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December 1, 2025

The Mayor and Council
Municipality of North Middlesex
229 Parkhill Main Street
Parkhill, ON
N0M 2K0

Gentlemen and Mesdames:

Re: Conlin-Vogels Drain and Glavin-Swartz Drain Improvements (2025)

In accordance with your instructions, R. Dobbin Engineering Inc. has undertaken an examination of the Conlin-Vogels Drain in the Municipality of North Middlesex.

Authorization under the Drainage Act

This Engineer's Report that has been prepared under Section 4 and 78 of the Drainage Act as per a request and petition from affected Landowners.

R. Dobbin Engineering Inc. was appointed by council on March 20th, 2025.

Under Section 78 of the Drainage Act, Council may undertake and complete the maintenance or repair of any drainage works constructed under a bylaw passed under this Act or its predecessor. Section 78 is to be used where it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works, the Council whose duty it is to maintain and repair the drainage works or any part thereof may, without a petition required under Section 4 but on the report of an Engineer appointed by it, undertake and complete the drainage works as set forth in such report.

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).

This petition was deemed to be valid under Section 4 (a) and (b) for the extension of the drain upstream of Station 1+055.

Existing Conditions

The Conlin-Vogels Drain outlets into the open channel portion of the Glavin-Swartz Drain on the north side of Mount Carmel Drive in Lot 4, South Boundary in the Municipality of South Huron. The Conlin-Vogels Drain continues in a general southeasterly direction to the south side of the property with Roll Number 000-010-028-03 in the Municipality of North Middlesex.

Background

Under an Engineer's Report dated January 15, 1974 the Conlin-Vogels Drain was constructed. At this time the drains were designed to handle 12mm/24 hrs (1/2"). The drain consisted of 300mm (12"), 250mm (10") and 200mm (8") dia. field tile.

Drain Classification

The Conlin-Vogels Drain is currently Not Rated and the Glavin-Swartz Drain is a Class "F" drain according to the Department of Fisheries and Oceans (DFO) classification as presented by the Ontario Ministry of Agriculture, Food and Rural Affair's Agricultural Information Atlas.

Approvals

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

On-Site Meeting

A site meeting was held on May 22nd, 2025.

The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Joanne Sadler (Drainage Superintendent, Municipality of North Middlesex)

- Glen Bullock (Municipality of North Middlesex)
- Mike Conlin (Landowner)
- Kevin Parker (Contractor)
- Dennis Glavin (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- Landowners requested that the drain be sized to the drainage coefficient of 50mm/24hrs. The Landowners were made aware that the additional cost above the grantable standard would not be eligible for the 1/3 grant in accordance with the current Agricultural Drainage Infrastructure Program (ADIP) policies.
- Landowners requested that the Conlin-Vogels Drain be extended upstream in order to capture surface water from Neil Road on the property with Roll Number 000-010-029.
- No adverse soil conditions were noted at the site meeting.

Discussion

Upon surveying it was found that the existing surface pipe under Mount Carmel Drive is in poor condition. Rather than replacing both the tile for the Conlin-Vogels Drain and the surface pipe it was determined that the Conlin-Vogels Drain could outlet south of Mount Carmel Drive with the deepening of the surface pipe and roadside ditch. There are two additional pipes across Mount Carmel Drive from the Glavin-Swartz Drain. One is from 1976 and the other is a steel casing from 1999. With the deepening of the surface pipe for the Conlin-Vogels Drain it is now feasible to remove these pipes, outlet them on the south side of Mount Carmel Drive and reduce the number of crossings from 4 to 1.

Draft Report

A draft report, dated October 21, 2025 was sent to all the affected Landowners and a meeting was held on November 27, 2025 to go over the report and address any questions and concerns related to the draft report. The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Joanne Sadler (Drainage Superintendent, Municipality of North Middlesex)
- Kristyn Wilson (Drainage Clerk, Municipality of North Middlesex)
- Mike Conlin (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act.
- No major concerns were brought forward.

Design

The proposed drain shall be designed to accommodate a drainage coefficient of 50mm / 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. The two Glavin-Swartz crossings on Mount Carmel Drive shall be removed. These tiles shall be re-directed to the south side of Mount Carmel Drive.

2. The Conlin-Vogels Drain shall be removed across Mount Carmel Drive. A new surface culvert shall be installed across Mount Carmel Drive to allow for the Conlin-Vogels Drain to outlet on the south side of the road crossing.

3. The Conlin-Vogels Drain shall be replaced from the south side of Mount Carmel Drive to the south limit of the property with Roll Number 000-010-028-03. The existing Conlin-Vogels Drain shall be abandoned in its entirety.

4. The Conlin-Vogels Drain shall be extended southerly to just north of the driveway on the property with Roll Number 000-010-030.

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 $412,390, 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 with 100% of the estimated cost to work around that utility and the daylighting costs as a special benefit assessment to that utility. The road crossings and the cost to locate and work around utilities shall be tendered separately with the actual cost plus engineering (20% of the construction cost) being assessed to the owner of the road authority or utility as a special benefit assessment. The utility cost shall be calculated as follows:

   Utility Assessment (Watermain, Telecom and Fiber Optic) = 1.0176 (Net Tax) x (Tendered Costs to Locate and Work Around/Relocate Utility x 1.20 (For Engineering)) + $1,100 (Daylighting and Surveying Utilities))

2. Catch Basins have generally been assessed as a benefit assessment with 50% of the estimated cost assessed to the upstream property and 50% assessed to the downstream property.

3. The open channel improvements on the property with Roll Number 30-01 has been assessed with 20% of the cost applied as a benefit assessment to the abutting property and the remainder applied as an outlet assessment to the upstream lands and roads based on equivalent hectares.

4. The remaining cost of the drainage works has generally been assessed with 60% of the cost applied as a benefit assessment to the abutting property and the remainder 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 Owner 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 ($20,000.00 per acre). Allowances for crop loss are based on $2,000.00 per hectare for the first year and $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 Neil Road and Mount Carmel Drive 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 25m along the length of the drainage works normally centred on the proposed tile drain.

The working area for the construction and future maintenance of the open channel shall be along the east side of the open channel and shall extend for a width of 20m.

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.

The cost to provide a tile drain above the design coefficient of 38mm/24hrs has been assessed as a special benefit assessment and will not be eligible for grant based on the current ADIP policies.

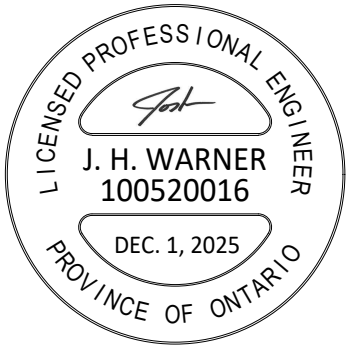
Maintenance

The Conlin-Vogels Drain from Station 0+028 to 1+643 and the Glavin-Swartz Drain from Station 0+037 to 0+150, except for costs under Section 26, shall be maintained and repaired in the same proportions as contained in the applicable Schedule of Assessment, less special benefit assessments and assessment.

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



Conlin-Vogels Drain
Municipality of North Middlesex
December 1, 2025

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 ($)
Municipality of South Huron						
South Boundary	Lot 4 & 5	30-01	G. Glavin	-	680	680
Municipality of North Middlesex						
2	Lot 1	000-010-027	Conlin Farms Limited	-	1,140	1,140
	Lot 2	000-010-028	Conlin Farms Limited	-	2,000	2,000
	Pt. Lot 2	000-010-028-03	Glavin Farms Limited	-	1,820	1,820
	Lot 3	000-010-029	Conlin Farms Limited	4,360	3,270	7,630
	Lot 4	000-010-030	Conlin Farms Limited	1,520	1,140	2,660
3	Lot 1	000-010-078	Fairview Feeders Limited	-	2,630	2,630
			TOTAL ALLOWANCES	$5,880	$12,680	$18,560

Estimate of Cost

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Pre-Construction Meeting	1	LS	200	200
Brushing and Tree Removal	1	LS	1,000	1,000
Excavation of Open Channel and Levelling (Station 0+037 to 0+150) of Glavin-Swartz Drain	113	m	20	2,260
General Restoration/Seeding	1	LS	500	500
Mount Carmel Drive Crossing				
Traffic Control	1	LS	8,000	8,000
Remove and Dispose of Existing 900mmø CSP (25m), 400mmø CSP (33m), 450mmø Steel Casing (25m), 450mmø CSP (25m) Unsuitable Material c/w Milling and Sawcutting of Asphalt	1	LS	9,000	9,000
Locate and Work Around Hay Fiber Optic	1	LS	500	500
Locate and Work Around Watermain	1	LS	1,000	1,000
Relocate Bell Telecom	1	LS	800	800
Supply and Install 2230x1700mmø CSP (3.5mm Thick) c/w Bedding to 300mm above the Pipe	26	m	2,100	54,600
Place Suitable Native Backfill	1	LS	1,500	1,500
Granular "B" Backfill	250	tonne	35	8,750
100% Crushed Granular "A" Backfill	60	tonne	40	2,400
HL4 Asphalt	30	tonne	350	10,500
HL3 Asphalt	30	tonne	450	13,500
Rip Rap for End Walls and Tile Outlets	45	tonne	150	6,750
Restoration/Seeding and Ditch Grading	1	LS	2,500	2,500
Extension of Glavin-Swartz Drains with 450mmø HDPE Pipe	18	m	250	4,500
600mmø Rodent Grate	1	each	400	400
450mmø Rodent Grate	2	each	300	600
Strip and Place Topsoil (Station 0+028 to 1+643) along tile Route	1597	m	8	12,776
Locate and Abandon Existing Tile	1	LS	2,000	2,000
600mmø HDPE Pipe c/w Rodent Grate	6	m	165	990
600mmø Concrete Tile	342	m	85	29,070
Neil Road Crossing				
Traffic Control	1	LS	2,000	2,000
Remove and Dispose of Existing 400x650mmø CSPA Surface Culvert (14m), 300mmø CSP Tile (18m) and Unsuitable Material	1	LS	2,000	2,000
Locate and Work Around Bell Telecom	1	LS	500	500
Locate and Work Around Watermain	1	LS	1,000	1,000
Supply and Install 600mmø HDPE c/w Bedding to 300mm above the Tile	18	m	350	6,300
Supply and Install 600mmø CSP	15	m	300	4,500
Place Suitable Native Backfill	1	LS	1,000	1,000
Granular "B" Backfill	120	tonne	35	4,200
100% Crushed Granular "A" Backfill	40	tonne	40	1,600
Rip Rap End Walls	30	tonne	150	4,500
Restoration/Seeding and Ditch Grading	1	LS	3,500	3,500
450mmø Concrete Tile	419	m	65	27,235

