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August 28, 2025

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

Gentlemen and Mesdames:

Re: Robinson Drain (2025) (DRAFT)

In accordance with your instructions, R. Dobbin Engineering Inc. has undertaken an examination of the Robinson 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 May 7th, 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 construction of Branch "G".

Existing Conditions

The Robinson Drain consists of the Main Drain and Branches "A" through "F" as shown on the plan included in this report.

Background

Under an Engineer's Report dated July 20, 1967 the Robinson Main Drain and Branches "A" to "E" were constructed. At this time the drains were designed to handle 12mm/24 hrs (1/2"). The Main Drain consists of 350mm dia. (14") tile in the property with Roll Number 000-040-068, 300mm dia. (12") tile in the property with Roll Number 000-040-067 and 200mm dia. (8") tile in the upstream portion. Branch "A" is a 200mm dia. (8") tile, Branch "B" varies from a 250mm dia. (10") to a 150mm dia. (6") tile, Branch "C" is a 200mm dia. (8") and 150mm dia. (6") tile, Branch "D" and "E" are 150mm dia. (6") tiles with a 200mm dia. (8") tile under West Corner Drive.

Under an Engineer's Report dated February 15, 1980 Branch "F" of the Robinson Drain was constructed. Branch "F" consists of a 250mm dia. (10") tile with a 200mm dia. (8") tile under West Corner Drive.

Drain Classification

The Robinson Drain is currently Not Rated 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 29th, 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)
- Pete McGregor (Landowner)
- Ron Dyer (Landowner)
- Chris Roelands (Landowner)
- Allan VanMassenhoven (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 Main Drain be replaced from its outlet to the east limit of Lot 17, Branch "B" and "F" be replaced in their entirety, Branch "C" be replaced to the east limit of Lot 16 and that a new branch be constructed (known as Branch "G").
- No adverse soil conditions were noted at the site meeting.

Discussion

Upon surveying it was determined that Branch "B" heads northwesterly near its outlet into the open channel and adds considerable length to the drain. It was determined that outletting directly into the open channel would be a more cost-effective solution.

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 Robinson Main Drain shall be replaced from its outlet to the east limit of Lot 17. The existing Robinson Main Drain (1967) in this location shall be abandoned and crushed in place.

2. The Robinson Drain Branch "B" shall be replaced in its entirety. The existing Robinson Drain Branch "B" (1967) shall be abandoned and crushed in place.

3. The Robinson Drain Branch "C" shall be replaced from its outlet to the east limit of Lot 16. The existing Robinson Drain Branch "C" (1967) in this location shall be abandoned and crushed in place.

4. The Robinson Drain Branch "G" shall be constructed from Branch "B" to the east limit of Lot 16.

5. The Robinson Drain Branch "F" shall be replaced in its entirety. The existing Robinson Drain Branch "F" (1980) shall be abandoned and crushed in place.

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 $338,411, 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 West Corner Drive Crossing 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 and Fiber Line)= 1.0176 (Net Tax) x (Tendered Costs to Locate and Work Around Utility x 1.20 (For Engineering)) + $1,750 (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 outlet pipes and rip rap on the Robinson Main Drain and Branch “B” have been assessed with 100% of the cost applied as an outlet assessment to the upstream lands and roads based on equivalent hectares.

4. The Robinson Main Drain and Branch "F" have been assessed with 40% of the cost applied as a benefit assessment and the remainder applied as an outlet assessment to the upstream lands and roads based on equivalent hectares.

5. The remaining cost of the drainage works has generally been assessed with 50% of the cost applied as a benefit assessment 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 Composite 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 West Corner Drive, along the length of the drainage works and through the properties with Roll Numbers 000-040-068, 000-040-067, 000-040-066-08 as determined by the Drainage Superintendent or Engineer. 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.

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 Robinson Drains replaced under this report, except for the West Corner Drive crossing, shall be maintained and repaired in the same proportions as contained in the applicable Schedule of Assessment, less special benefit assessments. The remainder of the Robinson Drains shall be maintained and repaired in accordance with the 1967 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

Robinson Drain - Main Drain
Municipality of North Middlesex
August 28, 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 ($)
Main Drain						
7	Lot 16	000-040-068	P. Macgregor	-	3,590	3,590
	Lot 17	000-040-067	Honeyland Agricultral	-	3,820	3,820
	Lot 18	000-040-066-08	H. Ross	-	100	100
Branch "B"						
7	Lot 16	000-040-068	P. Macgregor	-	2,970	2,970
	Lot 17	000-040-067	Honeyland Agricultral	-	100	100
Branch "C"						
7	Lot 16	000-040-068	P. Macgregor	-	1,720	1,720
	Lot 17	000-040-067	Honeyland Agricultral	-	100	100
Branch "G"						
7	Lot 16	000-040-068	P. Macgregor	1,800	900	2,700
	Lot 17	000-040-067	Honeyland Agricultral	-	100	100
Branch "F"						
6	Lot 18	000-040-049	R. Dyer	-	100	100
7	Lot 17	000-040-067	Honeyland Agricultral	-	1,840	1,840
	Lot 18	000-040-066-08	H. Ross	-	2,810	2,810
			TOTAL ALLOWANCES	$1,800	$18,150	$19,950

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
MAIN DRAIN				
Remove existing Hickenbottom at Station 0+399	1	each	200	200
Remove existing Catch Basin at Station 0+828	1	LS	800	800
Remove Existing Outlet Pipe	1	LS	200	200
Locate and Abandon Existing Tile	1	LS	1,500	1,500
Strip and Level Topsoil	828	m	6	4,968
6m of 750mmø HDPE Pipe c/w Rodent Grate	1	LS	2,400	2,400
Rip Rap at Outlet	15	tonne	100	1,500
750mmø Concrete Tile	36	m	130	4,680
Clear Stone Bedding where depth of Tile Exceeds 2.5m	40	tonne	40	1,600
675mmø Concrete Tile	357	m	115	41,055
525mmø Concrete Tile	360	m	75	27,000
450mmø Concrete Tile	69	m	65	4,485
CB #1 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #2 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
Reconnect Existing Tile at CB#2	1	LS	500	500
Locate and Reconnect Existing Tiles	60	ea	150	9,000
Silt Fence	1	LS	500	500
BRANCH "B"				
Remove existing Hickenbottoms at Station 0+225 and 0+395	2	each	100	200
Locate and Abandon Existing Tile	1	LS	1,200	1,200

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Strip and Level Topsoil	395	m	6	2,370
6m of 450mmø HDPE Pipe c/w Rodent Grate	1	LS	1,500	1,500
Rip Rap at Outlet	15	tonne	100	1,500
450mmø Concrete Tile	67	m	65	4,355
400mmø Concrete Tile	67	m	55	3,685
300mmø Concrete Tile	255	m	45	11,475
CB #3 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
Reconnect Existing Tile at CB#3	1	LS	500	500
Locate and Reconnect Existing Tiles	60	ea	150	9,000
Silt Fence	1	LS	200	200
BRANCH "C"				
Remove existing Hickenbottom at Station 0+229	1	each	100	100
Locate and Abandon Existing Tile	1	LS	600	600
Strip and Level Topsoil	229	m	6	1,374
Connect to Branch "B"	1	LS	300	300
250mmø Concrete Tile	229	m	40	9,160
CB #5 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
Reconnect Existing Tile at CB #5	1	LS	500	500
Locate and Reconnect Existing Tiles	6	ea	150	900
BRANCH "G"				
Locate and Abandon Existing Tile	1	LS	400	400
Strip and Level Topsoil	120	m	6	720
Connect to Branch "B"	1	LS	300	300
200mmø Concrete Tile	120	m	35	4,200
CB #4 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Locate and Reconnect Existing Tiles	3	ea	150	450
BRANCH "F"				
Locate and Abandon Existing Tile	1	LS	1,000	1,000
Strip and Level Topsoil	619	m	6	3,714
Connect to Main Drain	1	LS	300	300
350mmø Concrete Tile	619	m	50	30,950
Clear Stone Bedding where depth of Tile Exceeds 2.5m	40	tonne	40	1,600
CB #6 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #7 (900mm x 1200mm)	1	LS	2,800	2,800
CB #8 (900mm x 1200mm)	1	LS	3,000	3,000
Reconnect Existing Tile at CB #8	1	LS	500	500
Locate and Reconnect Existing Tiles	40	ea	150	6,000
West Corner Drive				
Traffic Control	1	LS	1,200	1,200
Locate and Work Around Watermain	1	LS	800	800
Locate and Work Around Fiber Optic	1	LS	800	800
Remove and Dispose of Existing Culvert and Tile	1	LS	2,000	2,000
375mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	17	m	200	3,400
500mmø CSP (Open Cut)	15	m	300	4,500
Granular "B" Backfill	50	tonne	30	1,500
100% Crushed Granular "A"	25	tonne	40	1,000
Place Suitable Native Backfill	1	LS	1,000	1,000
Restoration and Ditch Grading	1	LS	1,000	1,000
Contigency				12,160
			Sub Total	253,801
			Allowances	19,950
			Engineering	37,810
			Daylighting and Surveying Utilities	3,500
			Estimate for Tendering, Inspection and Contract Administration	17,400
			ABCA Fee	450
			Total Estimate excluding HST	**332,911**
			Non-Recoverable HST (1.76%)	5,500
			Total Estimate	**$ 338,411**

