

April 11, 2024

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

Gentlemen and Mesdames:

Re: McLellan Drain (2024)

In accordance with your instructions, R. Dobbin Engineering has undertaken an examination with regards to enclosing the drain on the property with Roll Number 000-070-027 in the Municipality of North Middlesex.

Authorization under the Drainage Act

This Engineers Report has been prepared under Section 78 of the Drainage Act as per a request from an affected Landowner.

R. Dobbin Engineering Inc. was appointed by council on May 17th, 2023.

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.

Existing Conditions

The McLellan Drain outlets into the Carey Extension Municipal Drains in Lot 31, Concession North Boundary as an open channel and continues northerly and easterly to the north side of Mount Carmel Drive in the Municipality of South Huron. It then

continues easterly along the north side of Mount Carmel Drive as a tile drain to the east limit of the W ½ of Lot 29, Concession South Boundary.

The last Engineer's Report on the McLellan Drain is dated January 8, 1970. Under this report, the ditch was deepened and the tile portion of the drain was installed in the Municipality of South Huron.

On-Site Meeting

A site meeting was held on June 29th, 2023.

The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Joanne Sadler (Municipality of North Middlesex)
- Jerry McCann (Landowner)
- Steven Veal (Landowner)
- Tony Rutten (Landowner)
- Dave McCann (Landowner)
- Brent Dixon (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- Landowners were made aware that a request has been received to enclose the channel on the property with Roll Number 000-070-027.
 - Landowners were made aware that an enclosure would not be eligible for grant and that a large portion of the cost would be assessed to the requesting landowner.
- The Landowner of the property with Roll Number 000-070-027 stated that he may be able to look after filling in the channel himself.
- No other requests for work were brought forward.

No adverse soil conditions were noted at the site meeting.

Discussion

Following the site meeting and subsequent discussions with the Landowner of the property with Roll Number 000-070-027 it was determined that he would fill the channel in himself.

Draft Report

A draft report, dated February 14, 2024 was sent to all the affected Landowners and a meeting was held on March 12, 2024 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 (Municipality of North Middlesex)
- Tony Rutten (Landowner)
- Jerry McCann (Landowner)
- Blair McCann (Landowners)
- Jared Tweddle (County of Middlesex)

The following is a brief summary of the meeting:

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

Drain Classification

The McLellan Drain is currently classified as 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 Affairs Agricultural Information Atlas.

The Carey Extension Municipal Drains, where the McLellan outlets, is currently classified as a class “C” drain.

Class “F” drains are intermittent or ephemeral (dry for more than two consecutive months).

The proposed work shall be carried out during low flows in the channel. The work area is to be maintained in a dry condition during construction by the Contractor.

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. The Landowner filling in the channel privately will be responsible for obtaining the required approvals for the work.

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 portion of the McLellan Drain on the property with Roll Number 00-070-027 shall be enclosed. The existing open channel in this section shall be abandoned as part of the drainage works.
2. The maintenance schedule for the McLellan Drain shall be updated in its entirety.

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 \$165,411, 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 100% of the estimated cost to work around that utility as a special benefit assessment to that utility. These items shall be tendered separately with the actual cost plus a portion of the engineering (25% of the construction cost) being assessed to the owner of the utility or road. The additional costs as a result of the utilities and roads (such as a daylighting, surveying and catch basins) that are not to be tendered separately have been assessed to the road authority and utility as a benefit assessment and shall be pro-rated with the remainder of the drainage works. It is noted that an extensive amount of time was spent to locate the existing watermain on Mount Carmel Drive. It was unknown where the watermain was located within the right of way and therefore an excess of 4 days was spent looking for it.
2. The additional cost, beyond a standard cleanout, to enclose the drain on the property with Roll Number 00-070-027 has been assessed to the requesting property as a special benefit assessment. These costs shall be pro-rated with the remainder of the drainage works.
3. The remaining cost has generally been assessed with approx. 50% of the estimated cost assessed as a benefit assessment and the remainder assessed as outlet assessment to the upstream lands and roads based on equivalent hectares.

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

Allowances

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

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto for damage, if any, to ornamental trees, lawns, fences,

land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per Section 29 of the Drainage Act for right-of-way and as per Section 30 of the Drainage Act for damages to lands and crops. Allowances for right of way are based on a land value of \$35,000.00 per hectare. Allowances for crop loss are based on \$2,000.00 per hectare for the first year, \$1,000.00 for the second year (\$3,000.00 per hectare total).

Access and Working Area

Access to the work site for construction and future maintenance shall be from 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 20m along the length of the drainage works normally centred on the proposed tile drain. The working area for the channel improvements shall be 10m wide and shall generally be along the east side of the channel.

Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 15m 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.

R. Dobbin Engineering believes that there will not be grants available for this project as it does not meet the criteria outlined in the Agricultural Drainage Infrastructure Program (ADIP) administrative policies.

Existing Private Drainage

All existing subsurface drainage encountered during the construction of the proposed tile drain or open channel shall be reconnected to the proposed tile drain or open channel. Any drains cut off by the proposed drainage works shall be plugged and sealed to the satisfaction of the Drainage Superintendent.