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
400mmø Concrete Tile	242	m	55	13,310
350mmø Concrete Tile	265	m	50	13,250
300mmø Concrete Tile	323	m	45	14,535
Reconnect Existing Tiles	120	ea	100	12,000
Remove and Dispose of Existing Basins and Leads	3	each	400	1,200
Catch Basin #1 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #2 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #3 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #4 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #5 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #6 (1200mm x 900mm)	1	LS	3,000	3,000
Silt Fence	1	LS	200	200
Contigency				15,310
			Sub Total	320,236
			Allowances	18,560
			Engineering	42,844
			Daylighting and Surveying Utilities	5,500
			Estimate for Tendering, Inspection and Contract Administration	18,000
			ABCA Fee	450
			Total Estimate excluding HST	**405,590**
			Non-Recoverable HST (1.76%)	6,800
			Total Estimate	**$ 412,390**

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipality of South Huron								
Utilities								
Telecom				Bell	2,118	-	-	2,118
Fiber Optic				Hay Communications	1,741	-	-	1,741
					3,859	-	-	3,859
Public Lands								
1/2 Mount Carmel Drive (County Road #5)				County of Huron	78,261	-	-	78,261
					78,261	-	-	78,261
Agricultural Lands								
South Boundary	Lot 4 & 5		30-01	G. Glavin		1,217	-	1,217
					-	1,217	-	1,217
				Total - Utilities	3,859			
				Total - Public Lands	78,261			
				Total Agricultural Lands	1,217			
				Total-Municipality of South Huron	83,337			

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipality of North Middlesex								
Utilities								
Telecom				Bell	1,741	-	-	1,741
Watermain				Municipality of North Middlesex	4,745	-	-	4,745
					6,486	-	-	6,486
Public Lands								
1/2 Mount Carmel Drive (County Road #5)				County of Middlesex	78,261	-	-	78,261
Neil Road		1.80		Municipality of North Middlesex	37,680	6,234	9,374	53,288
					115,941	6,234	9,374	131,549
Agricultural Lands								
2	Lot 1	2.60	000-010-027	Conlin Farms Limited	1,520	13,669	1,544	16,733
	Lot 2	7.70	000-010-028	Conlin Farms Limited	2,670	20,483	7,812	30,965
	Pt. Lot 2	4.85	000-010-028-03	Glavin Farms Limited	1,210	17,575	6,133	24,918
	Lot 3	13.30	000-010-029	Conlin Farms Limited	2,180	26,988	27,774	56,942
	Lot 4	5.20	000-010-030	Conlin Farms Limited	760	10,301	12,343	23,404
3	Lot 1	10.12	000-010-078	Fairview Feeders Limited	3,480	28,485	4,231	36,196
	Lot 2	4.45	000-010-077	Conlin Farms Limited		-	1,860	1,860
					11,820	117,501	61,697	191,018

Total - Utilities	6,486
Total - Public Lands	131,549
Total Agricultural Lands	191,018
Total - Municipality of North Middlesex	329,053
Total - Municipality of South Huron	83,337
Total Assessment	$412,390

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 ($)	Estimated Net Assessment ($)
Municipality of South Huron								
Utilities								
Telecom				Bell	2,118			2,118
Fiber Optic				Hay Communications	1,741			1,741
Public Lands								
1/2 Mount Carmel Drive (County Road #5)				County of Huron	78,261			78,261
Agricultural Lands								
South Boundary	Lot 4 & 5	0.00	30-01	G. Glavin	1,217	406	680	131
Municipality of North Middlesex								
Utilities								
Telecom				Bell	1,741			1,741
Watermain				Municipality of North Middlesex	4,745			4,745
Public Lands								
1/2 Mount Carmel Drive (County Road #5)				County of Middlesex	78,261			78,261
Neil Road		1.80		Municipality of North Middlesex	53,288			53,288
Agricultural Lands								
2	Lot 1	2.60	000-010-027	Conlin Farms Limited	16,733	5,071	1,140	10,522
	Lot 2	7.70	000-010-028	Conlin Farms Limited	30,965	9,432	2,000	19,533
	Pt. Lot 2	4.85	000-010-028-03	Glavin Farms Limited	24,918	7,903	1,820	15,195
	Lot 3	13.30	000-010-029	Conlin Farms Limited	56,942	18,254	7,630	31,058
	Lot 4	5.20	000-010-030	Conlin Farms Limited	23,404	7,548	2,660	13,196
3	Lot 1	10.12	000-010-078	Fairview Feeders Limited	36,196	10,905	2,630	22,661
	Lot 2	4.45	000-010-077	Conlin Farms Limited	1,860	620		1,240
					412,390	60,139	18,560	333,691

Conlin-Vogels Drain and Glavin-Swartz Drain Improvements
Municipality of North Middlesex
December 1, 2025

SPECIFICATION OF WORK

1. Location

The work in this specification is located in Lot 1, Concession 3 and Lot 1-4, Concession 2 in the Municipality of North Middlesex and Lot 4, South Boundary in the Municipality of South Huron.

2. Scope of Work

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

- 1,615 of proposed tile drain c/w catch basins and two road crossings
- 113m of Open Channel Cleanout

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

All excess material shall be disposed offsite at the expense of the Contractor.

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. Utilities

The Contractor is responsible for organizing locates and exposing all the utilities along the length of the drainage works. The utilities shall be located prior to the installation of any tile. 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 estimate shall be tracked separately and the cost plus a portion of the engineering (20% of the cost) shall be borne by that utility.

7. 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. The Traffic Plan

must be approved by the Municipality and County prior to the commencement of any road closures.

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.

d) If work is being completed on a Road and or Road Allowance in North Middlesex, the Contractor is required to complete a Road Allowance Work Permit Application available on their website: https://www.northmiddlesex.on.ca/media/591. No fees are required.

8. 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, County of Huron, County of Middlesex and the Municipality of North Middlesex shall be notified of the pre-construction meeting at least 48 hours prior.

9. Access and Working Area

Access to the work site for construction and future maintenance shall be from Neil Road and Mount Carmel Drive 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 25m along the length of the drainage works normally centred on the proposed tile drain.

The working area for the construction and future maintenance of the open channel shall be along the east side of the open channel and shall extend for a width of 20m.

10. 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. Once the Contractor has located the existing tile and a general alignment has been determined, R. Dobbin Engineering may add additional benchmarks along the length of the drainage works.

11. Removals

The culverts, catch basins, hickenbottoms, unsuitable or not required excavated material, etc. shall be removed in their entirely and shall be disposed offsite at the expense of the Contractor. Tile and culverts under road crossings shall be removed in their entirety.

12. Brushing and Tree Removal

All brush, trees, woody vegetation, stumps etc. shall be removed within the working corridor and drain cross section at the discretion of the Drainage Superintendent or Engineer.

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 discretion of the Drainage Superintendent or Engineer.

13. Excavation of Open Channel

The open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this Engineers Report. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

The excavated material shall generally be cast on the side it is being excavated from. Excavated material shall be cast at least 1.5 metres clear of the bank. Excavated material shall not be placed in low runs or swales out letting surface water to the channel. The excavated material shall be levelled to a maximum depth of 150mm and left in a condition suitable for cultivation. This shall include the removal of any rocks larger then 10cm in

diameter and any debris/wood that could damage or plug farm equipment. Leveling shall occur when the material is dry enough to do so as determined by the Drainage Superintendent or Engineer. All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the existing side slopes. All material unfit for placing on farmlands shall be disposed of offsite by the Contractor.

14. Mount Carmel Drive Crossing

The Contractor is required to have a County approved traffic control plan prior to any work commencing. The culvert replacement shall conform to both the County's specifications and those outlined in this report. If conflicts exist between the specifications, the more stringent shall apply.

The culvert, the Conlin-Vogels Drain tile and the two Glavin-Swartz Drain tiles shall be removed in their entirety and disposed offsite at the expense of the Contractor. The asphalt shall be sawcut and milled for a thickness of 45mm and 0.30m past the joint. The milled surface shall be tack coated as per OPSS.