SCHEDULE OF ASSESSMENT (MAIN DRAIN)

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipal Lands								
	West Corner Drive	1.31		Municipality of North Middlesex		-	3,959	3,959
					-	-	3,959	3,959
Agricultural Lands								
6	Lot 17	0.41	000-040-048	A. Van Massenhoven		-	382	382
	Lot 18	8.90	000-040-049	R. Dyer		-	8,521	8,521
	Lot 19	3.22	000-040-049-01	W. Loomis		-	3,294	3,294
7	Lot 16	8.08	000-040-068	P. Macgregor	5,985	29,373	4,682	40,040
	Lot 17	18.85	000-040-067	Honeyland Agricultral	6,435	25,377	17,868	49,680
	Lot 18	31.16	000-040-066-08	H. Ross		2,804	31,433	34,237
	Lot 19	6.47	000-040-066	H. Ross		-	6,618	6,618
					12,420	57,554	72,798	142,772

Total Municipal Lands	3,959
Total Agricultural Lands	142,772
Total Assessment	$146,731

SCHEDULE OF ASSESSMENT (BRANCH "B")

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipal Lands								
	West Corner Drive	1.05		Municipality of North Middlesex		-	953	953
					-	-	953	953
Agricultural Lands								
6	Lot 16	1.61	000-040-047	P. Macgregor		-	384	384
	Lot 17	1.20	000-040-048	A. Van Massenhoven		-	347	347
7	Lot 16	14.58	000-040-068	P. Macgregor	3,950	24,996	9,912	38,858
	Lot 17	15.55	000-040-067	Honeyland Agricultral		2,351	11,292	13,643
					3,950	27,347	21,935	53,232
				Total Municipal Lands	953			
				Total Agricultural Lands	53,232			
				Total Assessment	$54,185			

SCHEDULE OF ASSESSMENT (BRANCH "C")

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipal Lands								
	West Corner Drive	0.56		Municipality of North Middlesex		-	988	988
					-	-	988	988
Agricultural Lands								
6	Lot 16	0.48	000-040-048	A. Van Massenhoven		-	282	282
7	Lot 16	3.94	000-040-068	P. Macgregor	1,145	10,818	2,318	14,281
	Lot 17	8.29	000-040-067	Honeyland Agricultral		2,351	4,878	7,229
					1,145	13,169	7,478	21,792
				Total Municipal Lands	988			
				Total Agricultural Lands	21,792			
				Total Assessment	$22,780			

SCHEDULE OF ASSESSMENT (BRANCH "G")

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Agricultural Lands								
7	Lot 16	1.06	000-040-068	P. Macgregor	600	7,056	1,925	9,581
	Lot 17	1.75	000-040-067	Honeyland Agricultral		1,954	3,177	5,131
					600	9,010	5,102	14,712
				Total Agricultural Lands	14,712			
				Total Assessment	$14,712			

SCHEDULE OF ASSESSMENT (BRANCH "F")

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Utilities								
	Watermain			Municipality of North Middlesex	2,788	-	-	2,788
	Fiber Line			Bell	2,788	-	-	2,788
					5,576	-	-	5,576
Municipal Lands								
	West Corner Drive	0.67		Municipality of North Middlesex	20,345	4,107	4,172	28,624
					20,345	4,107	4,172	28,624
Agricultural Lands								
6	Lot 17	0.41	000-040-048	A. Van Massenhoven		-	851	851
	Lot 18	6.48	000-040-049	R. Dyer		2,285	13,444	15,729
7	Lot 17	3.20	000-040-067	Honeyland Agricultral	2,450	11,763	2,354	16,567
	Lot 18	4.90	000-040-066-08	H. Ross	3,740	18,750	10,166	32,656
					6,190	32,798	26,815	65,803
				Total Utilities	5,576			
				Total Municipal Lands	28,624			
				Total Agricultural Lands	65,803			
				Total Assessment	$100,003			

COMPOSITE SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Utilities							
	Watermain		Municipality of North Middlesex	2,788			2,788
	Fiber Line		Bell	2,788			2,788
				5,576	-	-	5,576
Municipal Lands							
	West Corner Drive		Municipality of North Middlesex	20,345	4,107	10,072	34,524
				20,345	4,107	10,072	34,524
Agricultural Lands							
6	Lot 16	000-040-047	P. Macgregor		-	384	384
	Lot 17	000-040-048	A. Van Massenhoven		-	1,862	1,862
	Lot 18	000-040-049	R. Dyer		2,285	21,965	24,250
	Lot 19	000-040-049-01	W. Loomis		-	3,294	3,294
7	Lot 16	000-040-068	P. Macgregor	11,680	72,243	18,837	102,760
	Lot 17	000-040-067	Honeyland Agricultral	8,885	43,796	39,569	92,250
	Lot 18	000-040-066-08	H. Ross	3,740	21,554	41,599	66,893
	Lot 19	000-040-066	H. Ross		-	6,618	6,618
				24,305	139,878	134,128	298,311
			Total Utilities	5,576			
			Total Municipal Lands	34,524			
			Total Agricultural Lands	298,311			
			Total Assessment	$338,411			

Robinson Drain
Municipality of North Middlesex
August 28, 2025

ESTIMATED NET ASSESSMENT

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

Conc.	Lot or Part	Roll No.	Owner	MAIN DRAIN Assessment	Estimated Grant	Allowances	Net "MAIN" Assessment	BRANCH "B" Assessment	Estimated Grant	Allowances	Net "B" Assessment	BRANCH "C" Assessment	Estimated Grant	Allowances	Net "C" Assessment
Utilities															
	Watermain		Municipality of North Middlesex												
	Fiber Line		Bell												
Municipal Lands															
	West Corner Drive		Municipality of North Middlesex	3,959			3,959	953			953	988			988
Agricultural Lands															
6	Lot 16	000-040-047	P. Macgregor					384	128		256				
	Lot 17	000-040-048	A. Van Massenhoven	382	127		255	347	116		231	282	94		188
	Lot 18	000-040-049	R. Dyer	8,521	2,840		5,681								
	Lot 19	000-040-049-01	W. Loomis	3,294	1,098		2,196								
7	Lot 16	000-040-068	P. Macgregor	40,040	11,352	3,590	25,098	38,858	11,636	2,970	24,252	14,281	4,379	1,720	8,182
	Lot 17	000-040-067	Honeyland Agricultral	49,680	14,415	3,820	31,445	13,643	4,548	100	8,995	7,229	2,410	100	4,719
	Lot 18	000-040-066-08	H. Ross	34,237	11,412	100	22,725								
	Lot 19	000-040-066	H. Ross	6,618	2,206		4,412								
			Total	$146,731	$43,450	$7,510	$95,771	$54,185	$16,428	$3,070	$34,687	$22,780	$6,883	$1,820	$14,077

