R. Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia, Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233
www.dobbineng.com

August 27, 2024

The Mayor and Council
The Town of Plympton-Wyoming
546 Niagara Street
Wyoming, ON
N0N 1T0

Gentlemen and Mesdames:

Re: Saul Drain (2024)

In accordance with your instructions, R. Dobbin Engineering has undertaken an examination with regards to providing a municipal drain to service the properties with Roll Numbers 20-111 and 20-111-01 in the Town of Plympton-Wyoming.

This is a Reconsidered Report based on a July 10, 2024 Meeting to Consider.

Authorization under the Drainage Act

This Engineers Report that has been prepared under Section 4 of the Drainage Act as per two separate petitions from affected Landowners.

R. Dobbin Engineering Inc. was appointed by council on October 26th, 2023 (Roll Number 20-111 petition) and June 12th, 2024 (Roll Number 20-111-01 petition).

A petition for the drainage by means of a drainage works of an area requiring drainage as described in the petition may be filed with the Clerk of the local Municipality in which the area is situate by,

(a) the majority in number of the owners, as shown by the last revised assessment roll of lands in the area, including the owners of any roads in the area;

(b) the owner or owners, as shown by the last revised assessment roll, of lands in the area representing at least 60 per cent of the hectarage in the area;

(c) where a drainage works is required for a road or part thereof, the engineer, road superintendent or person having jurisdiction over such road or part, despite subsection 61(5);

(d) where a drainage works is required for the drainage of lands used for agricultural purposes, the Director. R.S.O. 1990, c.D.17, s.4(1).

The petitions were determined to be valid based on Section 4 (1) (b).

Existing Conditions

There is an existing private drain that outlets into Bonnie Doone Creek near the west limit of Lot 15, Concession 9. It then continues southerly to the south side of Egremont Road.

On-Site Meeting

A site meeting was held on December 18th, 2023.

The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Elizabeth Cummings (Drainage Superintendent and Engineering Coordinator, Town of Plympton-Wyoming)
- John VanKlaveren (Council Representative, Town of Plympton Wyoming))
- Kelly Saul (Landowner Representative)
- Brian Doull (Landowner)
- Peter (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- Landowners were made aware that a petition was received from the property with Roll Number 20-111 in order to replace the existing tile drain.
- The owner of the property with Roll Number 20-111-01 stated that the property experiences flooding under larger storm events.
- R. Dobbin Engineering stated that the topsoil will be stripped and the tile will be designed to accommodate 38mm/24hrs in accordance with the standards that are grantable through the Ontario Ministry of Agriculture, Food and Rural Affairs Mapping (OMAFRA) Agricultural Drainage Infrastructure Program (ADIP).
- It was discussed that the existing tile location is unknown and will need further investigation by R. Dobbin Engineering.
    - Following the site meeting, R. Dobbin Engineering reached out to some Landowners and was able to confirm the tile runs northerly near the west limit of Lot 15.

No adverse soil conditions were noted at the site meeting.

Draft Report dated April 11, 2024

A draft report for the Saul Drain, dated April 11, 2024, was sent to the affected properties. A meeting was held on June 3, 2024. The following were present:

- Josh Warner (R. Dobbin Engineering)
- Elizabeth Cummings (Drainage and Engineering Coordinator, Town of Plympton-Wyoming)
- Brian Doull (Landowner)
- Jasmine Doull (Landowner)
- Lisa Spence (Landowner)

The following is a brief summary of the meeting:

- Landowners of the property with Roll Number 20-111-01 expressed some concerns with the location of the drain. It was discussed that the drain is intended to follow the existing private drain alignment while maintaining a reasonable distance away from the property line in order to minimize tree disturbance. It was also discussed that the exact basin location (CB #1) could be identified at the pre-construction meeting, but it was generally agreed that the location as shown would be suitable.
- The owners of the property with Roll Number 20-111-01 submitted a petition at this meeting to have the catch basin and lead to their property included as part of the report.

Discussion

Following the issuance of the draft report, the Landowner of the property with Roll Number 20-112 provided tile information that showed the property was tiled outside of the watershed. Therefore, compared to the draft report, the property's assessment and affected area has been reduced to reflect this.

A meeting was held on June 19, 2024 with the owners of the property with Roll Number 20-111-05. The Landowners were unable to attend the draft report meeting and were missed in the invites for the initial on-site meeting. Discussions involved assessments, Drainage Act proceedings and disturbance to the property.

Meeting to Consider the Report

A report dated June 20, 2024 was submitted with a Meeting to Consider the Report held on July 10, 2024.

Landowners at the Meeting to Consider the Report requested that a new route northwesterly along the south side of Egremont Road be evaluated. Council therefore referred the report back to the Engineer.

July 12, 2024 Meeting and Subsequent Discussion and Analysis

An additional meeting was held on July 12, 2024 to discuss the potential revised alignment with the abutting Landowners. The following were present:

- Josh Warner (R. Dobbin Engineering)
- Elizabeth Cummings (Drainage and Engineering Coordinator, Town of Plympton-Wyoming)
- John VanKlaveren (Council Representative, Town of Plympton Wyoming))
- Jim Saul (Landowner)
- Jasmine Doull (Landowner)
- Amy Symington (Landowner)

It was discussed that the existing private tile would be exposed in multiple locations and that the Town would video the drain. In the meantime, R. Dobbin Engineering would review the possibility of the route to the northwest along the south side of Egremont Road.