The Contractor shall supply, install, and backfill aluminized corrugated steel pipe arch (CSPA) as specified. CSPA shall have a minimum wall thickness of 3.5mm in all cases and 125 x 25mm corrugations. Future culvert replacements shall be to these same specifications.

The culverts shall be installed generally in the same location or as approved by the Drainage Superintendent. The culverts shall be installed with the invert 10% (minimum 100mm) below the proposed channel bottom and as specified on the profile.

All backfill shall be free from deleterious material. All granular bedding and backfill material shall be mechanically compacted to 98% modified standard proctor density.

The bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. The pipe shall be bedded with ¾" clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone and wrapped in filter fabric from the bottom of the excavation to 300mm above the pipe, this shall be considered bedding. The bedding material shall not be native material. 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 road allowance, the pipe shall be backfilled above the clear stone with Granular "B" or suitable reused granular material at the discretion of the Drainage Superintendent or Engineer. Outside the road allowance, excavated material can be used. If, at the discretion of the Drainage Superintendent or Engineer, the existing material on site is not sufficient for backfill, payment for imported fill shall be at the unit price specified in the Contract documents. The sub-base shall consist of a minimum of 150mm of 100% crushed OPS Granular "A".

The sub-base material shall not be native material. The asphalt shall be HL4 and HL3 at depths to match the existing thickness, with a minimum of 50mm of HL4 and 45mm of HL3. Lifts shall not be greater than 50mm. If the existing material is stable a 1:1 slope for the frost taper will be utilized. This shall be determined at the discretion of the County and the Engineer at the time of construction.

Rip rap end walls shall consist of 150mm x 300mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Terrafix 250R or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance. For rip rap end walls, the clay material shall generally be used close to the end walls with gravel material being used for the center drive area.

The ditch shall be graded to ensure the surface water is collected to the culvert.

15. Neil 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. Future culvert replacements shall be to the same specifications.

Where corrugated steel pipe (CSP) is specified, the Contractor shall supply, install, and backfill aluminized CSP with a minimum wall thickness of 2.8mm in all cases. All corrugation profiles shall be of helical lockseam manufacture using 68 x 13mm corrugations. Future culvert replacements shall be to the same specifications.

The proposed culverts shall be installed in the same general location as the existing culverts, unless otherwise stated on the drawings or in the specification. The location of the culvert may be moved a short distance if approved by the Engineer or Drainage Superintendent.

The bottom of the excavation shall extend 100mm below the bottom of the tile 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 and wrapped in filter fabric from the bottom of the excavation to 300mm above the proposed tile. The clear stone shall be considered bedding. 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 road allowance the pipe shall be backfilled to 150mm below finished grade with Granular “B” or suitable reused granular material at the discretion of the Drainage Superintendent or Engineer. Outside the road allowance, excavated material can be used. If, at the discretion of the Drainage Superintendent or Engineer, the existing material on site is not sufficient for backfill, payment for imported fill shall be at the unit

price specified in the Contract documents. The top 150mm within the road shall be 100% crushed Granular “A”. Granular “A” shall be mechanically compacted to 100% modified standard proctor density.

Rip rap end walls shall consist of 150mm x 300mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Terrafix 250R or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance. For rip rap end walls, the clay material shall generally be used close to the end walls with gravel material being used for the center drive area.

The ditch shall be graded to ensure the surface water is collected to the catch basins on all road crossings.

16. Locate and Abandon Existing Drain

The existing tile drain shall be exposed by the Contractor at the discretion of the Drainage Superintendent or Engineer in order to adequately determine the proposed alignment. The existing municipal drain shall be abandoned and crushed. Tile Maps have been provided as part of this report. The current Conlin-Vogels Drain does not exist upstream of Station 1+055.

17. 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 its pre-construction condition.

18. 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.

Concrete tile shall conform to ASTM C412, 2000D. Tile shall have a circular interior and exterior shape.

Where the concrete tile depth is greater than 2.5m the tile shall be bedded to the spring line with clear stone.

HDPE pipe shall be CSA Approved smooth wall gasketed pipe with bell and spigot joints (320 kPa).

The exact location of the proposed tile shall be determined once the existing tile is spotted.

The trenching and laying of the concrete tile shall be done by wheel machine. An excavator must be used in areas of soil instability, unless approved by the Engineer. All tile joints shall be wrapped with a minimum 300mm width of Mirafi P150 (or approved equal) filter fabric. The filter fabric shall be overlapped by 450mm at the top of the tile. The tile shall be laid in straight lines or on smooth gradual curves with a minimum radius or 25m.

Where approved by the Engineer (or specified) concrete tile may be laid in tighter curves by saw cutting joints. The maximum deflection of one concrete tile joint shall be 22 degrees. Turns of greater than 22 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.

Wheel Machine

A wheel machine shall be used to excavate the trench to allow for a round bottom. Prior to backfilling, the tile shall be covered manually to a depth of approx. 100mm over the pipe to ensure that the tile and pipe are not displaced by large clumps of earth. 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.

Excavator

When concrete tile is installed with an excavator, the tile must be installed as per the manufacturer's recommendations **complete with bedding to the spring line**. The bedding, except where the depth of the tile is greater than 2.5m, shall be included in the Contractors unit price for this item if being completed by excavator. Prior to backfilling, the tile shall be covered manually to a depth of approx. 100mm over the pipe to ensure that the tile and pipe are not displaced by large clumps of earth. 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.

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, he will do so in one area.

The Landowners are also warned to minimize farm equipment crossing over the trench or along the length of the trench for 1 year after construction in order to protect the tile.

19. Outlet Works

The outlet works for the drain shall consist of HDPE smooth wall pipe as shown on the profile (320 kPa) with 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 any pipes. 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.

20. Catch Basins

Structure	Station	Size (mm)	Grate Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	0+376	900x1200	254.25	252.70 (W) 600	252.71 (E) 600

CB #2	0+394	900x1200	254.85	252.78 (W) 600	252.95 (S) 450
CB #3	0+546	900x1200	255.70	254.01 (N) 450	254.02 (S) 450
CB #4	0+813	900x1200	257.40	255.88 (N) 450	255.89 (S) 400
CB #5	1+055	900x1200	259.12	257.57 (N) 400	257.58 (S) 350
CB #6	1+643	900x1200	263.30	262.25 (N) 300	

The catch basins shall be square precast concrete structures as noted above and shall have a birdcage type grate. The ditch inlet catch basins (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. 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.

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.

21. Seeding/Restoration

All areas disturbed by construction shall be restored to their pre-construction state.

All grass areas disturbed by construction, shall be restored with 50mm of screened topsoil and seed. The timing of the seeding shall be approved by the Drainage Superintendent or Engineer.

22. Subsurface Drainage

All existing subsurface drains encountered during construction shall be connected to the tile drain and open channel unless otherwise noted on the drawings or as directed by the Drainage Superintendent.

A suitable length of equivalent sized PE agricultural tubing shall be used to connect the drain to the open channel and tile drain. 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.

23. Environmental Considerations

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

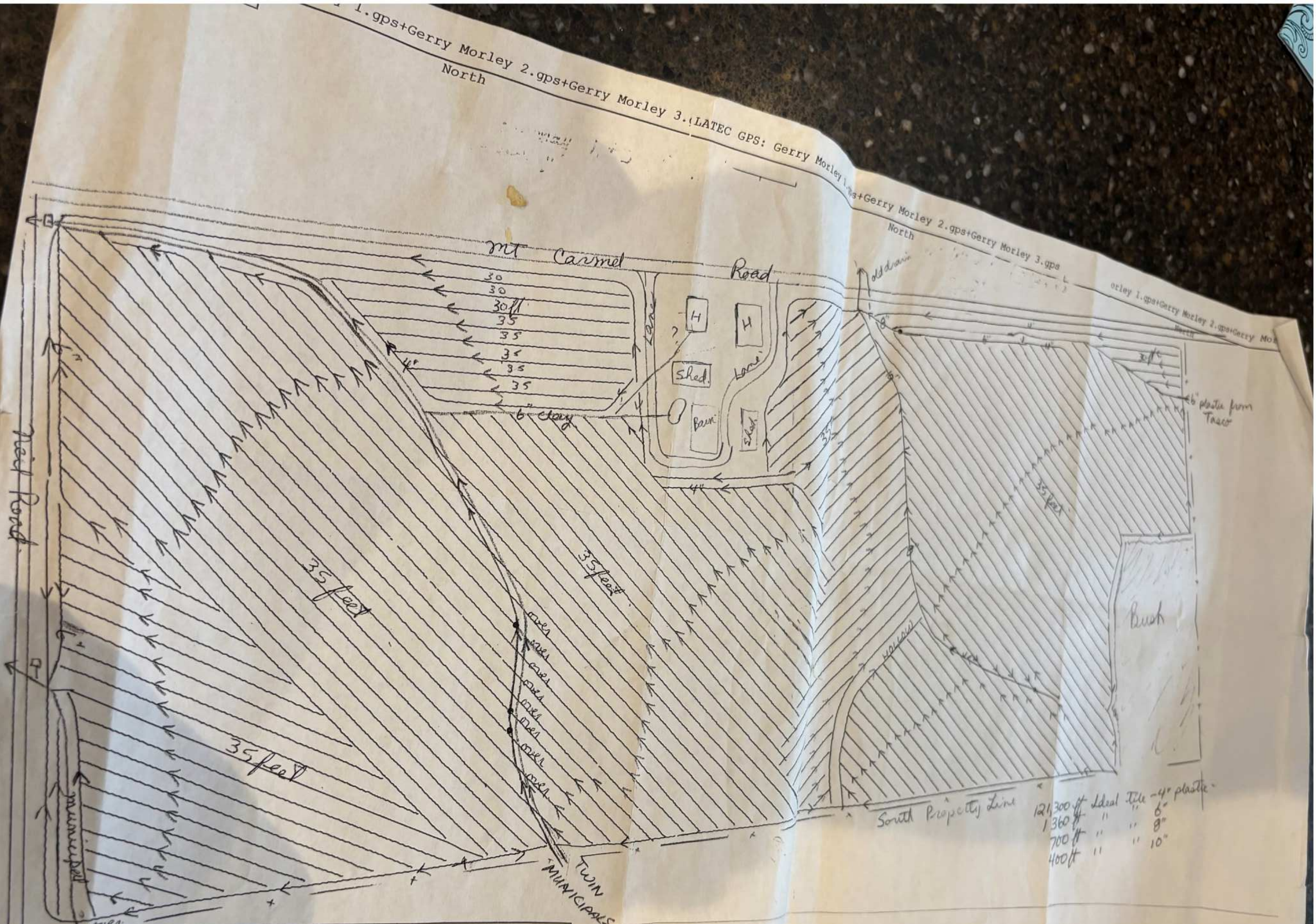
- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.
- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.
- Material shall not be in areas regulated by the Conservation Authority or Ministry 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.

