 2		88.00
H. Milligan	SW 1/4 Lot 15 & N $\frac{1}{2}$ -W $\frac{1}{4}$ Lot 15, Con. 2		88.00
H. Milligan	Pt. E 1/2 Lot 12, Con. 2		88.00
R. Ault	NW 1/4 Lot 16, Con. 2		88.00
V. Ault	Pt. E 1/2 Lot 17, Con. 2		99.00
C. Harkness	NW 1/4 Lot 17 & NE 1/4 Lot 18 Concession 2 - 2 Bridges		198.00
Mrs. D. Shaver	Pt. W 1/2 Lot 18, Con. 2		99.00
C. Armstrong	Pt. E 1/2 Lot 19, Con. 2		99.00
G. Shaver	Pt. W 1/2 Lot 19, Con. 2		99.00
J. Brouse	Pt. E 1/2 Lot 20, Con. 2		99.00
J. Brouse	Pt. W 1/2 Lot 20, Con. 2		110.00
C. Serviss	W 84ac. S 1/2 Lot 21, Concession 2 - 2 Bridges		231.00
<i>Dept of Highway</i> Ontario Hydro	Pt. Lot 21, Con. 1		121.00

SCHEDULE "D"

FARM BRIDGES

BRANCH DRAIN

E. O. Foster	S 135ac. Lot 14, Con. 2	24"	77.00
E. O. Foster	S 20ac. W 1/2 Lot 13, Con. 2	24"	77.00
P. Vedder	N 2/3-S-3/5-W $\frac{1}{2}$ Lot 13, Con. 2	30"	88.00
P. Vedder	S 65ac. E 1/2 Lot 13, Con. 2	30"	88.00