Following the meeting, the Landowner of the property with Roll Number 20-111-05 provided a tile map for the property. The property was re-tiled in 2009 and tied into the existing tile approximately 50m south of Fisher Line. The private tile was also videoed from the outlet into Bonnie Doone Creek. The tile was in okay shape to about 20m. At this point, the camera was unable to proceed as it was obstructed with roots.

Based on the property being tiled in 2009, R. Dobbin Engineering Inc. is of the opinion that the benefit percentage for this section of pipe shall be revised from 40% to 20%. Even though it is undersized for the upstream properties that are connected into it, it is still a newer drain that would likely service the property with Roll Number 20-111-05.

Following the above investigations, changes in assessment percentage for the original route and preliminary estimates and assessments for a revised route on the south side of Egremont proceeding northwesterly, Josh Warner and Elizabeth Cummings met with Amy Symington to review the two options. It was decided that the original route would provide the best solution for the area.

Approvals

The drain will require approval from the St. Clair Region Conservation Authority and the Department of Fisheries and Oceans. Construction cannot commence without necessary approvals.

Design

The proposed tile drain shall be designed to accommodate a drainage coefficient of 38mm/24 hours. Tile design criteria includes a minimum tile depth of 760mm.

Recommendations

It is therefore recommended that the following work be carried out:

1. A tile drain known as the Saul Drain shall be constructed from the south side of Egremont Road in Lot 15, Concession 8 to Bonnie Doone Creek in Lot 15, Concession 9 complete with a catch basin near the east limit of the property with Roll Number 20-111-01.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and Profile that forms part of this Report. There has been prepared an Estimate of Cost in the amount of $137,174, including engineering of the report, attending the Meeting to Consider the Report, attending the Court of Revision, and an estimate for tendering, contract administration and inspection. Appearances before appeal bodies have not been included in the cost estimate.

A plan has been prepared showing the location of the work and the approximate drainage area. A profile is included showing the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, the Engineer in their Report shall assess for benefit and outlet for each parcel of land and road liable for assessment. Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse may be assessed for outlet. The assessment for outlet shall be based on the volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works.

The cost of any approvals, permits or any extra work, beyond that specified in this Report that is required by any utility, government ministry or organization (federal or provincial), or road authority shall be assessed to that organization requiring the permit, approval, or extra work.

The estimated cost of the drainage works has been assessed in the following manner:

1. As per Section 26 of the Drainage Act, the roads and utilities have been assessed the increased cost of the drainage works caused by the existence of the works of the public utility or road. The road crossings, with the exception of the extra cost to locate and work around utilities, has been assessed with 100% of the estimated cost assessed as a special benefit assessment to the road authority. The utilities have been assessed 100% of the estimated cost to work around that utility as a special benefit assessment to that utility. These items shall be tendered separately with the actual cost plus a portion of the engineering (30% of the construction cost) being assessed to the owner of the utility or road. The additional costs as a result of the utilities (such as a daylighting and surveying) that are not to be tendered separately have been assessed to the utility as a benefit assessment and shall be pro-rated with the remainder of the drainage works.

2. The catch basins have been assessed with 67% of the cost applied to the downstream property as a benefit assessment and 33% of the cost applied as a benefit assessment to the upstream property.

3. The outlet works have been applied as an outlet assessment to the upstream lands and roads based on equivalent hectares.

4. The tile drain on the property with Roll Number 20-248 has been assessed with 10% of the cost applied as a benefit assessment and the remainder applied as outlet assessment to the upstream lands and roads based on equivalent hectares.

5. The tile drain on the property with Roll Number 20-111-05 has been assessed with 20% of the cost applied as a benefit assessment for the section that was replaced in 2009 and 40% of the cost applied as a benefit assessment for the remainder. The remaining costs for these sections have been applied as an outlet assessment to the upstream lands and roads based on equivalent hectares.

All final costs included in the cost estimate of this report, except as identified above, shall be pro-rated based on the Schedule of Assessment. Any additional costs shall be assessed in a manner as determined by the Engineer in accordance with the Drainage Act.

Allowances

Under Section 29 of the Drainage Act, the Engineer in his Report shall estimate and allow in money to the Landowner of any land that it is necessary to use for the construction or improvement of a drainage works or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way.

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per Section 29 of the Drainage Act for right-of-way and as per Section 30 of the Drainage Act for damages to lands and crops. Allowances for right of way are based on a land value of $50,000.00 per hectare. Allowances for crop loss are based on $2,000.00 per hectare for the first year, $1,000.00 for the second year ($3,000.00 per hectare total).

Access and Working Area

Access to the work site for construction and future maintenance shall be from Fisher Line and Egremont Road and along the length of the drainage works. Access shall generally be restricted to a width of 6 metres.

The working area for the construction and future maintenance of the proposed tile drain shall be restricted to a width of 20m along the length of the drainage works normally centred on the proposed tile drain.

Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 10m of either side of the proposed drain without prior written permission of Council.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refer to the removal of obstructions in a drain and damage caused to a drain.

Agricultural Grant

If available, it is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non-agricultural properties are shown separately in the Schedule of Assessment.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained as per the applicable Schedule of Assessment, less any Special Benefit Assessment and the entire assessment to the water utility, unless otherwise altered under provisions of the Drainage Act or as outlined below.