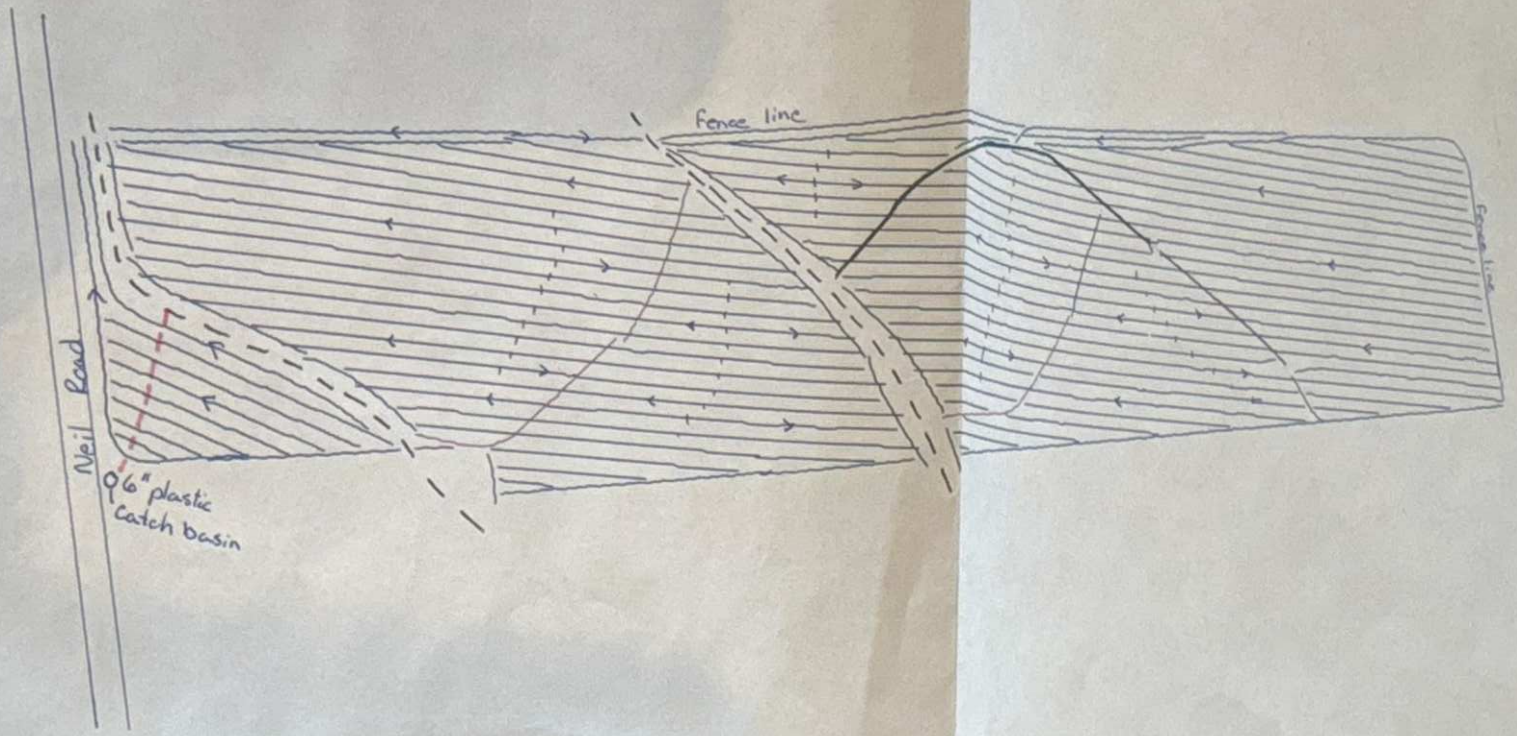
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall 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.

A 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 construction is complete.



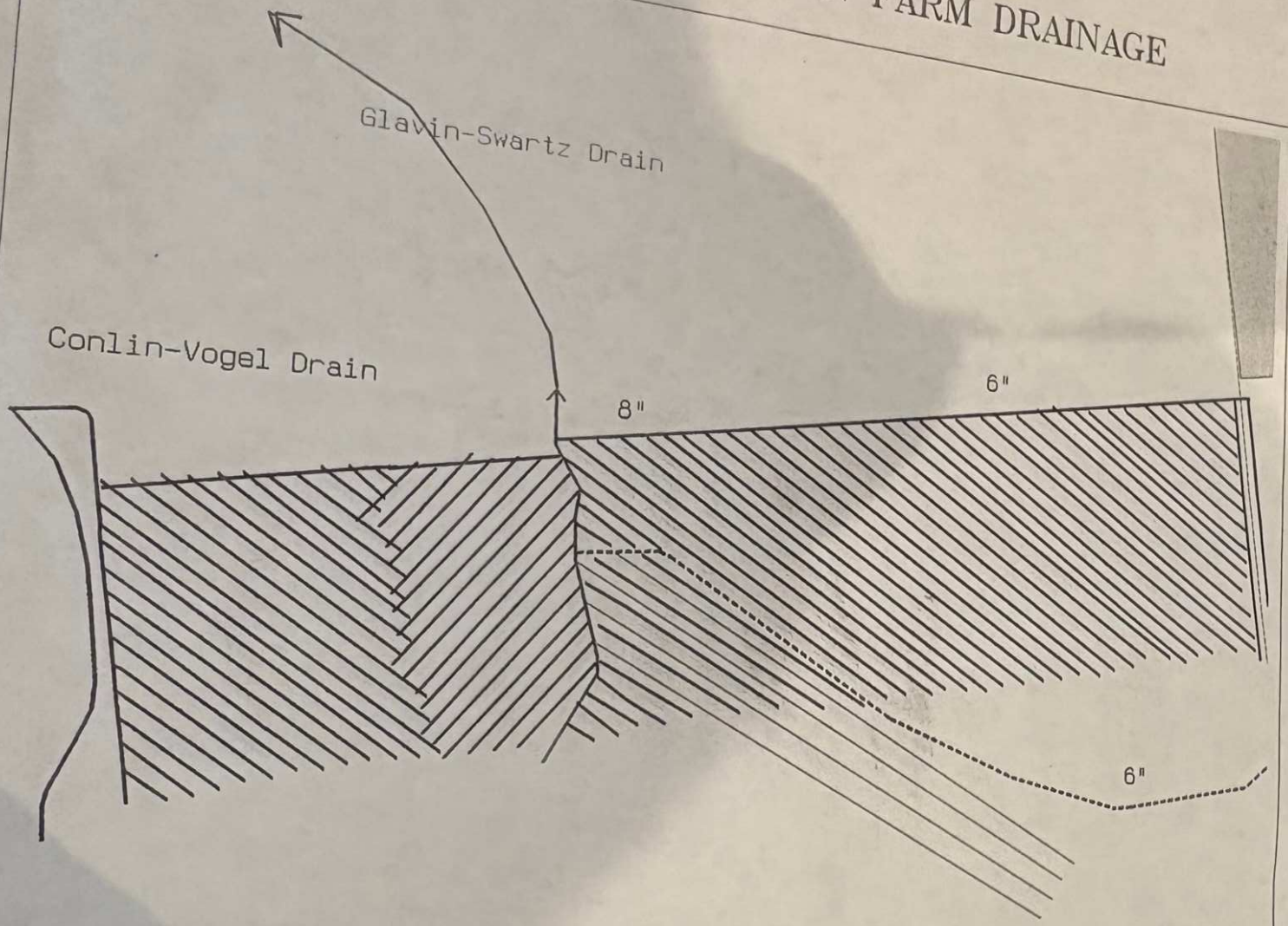
Customer: Gerry Morley
Location: Lot 1 Con 2 McGillivray Twp.
Scale: 200 feet | Spacing: 35 ft. | Date: August 2010
C. Robert Robinson Contracting Ltd.



