

HENDERSON DRAIN & BRANCHES
BRIDGE MAINTENANCE SHARING

Geographic Township of Gosfield South

TOWN OF KINGSVILLE



TOWN OF KINGSVILLE

**2021 Division Road North
Kingsville, Ontario N9Y 2Y9
519-733-2305**

Rood Engineering Inc.

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REI Project 2015D019

March 9th, 2017

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Mayor and Municipal Council
Corporation of the Town of Kingsville
2021 Division Road North
Kingsville, Ontario
N9Y 2Y9

Mayor Santos and Members of Council:

HENDERSON DRAIN & BRANCHES
Bridge Maintenance Sharing
Geographic Twp. of Gosfield South
REI Project 2015D019
Town of Kingsville, County of Essex

I. INTRODUCTION

Further to instructions from Council at their April 13th, 2015 meeting and as outlined in the correspondence from your Drainage Superintendent Ken Vegh, dated April 22nd, 2015, we have proceeded with an Engineer's Report to review the existing drainage works and the drainage area served by the Henderson Drain & Branches. These branches include the Henderson Drain East, South and West Branches, along with the 2nd Concession Branch. This investigation was initiated by a resolution passed by Council to prepare a report for assessment of maintenance work on the bridges on the Henderson Drain & Branches so that the cost of future maintenance works on these drain bridges may be more fairly assessed in accordance with current practice. This investigation, our instructions, and this assessment report are in accordance with Section 76 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010".

The Town of Kingsville is proposing to undertake maintenance works on some of the bridges along the Henderson Drain & Branches. Provisions for bridge maintenance cost sharing are not established within the current drainage report, such that updated information is necessary in order to properly distribute the cost of maintenance on these bridges to all affected landowners. This report establishes cost sharing utilizing current practices which shall provide a basis for levying any future maintenance costs for work to the bridges.

II. DRAINAGE HISTORY

The Henderson Drain & Branches is located entirely within the Town of Kingsville. The drainage basin served by the Henderson Drain & Branches consists of approximately 242.8 hectares (600 acres). The upper end of the main Henderson Drain commences at the north side of Road 2 West at the junction with the East Branch and 2nd Concession Branch. The drain extends westerly and turns southerly under the roadway at the point where the West Branch enters, and continues southerly to the junction with the South Branch. It then turns and flows westerly and southwesterly to the point where it becomes a natural watercourse near the midpoint of Lot 4, 4th Section Western Division, as shown on the watershed plan. The various Branches as noted

above are also shown on the attached watershed plan and discharge their flows through the main Henderson Drain. The 2nd Concession Branch includes an extension westerly from its original upper end near the midpoint of Lot D, Concession 2, to the line between Lot C and Lot D, Concession 2.

A review of the Municipal drainage records indicates that the last major work of repair and improvement to the Henderson Drain & Branches was completed under the Engineer's Report dated December 13th, 1978 prepared by William J. Setterington, P.Eng. Other more recent reports have addressed various sections of the drain and branches and includes reports for bridge replacements. The April 8th, 1991 reconsidered report by Lou Zarlenga, P.Eng., provided for the extension of the 2nd Concession Branch. The current maintenance schedule of assessment for the drain and branches was established in the December 13th, 1978 report prepared by William J. Setterington, P.Eng.

An on-site meeting with the affected Owners was scheduled for June 24th, 2015. The meeting was attended by the following people: Jake Ketler, Rod Stapleton, Chris Dame, Earl & Bev Haggins, Gary Beaulieu, Robert Sundin, William Balkwill, Stuart Sykes, Margaret Pare, Al Marentette, Al Sauve, Glenn Thorpe, Dave Kendrick, Henry Denotter, Mark Balkwill, Kim Lewis, Ken Vegh (Kingsville Drainage Superintendent), and Gerard Rood (Rood Engineering). Mr. Vegh provided a history of the drainage works and told the owners that work was proceeding in accordance with Section 76 of the Drainage Act. It was explained that this section of the Drainage Act provides for varying the original assessments for maintenance. The Town intends to carry out maintenance work to bridges on the drainage system and wants to ensure that the proper lands affected by the bridges are assessed at appropriate rates for Benefit and Outlet Liability. The drainage report will provide cost sharing of the bridges so that the cost of any works to them are shared fairly between the affected owner and the upstream lands and roads in accordance with current practice.