The drainage works shall be maintained as per the specifications and grades as shown on the Profile contained in this Engineers Report.

The additional costs as a result of a road or utility shall be assessed to the owner of the road or utility as per Section 26 of the Drainage Act.

Yours truly,

Josh Warner, P. Eng.
R. Dobbin Engineering Inc.

Saul Drain
Town of Plympton-Wyoming
August 27, 2024

ALLOWANCES

Allowances have been made as per Sections 29 & 30 of the Drainage Act for Right of Way and damages to lands and crops.

Conc.	Lot or part	Roll No.	Owner	Section 29 ($)	Section 30 ($)	Total ($)
8	SW Pt. Lot 15	20-111	Saul Farms Limited	-	100	100
	NW Pt. Lot 15	20-111-05	A. Symington	2,910	1,160	4,070
	Pt. W 1/2 Lot 14	20-111-01	B. Doull	-	290	290
9	W 1/2 Lot 15	20-248	T. Symington	1,380	410	1,790
			TOTAL ALLOWANCES	$4,290	$1,960	$6,250

Estimate of Cost

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Pre-Construction Meeting	1	LS	200	200
Brushing and Tree Removal	1	LS	1,000	1,000
Remove and Reinstall Fence	1	LS	500	500
Locate Existing Tile Drain	1	LS	2,000	2,000
Strip and Place Topsoil (Station 0+000 to 0+286, less Road Crossings)	248	m	8	1,984
300mmø HDPE Pipe c/w Bedding	248	m	140	34,720
Rodent Grate at Outlet	1	LS	200	200
Rip Rap at Outlet and Catch Basins	40	tonne	150	6,000
Locate and Connect Existing Field Tile	15	ea	120	1,800
CB #1 (600mm x 600mm) Complete with tee and 300mmø lead	1	LS	3,500	3,500
Catch Basin #2 (600mm x 600mm)	1	LS	2,000	2,000
Catch Basin #3 (900mm x 1200mm)	1	LS	3,000	3,000
Silt Fence	1	LS	200	200
Fisher Line				
Traffic Control	1	LS	500	500
Locate and Work Around Utilties	1	LS	1,000	1,000
Supply and Install 323mm dia. Steel Casing by Boring and	20	m	900	18,000
Grout Existing Tile Under Road	1	LS	3,000	3,000
Restoration, Seeding and Ditch Grading	1	LS	2,500	2,500

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Egremont Road				
Traffic Control	1	LS	1,000	1,000
Remove Existing Pipe and Unsuitable Backfill	1	LS	1,000	1,000
Remove Existing Catch Basins & Leads (Station 0+268 & 0+286)	2	each	600	1,200
300mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	18	m	200	3,600
100% Crushed Granular "A"	120	tonne	35	4,200
Connect Existing Pipe to CB #3	1	LS	400	400
Restoration, Seeding and Ditch Grading	1	LS	1,000	1,000
Contingency				4,750
			Sub Total	99,254
			Allowances	6,250
			Engineering	18,850
			Daylight and Survey Utilites	1,500
			Estimate for Tendering, Inspection and Contract Administration	8,500
			SCRCA Fee	570
			Total Estimate excluding HST	**134,924**
			Non-Recoverable HST (1.76%)	2,250
			Total Estimate	**$ 137,174**

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit ($)	Benefit ($)	Outlet ($)	Total ($)
Agricultural Lands								
8	SW Pt. Lot 15	9.40	20-111	Saul Farms Limited		2,707	32,324	35,031
	SE Pt. Lot 15	3.06*	20-112	A. Burnley		-	5,260	5,260
	NW Pt. Lot 15	4.09	20-111-05	A. Symington		15,337	9,502	24,839
9	W 1/2 Lot 15	0.00	20-248	T. Symington		1,542	-	1,542
			Total Agricultural Lands		-	19,586	47,086	66,672
Non Agricultural Lands								
8	W 1/2 Lot 14	0.00	20-110	748132 Ontario Ltd		-	-	-
	Pt. W 1/2 Lot 14	0.02	20-111-01	B. Doull		3,156	115	3,271
			Total Non Agricultural Lands		-	3,156	115	3,271
Municipal Lands								
	Fisher Line	0.00		Town of Plympton-Wyoming	32,300	-	-	32,300
	Egremont Road	1.08		Town of Plympton-Wyoming	16,690	3,136	12,255	32,081
					48,990	3,136	12,255	64,381
Utilities								
	Water Utility			Town of Plympton-Wyoming	1,272	1,578	-	2,850
	* denotes surface water only				1,272	1,578	-	2,850

Total Agricultural Lands	66,672
Total Non-Agricultural Lands	3,271
Total Municipal Lands	64,381
Total Utilities	2,850
Total Assessment	$137,174

Estimated Net Assessment

Net assessment subject to OMAFRA ADIP Policy and actual construction costs.