Conc.	Lot or Part	Roll No.	Owner	BRANCH "G" Assessment	Estimated Grant	Allowances	Net "G" Assessment	BRANCH "F" Assessment	Estimated Grant	Allowances	Net "F" Assessment	**Total Estimated Net Assessment**
Utilities												
	Watermain		Municipality of North Middlesex					2,788			2,788	2,788
	Fiber Line		Bell					2,788			2,788	2,788
Municipal Lands												
	West Corner Drive		Municipality of North Middlesex					28,624			28,624	34,524
Agricultural Lands												
6	Lot 16	000-040-047	P. Macgregor									256
	Lot 17	000-040-048	A. Van Massenhoven					851	284		567	1,241
	Lot 18	000-040-049	R. Dyer					15,729	5,243	100	10,386	16,067
	Lot 19	000-040-049-01	W. Loomis									2,196
7	Lot 16	000-040-068	P. Macgregor	9,581	2,994	2,700	3,887					61,419
	Lot 17	000-040-067	Honeyland Agricultral	5,131	1,710	100	3,321	16,567	4,706	1,840	10,021	58,501
	Lot 18	000-040-066-08	H. Ross					32,656	9,639	2,810	20,207	42,932
	Lot 19	000-040-066	H. Ross									4,412
			Total	$14,712	$4,704	$2,800	$7,208	$100,003	$19,872	$4,750	$75,381	$227,124

Robinson Drain
Municipality of North Middlesex
August 28, 2025

SPECIFICATION OF WORK

1. Location

The work in this specification is located in Lot 16, 17 and 18, Concession 7 in The Municipality of North Middlesex.

2. Scope of Work

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

- 2,208m of proposed tile drain replacement c/w catch basins, junction boxes and one road crossing

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 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, 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 West Corner Drive, along the length of the drainage works and through the properties with Roll Numbers 000-040-068, 000-040-067, 000-040-066-08 as determined by the Drainage Superintendent or Engineer. 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.

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 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. Locate and Abandon 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 existing municipal drain shall be abandoned and crushed. Tile Maps have been provided as part of this report. Branch “B” currently heads northwesterly near its outlet into the open channel and adds considerable length to the drain. The proposed Branch “B” shall extend westerly to a direct outlet in the open channel.

The Contractor shall expose the existing tiles at the top end of the improvements, obtain an elevation and notify the Engineer of these elevations prior to any tile installation taking place.

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.

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.

<u>Wheel Machine</u>

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.

16. 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 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.

17. Road Crossings

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 2.0mm 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 150mm 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 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". Outside the road allowance excavated material can be used. The top 150mm within the road shall be 100% crushed Granular "A". Granular "A" shall be mechanically compacted to 100% modified standard proctor density.

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

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

18. Catch Basins

Structure	Station	Size (mm)	Grate Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
MAIN DRAIN					
CB #1 c/w Berm	0+399	900x1200	232.08	230.30 (W) 675	230.31 (E) 525
CB #2 c/w Berm	0+828	900x1200	236.18	234.16 (W) 450	234.25 (E) 300
BRANCH “B”					
CB #3 c/w Berm	0+395	900x1200	231.88	229.85 (W) 300	230.00 (E) 250
BRANCH “G”					
CB #4 c/w Berm	0+120	900x1200	233.10	231.10 (W) 200	231.20 (E) 200 k/o
BRANCH “C”					
CB #5 c/w Berm	0+229	900x1200	233.00	231.72 (N) 250	231.80 (E) 150
BRANCH “F”					
CB #6 c/w Berm	0+245	900x1200	237.93	235.91 (W) 350	235.92 (E) 350
CB #7	0+619	900x1200	238.27	236.69 (N) 350	236.70 (S) 375
CB #8	0+636	900x1200	238.19	236.73 (N) 375	236.75 (S) 250 k/o

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.

19. 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.

20. Subsurface Drainage

All existing subsurface drains encountered during construction shall be connected to the tile drain 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.