Mr. Rood and Mr. Vegh explained that cost sharing is based on the location of the bridge along the drainage works. A standard bridge near the midpoint of the drain reach would typically be assessed 50% as Benefit to the lands served by the bridge and 50% to the upstream affected lands and roads based on their Outlet Liability in the current schedule of assessment. Bridges upstream of the midpoint are typically assessed a higher Benefit ratio to the lands served by the bridge, while bridges downstream of the midpoint are typically assessed a lower Benefit ratio to the lands served by the bridge. In this way the assessment reflects the contribution of flows by the upstream lands and roads and the impact of the flows on the sizing of the bridge. The owners were advised that road bridges are normally assessed approximately 98% to the road authority and 2% to the upstream lands and roads. This is a consequence of Section 26 of the Drainage Act that states that road authorities and utilities are responsible for any increase in cost to the drainage works associated with their structures being there. It was explained that a standard bridge is deemed to have a 6.1m (20') top width with standard Granular "A" top and suitable end protection. The cost for additional length and top width, drain enclosure, or special treatment to a bridge are considered to be a direct benefit to and assessed entirely to the owners of the lands served by the bridge or enclosure.

The preparation and submission of the report was reviewed along with the procedure under the Drainage Act for scheduling of a Consideration meeting and Court of Revision meeting. The right to appeal certain matters to the Tribunal and Drainage Referee were discussed. Grants to

agriculture lands are still available but only for work done pursuant to the Drainage Act and an Engineer's Report. Owners were invited to contact the Engineer or Drainage Superintendent if there were any questions on the project.

III. INVESTIGATIONS AND FINDINGS

The purpose of the on-site meeting was to explain that the Town needs to carry out maintenance to some of the bridges along the drainage system. From the Town review of the existing drainage reports it is evident that there is a lack of proper sharing for bridge work and accordingly the Town has appointed the Engineer to prepare an updated Sharing Schedule prior to the work being completed.

The report will provide for sharing cost of work to access bridges along the course of the drainage system. Assessment for maintenance work depends on where the work is done and who is involved, generally being the adjacent and upstream landowners.

Any required work to the drain bridges will be carried out as a maintenance project and not a capital project. The owners are advised that public meetings will be scheduled and notices for same will be sent out along with a copy of this Drainage Report that includes updated Maintenance Sharing for bridges. The Owners are advised that they may contact either the Drainage Superintendent or the Engineer, if any questions arise in the interim.

Subsequent to the on-site meeting we carried out a topographic survey to establish the location of all the bridges in the drainage system. We also made visual inspections and recorded notes on the details of each bridge and their general condition. We reviewed the past engineers reports and find that provisions were made for the upkeep and maintenance of all the access and farm bridges located by our survey except for Bridge 18.

Based on our investigations and the information obtained subsequent to the on-site meeting, we have established the following.

SUMMARY OF BRIDGES

Henderson Drain (main channel)

Bridge No.	Names Roll Number	Description
6	Town of Kingsville, Road 2 West	Concrete highway bridge with open bottom and exposed footings; some deterioration of concrete including cracks, spalling and exposed reinforcing steel; bridge in fair condition
7	Derek & Henry Denotter, 380-00300	850mm diameter C.S.P. with fiberglass pipes inserted with concrete filled jute bag end protection; bridge top is in fair

		condition but C.S.P. is rotted with fiberglass pipe inserts okay
8	Joshua Beaulieu, 380-00250	850mm diameter C.S.P. with broken concrete pieces end protection; pipe is badly rusted at the bottom
17	Nancy Bacon, 330-05200	1900mm span by 1000mm rise C.S.P. arch with concrete filled jute bag ends; bridge is in very poor condition with sides rusted out and bridge collapsing
18	Jeffery & Rachel Lewis, 330-02250	Essentially a foot bridge comprised of approximately 7 telephone poles lying side by side and spanning the channel; not a legal access

