VANMASSENHOVEN DRAIN BRANCHES "F" AND "G"

THE MUNICIPALITY OF NORTH MIDDLESEX

TENDER for CONTRACT # IO-11-2025

Dobbin Engineering Inc.

CLOSING DATE: June 11, 2025 @ 11 a.m.

BID FORM

VANMASSENHOVEN DRAIN BRANCHES "F" AND "G"

MUNICIPALITY OF NORTH MIDDLESEX

OWNER:	The Municipality of North Middlesex
CONTRACT ADMINISTRATOR:	R. Dobbin Engineering Inc.
LOCATION:	Lot 3, Concession 13-15 and Lot 10-12, Concession West Side of Centre Road in the Municipality of North Middlesex.

Bids will be received in sealed envelopes clearly marked **"VanMassenhoven Drain Branches "F" and "G""** at the Municipal office of:

The Municipality of North Middlesex

229 Parkhill Main Street

Parkhill, ON

N0M 2K0

Your bid must be received at the above specified location no later than:

Wednesday June 11, 2025

11:00 a.m. LOCAL TIME

Bid inquiries shall be submitted to Josh Warner, R. Dobbin Engineering Inc.:

Josh Warner, P. Eng.

R. Dobbin Engineering Inc.

4218 Oil Heritage Road

Petrolia, Ontario

(519)-882-0032 ext. 204

<u>Tender enquiries shall be accepted until June 6, 2025</u>

SCHEDULE OF TENDER PRICES

TENDER PRICE

A. **Offer by:** _____

Name: _____

Address: _____

_____

HST #: _____

Date: _____

To: The Municipality of North Middlesex

We, the undersigned, having examined the site of the Work, having carefully investigated the conditions pertaining to the Work and having secured all the information necessary to enable us to submit a bid, and having inspected all the Contract Documents and Drawings, hereby agree to enter into a Contract and perform all the Work in accordance with the Contract Documents and Drawings to the satisfaction of the Contract Administrator for the total bid price **INCLUDING HST** of:

_____

_____ ($)

1. **ADDENDA**

   We agree that we have received addenda ___ to ___ inclusive, and the bid price includes the provisions set out in such addenda.

Municipality of North Middlesex

TENDER TABLE

	Quantity	Unit	Unit Cost	Total Cost
Pre-Construction Meeting	1	LS		
Brushing and Tree Removal	1	LS		
Locate existing Municipal Drain	1	LS		
BRANCH "F"				
Remove existing Hickenbottom at Station 0+980 and 1+336	2	each		
Remove existing DICB at Station 1+923	1	LS		
Strip and Level Topsoil	1927	m		
750mmø HDPE Pipe	24	m		
Rodent Grate at Station 0+000	1	LS		
Rip Rap at Outlet	15	tonne		
675mmø Concrete Tile	945	m		
Clear Stone Bedding where depth of Tile Exceeds 2.5m	100	tonne		
525mmø Concrete Tile	942	m		
450mmø Concrete Tile	40	m		
Locate and Work Around Nextera Line at Station 1+246	1	LS		

		Quantity	Unit	Unit Cost	Total Cost
CB #1 (900mm x 1200mm) c/w Berm		1	LS		
CB #2 (900mm x 1200mm) c/w Berm		1	LS		
CB #3 (900mm x 1200mm) c/w Berm		1	LS		
CB #4 (900mm x 1200mm) c/w Berm		1	LS		
CB #5 (900mm x 1200mm) c/w Berm		1	LS		
CB #6 (900mm x 1200mm) c/w Berm		1	LS		
CB #7 (900mm x 1200mm) c/w Berm		1	LS		
JB #8 (600mm x 600mm)		1	LS		
Coldstream Road					
	Traffic Control	1	LS		
	Locate and Work Around Watermain	1	LS		
	Remove Existing Culvert and Unsuitable Backfill Material to Outlet	1	LS		
	750mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	12	m		
	Granular "B" Backfill	80	tonne		
	100% Crushed Granular "A"	30	tonne		
	Place Suitable Native Backfill	1	LS		
	Restoration to Outlet	1	LS		
Bornish Road					
	Traffic Control	1	LS		
	Locate and Work Around Watermain	1	LS		
	Remove & Reinstall Existing Culvert	1	LS		
	525mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	17	m		
	Granular "B" Backfill	120	tonne		
	100% Crushed Granular "A"	40	tonne		
	Place Suitable Native Backfill	1	LS		
	Restoration and Ditch Grading	1	LS		