Maintenance

Upon completion of the work, the drainage works, except the road crossing from Station 0+551 to 0+574, shall be repaired and maintained as per the Schedule of Maintenance included in this report, unless otherwise altered under provisions of the Drainage Act or as outlined below.

The drainage works in the Municipality of North Middlesex shall be maintained as per the specifications and grades as contained in this Engineers Report.

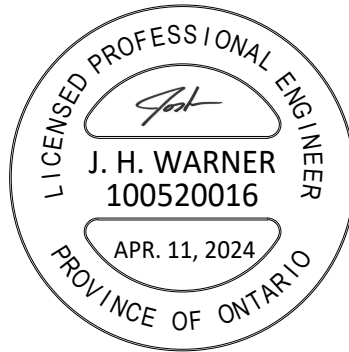
The drainage works in Municipality of South Huron shall be maintained as per the specifications and grades as contained in the Engineer's Report dated January 8th, 1970.

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.



McLellan Drain
Municipality of North Middlesex
April 11, 2024

ALLOWANCES

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

Conc.	Lot or part	Roll No.	Owner	Section 29 (\$)	Section 30 (\$)	Total (\$)
North Boundary	W 1/2 Lot 30	000-070-027	Jerry Mccann Holding Ltd	1,220	2,260	3,480
	Lot 31	000-070-026	J & D KAAK Farms Ltd.	-	100	100
South Boundary	Lot 30	27-033	Veal Family Farms Inc. & S. Veal	-	50	50
TOTAL ALLOWANCES				\$1,220	\$2,410	\$3,630

Estimate of Cost

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
Pre-Construction Meeting	1	LS	200	200
Brushing and Tree Removal	1	LS	1,000	1,000
Strip and Place Topsoil (Station 0+174 to 0+551) along tile Route	377	m	8	3,016
Excavation of Open Channel (Station 0+009 to 0+174)	165	m	15	2,475
Channel Restoration with Matting and Hydroseed	165	m	10	1,650
600mmØ HDPE Pipe c/w Rodent Grate	6	m	165	990
Plunge Pool at Outlet Constructed with Rip Rap	15	tonne	150	2,250
600mmØ Concrete Tile	371	m	85	31,535
450mmØ HDPE Pipe Extension to Connect Existing 400mm CSP to CB#2	1	LS	500	500
Reconnect Existing Tiles	10	ea	100	1,000
Catch Basin #1 (1200mm x 900mm)	1	LS	3,000	3,000
Catch Basin #2 (1200mm x 900mm)	1	LS	3,000	3,000
<u>Mount Carmel Road Crossing (Section 26)</u>				
Traffic Control	1	LS	5,000	5,000
Locate and Work Around Utilities	1	LS	1,500	1,500
Remove Existing 1000mmØ CSP and Unsuitable Backfill and Milling	1	LS	3,000	3,000
Remove Existing 400mmØ CSP and Unsuitable Backfill (6m East) and Milling	1	LS	2,500	2,500
450mmØ HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	23	m	400	9,200
450mmØ HDPE (Open Cut)	19	m	300	5,700
Granular "A" Backfill	150	tonne	30	4,500
100% Crushed Granular "A" Backfill	25	tonne	35	875
HL4 Asphalt	20	tonne	350	7,000
HL3 Asphalt	20	tonne	450	9,000
Rip Rap for End Walls and Around Basins	25	tonne	150	3,750
Restoration/Seeding and Ditch Grading	1	LS	3,500	3,500
Silt Fence	1	LS	200	200
Contingency				5,340
	Sub Total			111,681
	Allowances			3,630
	Engineering			19,360
	Daylighting and Surveying Utilities			15,500
	Estimate for Tendering, Inspection and Contract Administration			12,000
	ABCA Fee			450
	Total Estimate excluding HST			162,621
	Non-Recoverable HST (1.76%)			2,790
	Total Estimate			\$ 165,411

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hectares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipality of South Huron								
Public Lands								
	Blackbush Line	0.21		Municipality of South Huron		-	31	31
	Mount Carmel Drive (County Road #5)	1.29		County of Huron	36,453	2,025	190	38,668
					-	-	221	38,699
Non-Agricultural Lands								
	South Pt. Lot 30 Boundary	0.55	27-033-05	G. & S. Brooks		-	40	40
					-	-	40	40
Agricultural Lands								
	South Lot 27 Boundary	1.21	27-037	McCixon Farms Ltd.		-	44	44
	Lot 28	9.71	27-036	J.A McCann and Sons Ltd.	-	-	357	357
	E 1/2 Lot 29	4.04	27-035	B. McCann		-	148	148
	W 1/2 Lot 29	2.02	27-034	Veal Family Farms Inc. & S. Veal		-	74	74
	Lot 30	5.52	27-033	Veal Family Farms Inc. & S. Veal		-	203	203
					-	-	826	826
				Total - Public Lands	38,699			
				Total - Non-Agricultural Lands	40			
				Total Agricultural Lands	826			
				Total - Municipality of South Huron	39,565			