East Branch

9	Manley Thorpe & Janice Breemhaar, Est. Trustee, 380-00220	800mm diameter C.S.P. with broken concrete and rock sloped ends; pipe is half filled with sediment and badly rusted
10	Manley Thorpe & Janice Breemhaar, Est. Trustee, 380-00220	450mm diameter C.S.P. driveway pipe and lawn enclosure extending across to next driveway Bridge 11; rip rap end protection; pipe half full with sediment and badly rusted
11	Manley Thorpe & Janice Breemhaar, Est. Trustee, 380-00220	450mm diameter C.S.P. driveway pipe and lawn enclosure extending across to next driveway Bridge 10; loose bricks end protection; pipe half full with sediment and badly rusted

South Branch

13	Christopher Lewis, 330-05400	750mm diameter H.D.P.E. pipe; sloped vegetated ends; narrow top width; appears to be secondary access for personal use
14	Christopher Lewis, 330-05400	850mm diameter C.S.P. on east end with concrete filled jute bag end and 750mm diameter H.D.P.E. extension on west end with sloped rip rap protection; primary access for farm field; the C.S.P. is badly rusted with perforations through the pipe wall;

- | | | |
|----|---|---|
| 15 | David & Jamie Kendrick,
330-05500 | 850mm diameter C.S.P. with concrete filled
jute bag ends; pipe is badly rusted |
| 16 | Manley Thorpe & Janice
Breemhaar, Est. Trustee,
330-05650 | 400mm diameter C.S.P. with broken
concrete pipe pieces stacked end
treatment; pipe is badly rusted with
perforations and sink hole on west end |

West Branch

- | | | |
|---|---|---|
| 1 | Charles & Catherine Sykes,
380-00450 | 750mm diameter C.S.P. with rip rap ends
and asphalt driveway; significant silt
accumulated inside pipe and pipe beginning
to rust below springline; primary access |
| 2 | Charles & Catherine Sykes,
380-00450 | 750mm diameter C.S.P. with rip rap ends;
newer pipe installed in 2011, secondary
access |
| 3 | Sarah Barnard,
380-00460 | 800mm diameter C.S.P. with rip rap ends;
pipe in good condition |
| 4 | James George,
380-00401 | 800mm diameter C.S.P. with broken
concrete pieces, gabion stone and beach
stone end protection; asphalt driveway and
timber railings each side; pipe badly rusted
with perforations at springline |
| 5 | Beverly & Earl Haggins,
380-00400 | 800mm diameter C.S.P. with concrete filled
jute bag ends; pipe in good condition |

2nd Concession Branch

- | | | |
|----|--------------------------------------|---|
| 12 | Derek & Henry Denotter,
380-00300 | 900mm diameter fiberglass pipe with
sloped vegetated ends; bridge in
satisfactory condition although top width is
narrow |
|----|--------------------------------------|---|

The assessment for access bridges is not shown in the old drainage report that provided for repair and improvement of the drain. The current practice is that work to bridges would be a recurring cost for the upkeep and maintenance of each of the structures shared between the bridge owner and upstream lands including roads where affected.

IV. RECOMMENDATIONS

In order to properly assess any maintenance works to bridges on the Henderson Drain & Branches it will be necessary to establish cost sharing for use with the Schedule of Assessment within the current governing Engineer's Report dated December 13th, 1978 prepared by William Settingington, P.Eng. We recommend that the current Schedule of Assessment be utilized in establishing the sharing to upstream lands and roads of the Outlet Liability costs for each bridge on a pro-rata basis in accordance with the bridge cost sharing table included in our report.