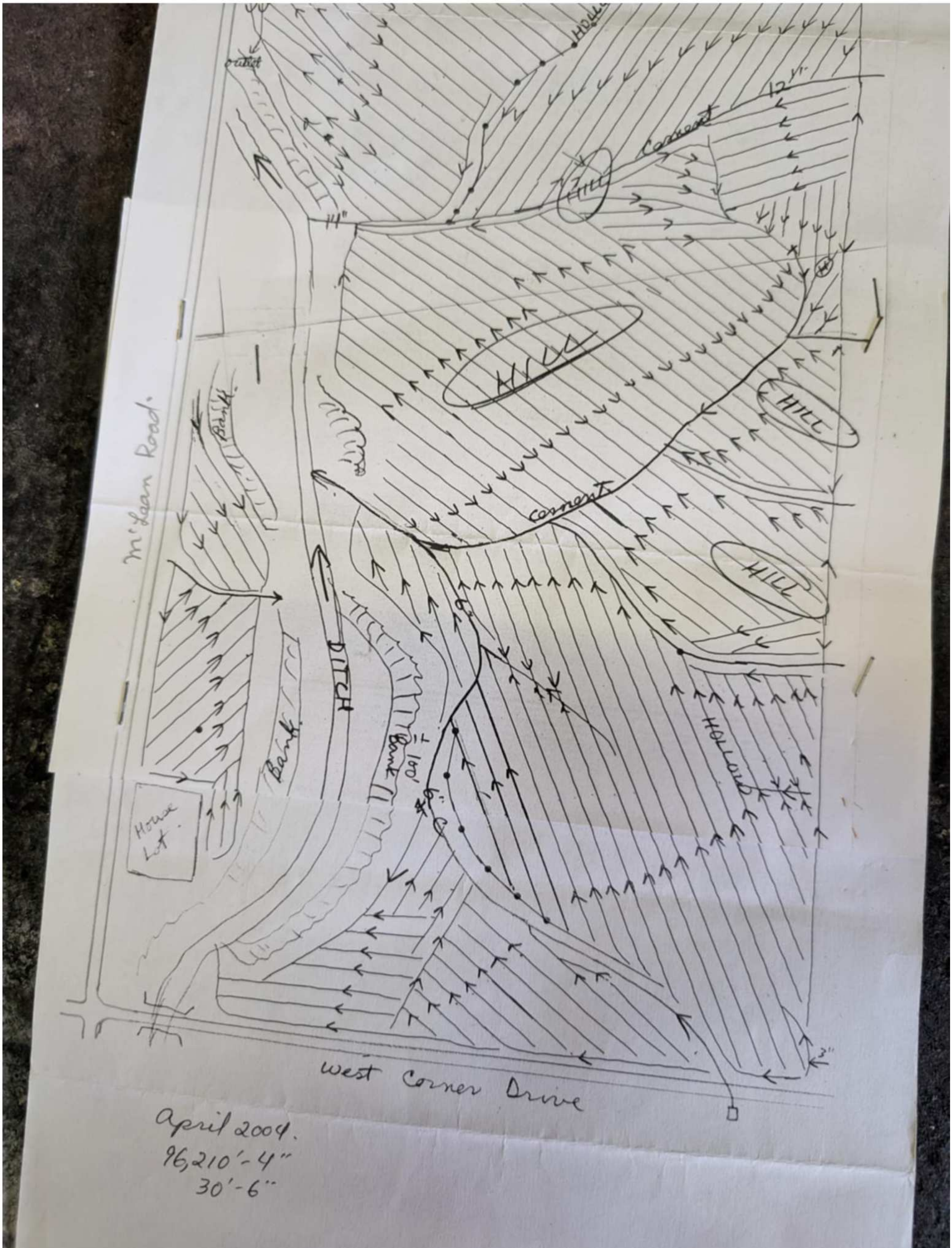
21. Environmental Considerations

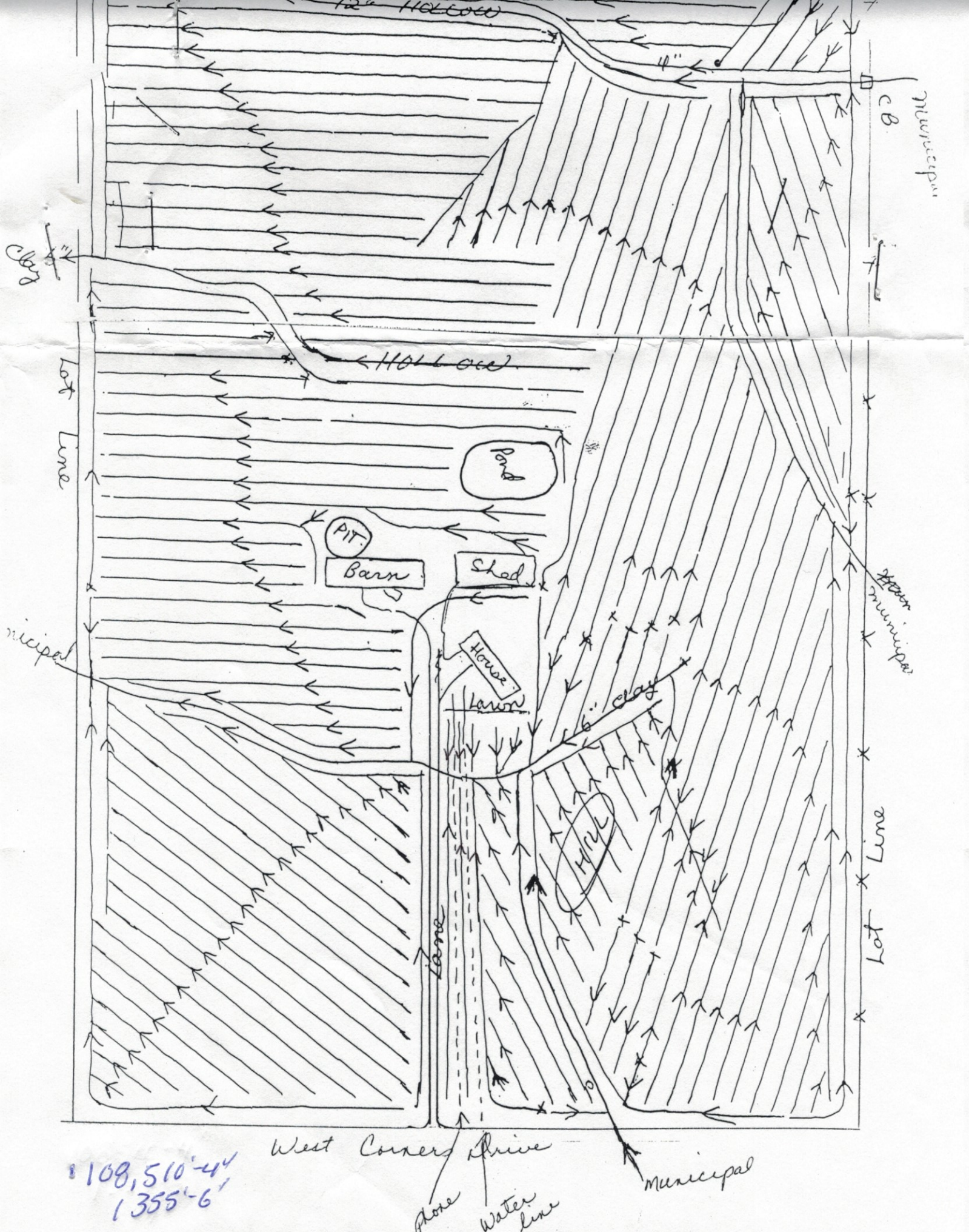
The Contractor shall take care to adhere to the following considerations.

- 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.

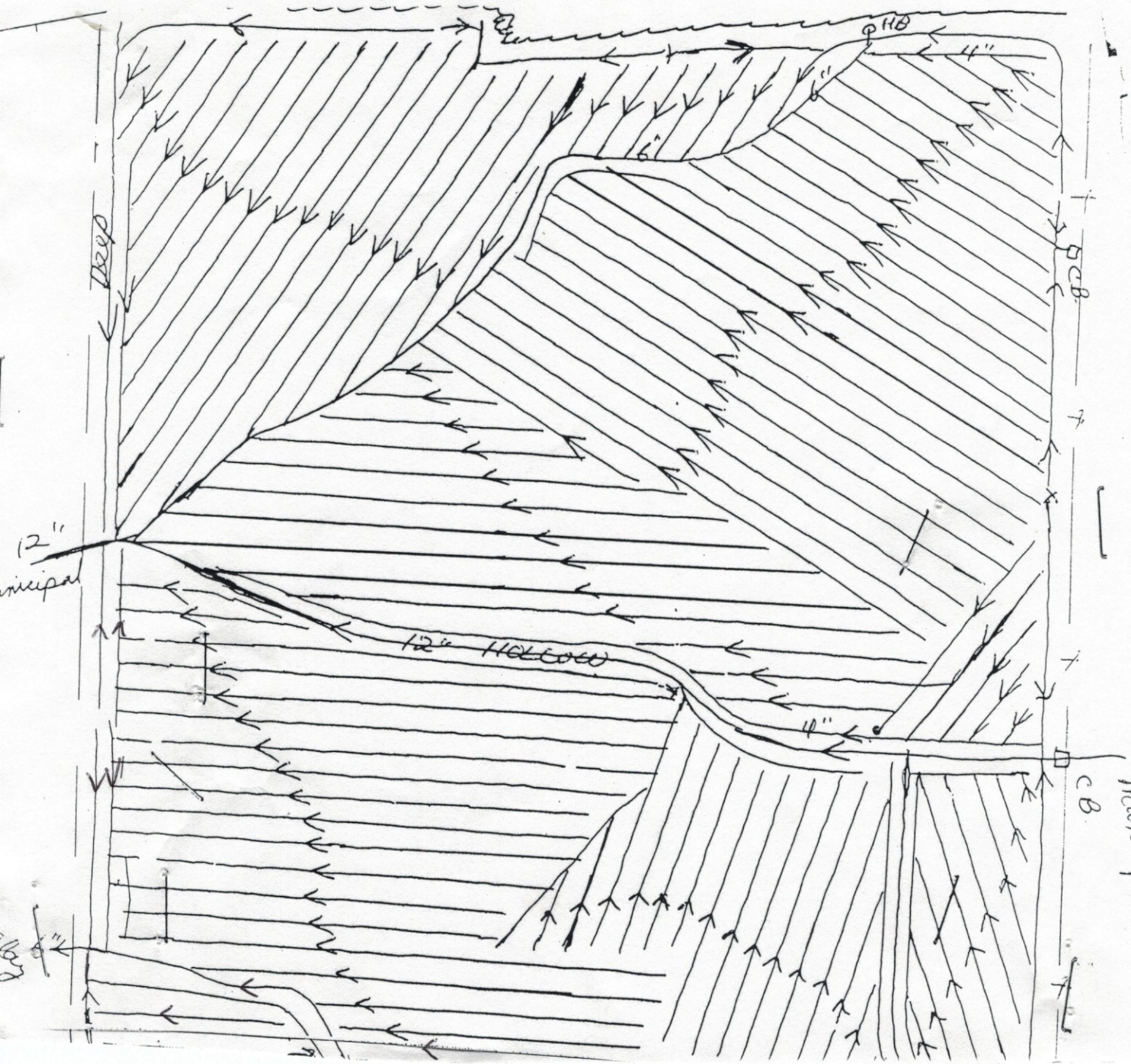
The light duty silt fencing shall be supplied and installed in accordance with OPSS 577 and OPSD 219.110. The light duty silt fencing shall be removed once construction is complete.