Customer: MIKE CONLIN
Location: LOT 2 CON 2 MCGILLIVRAY TWP
Scale: 284 feet
Willemse Drainage inc
Spacing: 30 FT
Date: SEP 2012

Scale: 480 Ft/Inch
Produced with AgLINK

ROBINSON FARM DRAINAGE



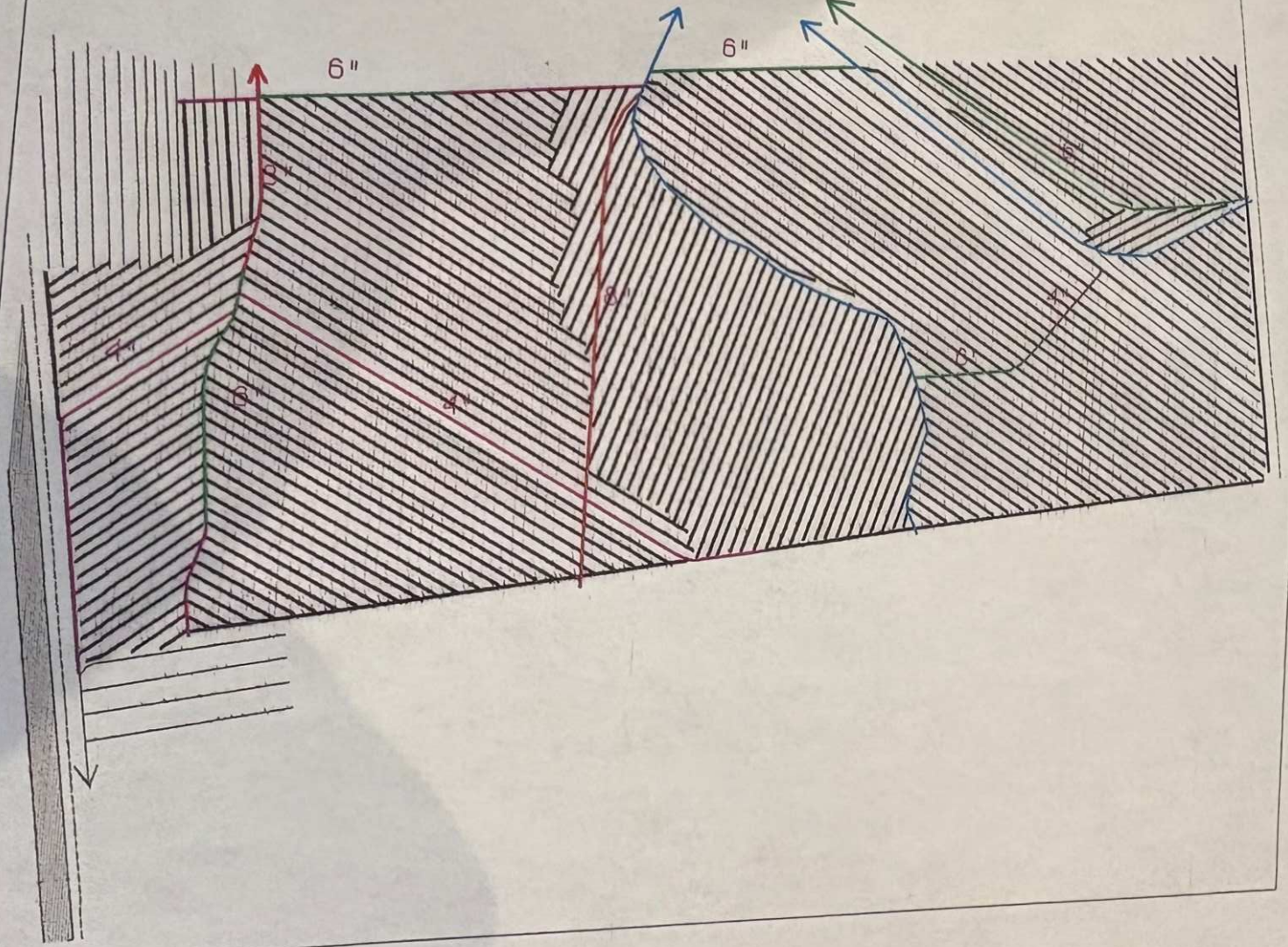
ROBINSON FARM DRAIN
Mike Conlin
S1/2 L3 C2 McGillivra
September 1, 1999

35'spacing

40.00 Acres

Scale: 400 Ft/Inch
Produced with AgLINK

ROBINSON FARM DRAINAGE

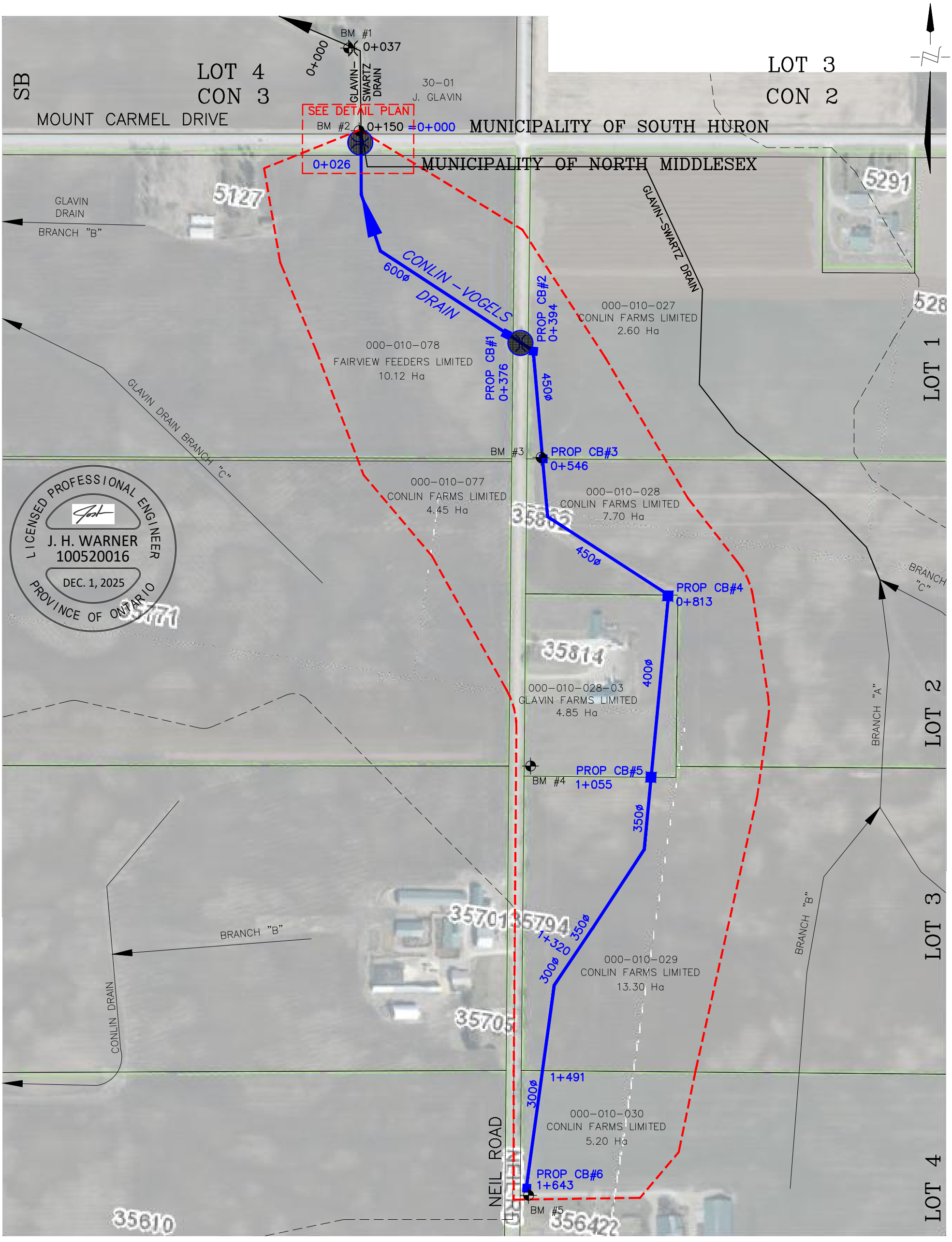


ROBINSON FARM DRAIN
Conlin Farms
13 C2 McGillivray
September 12, 2000

30'spacing w/ 3"