Furthermore, in order that a mechanism exists by which the Town can undertake maintenance works on all the existing bridges, we recommend that they all be maintained in the future as part of the drainage works, except for Bridge 18 which is not a standard legal access bridge. This bridge would have to be replaced with a standard access bridge at 100% cost to the owners. Once in place, the bridge would be maintained similar to the other bridges in the drainage system. We would also recommend that the access bridges presently found in the drain, for which the maintenance costs are to be shared with the upstream lands and roads within the watershed, be maintained by the Town and that said maintenance would include works to the bridge culvert, bedding, backfill and end treatment. When concrete or asphalt driveway surfaces over these bridge culverts require removal as part of the maintenance works, these surfaces shall be repaired or replaced as part of the work. Likewise, if any fencing, gate, decorative walls, guard rails or special features exist that will be impacted by the maintenance work, they are also to be removed and restored or replaced as part of the bridge maintenance work. However, the cost of the supply and installation of any surface material other than granular "A" material, and the cost of the removal and restoration or replacement if necessary of any special features, shall be totally assessed to the benefiting adjoining owner served by said access bridge.

We would also recommend that all engineering costs and expenses related to the preparation, distribution, and consideration of this report be included as an expense to the drainage works and that same is to be assessed in the same proportions as set out in the current 1978 Schedule of Assessment for the Henderson Drain & Branches.

V. DRAWINGS

Attached to the end of this report is a drawing that shows the Henderson Drain & Branches and the approximate limits of the affected watershed that was established by our investigations. It illustrates the location of the watershed, the location of the drain and branches, the location of all existing access bridge structures, the names and roll numbers of the affected landowners, as well as the approximate boundary limit of the watershed.

VI. SHARING SCHEDULE AND MAINTENANCE WORKS

We have prepared a Bridge Sharing Schedule to be utilized for assessing costs against the affected lands for any future maintenance works conducted to the bridges on the Henderson Drain & Branches as outlined below. As previously mentioned, the assessment proportions as outlined within the current 1978 Schedule of Assessment has been established to be used for distributing costs to the abutting and upstream lands and roads on the basis of their Outlet Liability

assessments. The physical dimensions which control the extent of maintenance works permitted on this drainage system shall be limited to that which has been set out in the various drainage reports for sections of the drainage system and newer bridges.

When any works of maintenance are required to the existing bridges, the following provisions with respect to cost sharing shall apply:

Henderson Drain & Branches
Bridge Sharing

<u>Bridge/ Encl.</u>	<u>Roll No.</u>	<u>Owners</u>	<u>Owners' Share</u>	<u>Upstream Share</u>
1	380-00450	Charles & Catherine Sykes	82.0%	18.0%
2	380-00450	Charles & Catherine Sykes	100.0%	0.0%
3	380-00460	Sarah Barnard	78.0%	22.0%
4	380-00401	Charles & Shirley Chevalier	76.3%	23.7%
5	380-00400	Beverly & Earl Haggins	76.9%	23.1%
6	Road 2 West	Town of Kingsville	98.0%	2.0%
7	380-00300	Derek & Henry Denotter	54.0%	46.0%
8	380-00250	Joshua Beaulieu	55.0%	45.0%
9	380-00220	Manley Thorpe & Janice Breemhaar, Est. Trustee	77.0%	23.0%
10	380-00220	Manley Thorpe & Janice Breemhaar, Est. Trustee	100.0%	0.0%
11	380-00220	Manley Thorpe & Janice Breemhaar, Est. Trustee	100.0%	0.0%
12	380-00300	Derek & Henry Denotter	75.0%	25.0%
13	330-05400	Christopher Lewis	100.0%	0.0%
14	330-05400	Christopher Lewis	65.0%	35.0%
15	330-05500	David & Jamie Kendrick	71.0%	29.0%
16	330-05650	Manley Thorpe & Janice Breemhaar	83.0%	17.0%
17	330-05200	Nancy Bacon	46.0%	54.0%
18	330-02250	Jeffery & Rachel Lewis	35.0%	65.0%