Conc.	Lot or Part	Affected Hectares	Roll No.	Owner	Special Benefit	Benefit	Outlet	Total
Municipality of North Middlesex								
Public Lands								
	Mount Carmel Drive (County Road #45)	1.89		County of Middlesex	36,453	2,025	278	38,756
					36,453	2,025	278	38,756
Non-Agricultural Lands								
North	Pt. Lot 30	1.00	000-070-027-02	A. & M. Mason		-	55	55
Boundary	Lot 31	0.00	000-070-026	J & D KAAK Farms Ltd.		290	-	290
					-	290	55	345
Agricultural Lands								
North	Lot 28	1.21	000-050-001	K. Knip		-	44	44
Boundary	Lot 29	6.07	000-070-029	J C Rutten Farms Inc		-	223	223
	E 1/2 Lot 30	4.04	000-070-028	Jerry Mccann Holding Ltd		-	149	149
	W 1/2 Lot 30	7.08	000-070-027	Jerry Mccann Holding Ltd	68,799	-	-	68,799
					68,799	-	416	69,215
Utilities								
	Water Utility			OCWA (North Middlesex)	2,030	15,500	-	17,530
					2,030	15,500	-	17,530
				Total - Utilities	17,530			
				Total - Public Lands	38,756			
				Total - Non-Agricultural Lands	345			
				Total Agricultural Lands	69,215			
				Total - Municipality of North Middlesex	125,846			
				Total - Municipality of South Huron	39,565			
				Total Assessment	\$165,411			

SCHEDULE OF MAINTENANCE
To Maintain the Entirety of the McLellan Drain

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Benefit	Outlet	Total
Municipality of South Huron							
Public Lands							
	Blackbush Line	0.21		Municipality of South Huron	-	159	159
	Mount Carmel Drive (County Road #5)	1.29		County of Huron	-	253	253
					-	412	412
Non-Agricultural Lands							
	South Boundary	0.55	27-033-05	G. & S. Brooks	278	74	352
					278	74	352
Agricultural Lands							
	South Lot 27	1.21	27-037	McCixon Farms Ltd.	-	229	229
	Boundary Lot 28	9.71	27-036	J.A McCann and Sons Ltd.	-	1,838	1,838
	E 1/2 Lot 29	4.04	27-035	B. McCann	-	765	765
	W 1/2 Lot 29	2.02	27-034	Veal Family Farms Inc. & S. Veal	1,226	226	1,452
	Lot 30	5.52	27-033	Veal Family Farms Inc. & S. Veal	948	358	1,306
					2,174	3,416	5,590
				Total - Public Lands	412		
				Total - Non-Agricultural Lands	352		
				Total Agricultural Lands	5,590		
				Total - Municipality of Soputh Huron	6,354		

Conc.	Lot or Part	Affected Hecatares	Roll No.	Owner	Benefit	Outlet	Total
Municipality of North Middlesex							
Public Lands							
	Mount Carmel Drive (County Road #45)	1.89		County of Middlesex	-	370	370
					-	370	370
Non-Agricultural Lands							
North	Pt. Lot 30	1.00	000-070-027-02	A. & M. Mason	-	73	73
Boundary	Lot 31	0.00	000-070-026	J & D KAAK Farms Ltd.	402	-	402
					402	73	475
Agricultural Lands							
North	Lot 28	1.21	000-050-001	K. Knip	-	60	60
Boundary	Lot 29	6.07	000-070-029	J C Rutten Farms Inc	-	297	297
	E 1/2 Lot 30	4.04	000-070-028	Jerry Mccann Holding Ltd	-	198	198
	W 1/2 Lot 30	7.08	000-070-027	Jerry Mccann Holding Ltd	2,146	100	2,246
					2,146	655	2,801
				Total - Public Lands	370		
				Total - Non-Agricultural Lands	475		
				Total Agricultural Lands	2,801		
				Total - Municipality of North Middlesex	3,646		
				Total - Municipality of Soputh Huron	6,354		
				Total Assessment	\$10,000		

McLellan Drain
Municipality of North Middlesex
April 11, 2024

SPECIFICATION OF WORK

1. Location

The proposed works on the McLellan Drain is in Lot 30, Concession South Boundary and on Mount Carmel Drive in The Municipality of North Middlesex.

2. Scope of Work

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

- Road culvert replacement.
- Supply and installation of concrete tile.
- Supply and installation of catch basins structures c/w berms.

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

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

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

4. Plans and Specifications

These specifications shall apply and be part of the Contract along with the General Specifications for Closed Drains and the General Specifications for Open Drains. This Specification of Work shall take precedence over all plans and general conditions

pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the Plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

5. Health and Safety

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

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

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

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

6. Pre-Construction Meeting

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting shall be scheduled by the Contractor. The Landowners, Engineer, 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.

7. Benchmarks

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

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

8. Traffic Control

Access and driveways to private properties shall not be obstructed longer than the minimum time necessary for the work and shall be reinstated as soon as possible all to the satisfaction of the Engineer. The contractor shall schedule any obstruction of existing driveways with the owners at least two full working days in advance. All obstructions and diversions of traffic must be approved by the Engineer, County of Middlesex, County of Huron, Drainage Superintendent and Roads Superintendent(s) at least two (2) full working days in advance.