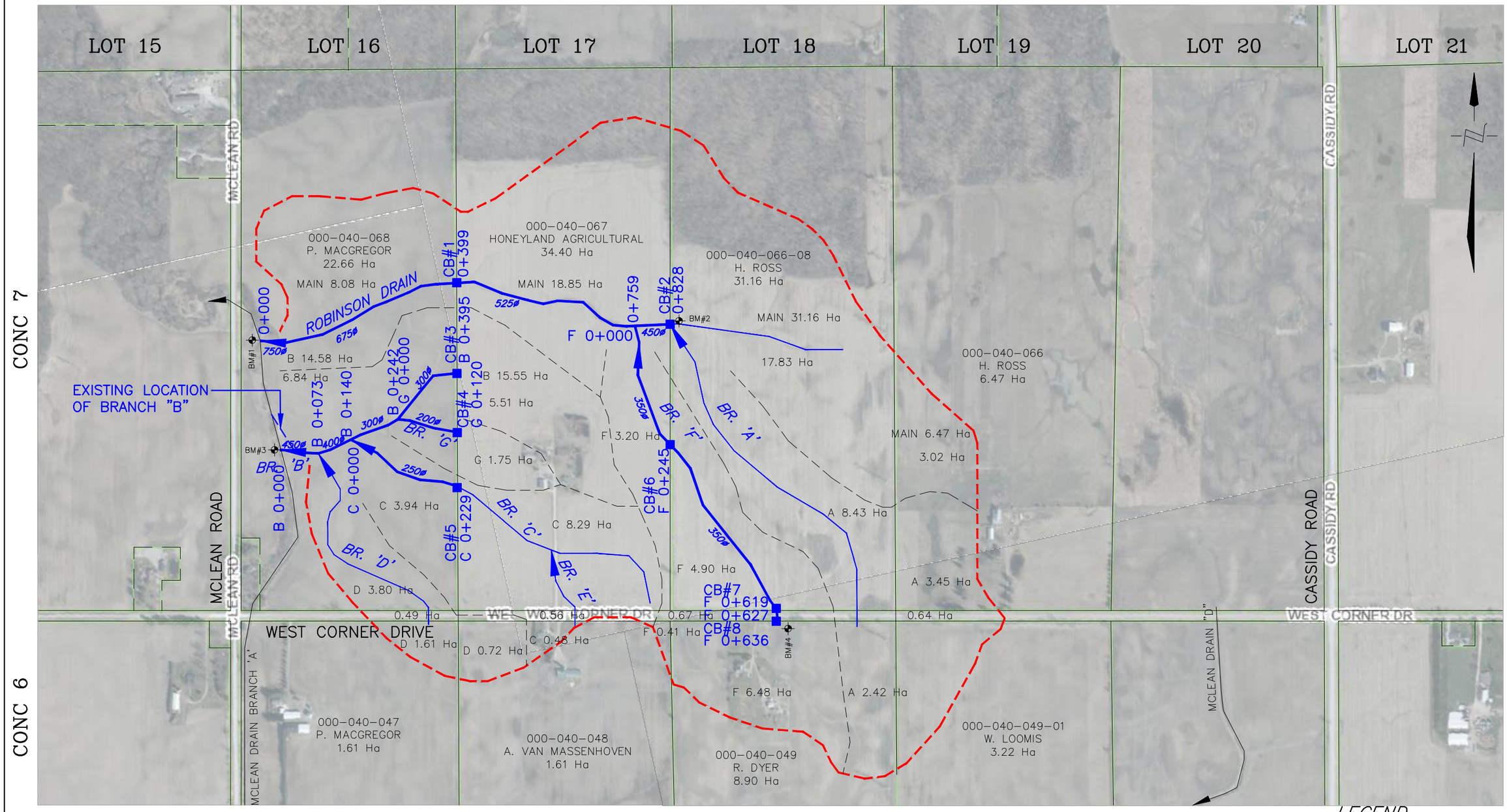

outlet
Cement
12"
HILL
11"
HILL
M'Lean Road.
Bank
HILL
Cement
HILL
DITCH
Bank
Bank
HOLLOW
House Lot.
3"
West Corner Drive
April 2004.
96,210'-4"
30'-6"



Customer: Matt Roeland		
Location: Lot 16 Con. 7 E.C.R. McGillivray Twp.		
Scale: 200 feet	Spacing: 35 ft.	Date: April 2005
C Robert Robinson Contracting Ltd		

Bush





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

DRAWING NAME: Robinson Drain Plan

PROJECT No. 2025-1739

APPROVED J. WARNER

CHECKED B. VAN RUITENBURG

DRAWN C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	AUG. 28, 2025	CS

SCALE: 1:7500
0 100 200 300m

MUNICIPALITY of NORTH MIDDLESEX

ROBINSON DRAINAGE WORKS

PLAN

1 OF 6

Last Updated: August 28, 2025

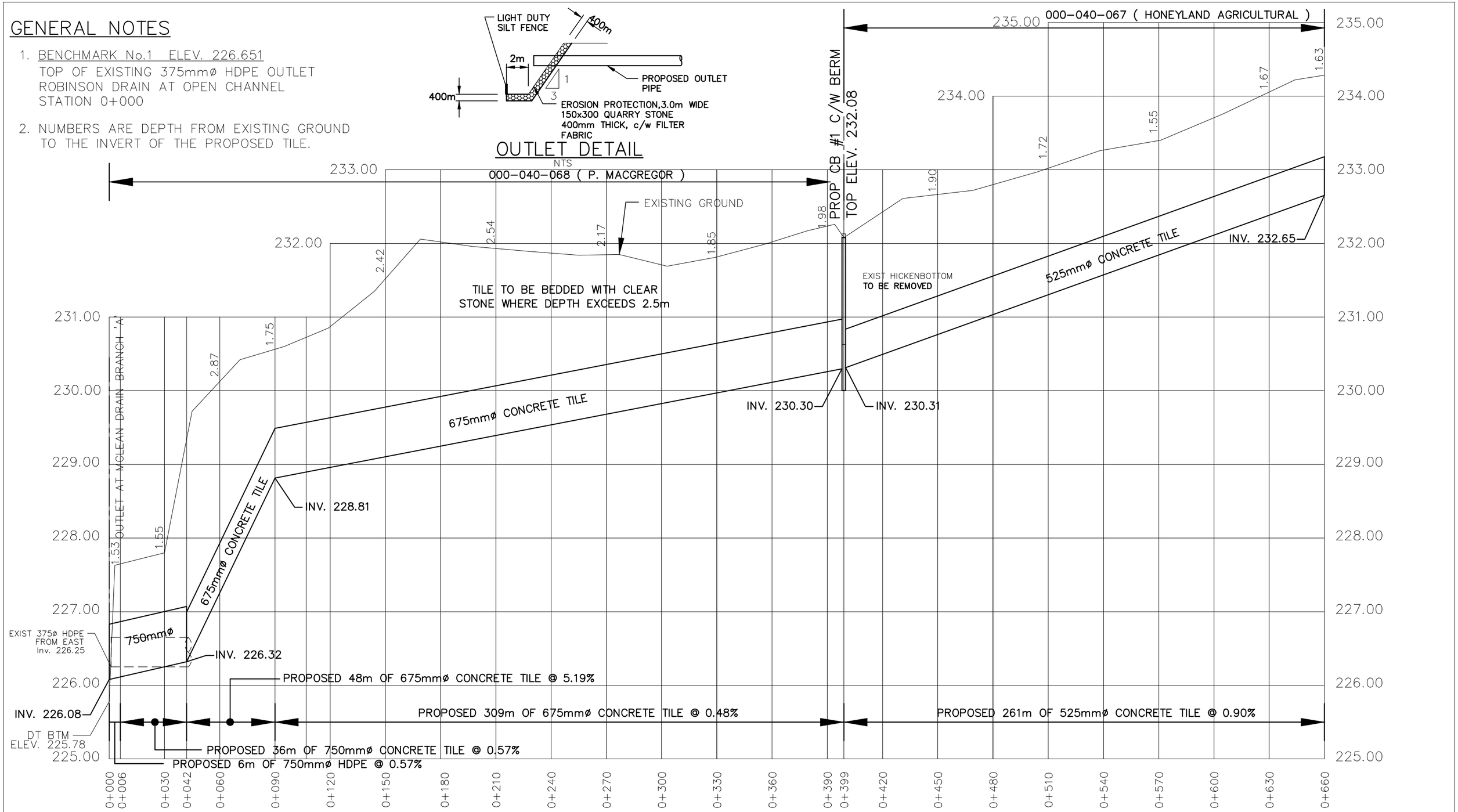
GENERAL NOTES

1. BENCHMARK No.1 ELEV. 226.651
   TOP OF EXISTING 375mmø HDPE OUTLET ROBINSON DRAIN AT OPEN CHANNEL STATION 0+000

2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO THE INVERT OF THE PROPOSED TILE.