In the above table, Bridges 2, 10, 11 and 13 are considered as secondary accesses serving the various parcels. Pursuant to the Drainage Act each parcel is entitled to one bridge for access per drain. Any additional bridges are constructed and kept up and maintained by the Town at the sole cost of the parcel served by the secondary bridge. Should any works or maintenance be required to the other existing access bridges, the cost will be shared as noted in the above table except for Bridge 18. The existing timber pole footbridge needs to first be replaced with a standard access bridge at 100% cost to the owners. Subsequent to that, the bridge will be

maintained on the sharing basis noted in the table. The share indicated for the Owners shall be assessed as a Benefit to the bridge Owners and the remaining cost share shall be assessed as an Outlet Liability against the lands and roads within the watershed lying upstream of said access bridge, and shall be assessed in the same proportions as the Outlet assessments shown in the Schedule of Assessment established by the 1978 Henderson Drain & Branches drainage report by William Settrington, P.Eng.

The actual cost of maintenance work on the drain bridges shall be assessed against the lands and roads in the proportions as shown in the table above, subject to any future variations that may be made under the authority of the "Drainage Act R.S.O. 1990, Chapter D.17, as amended 2010".

VII. GRANTS

On September 22nd, 2005, the Ontario Ministry of Agriculture, Food, and Rural Affairs (O.M.A.F.R.A.) issued Administrative Policies for the Agricultural Drainage Infrastructure Program (A.D.I.P.). This program has re-instated financial assistance for eligible costs and assessed lands pursuant to the Drainage Act. Sections 85 to 90 of the Drainage Act allow the Minister to provide grants for various activities under said Act. Sections 85 to 87 make it very clear that grants are provided at the discretion of the Minister. Based on the current A.D.I.P., "lands used for agricultural purposes" may be eligible for a grant in the amount of 1/3 of their total assessment. The new policies define "lands used for agricultural purposes" as those lands eligible for the "Farm Property Class Tax Rate". The Municipal Clerk can provide this information to the Drainage Superintendent and landowners from the current property tax roll. Properties that meet the criteria for "lands used for agricultural purposes" are expected to be eligible for the 1/3 grant on their total assessment from O.M.A.F.R.A.

We recommend that an application be made by the Town of Kingsville, on completion of any drain maintenance work, to the Ontario Ministry of Agriculture, Food and Rural Affairs (O.M.A.F.R.A.) in accordance with Section 88 of the "Drainage Act R.S.O. 1990, Chapter D.17, as amended 2010" for this grant.

All of which is respectfully submitted.

Rood Engineering Inc.



Gerard Rood, P.Eng.



Att.

Rood Engineering Inc.

Consulting Engineers

9 Nelson Street

LEAMINGTON, Ontario N8H 1G6

WATERSHED PLAN

OF THE

HENDERSON DRAIN & BRANCHES

(Geographic Township of Gosfield South)