- a) The Contractor shall supply, erect and maintain all detour signs and special signs necessary for detours to divert traffic from the area under construction as directed by the Road Superintendent or Engineer. All this work shall be at the Contractor's expense.
- b) The Contractor shall be responsible for supplying, erecting and maintaining all signs, supports, barricades, flashers, cones, etc. in the construction area and at the boundaries of the work as part of the above detours, all to the satisfaction of the Engineer or Drainage Superintendent. All this work shall be done by the Contractor at their own expense.
- c) The Contractor shall not be allowed to proceed with construction activities unless proper signage and flagmen are present. Flagging procedures, signage and detours shall conform to the recommendations of Book 7, Temporary Conditions, Ontario Traffic Manual, issued by the Ministry of Transportation. Conformance shall be enforced by the Ministry of Labour Inspector.

9. Access and Working Area

Access to the work site for construction and future maintenance shall be from 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 20m along the length of the drainage works normally centred on the proposed tile drain. The working area for the channel improvements shall be 10m wide and shall generally be along the east side of the channel.

10. Removals

The existing culverts and catch basins, where specified, shall be removed in their entirety. The culvert and the concrete rubble shall be disposed offsite at the expense of the Contractor. Suitable backfill shall be stockpiled adjacent to the site for reuse during

installation of the proposed culvert. Any broken concrete or rip rap (concrete bags) from the existing structures shall be disposed offsite at the expense of the Contractor.

11. Brushing and Tree Removal

All brush, trees, woody vegetation, stumps etc. shall be removed for a width of 15 metres along the tile drain and along the drain bottom and bank where the work is taking place. They shall be removed in their entirety including stumps.

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

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

12. Strip and Place Topsoil

The Contractor shall strip the topsoil for a width of 6m normally centered on the proposed tile 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.

13. 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, extra quality. Tile shall have a circular interior and exterior shape.

Where the concrete tile depth is greater than 2.5m the tile shall be 2000D concrete tile and shall be bedded to the spring line with clear stone. The estimated length of 2000D concrete tile required has been shown as a separate item. Clear stone bedding to the spring line shall be included as part of this item.

HDPE shall be CSA Approved smooth wall gasketed pipe with bell and spigot joints (320 kPa) and shall include clear stone bedding to the spring line under gravel driveways and accesses. Under roadways the road crossing specification shall be used.

The tile drain shall run in the location shown on the drawing. The exact location of tile can be changed under the direction of the Drainage Superintendent or Engineer.

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 (PE 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**. 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 not to operate farm equipment over the trench or along the length of the trench for 1 year after construction in order to protect the tile.

For construction, all excess material from the tile installation shall be placed at the edge of the working area. The Landowner will utilize this material to fill in the channel outside of this Contract.

Future replacements shall conform to these specifications.

14. Catch Basins

Structure	Station	Type (mm)	Inlet Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	0+551	900x1200	212.17	211.42 (S) 600	211.44 (N) 450
CB #2	0+574	900x1200	212.15	211.48 (S) 450	211.55 (N) 450

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. The catch basin elevations shall be 50mm above grade. When specified the catch basins shall have a berm constructed on the downstream end. The top of the berm shall be 0.60m above the inlet elevation. The berm shall have a 2:1 front slope and 5:1 back slope with a 1m wide top. The height and back slopes can be increased under the direction of the Drainage

Superintendent in order to reduce erosion and facilitate farming. Care shall be taken to ensure this does not negatively impact upstream lands. The berms shall be constructed using excess materials on site. If more material is required it shall be supplied at the expense of the drainage works.

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

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

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

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

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

15. Subsurface Drainage

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

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

16. Outlet Works

The outlet works for the drain shall consist of 6m 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.

A plunge pool shall be constructed utilizing rip rap and filter fabric and shall be installed on the channel side slope from 1m below the channel bottom to the top of the bank and for a distance of 3m 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. 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 be stockpiled at the edge of the working area. The Landowner will utilize this material to fill in the channel outside of this Contract. The Landowner shall ensure that the channel is filled in such that it acts as an overflow route under severe storm events. If this is not the case, this report shall allow for a working area to extend the length of the enclosed channel for a width of 20m to rectify any issues. The cost of such repairs shall be borne by the Landowner.

18. Mount Carmel Drive 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.

Both culverts shall be removed in its 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.

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 for 1600mm dia. pipe and smaller and 125 x 25mm corrugations for 1800mm dia. pipe and larger. Pipe with 125 x 25mm corrugations shall be used if 68 x 13mm corrugations are not available. 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 for both the culvert and tile shall be excavated to the required depth with any over excavation backfilled with $\frac{3}{4}$ " clear stone material. When the tile has been installed to the proper grade and depth, the excavation shall be backfilled with $\frac{3}{4}$ " clear stone from the bottom of the excavation to the spring line of the tile. Care shall be taken to ensure that the backfill on either side of the pipe 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 spring line to 150mm below finished grade with OPS Granular "A". 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 and filter fabric shall be placed between the changes in bedding and backfill in all cases. 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.

The culvert removed east of the proposed road crossing shall be backfilled and paved in accordance with the above.

The 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 (Mirafi P150 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.