100.00 Acres

Scale: 480 Ft/Inch
Produced with AgLINK



LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO

LEGEND

- CONLIN-VOGELS DRAIN
- MUNICIPAL DRAIN
- DRAINAGE AREA
- EXISTING CULVERT
- EXISTING CULVERT TO BE REPLACED

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

DRAWING NAME: Conlin-Vogels Drain Plan

PROJECT No. 2024-1687

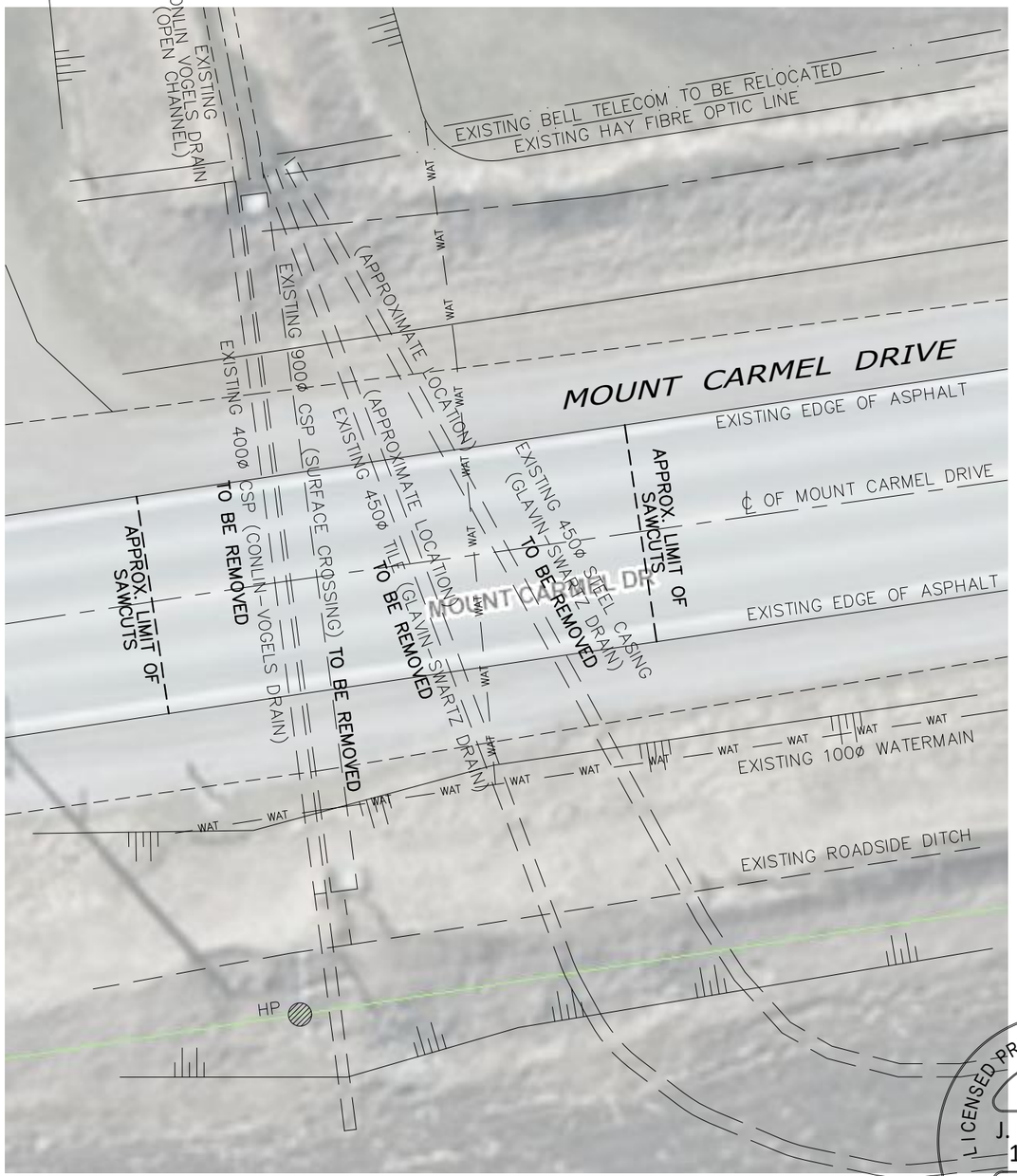
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

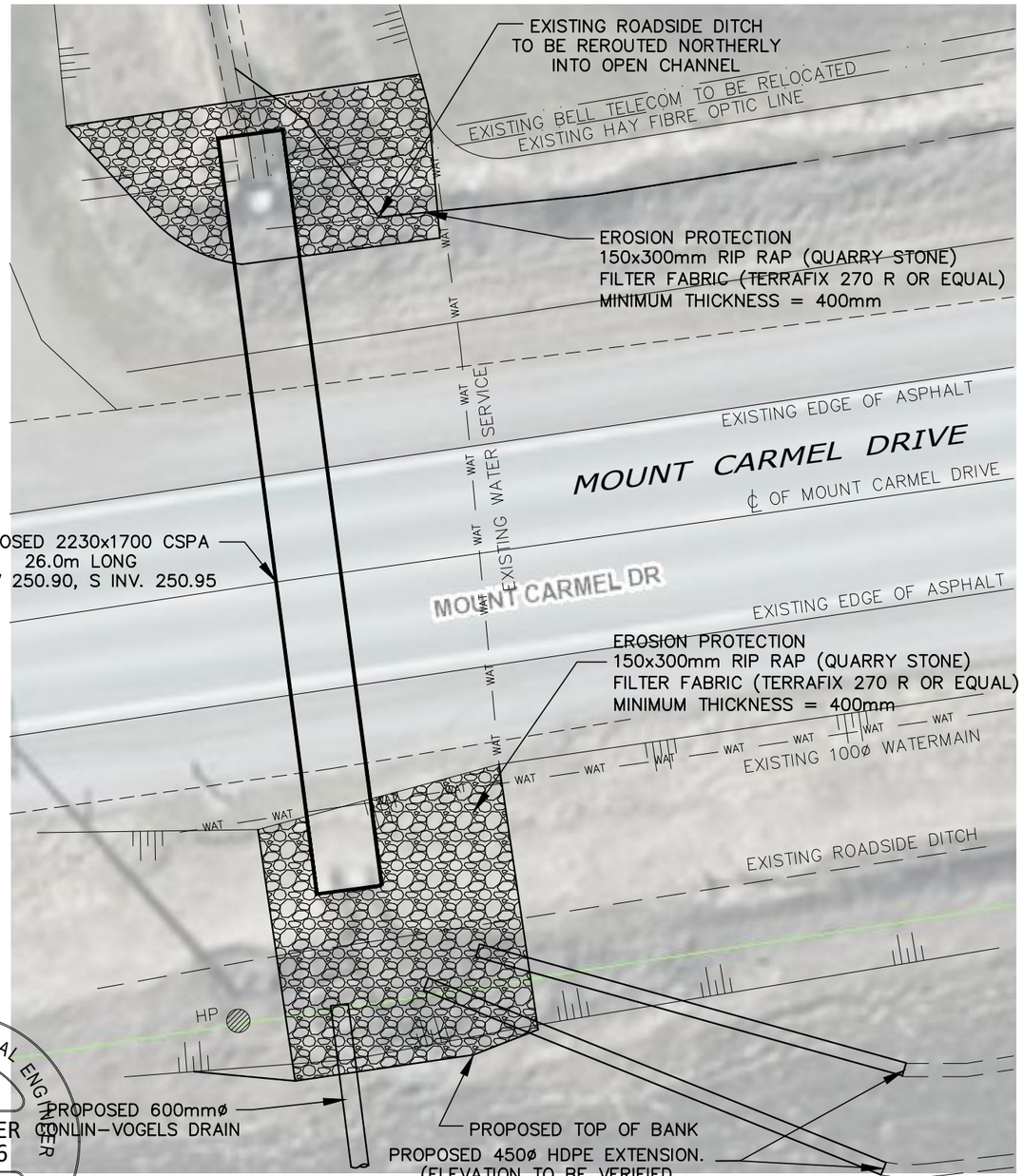
SCALE: 1:5000
0 50 100 150m

MUNICIPALITY of NORTH MIDDLESEX

CONLIN - VOGELS DRAIN PLAN

Last Updated: September 30, 2025





LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO

MOUNT CARMEL DRIVE ROAD CROSSING
EXISTING CONDITIONS & REMOVALS

MOUNT CARMEL DRIVE ROAD CROSSING
PROPOSED IMPROVEMENTS

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

DRAWING NAME: Conlin – Vogels Drain Detail Plan

PROJECT No. 2024–1687

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1:200
0 2 4 6m

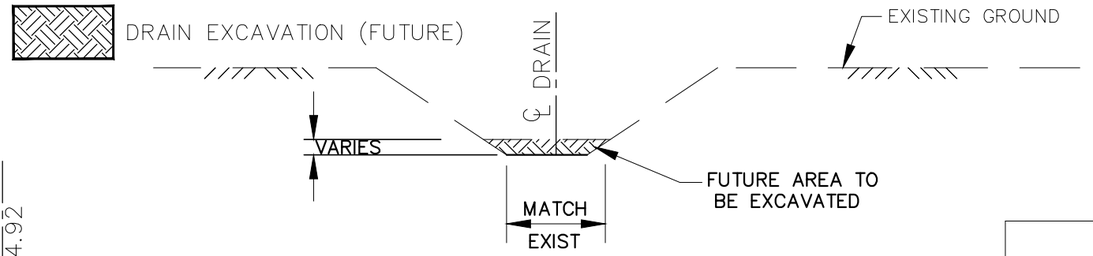
MUNICIPALITY of NORTH MIDDLESEX
CONLIN - VOGELS DRAIN
DETAIL PLAN