OUTLET DETAIL

NTS



Dobbin Engineering Inc.

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

DRAWING NAME: Robinson Main Drain Profile 1

PROJECT No. 2025-1749

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	AUG. 28, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

MUNICIPALITY of NORTH MIDDLESEX

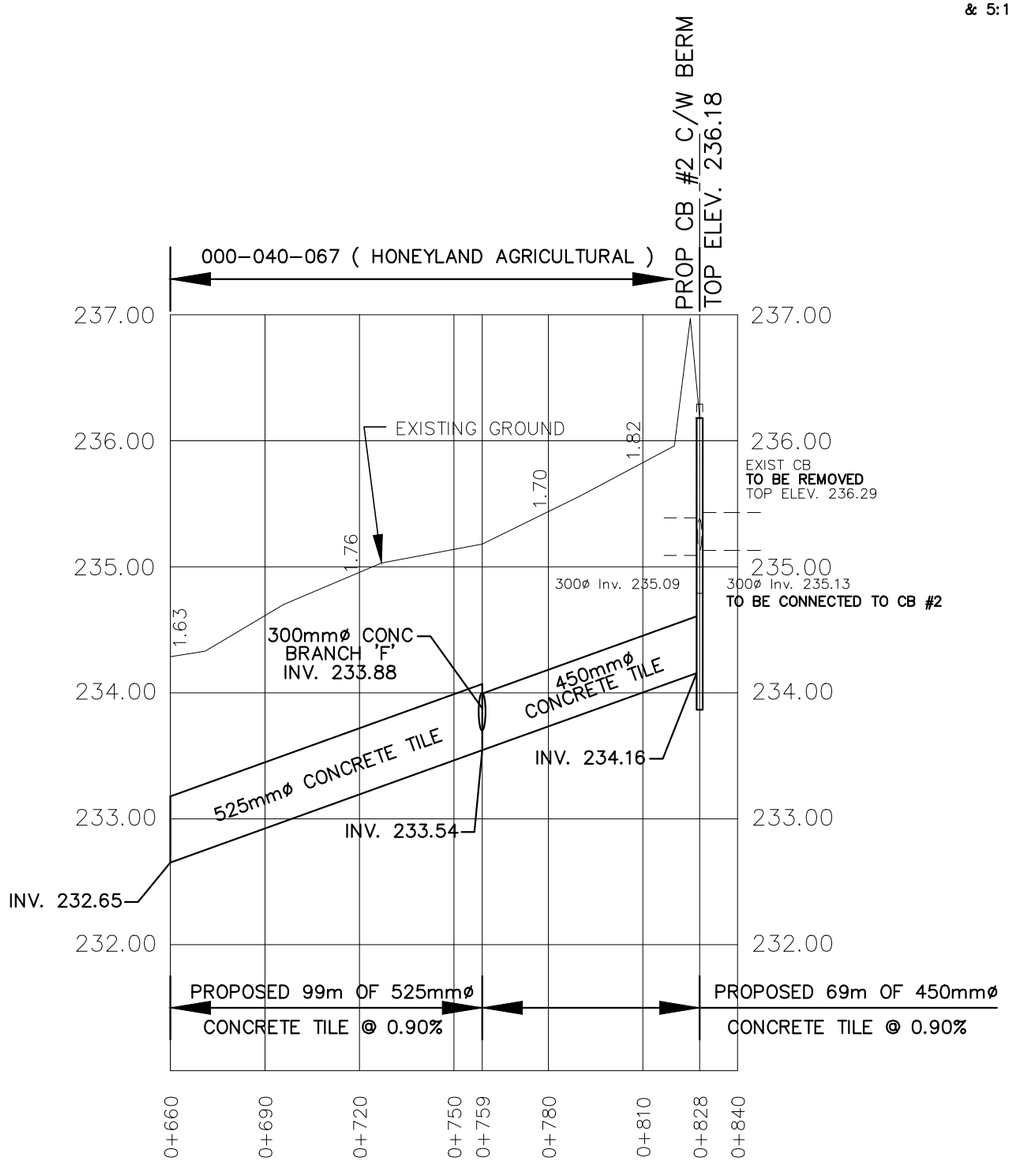
ROBINSON DRAIN
MAIN DRAIN PROFILE

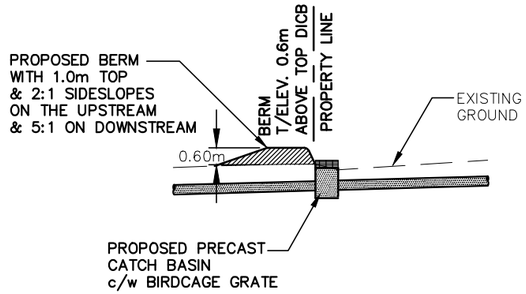
Last Updated: August 28, 2025

GENERAL NOTES

1. BENCHMARK No.2 ELEV. 236.288
   TOP OF EXISTING CATCHBASIN AT LOT LINE BETWEEN LOTS 17 & 18. STATION 0+828

2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO THE INVERT OF THE PROPOSED TILE.





TYPICAL BERM DETAIL

NTS

Dobbin Engineering Inc.