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

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

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

19. Seeding/Restoration

All areas disturbed by construction shall be returned to their pre-construction state. The open channel shall be restored with double straw matting and hydroseed. The double straw matting shall be installed according to the manufacturer's specifications. The road right of way and all other areas where disturbed by construction, shall be topped with 100mm of screened topsoil and hydroseeded following construction in accordance with the seed mixture, fertilizer and application rate as shown below.

Seed mixture, fertilizer and application rates are as follows:

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

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

20. 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.

21. Silt Fence

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

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



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Ontario and Prairies Region
Fish and Fish Habitat
Protection Program
867 Lakeshore Road
Burlington, ON L7S 1A1

Région de l'Ontario et des Prairies
Programme de la protection
du poisson et de son habitat
867 Lakeshore Road
Burlington, ON L7S 1A1

April 11, 2024

Our file *Notre référence*

24-HCAA-00265

Municipality of North-Middlesex
ATTENTION: Joanne Sadler
229 Parkhill Main Street
Parkhill, Ontario, N0M 2K0

Subject: Drain Enclosure, McLellan Drain, Class F, Parkhill – Implementation of Measures to Avoid and Mitigate the Potential for Prohibited Effects to Fish and Fish Habitat

Dear Joanne Sadler :

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on February 5, 2024. We understand that you propose the following:

- Enclose ~400 linear meters of McLellan Drain South of Mt. Carmel Drive;
- Cleanout ~174m downstream of the future enclosure outlet in McLellan Drain; and
- Complete all of the work while the system is naturally dry.

Our review considered the following information:

- Request for review form and supporting documents submitted to DFO on February 5, 2024;
- Email and telephone correspondence between Colby Nolan (DFO) and Josh Warner (Dobbin Engineering) from April 5 to April 9, 2024.

Your proposal has been reviewed to determine whether it is likely to result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*; and
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*.

The aforementioned outcomes are prohibited unless authorized under their respective legislation and regulations.

To avoid and mitigate the potential for prohibited effects to fish and fish habitat (as listed above), we recommend implementing the measures outlined in your plan, in addition to the following listed below:

- Plan in-water work, undertaking or activity to respect timing windows (i.e. NO in-water work between March 15 – July 15);
- Clearing of riparian vegetation should be kept to a minimum, when practicable, prune or top the vegetation instead of grubbing/uprooting;
 - Only remove riparian vegetation from the enclosure area (i.e. not downstream).
- Develop and implement an Erosion and Sediment Control Plan to avoid the introduction of sediment into any waterbody during all phases of the work, undertaking or activity;
 - Work in the dry;
 - Minimize duration of in-water work; and
 - Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not require an authorization under the *Fisheries Act* or permit under the *Species at Risk Act*.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (<http://www.dfo-mpo.gc.ca/pnw-ppc/index-eng.html>) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to remain in compliance with the *Fisheries Act*, the *Species at Risk Act* and the *Aquatic Invasive Species Regulations*.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of fish habitat. Such notifications should be directed to (<http://www.dfo-mpo.gc.ca/pnw-ppc/contact-eng.html>).

Notify this office at least 10 days before starting any in-water works. Send your notification to Colby Nolan (Colby.Nolan@dfo-mpo.gc.ca) and the DFO 10 notification mailbox: DFO.OP.10DayNotification-Notification10Jours.OP.MPO@dfo-mpo.gc.ca. A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