2 OF 6

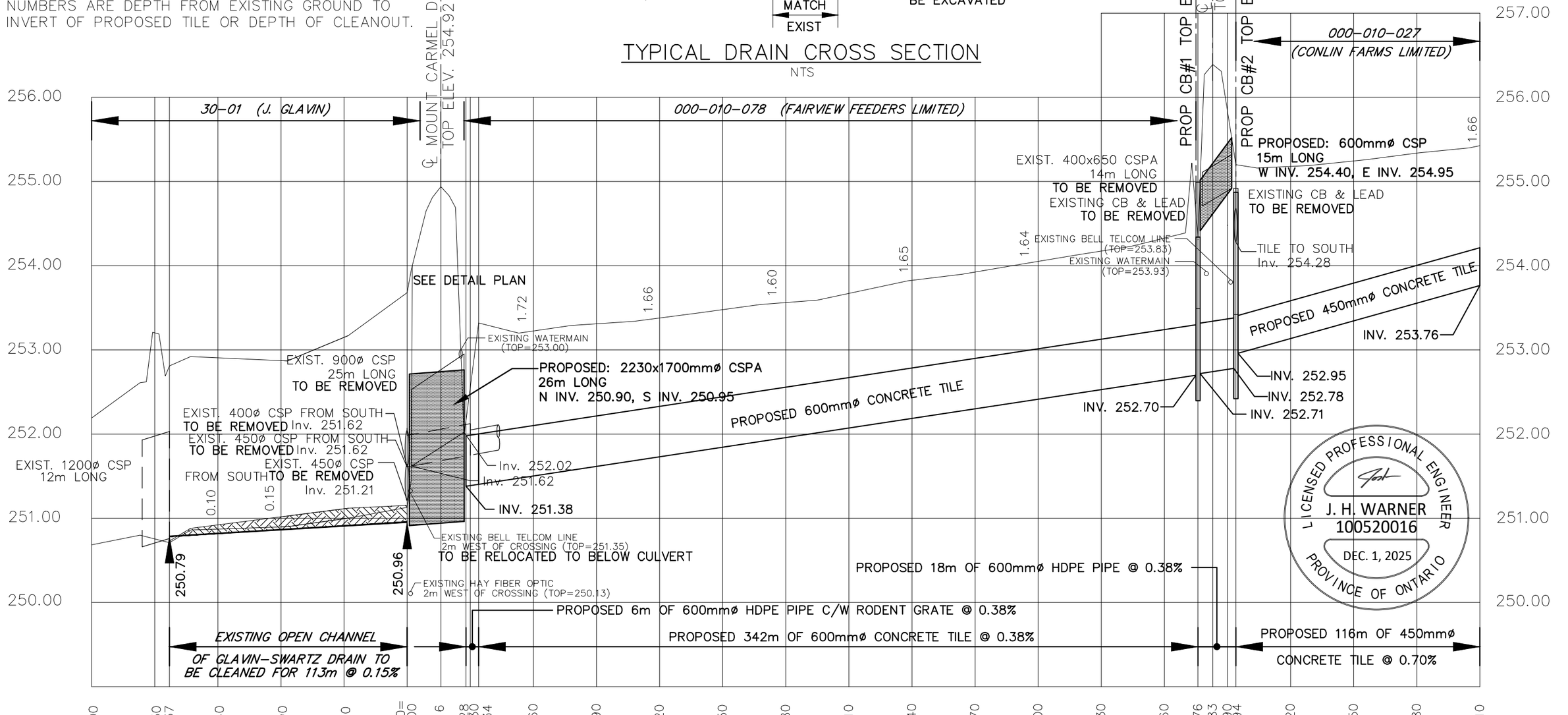
Last Updated: September 29, 2025

GENERAL NOTES

1. BENCHMARK No.1 ELEV. 251.95
   TOP OF WEST END OF EXISTING 1200mmø CSP ON GLAVIN–SWARTZ DRAIN, STATION 0+030
   BENCHMARK No.2 ELEV. 252.53
   TOP OF NORTH END OF EXISTING 900mmø CSP UNDER MOUNT CARMEL DRIVE, 0+016)
2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE OR DEPTH OF CLEANOUT.



TYPICAL DRAIN CROSS SECTION
NTS



LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO

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

DRAWING NAME: Conlin–Vogels Drain Profile 1
PROJECT No. 2024–1687

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

MUNICIPALITY of NORTH MIDDLESEX

CONLIN - VOGELS DRAIN

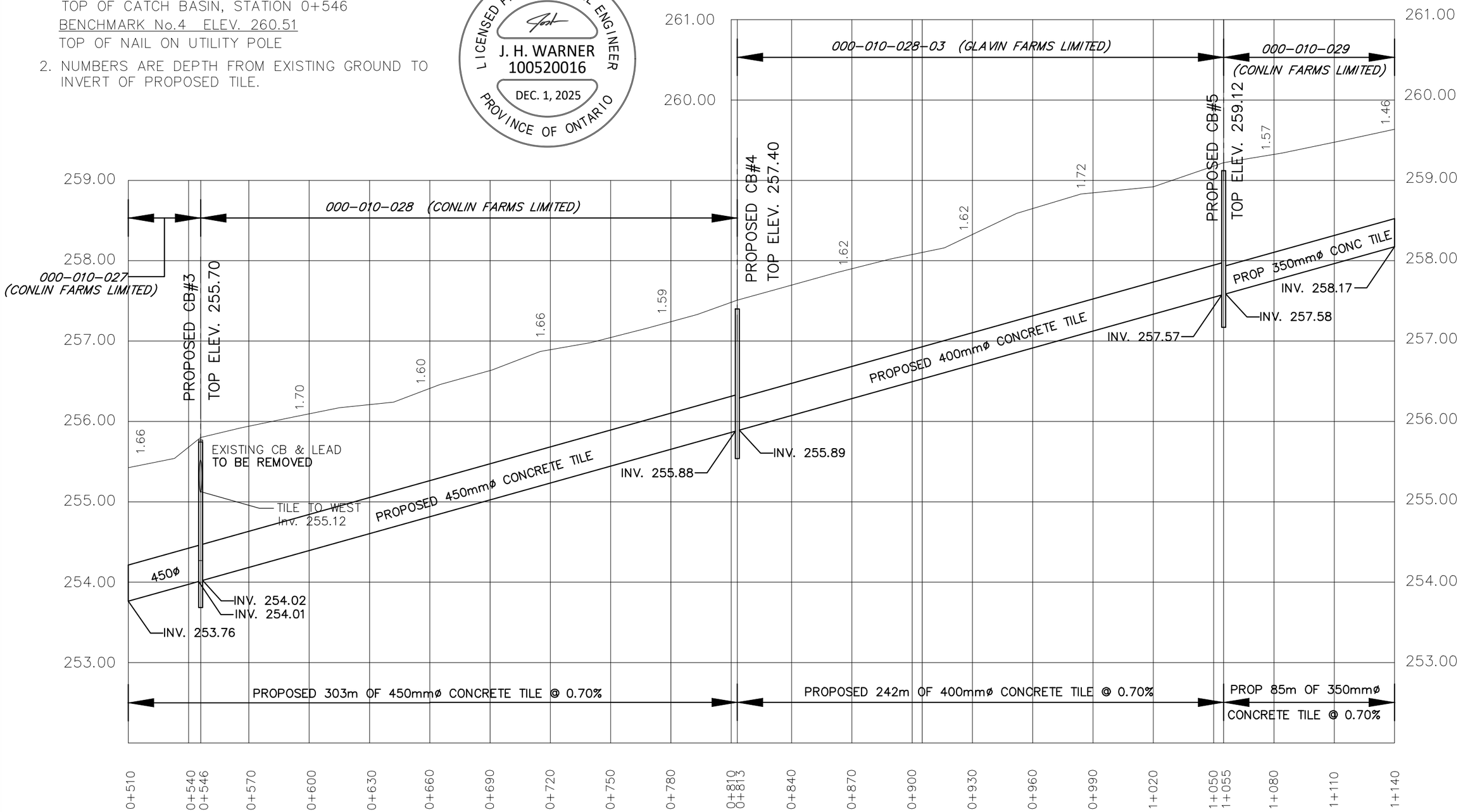
PROFILE

Last Updated: September 30, 2025

GENERAL NOTES

1. BENCHMARK No.3 ELEV. 255.77
   TOP OF CATCH BASIN, STATION 0+546
   BENCHMARK No.4 ELEV. 260.51
   TOP OF NAIL ON UTILITY POLE
2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE.

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO



Dobbin Engineering Inc.