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Total Assessment ($)	Estimated Grant ($)	Allowances ($)	Estimated Net Assessment ($)
Agricultural Lands								
8	SW Pt. Lot 15	9.40	20-111	Saul Farms Limited	35,031	11,677	100	23,254
	SE Pt. Lot 15	3.06*	20-112	A. Burnley	5,260	1,753		3,507
	NW Pt. Lot 15	4.09	20-111-05	A. Symington	24,839	8,280	4,070	12,489
9	W 1/2 Lot 15	0.00	20-248	T. Symington	1,542	514	1,790	(762)
Non Agricultural Lands								
8	W 1/2 Lot 14	0.00	20-110	748132 Ontario Ltd	-			-
	Pt. W 1/2 Lot 14	0.02	20-111-01	B. Doull	3,271		290	2,981
Municipal Lands								
	Fisher Line	0.00		Town of Plympton-Wyoming	32,300			32,300
	Egremont Road	1.08		Town of Plympton-Wyoming	32,081			32,081
Utilities								
	Water Utility			Town of Plympton-Wyoming	2,850			2,850
					137,174	22,224	6,250	108,700

Saul Drain
Town of Plympton-Wyoming
August 27, 2024

SPECIFICATION OF WORK

1. Location

The Saul Drain is located in Lot 15, Concession 8 and 9 in the Town of Plympton-Wyoming.

2. Scope of Work

The work included in this specification includes, but is not limited to, the following:

- Tile Replacement across Fisher Line.
- Tile Replacement across Egremont Road.
- Supply and installation of HDPE Tile Drain.
- Supply and installation of catch basins structures.

3. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in their tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Engineer and Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities prior to the start of construction.

Measurement for Payment Clauses have not been included in these specifications and will be part of the Construction document. If the Construction document has not identified Measurement for Payment Clauses, the Contractor must notify the Town of Plympton-Wyoming and request clarification 2 days prior to pricing the project.

4. Plans and Specifications

This Specification of Work shall take precedence over all plans and general conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the Plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

5. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

When applicable the Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision).

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the Contract.

The Contractor shall also ensure that only competent workers are employed onsite and that appropriate training and certification is supplied to all employees.

6. Pre-Construction Meeting

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting shall be scheduled by the Contractor. The Landowners, Engineer, and the Town of Plympton-Wyoming shall be notified of the pre-construction meeting at least 48 hours prior.

7. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the Plan and Profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal.

The Contractor is required to complete a benchmark loop prior to construction to verify the benchmarks. If discrepancies exist the Contractor must notify the Drainage Superintendent and Engineer prior to completing any work.

8. Traffic Control

Access and driveways to private properties shall not be obstructed longer than the minimum time necessary for the work and shall be reinstated as soon as possible all to the satisfaction of the Engineer. The contractor shall schedule any obstruction of existing driveways with the owners at least two full working days in advance. Roads must be kept open to local traffic and all obstructions and diversions of traffic must be approved

by the Engineer or Drainage Superintendent and Roads Superintendent at least two (2) full working days in advance.

a) The Contractor shall supply, erect and maintain all detour signs and special signs necessary for detours to divert traffic from the area under construction as directed by the Road Superintendent or Engineer. All this work shall be at the Contractor's expense.

b) The Contractor shall be responsible for supplying, erecting and maintaining all signs, supports, barricades, flashers, cones, etc. in the construction area and at the boundaries of the work as part of the above detours, all to the satisfaction of the Engineer or Drainage Superintendent. All this work shall be done by the Contractor at their own expense.

c) The Contractor shall not be allowed to proceed with construction activities unless proper signage and flagmen are present. Flagging procedures, signage and detours shall conform to the recommendations of Book 7, Temporary Conditions, Ontario Traffic Manual, issued by the Ministry of Transportation. Conformance shall be enforced by the Ministry of Labour Inspector.

9. Access and Working Area

Access to the work site for construction and future maintenance shall be from Fisher Line and Egremont Road and along the length of the drainage works. Access shall generally be restricted to a width of 6 metres.

The working area for the construction and future maintenance of the proposed tile drain shall be restricted to a width of 20m along the length of the drainage works normally centred on the proposed tile drain.

10. Utilities

The Contractor is responsible for organizing locates and exposing all the utilities along the length of the drainage works. If any utilities interfere with the proposed drainage works in a manner not shown on the accompanying Estimate of Cost or profile the Contractor shall notify the Drainage Superintendent and Engineer.

The Contractor is responsible for coordinating the replacement of additional utilities with the utility company if they interfere with the proposed drain. All costs for the utility to replace their services will be outside of this report and shall be borne by the utility as per Section 26 of the Drainage Act.

All additional costs to work around and organize replacement of the utilities not included in the accompanying Estimate of Cost shall be tracked separately and the cost plus a portion of the engineering (20% of the cost) shall be borne by that utility.

11. Removals

The catch basins, unsuitable backfill material, leads, etc. where specified, shall be removed in their entirety. They shall be disposed offsite at the expense of the Contractor. Suitable backfill shall be stockpiled adjacent to the site for reuse during installation of the proposed tile.

The Contractor shall work around the existing fences and signs if they are able to. If the existing fences and signs are required to be removed, they shall be removed and re-installed in the same location with the existing materials. The Contractor shall take photos before the removal of any fence and after its reinstallation. All work in connection with fences and signs shall be carried out in a careful manner so they are replaced in as good a condition as the existing materials permit.

12. Brushing and Tree Removal

All brush, trees, woody vegetation, stumps etc. shall be removed for a width of 10 metres along the tile drain and as required to facilitate construction. They shall be removed in their entirety including stumps.