	Quantity	Unit	Unit Cost	Total Cost
Locate and connect existing 250mmø to JB #8 (From Branch "F")	1	LS		
Locate and Connect Existing Field Tile	100	each		
Silt Fence Check Dam	1	LS		
BRANCH "G"				
Strip and Level Topsoil	470	m		
250mmø Concrete Tile	470	m		
CB #9 (900mm x1200mm)	1	LS		
CB #10 (900mm x 1200mm)	1	LS		
Locate and Connect Existing Field Tile	30	each		
Miscellaneous/Contingency	1	LS	16,700	16,700

Sub Total

HST (13%)

TOTAL

OFFERED ON BEHALF
OF THE CONTRACTOR

_____

COMPANY NAME

_____

SIGNATURE

CONTRACTOR'S SEAL
(See Note Below)

_____

SIGNATURE

_____

WITNESS (See Note Below)

_____

COMPANY STREET ADDRESS

_____

CITY, PROVINCE, POSTAL CODE

_____

DATE OF OFFER

The Contractor agrees to complete substantially the work included in the contract baring delays regarding strikes and acts of God beyond our control, within _____working days from the time of starting construction.

Note: Contractor to have the necessary signatures to bind the company. If a Contractor's seal is used there is no need for the offer to be witnessed. If no Contractor's seal is used, then a witness signature is needed.

CONDITIONS OF BID

1. The lowest or any bid will not necessarily be accepted by the Owner.

2. Contract Drawings 1 to 5 and the attached Specifications of Work for the VanMassenhoven Drain Branches "F" and "G" are made part of this Contract Bid. The Contractor is to complete construction in accordance with the Drawings and the conditions indicated within this Bid Document.

3. A Form of Agreement is required to be signed and returned within 10 days of the award of contract.

4. TENDER DEPOSIT

   The tender shall be accompanied by a tender deposit in the form of a certified cheque or a Bid Bond payable to the Owner (Municipality of North Middlesex) in the amount of 10% of the value of the tender price.

   The Tenderers shall keep their tenders open for acceptance for 45 days after the closing date. Withdrawal during this period will result in forfeiture or enforcement of the tender deposit or Bid Bond.

   Upon being notified that the tender has been accepted, the Contractor shall execute copies of the Agreement, supply bonds and insurance documents as specified, and start Work as specified.

   Failure to execute the copies of the Agreement, or to supply bonds and insurance documents, within one week of the date of acceptance of the tender, will automatically mean the forfeiture or enforcement of the tender deposit. Tender deposits of unsuccessful Tenderers will be returned not later than two weeks following Tender close. The tender deposit of the successful Tenderer will be returned once the Contract Security is in place.

5. CONTRACT SECURITY

   The bid deposit of the successful Tender shall be retained by the Municipality of North Middlesex until the contract is completed and a completion certificate is issued by the Engineer. The successful Contractor shall have the option of furnishing the Municipality of North Middlesex with a Performance Bond in the amount of one hundred percent (100%) of the total tender price (not including HST). The Performance Bond shall ensure completion of the work and maintenance of the work for a period of one year after the date of the completion certificate.

6. SCHEDULE

a) The Contract is to be completed on or before – **November 30, 2025. Construction shall not commence until July 28, 2025.**

b) If the time limit above is not sufficient to permit completion by the Contractor working a normal number of hours, the Contractor shall make changes to permit the Work to be completed by the above date. Additional costs incurred shall be deemed to be included in the price bid for the Works.

7. EXAMINATION

a) Upon receipt of Documents, verify that they are complete; notify the Contract Administrator should the Documents be incomplete.

b) Each firm submitting a Tender shall carefully examine the Documents for discrepancies or omissions, and immediately notify the Consultant upon finding discrepancies or omissions, at least four (4) days prior to the date specified for closing.

c) All firms submitting Tenders will acknowledge receipt of Addenda in the space provided in the Tender Form. If no Addenda are received, insert the word "None" in the space provided.