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

DRAWING NAME:
Robinson Main Drain Profile 2

PROJECT No.
2025-1749

APPROVED
J. WARNER

CHECKED
B. VAN RUITENBURG

DRAWN
C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	AUG. 28, 2025	CS

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

MUNICIPALITY of NORTH MIDDLESEX

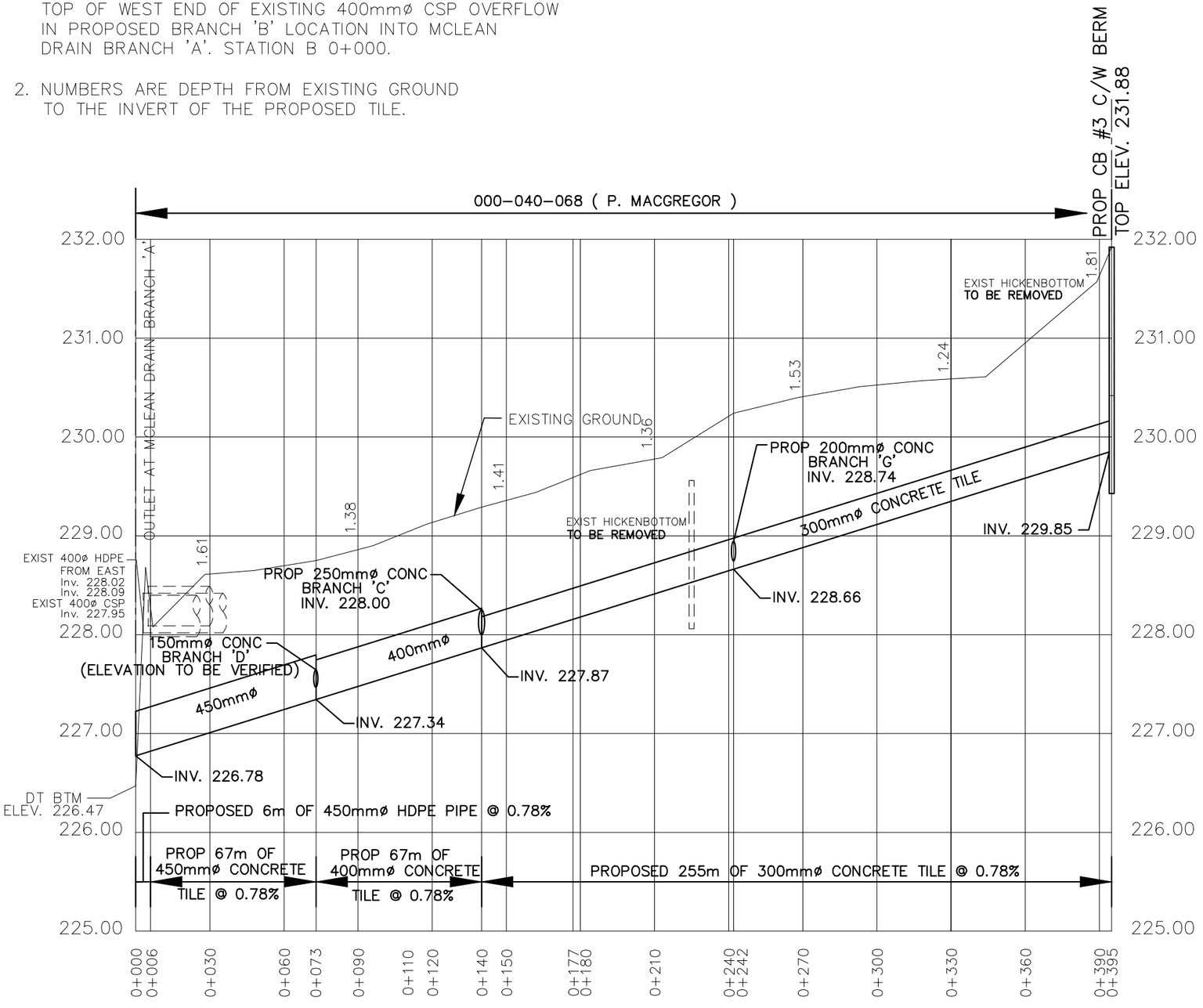
ROBINSON DRAIN
MAIN DRAIN PROFILE

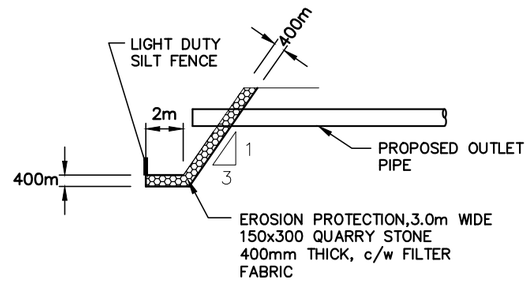
Last Updated: August 28, 2025

GENERAL NOTES

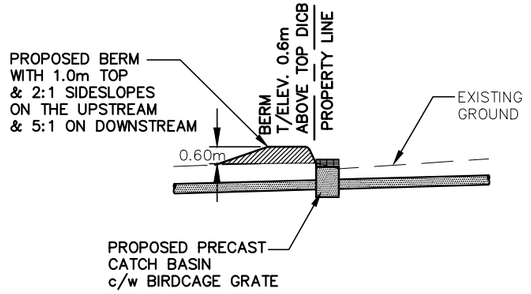
1. BENCHMARK No.3 ELEV. 228.356
   TOP OF WEST END OF EXISTING 400mmø CSP OVERFLOW IN PROPOSED BRANCH 'B' LOCATION INTO MCLEAN DRAIN BRANCH 'A'. STATION B 0+000.

2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO THE INVERT OF THE PROPOSED TILE.





OUTLET DETAIL
NTS



TYPICAL BERM DETAIL
NTS

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

DRAWING NAME: Robinson Drain Branch "B" Profile

PROJECT No. 2025–1749

APPROVED J. WARNER

CHECKED B. VAN RUITENBURG

DRAWN C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	AUG. 28, 2025	CS

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

MUNICIPALITY of NORTH MIDDLESEX

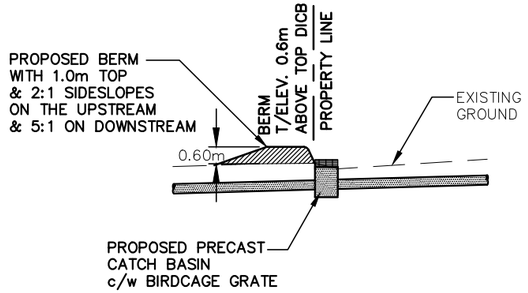
ROBINSON DRAIN BRANCH 'B'
PROFILE

Last Updated: August 28, 2025

GENERAL NOTES

1. BENCHMARK No.3 ELEV. 228.356
   TOP OF EXISTING 400mmø CSP OUTLET
   FOR OVERFLOW AT BRANCH 'B' IN MCLEAN DRAIN
   BRANCH 'A'. STATION B 0+000.

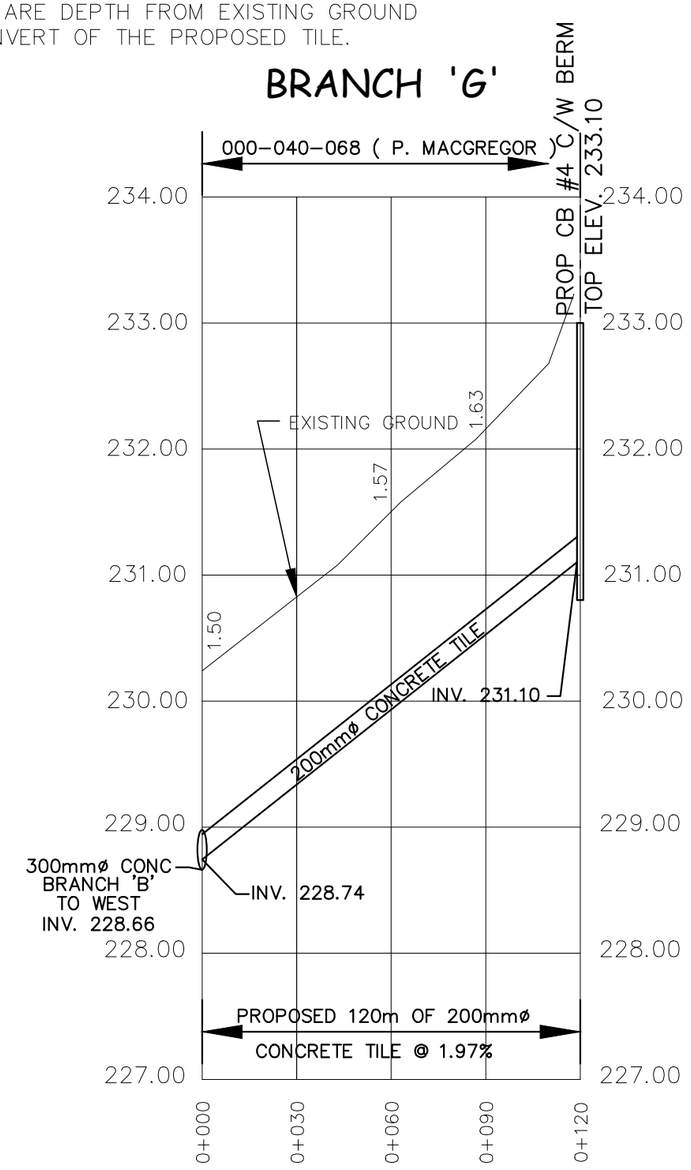
2. NUMBERS ARE DEPTH FROM EXISTING GROUND
   TO THE INVERT OF THE PROPOSED TILE.