A mechanical grinder attached to an excavator shall be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut. The Contractor shall stockpile the trees and brush in a single pile on the property in which they were removed or dispose of the trees and brush offsite. The Contractor is responsible for the burning of the trees and brush. The Contractor is responsible for obtaining all necessary permits for any disposal sites. Burning of the trees and brush is subject to local bylaws and guidelines of the Ministry of the Environment Conservation and Parks.

Certain trees may be left in place at the direction of the Drainage Superintendent.

13. Expose Existing Drain

The existing tile drain shall be exposed at the discretion of the Drainage Superintendent or Engineer and Contractor in order to adequately determine the proposed alignment. The proposed tile drain shall generally run in the same location as the existing drain. This can be changed by the Engineer or Drainage Superintendent at the time of construction if the tile is too close to the west limit of Lot 15.

The Contractor shall locate the existing tile at CB#3 prior to installation of the proposed drain to confirm the proposed grades.

14. Strip and Place Topsoil

The Contractor shall strip the topsoil for a width of 6m normally centered on the proposed drain. The topsoil shall be stockpiled at the edge of the working allowance for

the duration of the tile installation. Once the tile is installed, the Contractor shall level the topsoil over the drain to their pre-construction condition.

15. Installation of Tile

The Contractor shall supply, install, and backfill the specified sizes of tile and pipe to the depths and grades as shown on the drawings.

HDPE shall be CSA Approved smooth wall gasketed pipe with bell and spigot joints (320 kPa). In all cases, the pipe shall be bedded with clear stone bedding from 100mm below the pipe to 300mm above the pipe. Under roadways the road crossing specification shall be used.

The exact location of tile can be changed under the direction of the Drainage Superintendent or Engineer. The drain shall generally run up the existing tile drain. A tile map of the property has been included as part of this report.

The trenching and laying of the pipe shall be done by excavator. The pipe shall be laid in straight lines or on smooth gradual curves with a minimum radius of 25m. Turns of greater than 11 degrees shall require the use of manufactured bends (HDPE smooth wall).

Laser control shall be used to ensure proper grades. The grades calculated on the Profile are to the invert of the tile and pipe with allowances to be made by the Contractor for the wall thickness of the tile and pipe. The depths shown and figured are from ground level to the invert of the pipe along the line of the proposed drain. Should an error appear in the figured depth at any station or stations, the grade shall be made to correspond with that shown on the Profile without extra charge. The grade of the tile can be changed at the discretion of the Engineer during construction, but should ensure a minimum grade of 1.0% and 0.76m of cover.

<u>Excavator</u>

When pipe is installed with an excavator, the tile must be installed as per the manufacturer’s recommendations. The trench shall be backfilled with excavated material free of stones, broken tile or other deleterious material. All stones larger than 100mm in diameter evident immediately after construction shall be picked up by the Contractor and disposed offsite. The Landowners are responsible for stones after that. The material shall be left windrowed over the trench to allow for settlement.

If the land level must be lowered in order to carry out trenching operations, then it is up to the Contractor to determine if it is necessary and include any extra cost involved. They shall first strip the topsoil to its full depth and stockpile it along one side of the working width and then grade the area to allow the trenching to be carried out. All excavated material shall be windrowed on the side opposite the trench that the topsoil is

stockpiled. After trenching and backfilling operations are complete, the topsoil shall be spread to its original depth.

All areas disturbed by construction, except the material windrowed over the trench, shall be left in a condition suitable for cultivation. Final levelling or the removal of excess material shall be the responsibility of the Landowner.

The Contractor shall not operate any trenching or backfill equipment, delivery trucks or equipment, pickup trucks or other vehicles along or over the trench during or after construction. The Contractor shall be responsible for any damage caused by any equipment or vehicles operated over the trench. If the Contractor must cross the trench, they will do so in one area.

The Landowners are also warned not to operate farm equipment over the trench or along the length of the trench for 1 year after construction in order to protect the tile.

Future replacements shall conform to these specifications.

16. Catch Basins

Structure	Station	Type (mm)	Inlet Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	OFFSET 0+175	600x600	199.00	198.40 (E) 300	
CB #2	0+268	600x600	200.40	199.21 (N) 300	199.23 (S) 300
CB #3	0+286	900x1200	200.50	199.49 (N) 300	199.52 (N) 300

The catch basins shall be square precast concrete structures as noted above and shall have a birdcage type grate. CB#1 shall be located on the property line. The ditch inlet catch basins (where denoted DICB) shall have a 2:1 sloped top. The direction in the inlet elevation column denotes the direction the low side of the ditch inlet catch basins shall face. The catch basins shall be located with the backside at the property line and at the locations identified on the Plans. The catch basin elevations shall be 50mm above grade. When specified the catch basins shall have a berm constructed on the downstream end. The top of the berm shall be 0.60m above the inlet elevation. The berm shall have a 2:1 front slope and 5:1 back slope with a 1m wide top. The height and back slopes can be increased under the direction of the Drainage Superintendent in order to reduce erosion and facilitate farming. Care shall be taken to ensure this does not negatively impact

upstream lands. The berms shall be constructed using excess materials on site. If more material is required it shall be supplied at the expense of the drainage works.