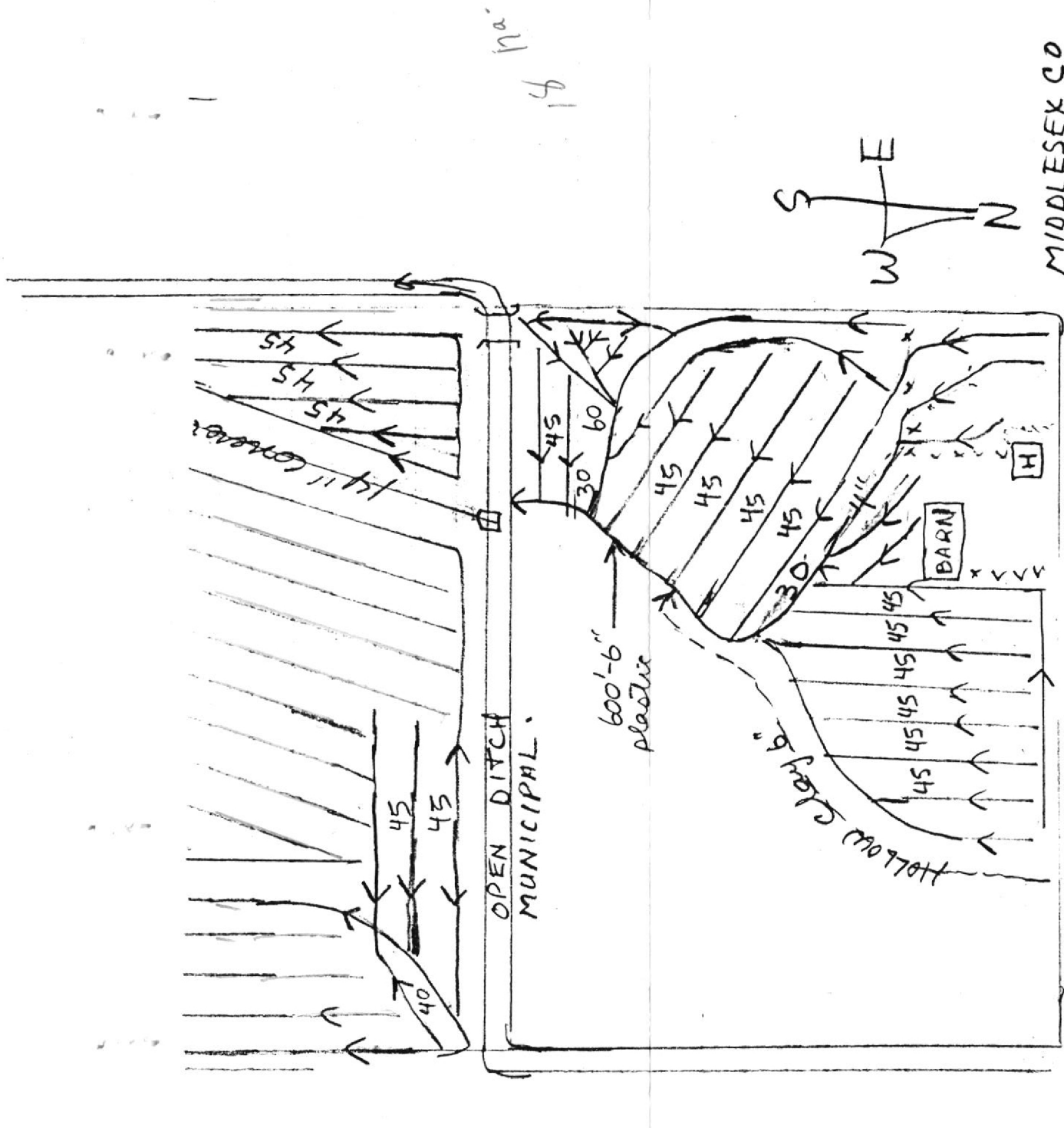
If you have any questions with the content of this letter, please contact Colby Nolan at our Burlington office by phone at (416) 919-4615 or by email at Colby.Nolan@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,



Andrea Doherty
Senior Biologist

Copy: Josh Warner – Dobbin Engineering
Colby Nolan – DFO