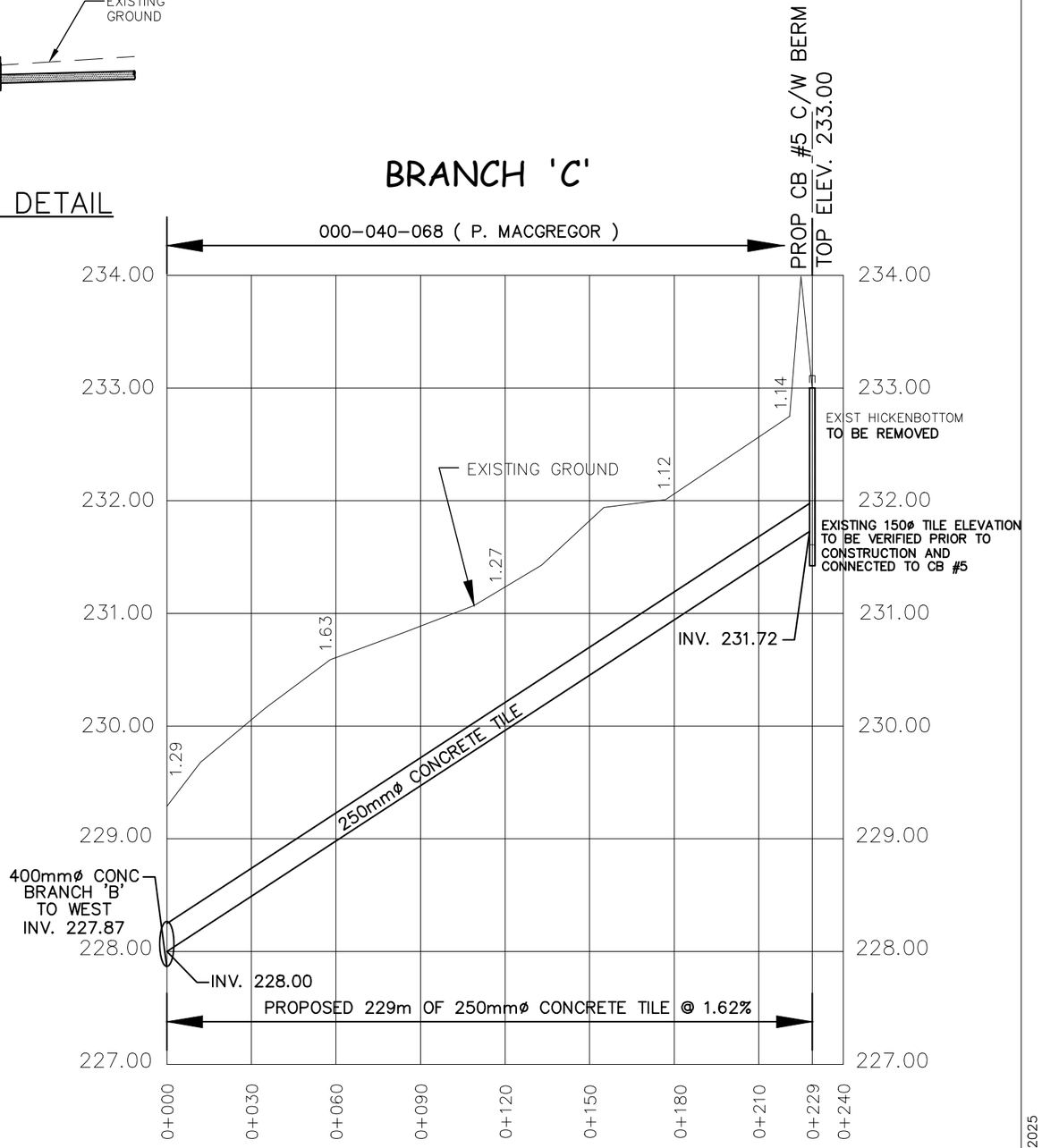
TYPICAL BERM DETAIL

NTS

BRANCH 'G'



BRANCH 'C'



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

DRAWING NAME:
Robinson Drain Branch "C" and "G" Profile

PROJECT No.
2025-1749

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	AUG. 28, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

MUNICIPALITY of NORTH MIDDLESEX

ROBINSON DRAIN BRANCH 'C' AND 'G'
PROFILE

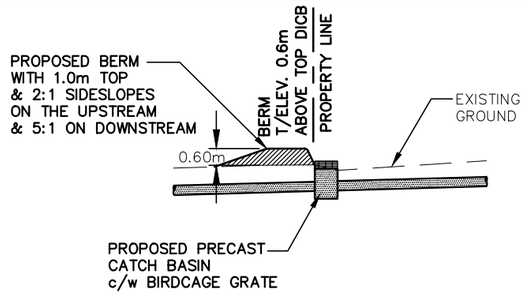
Last Updated: August 28, 2025

GENERAL NOTES

1. BENCHMARK No.2 ELEV. 236.288
   TOP OF EXISTING CATCHBASIN AT LOT LINE BETWEEN LOTS 17 & 18. STATION 0+828 (MAIN DRAIN)

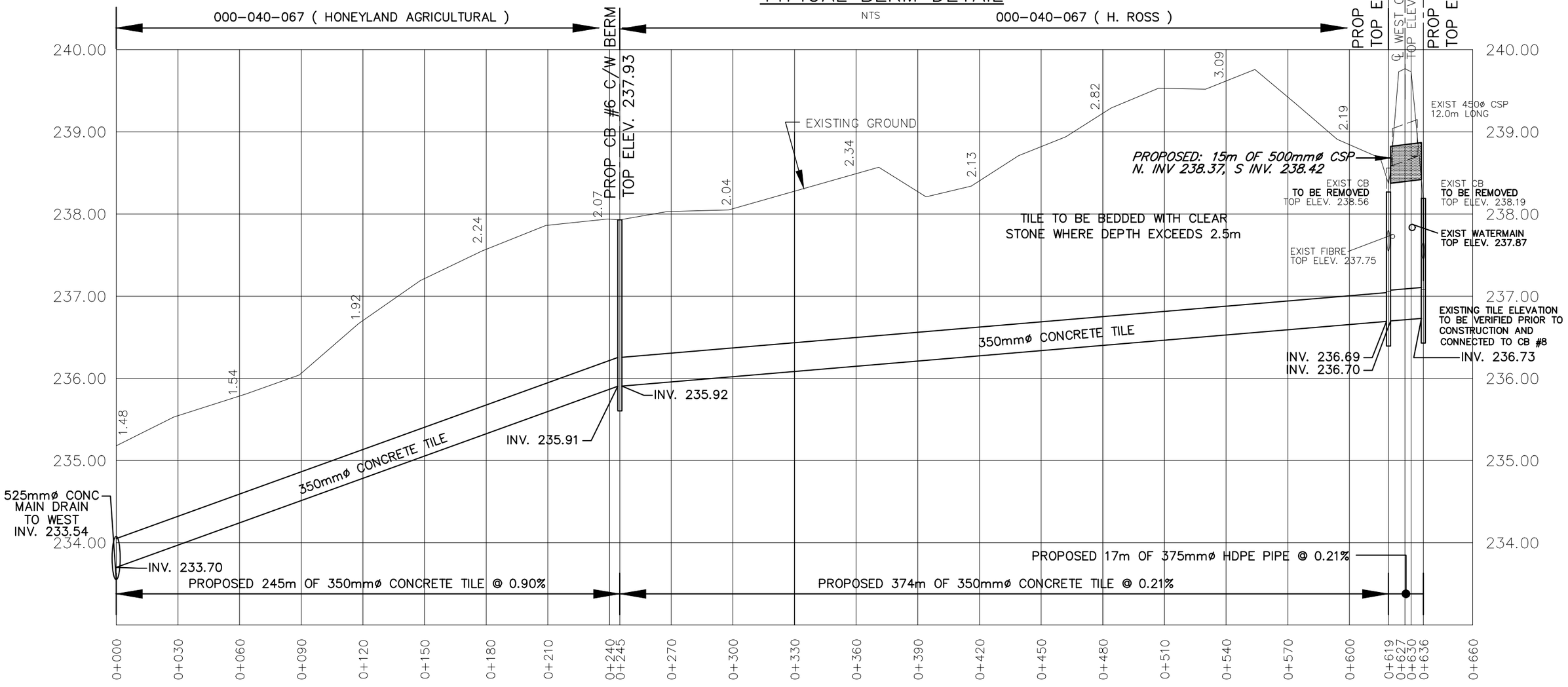
   BENCHMARK No.4 ELEV. 238.191
   TOP OF EXISTING CATCHBASIN ON SOUTH SIDE OF WEST CORNER DRIVE AT TOP END OF BRANCH 'F'

2. NUMBERS ARE DEPTH FROM EXISTING GROUND TO THE INVERT OF THE PROPOSED TILE.



TYPICAL BERM DETAIL

NTS



Dobbin Engineering Inc.

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DRAWING NAME: Robinson Drain Branch "F" Profile

PROJECT No. 2025-1749

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	AUG. 28, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

MUNICIPALITY of NORTH MIDDLESEX

ROBINSON DRAIN BRANCH 'F'
PROFILE

Last Updated: August 28, 2025