The catch basins shall be made with the top sections separate from the base sections in order to allow riser sections to be installed or removed as necessary (i.e. the base section shall not extend for more than 150mm above the top of the highest opening in the base section). The wall thickness of all structures shall be 115mm and each shall have a 300mm sump. Birdcage grates shall be manufactured with a bar spacing no larger than 50mm.

The catch basins shall be set at the final elevations as directed by the Drainage Superintendent. The catch basins shall be set on a layer of clear stone. The clear stone shall be extended up to the spring line of the inlet and outlet pipe connections.

The tile at the connection to the catch basins shall be concreted on both the inside and outside prior to backfilling. Any pipe or tile shall not protrude more than 50mm inside the wall.

As part of this item the Contractor shall grade the area in the vicinity of the basin to ensure proper drainage. Rip rap shall be installed around the basins. The rip rap shall be 150mmx300mm c/w filter fabric. The area to receive the rip rap shall first be graded to allow the placement of the rip rap to a depth of 400mm below finished grade. After grading, a layer of filter fabric (Mirafi P150 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

The Drainage Superintendent or Engineer may change a birdcage type grate on a catch basin to a concrete lid or sloped birdcage grate at the request of a Landowner.

17. Subsurface Drainage

All existing subsurface drains encountered during construction of the tile drain shall be connected to the proposed tile drain unless otherwise noted on the drawings or as directed by the Drainage Superintendent. The downstream end shall be plugged to the satisfaction of the Drainage Superintendent.

For 100mm and 150mm subsurface drains, the upstream end of the subsurface drain shall be connected to the tile drain at a 45-degree angle. A suitable length of equivalent sized PE agricultural tubing shall be used to connect the drains. Manufactured fittings shall connect the PE tile to the existing drain and to the concrete tile. The connections shall be carefully backfilled to ensure there is adequate support under the pipe and large clumps of clay do not displace the tile. Clear stone shall be used under the connections at the tile drain.

18. Outlet Works

The outlet works for the drain shall consist of a manufactured rodent rotating grate. It shall be installed at the outlet to the open channel.

Erosion protection made up of rip rap and filter fabric shall be installed on the channel side slope from the bottom of the channel to the top of the bank and for a distance of 1m on either side of the outlet. Rip rap shall be made up of 150mm to 300mm quarry stone or approved equal. The area to receive the rip rap shall first be graded to allow the placement of the rip rap to a depth of 400mm below finished grade. After grading, a layer of filter fabric (Mirafi P150 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

19. Egremont Road Crossing

Where High Density Polyethylene Pipe is specified, the Contractor shall supply, install, and backfill the HPDE smooth wall gasketed pipe with bell and spigot joints (320 KPa) or approved equivalent under road crossings.

The bottom of the excavation for the tile shall be excavated to the required depth with any over excavation backfilled with ¾" clear stone material. When the tile has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone from 100mm below the tile to 300mm above. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. Within the roadway, and for a distance of 2m either side, the pipe shall be backfilled from 300mm above the tile with 100% crushed Granular "A" from a quarry source. Outside of this, excavated material may be used. If asphalt is specified the asphalt shall be HL4 and HL3 at depths to match the existing thickness.

It is the Contractors responsibility to locate and expose any utilities prior to the installation of any tile. If there is a conflict with the tile elevation the Contractor is required to notify the Engineer. Any permits that are required by the Road Authority are the responsibility of the Contractor.

The ditch shall be graded to ensure the surface water is collected to the catch basins or maintains the pre-construction flow condition.

The Contractor shall be responsible for maintenance of the crossings for a period of one year after their installation. This will include repairing any settlement areas on the travel surface with granular "A" or asphalt.

20. Fisher Line Road Culvert

The Contractor shall supply and install a steel pipe casing by boring and jacking to the depths and grades as shown on the Profile. The steel casing shall have a minimum thickness of 7.9mm. All work shall be completed in accordance with OPSS 416. Cathodic protection is not required.

The steel casing specified shall be minimum 323mm in diameter (nominal pipe size).

21. Grout Existing Culvert Under Fisher Line

This item is to include filling the existing tile under Fisher Line with grout.

The grout shall contain 25kg of type 10 Portland Cement per cubic metre. Portland cement shall conform to the requirements of CSA CAN3-A5M. The gradation shall conform to Table 1 of CSA Standard. The slump of unshrinkable fill shall be between 150mm and 200mm. The maximum 28 days compression strength shall not exceed 0.40 MPa, as measured in accordance with CAN-A23.2-9C. At no time will water be added to the concrete on site. Concrete which is unworkable or that is too stiff to produce a satisfactory product is to be discarded.

22. Seeding/Restoration

All areas disturbed by construction shall be returned to their pre-constructions state. The road right of way and all previously grassed areas where disturbed by construction, shall be topped with 100mm of screened topsoil and hydroseeded following construction in accordance with the seed mixture, fertilizer and application rate as shown below.

Seed mixture, fertilizer and application rates are as follows:

- Canada Wild Rye (Elymus Canadensis), Virginia Wild Rye (Elymus virginicus), or Indian grass (Sorghastrum nutans)
- Fertilizer (300 kg/ha.) consisting of 8-32-16.
- Hydraulic mulch (2,999 kg/ha.) type “B” and water (52,700 litres/ha.) in accordance with OPSS 572 (hydroseed).

The above seed mixture shall apply unless otherwise approved by the Drainage Superintendent or Engineer.

23. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

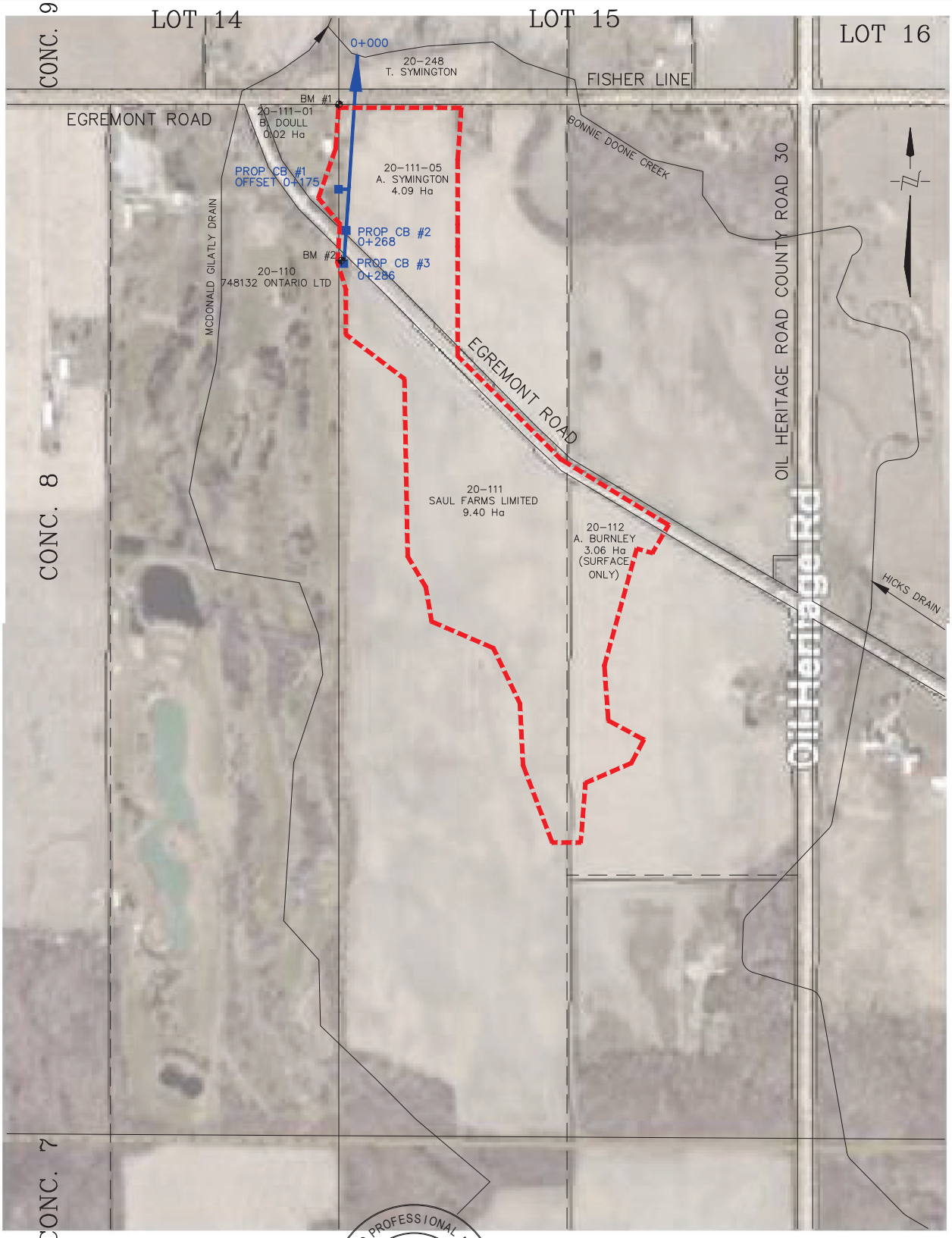
- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.

- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.
- Material shall not be in areas regulated by the Conservation Authority or Ministry of Natural Resources.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0m from the top of the bank or excavation. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall repair erosion and sediment control measures and structures if damage occurs.
- The Contractor shall remove non-biodegradable erosion and sediment control materials once site is stabilized.
- Remove all construction materials from site upon project completion.

24. Silt Fence

Light duty silt fencing shall be installed down-gradient of the work for the duration of construction.

The light duty silt fencing shall be supplied and installed in accordance with OPSS 577 and OPSD 219.110. The light duty silt fencing shall be removed once the disturbed area has been re-vegetated.



LEGEND

- SAUL DRAIN
- MUNICIPAL DRAIN
- DRAINAGE AREA

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
AUG. 27, 2024
PROVINCE OF ONTARIO

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Saul Drain Plan
PROJECT No. 2023-1576

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	AUG. 27, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE: 1:5000
0 50 100 150m