8. EXAMINATION OF SITE

a) The Tenderers shall visit the site of the Work before submitting their Tender and shall by personal examination satisfy themselves as to the local conditions that may be encountered during construction of the Work. They shall make their own estimate of the facilities and difficulties that may be encountered and the nature of the subsurface materials and conditions.

b) The Tenderer shall not claim at any time after submission of their Tender that there was any misunderstanding of the terms and conditions of the Contract relating to site conditions.

9. INSURANCE

a) The successful Bidder will file with the Municipality within 10 calendar days of award of Contract, General Liability, Automobile and Property Damage Insurance coverage required by the Ontario Provincial Standard General Conditions.

10. WORKER'S SAFETY INSURANCE BOARD

a) The successful Bidder will file with the Municipality within 10 calendar days of award of Contract, a current Certificate of good standing from the Worker's Safety Insurance Board (WSIB).

11. TIME CONSTRAINTS

a) All Work shall be completed within the times outlined in The Municipality of North Middlesex noise by-law regulations.

b) No weekend Work is permitted without prior approval by The Municipality of North Middlesex.

12. GUARANTEE PERIOD

a) The Contractor shall guarantee the Material and Work shall for a period of twelve (12) months from the acceptance date remain in such condition as will meet the Contract Administrator's approval, and that they will make good in a permanent manner, satisfactory to the Contract Administrator, any imperfections due to materials or workmanship used in the construction and any damage caused by such imperfections. The decision of the Contract Administrator shall be final as to the nature and cause of such imperfections and the necessity for remedying them.

   Should the Contractor fail to comply with the directions of the Contract Administrator, the Contract Administrator may, after giving the Contractor forty-eight (48) hours written notice, perform the necessary Work, and the cost may be deducted, or collected by the Owner as provided in the Contract.

b) Notwithstanding the provision of the subsection (a) of this clause, the Contract Administrator may, in cases of danger or public safety, make such immediate arrangements for repairs as he/she sees fit, and the Contract Administrator will inform the Contractor of such action. The cost of such emergency Work shall be borne by the Contractor.

c) If the Contract Administrator notifies the Contractor, in writing, of imperfections prior to the termination of the guarantee period, the Contractor shall make good the imperfections as required in subsection (a) above, notwithstanding that such Work of making good may commence after or extend beyond the end of the guarantee period.

d) To cover the rectification costs during the guarantee period, the Municipality shall retain 3% of the value of Work done. This holdback will be retained for a period of twelve (12) months from the acceptance date.

13. PAYMENT

a) Monthly draws for Work completed will be paid as needed. Payment will be subject to the 3% maintenance holdback and a 10% statutory holdback in accordance with the Construction Act. Payment at the unit priced bid for each item shall be full compensation for all labour, equipment, and materials required to do the Work.

14. EXTRA WORK

a) Extra Work shall be undertaken as described in subsection GC3.10.02 of the General Conditions.
b) If applicable tender items are provided in other parts of the Contract, extra Work shall be performed using the appropriate unit prices from these parts.
c) Extra Work shall be paid under the Contingency Allowance.

15. QUANTITY OVERUNS AND UNDERUNS

a) Compensation for quantity over runs and under runs shall be as described in GC 8.01.02 of the General Conditions.

16. DAMAGE

a) Any damage to existing infrastructure and neighboring properties shall be repaired by the Contractor to the satisfaction of the Contract Administrator and be at the Contractors expense.

17. Liquidated Damages

Where the working days exceeds those identified in the contract the Contractor shall be

responsible for the cost of the engineering inspection for the additional working days.

18. UTILITIES

a) The Contractor shall secure locates at no extra cost to the Contract prior to any construction activities.

19. CONSTRUCTION LAYOUT

a) The Contractor will be responsible for the layout of all lines and grades from the plans at no extra cost to the Contract. Control information will be provided to the successful Bidder by R. Dobbin Engineering Inc. in a digital format.

b) All discrepancies are to be reported to the Contract Administrator prior to proceeding with the Work. The Contract Administrator will review the layout in the field prior to construction.