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

DRAWING NAME:
Conlin-Vogels Drain Profile 2

PROJECT No.
2024-1687

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

MUNICIPALITY of NORTH MIDDLESEX

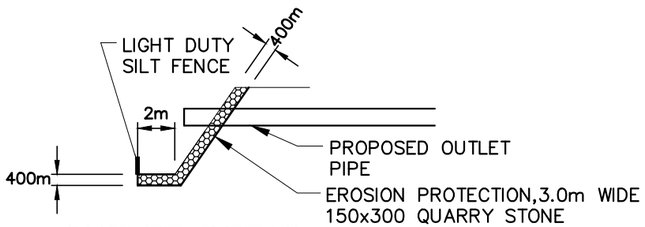
CONLIN - VOGELS DRAIN

PROFILE

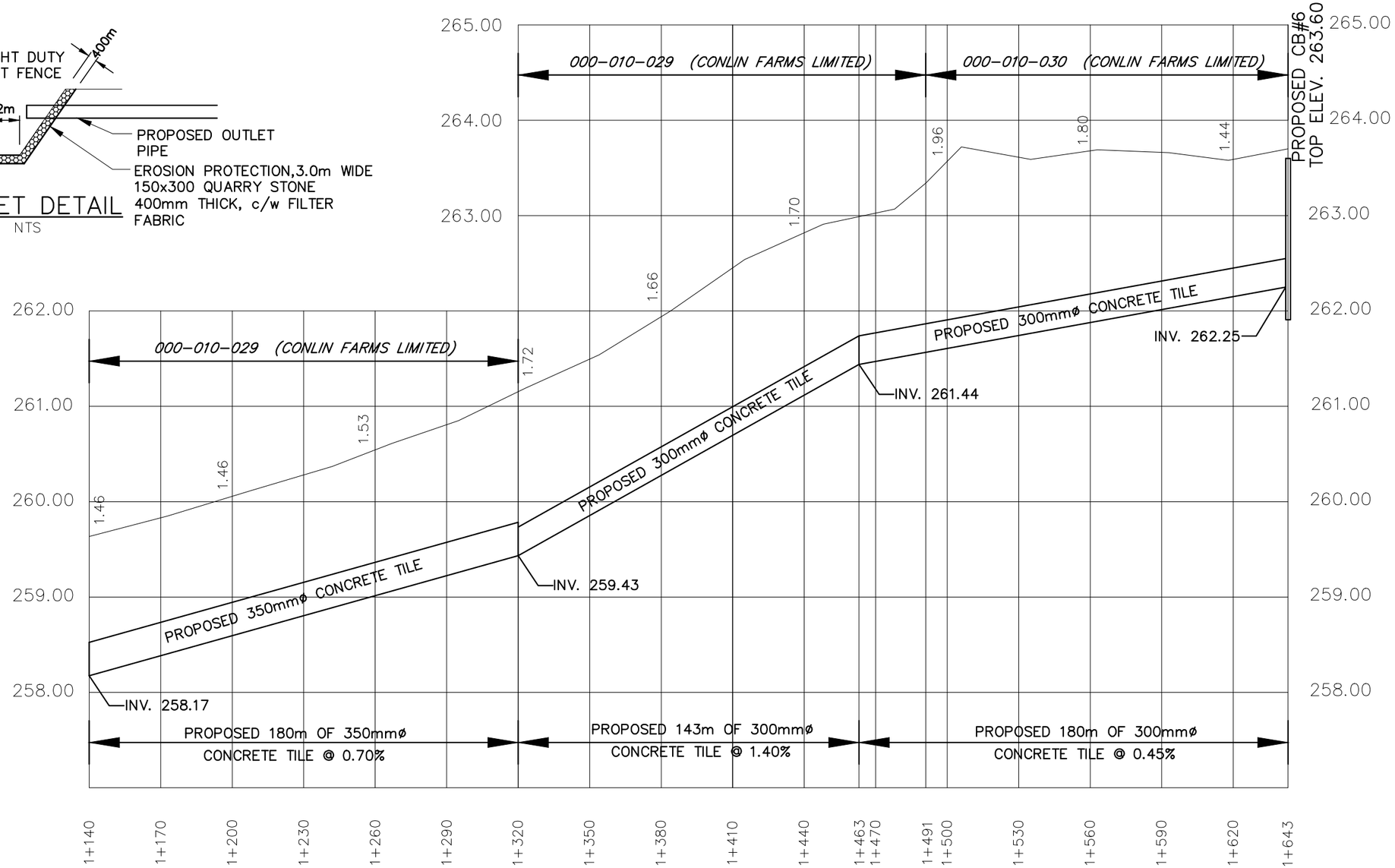
Last Updated: September 30, 2025

GENERAL NOTES

1. BENCHMARK No.5 ELEV. 264.03
   TOP OF WEST EDGE OF CONCRETE MANHOLE
   NEAR STATION 1+643
2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE.



OUTLET DETAIL
NTS



LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO

Dobbin Engineering Inc.

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

DRAWING NAME:
Conlin-Vogels Drain Profile 3

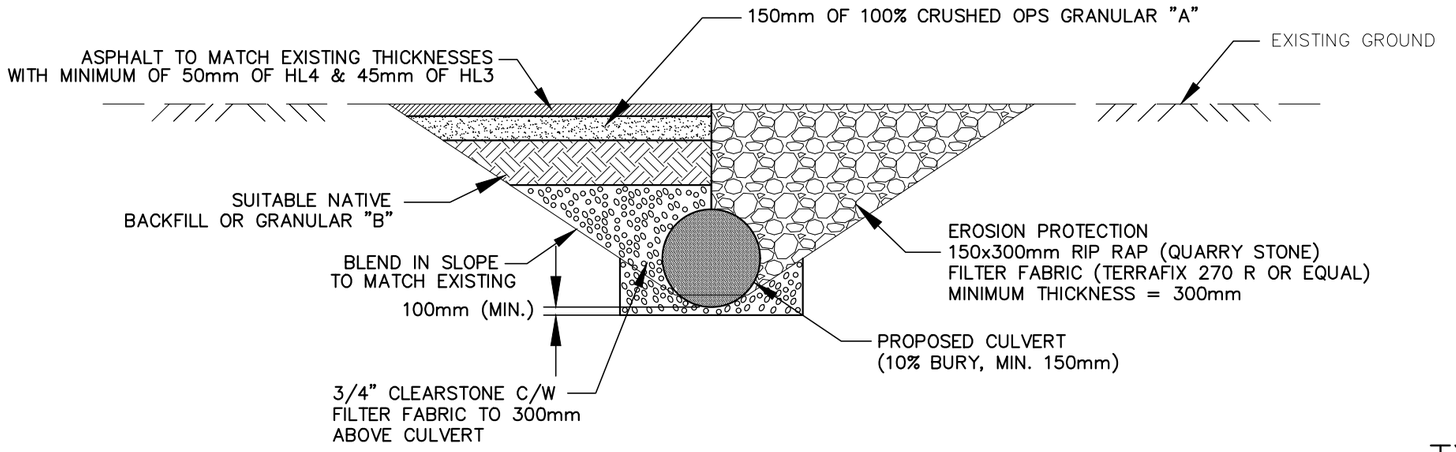
PROJECT No.
2024-1687

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

MUNICIPALITY of NORTH MIDDLESEX

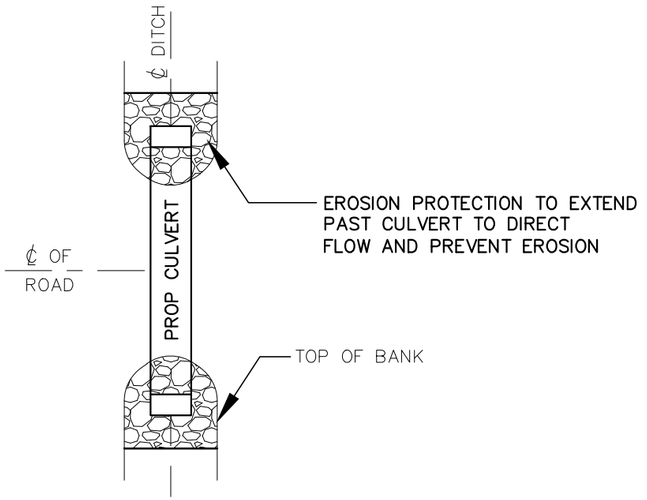
CONLIN - VOGELS DRAIN
PROFILE

Last Updated: September 30, 2025



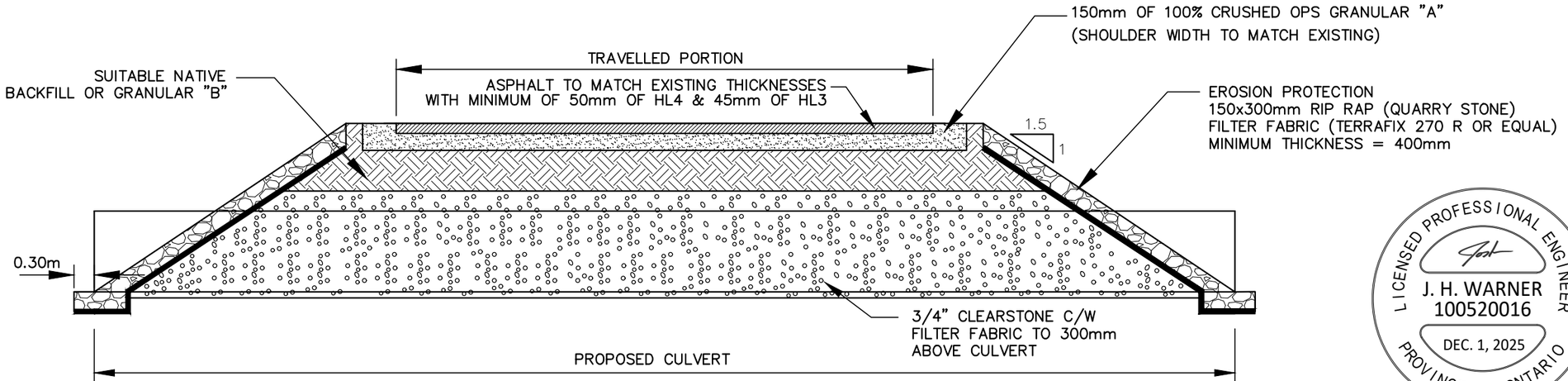
TYPICAL ASPHALT ROAD CULVERT END SECTION

NTS



TYPICAL ROAD CULVERT PLAN

NTS



TYPICAL ASPHALT ROAD CROSS-SECTION

NTS

NOTE:
ALL GRANULARS COMPACTED
TO 98% MODIFIED PROCTOR DENSITY

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
DEC. 1, 2025
PROVINCE OF ONTARIO

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

DRAWING NAME: Conlin-Vogels Drain Mount Carmel Drive Culvert Detail
PROJECT No. 2024-1687

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	DEC. 1, 2025	JW
B. VAN RUITENBURG				
DRAWN				
J. WARNER				

MUNICIPALITY of NORTH MIDDLESEX

CONLIN - VOGELS DRAIN
MOUNT CARMEL DRIVE CULVERT DETAIL

Last Updated: September 23, 2025