TOWN of PLYMPTON - WYOMING

SAUL DRAIN PLAN

1 OF 2

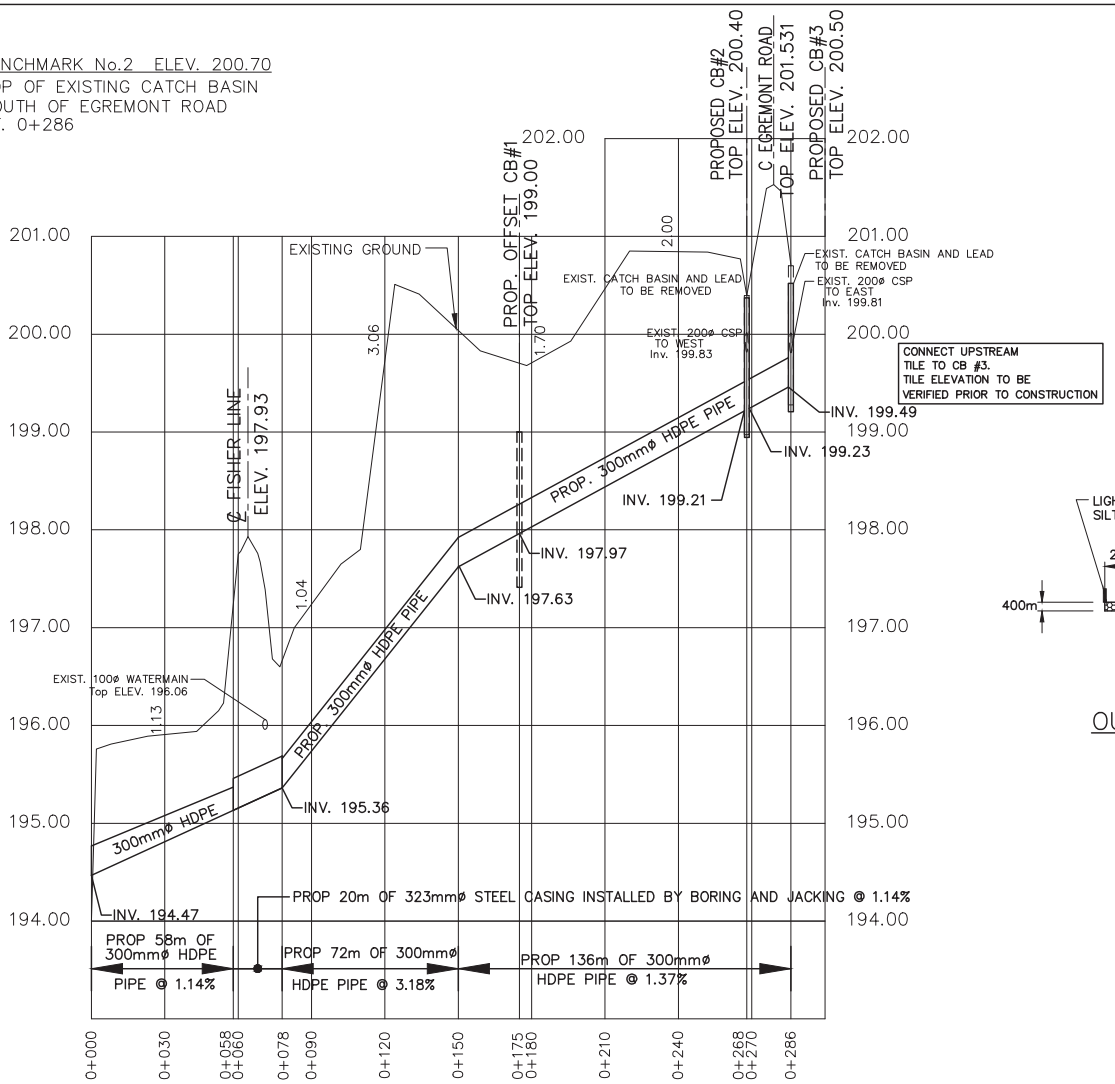
Last Updated: June 20, 2024

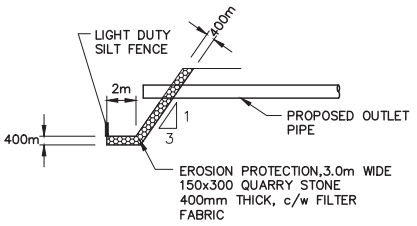
GENERAL NOTES

1. BENCHMARK No.1 ELEV. 196.70
   TOP OF STANDARD IRON BAR
   SOUTH OF FISHER LINE
   ST. 0+077

   BENCHMARK No.2 ELEV. 200.70
   TOP OF EXISTING CATCH BASIN
   SOUTH OF EGREMONT ROAD
   ST. 0+286

2. UPPER NUMBERS ARE DEPTH FROM GROUND TO INVERT OF CONCRETE TILE.





OUTLET DETAIL
NTS

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
AUG. 27, 2024
PROVINCE OF ONTARIO

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Saul Drain Profile
PROJECT No. 2023-1576

APPROVED J. WARNER
CHECKED B. VAN RUITENBURG
DRAWN C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	AUG. 27, 2024	CS

SCALE: 1:2,000
0 20 40 60m

TOWN of PLYMPTON - WYOMING

SAUL DRAIN
PROFILE

2 OF 2

Last Updated: June 20, 2024

PRO DRAINAGE
22 ONTARIO LIMITED
FARM DRAINAGE CONTRACTORS
e: (519) 828-3641
(519) 828-3006
l: prodrain@xcelco.on.ca
7074 Nauvoo Road
R.R. #6, Forest, Ontario N0N 1J0
Visit our Website at: www.prodrain.on.ca

SYSTEM CERTIFICATION ISO 9001:2000 SGS