MIDDLESEX CO
 HURON CO.

COUNTY ROAD

Plan For Clare Hodgins

Part of Lot 30 NORTH BOUNDARY
 MCGILLIVRAY TWP

OCTOBER 1990 TILE FROM FOREST TILE
 WORK DONE BY ROBERT ROBINSON AND RITCHIE BROS.
 44,700 FT - 4"
 800 FT - 6"

LOT 31

LOT 30

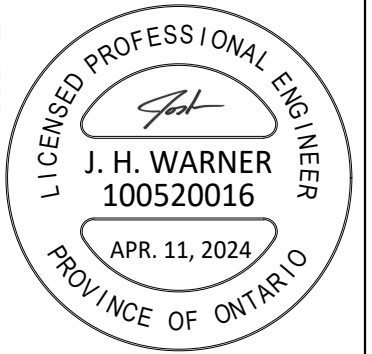
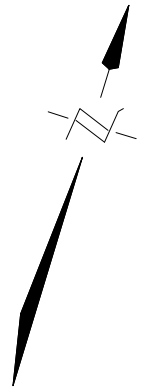
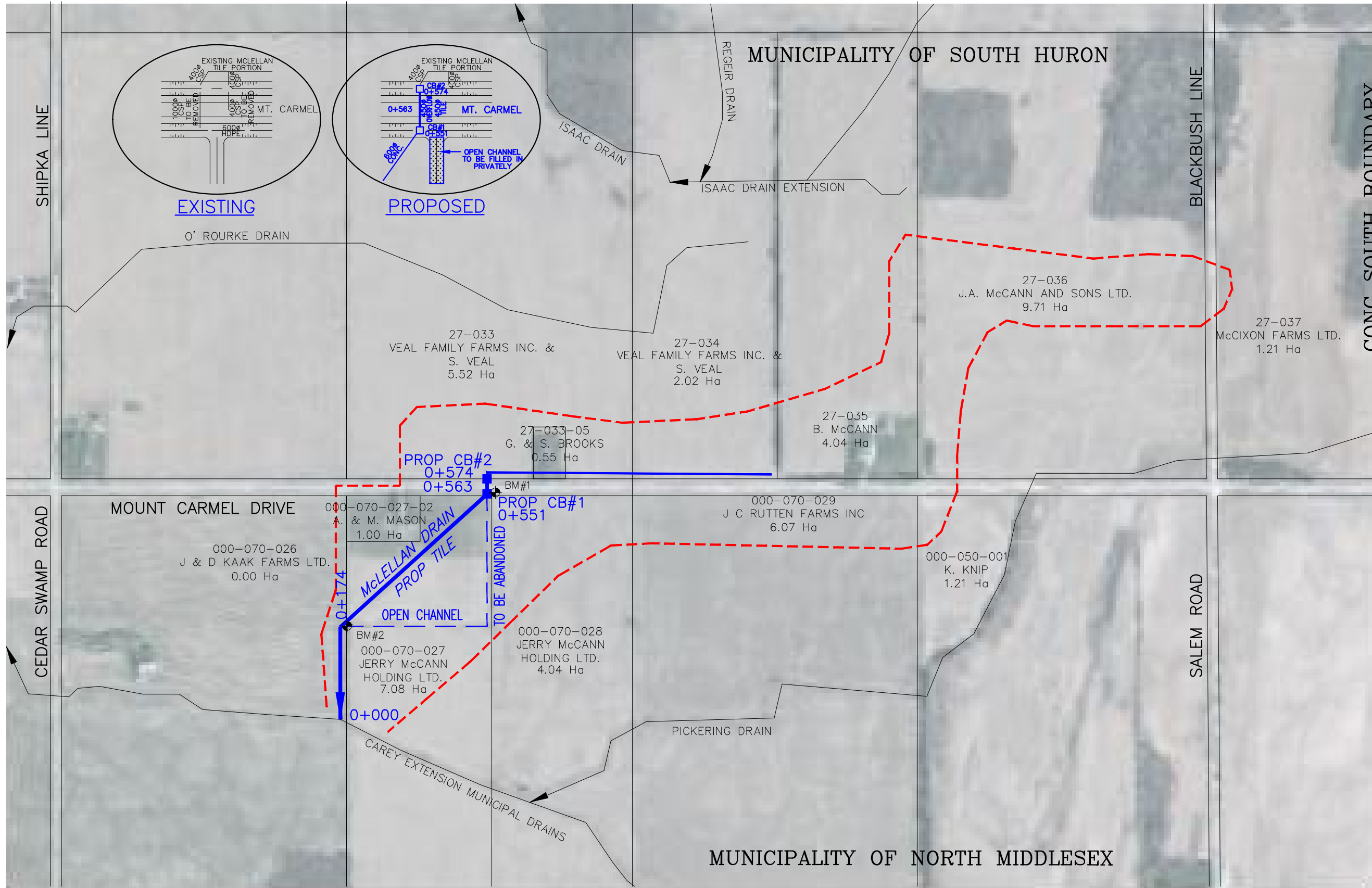
LOT 29