20. INCLEMENT WEATHER

a) There will be no compensation for inclement weather other than consideration of an extension for lost time at the end of the Contract that will be at the discretion of the Contract Administrator.

21. SUBSTANTIAL PERFORMANCE

a) The project will be considered substantially performed when all parts of the Contract are completed in accordance with the General Conditions of Contract – GC 1.05.

22. ONTARIO PROVINCIAL STANDARDS

a) GENERAL CONDITIONS OF CONTRACT (OPSS.MUNI 100), November 2006 apply to this Contract.

b) The Ontario Provincial Standard Specifications (OPSS) and Drawings (OPSD) apply to this contract. All required OPS Specifications can be downloaded at:

http://www.raqsb.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage

THE SUPPLEMENTAL SPECIFICATIONS APPLICABLE TO THIS PROJECT ARE AS FOLLOWS:
Operational Constraints

The following operational constraints form part of the Contract. No additional costs will be made for completing Work within the operational constraints. Payment for Work associated with the operational constraints shall be included in the applicable unit price item.

1. The Contractor is responsible to complete the Contract within the schedule specified.

2. Safe and reasonable access must be provided to local vehicle traffic and to pedestrian traffic. The Contractor shall ensure traffic regulatory signs and 911 signs are in place and secure at all times.

3. The Contractor is responsible for securing locates and providing coordination with all utilities and agencies. In addition, the Contractor shall protect from damage all buried and aerial utility lines during construction.

4. If required, the Contractor is responsible for obtaining a Permit to Take Water (PTTW) for dewatering purposes.

5. Geotechnical investigation has not been undertaken within the project limits.

6. All conditions from the Department of Fisheries and Oceans (DFO) and Ausable Bayfield Conservation's (ABCA) approvals shall be adhered to.

Estimate of Cost

	Quantity	Unit	Unit Cost	Total Cost
Pre-Construction Meeting	1	LS	300	300
Brushing and Tree Removal	1	LS	5,000	5,000
Locate existing Municipal Drain	1	LS	4,300	4,300
BRANCH "F"				
Remove existing Hickenbottom at Station 0+980 and 1+336	2	each	100	200
Remove existing DICB at Station 1+923	1	LS	800	800
Strip and Level Topsoil	1927	m	6	11,562
750mmø HDPE Pipe	24	m	400	9,600
Rodent Grate at Station 0+000	1	LS	800	800
Rip Rap at Outlet	15	tonne	100	1,500
675mmø Concrete Tile	945	m	115	108,675
Clear Stone Bedding where depth of Tile Exceeds 2.5m	100	tonne	40	4,000
525mmø Concrete Tile	942	m	80	75,360
450mmø Concrete Tile	40	m	65	2,600
Locate and Work Around Nextera Line at Station 1+246	1	LS	500	500
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
CB #3 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #4 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #5 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #6 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
CB #7 (900mm x 1200mm) c/w Berm	1	LS	3,000	3,000
JB #8 (600mm x 600mm)	1	LS	2,200	2,200

	Quantity	Unit	Unit Cost	Total Cost
Coldstream Road				
Traffic Control	1	LS	800	800
Locate and Work Around Watermain	1	LS	1,200	1,200
Remove Existing Culvert and Unsuitable Backfill Material to Outlet	1	LS	2,500	2,500
750mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	12	m	450	5,400
Granular "B" Backfill	80	tonne	30	2,400
100% Crushed Granular "A"	30	tonne	40	1,200
Place Suitable Native Backfill	1	LS	1,000	1,000
Restoration to Outlet	1	LS	1,000	1,000
Bornish Road				
Traffic Control	1	LS	800	800
Locate and Work Around Watermain	1	LS	1,200	1,200
Remove & Reinstall Existing Culvert	1	LS	2,500	2,500
525mmø HDPE Smooth Wall Pipe (Open Cut) c/w Bedding	17	m	250	4,250
Granular "B" Backfill	120	tonne	30	3,600
100% Crushed Granular "A"	40	tonne	40	1,600
Place Suitable Native Backfill	1	LS	1,000	1,000
Restoration and Ditch Grading	1	LS	1,000	1,000
Locate and connect existing 250mmø to JB #8 (From Branch "F")	1	LS	250	250
Locate and Connect Existing Field Tile	100	each	120	12,000
Silt Fence Check Dam	1	LS	400	400
BRANCH "G"				
Strip and Level Topsoil	470	m	6	2,820
250mmø Concrete Tile	470	m	40	18,800
CB #9 (900mm x1200mm)	1	LS	3,000	3,000
CB #10 (900mm x 1200mm)	1	LS	3,000	3,000
Locate and Connect Existing Field Tile	30	each	100	3,000
Miscellaneous/Contingency				16,700
	Sub Total			$339,817