IN THE

TOWN OF KINGSVILLE

IN THE

COUNTY OF ESSEX • ONTARIO

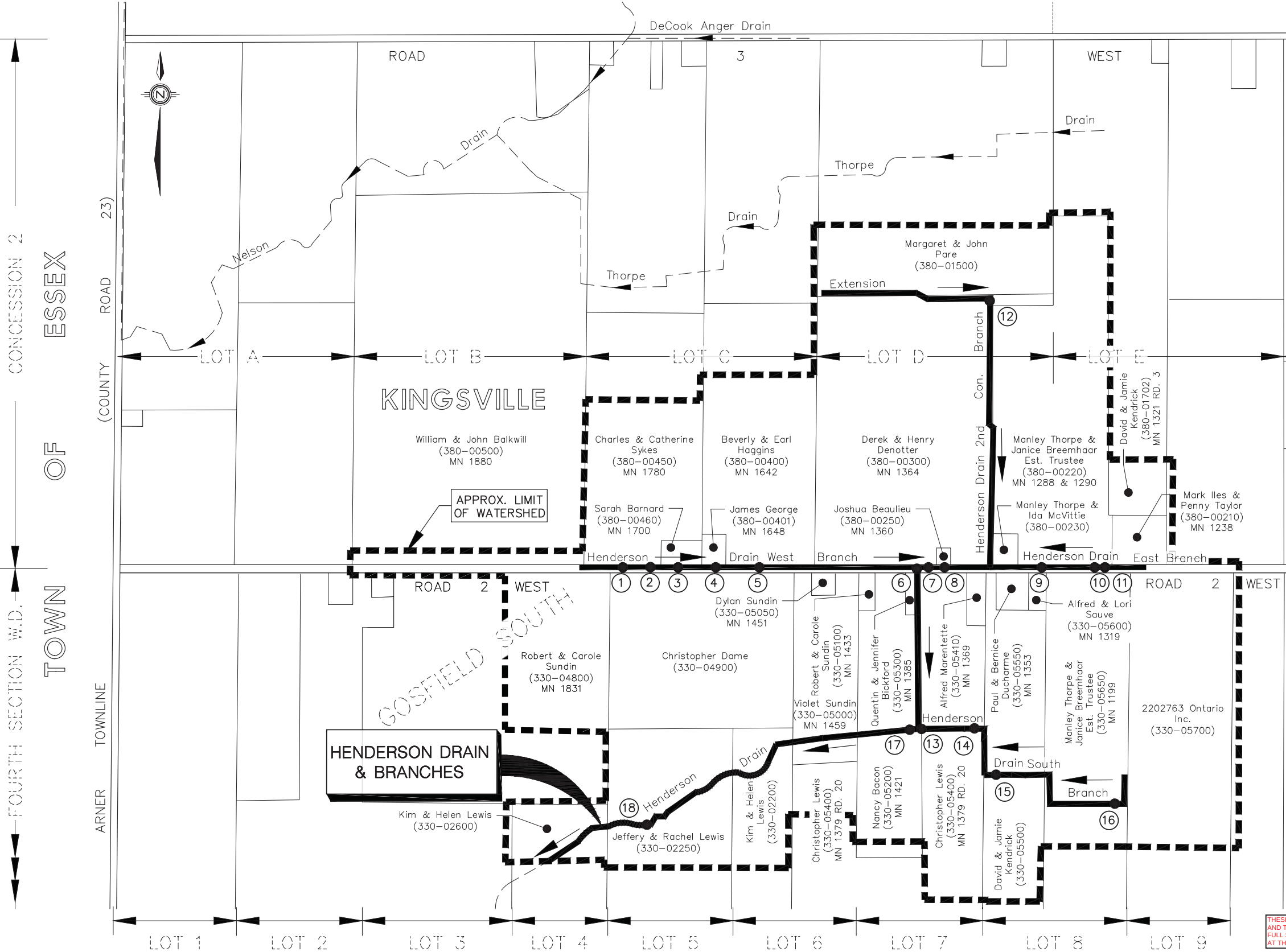
Gerard Rood
GERARD ROOD, P.ENG.



**ROOD
ENGINEERING
INC.**
CONSULTING ENGINEERS
Leamington, Ontario
519-322-1621

DATE: March 9, 2017

TOWN OF KINGSVILLE
MAYOR: NELSON SANTOS
CLERK: JENNIFER ASTROLOGO
DRAINAGE SUPERINTENDENT: KEN VEGH



GOSFIELD SOUTH

HENDERSON DRAIN & BRANCHES

WATERSHED PLAN

Scale = 1:5,000

THESE PLANS HAVE BEEN REDUCED
AND THE SCALE THEREFORE VARIES
FULL SCALE PLANS MAY BE VIEWED
AT THE MUNICIPAL OFFICE.

DRAWN BY: G.S. PLOT CODE: 1:1 COMPUTER FILE: REI2015D019.DWG	
FILE No.: REI2015D019	SHEET No.: 1 OF 1