LOT 28




LOT 27

MUNICIPALITY OF SOUTH HURON

MUNICIPALITY OF NORTH MIDDLESEX



LEGEND

-  McLELLAN DRAIN
-  MUNICIPAL DRAIN
-  DRAINAGE AREA



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

DRAWING NAME:
 Mclellan Drain Plan

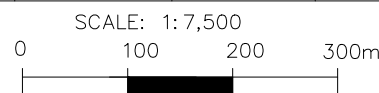
PROJECT No.
 2023-1512

APPROVED
 J. WARNER

CHECKED
 B. VAN RUITENBURG

DRAWN
 C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	APR. 11, 2024	CS



MUNICIPALITY of NORTH MIDDLESEX

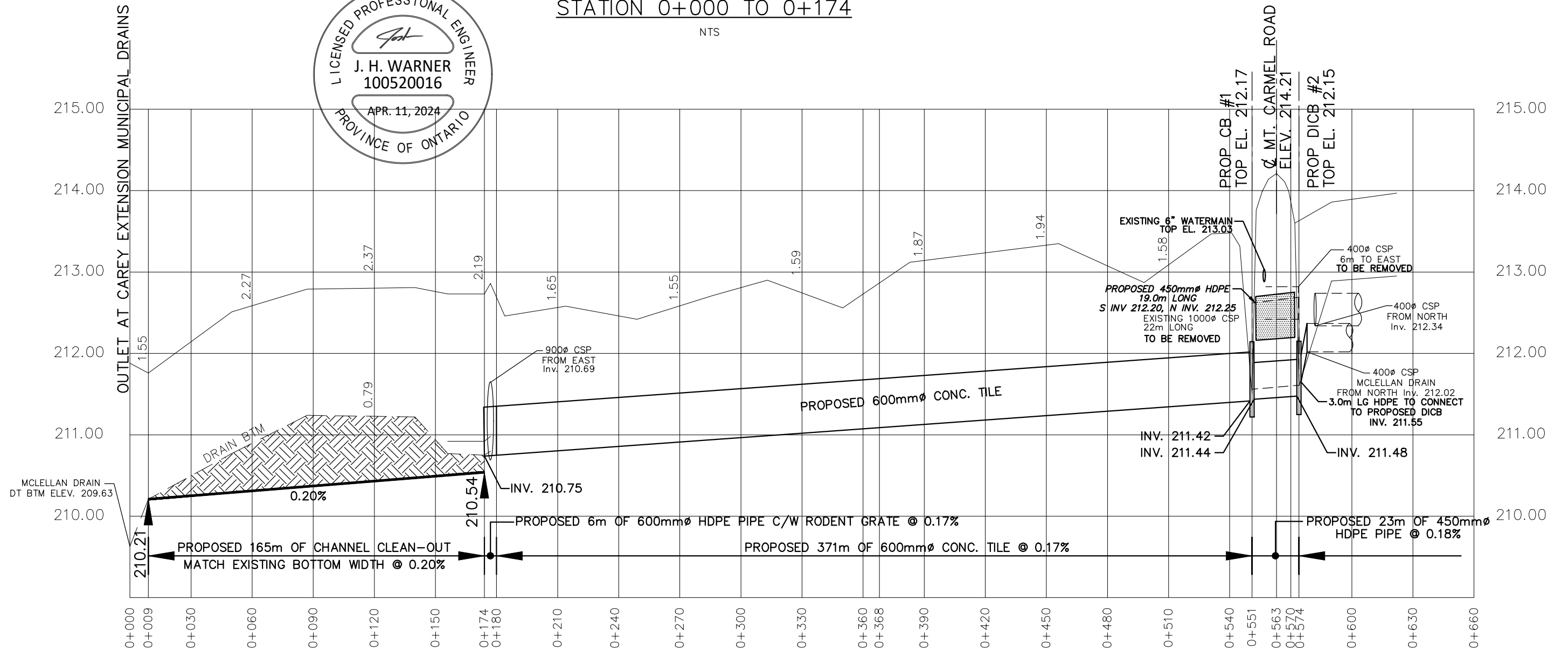
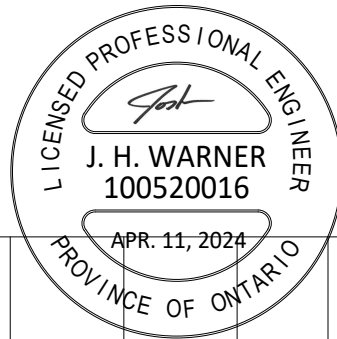
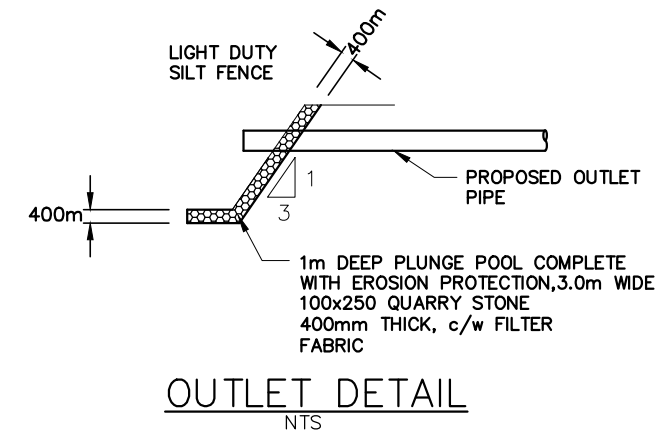
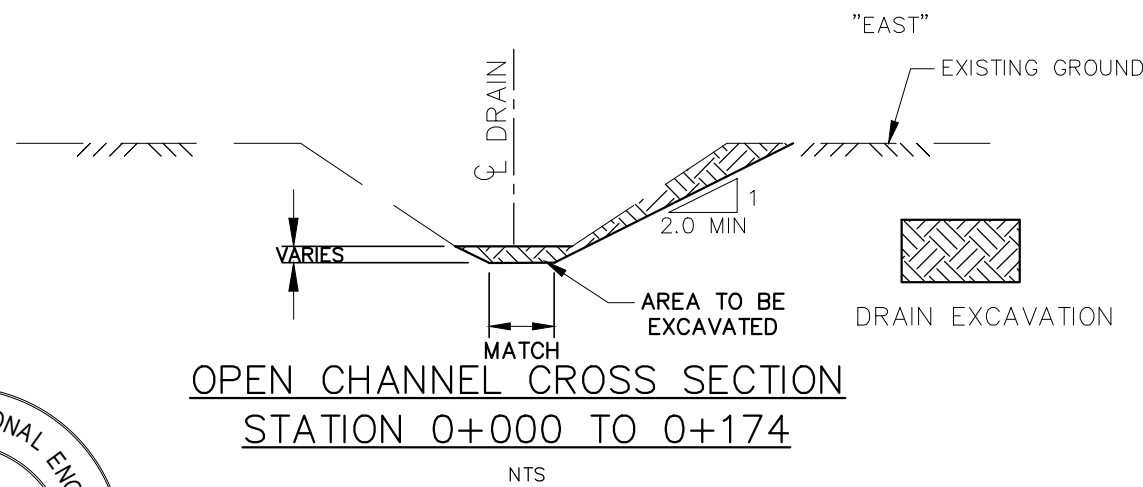
McLELLAN DRAIN PLAN

1
OF 2

Last Updated: February 14, 2024

GENERAL NOTES

- BENCHMARK No.1 ELEV. 212.62
TOP OF SOUTH END EXISTING 1000mm ϕ CSP
CROSSING MT. CARMEL ROAD STATION 0+563
BENCHMARK No.2 ELEV. 211.65
TOP OF WEST END EXISTING 900 ϕ CSP
AT PROPOSED OUTLET LOCATION
- UPPER NUMBERS ARE DEPTH FROM
GROUND TO INVERT OF CONCRETE TILE
OR TO ELEVATION OF PROPOSED CHANNEL.
- LOWER NUMBERS ARE DEPTH OF EXCAVATION.



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

DRAWING NAME:
McLellan Drain Profile

PROJECT No.
2023-1512

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	APR. 11, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

MUNICIPALITY of NORTH MIDDLESEX
McLELLAN DRAIN
PROFILE

2
OF 2