VanMassenhoven Drain Branches “F” and “G”
Municipality of North Middlesex
April 11, 2025

SPECIFICATION OF WORK

1. Location

The work in this specification is located in Lot 3, Concession 13-15, and Lot 10-12, Concession West Side of Centre Road in The Municipality of North Middlesex.

2. Scope of Work

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

- 2,450m of proposed tile drain replacement c/w catch basins, junction boxes and two road crossings

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. 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 Coldstream Road and Bornish Drive and along the length of the drainage works. Access may also be gained through the windmill access off of Bornish Drive, through the property with Roll Number 049-030-032 and along the south limit of the property with Roll Number 049-030-041. Access shall generally be restricted to a width of 6 metres. For future maintenance, access may be along the property lines at the Drainage Superintendents discretion.

The working area for the construction and future maintenance of the proposed tile drain shall be restricted to a width of 22m along the length of the drainage works normally centred on the proposed tile drain. The working area shall extend 10m past the length of the drain to allow for vehicles to turn around.

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 will 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 under road crossings shall be removed in their entirety.

12. Brushing and Tree Removal

For the tile drain all brush, trees, woody vegetation, stumps etc. shall be removed for a width of 20 metres normally centered on the proposed tile drain. 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. If left on site, the Contractor is responsible for the burning of the trees and brush. The Contractor is responsible for obtaining all necessary permits for any disposal sites. Burning of the trees and brush is subject to local bylaws and guidelines of the Ministry of the Environment Conservation and Parks.

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

13. 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.

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).

It is intended that the tile be installed east of the existing 1970 tile.

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 2.8mm 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 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 OPS 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)
CB #1 c/w Berm	0+981	900x1200	224.76	222.38 (N) 675	222.39 (S) 525
CB #2 c/w Berm	1+080	900x1200	226.19	223.74 (W) 525	223.75 (E) 525
CB #3 c/w Berm	1+244	900x1200	228.15	225.98 (N) 525	225.99 (S) 525
CB #4 c/w Berm	1+463	900x1200	231.23	228.99 (N) 525	229.01 (S) 525
CB #5 c/w Berm	1+683	900x1200	233.95	231.31 (N) 525	231.32 (S) 525
CB #6 c/w Berm	1+923	900x1200	235.30	233.48 (N) 525	233.49 (S) 525
CB #7	1+940	900x1200	235.80	233.63 (N) 525	234.40 (S) 450
CB #9 c/w Berm	2+206	900x1200	240.67	238.75 (N) 250	238.77 (E) 250
CB #10 c/w Berm	2+450	900x1200	242.66	240.80 (N) 250	240.90 (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. Junction Boxes

The junction boxes shall be installed to the elevations and in the locations shown on the drawings as follows:

Structure	Station	Type (mm)	Top Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
JB #8	1+980	600x600	235.90	235.00 (N) 450	235.22 (E) / 235.00 (S) 250 / 200

The junction boxes shall be square precast concrete structures as noted above.

The junction boxes 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. The top of junction boxes shall be set a minimum of 600mm below grade to accommodate farm tillage practices.

The junction boxes shall be set on a layer of clear stone. The clear stone shall be extended up to the top of the inlet and outlet pipe connections

The tile at the connection to the junction boxes 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.

The Drainage Superintendent may change a concrete lid on a junction box to a birdcage type grate creating a catch basin at the request of a Landowner.

20. 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 100mm of screened topsoil and hydro seeded. The timing of the seeding shall be approved by the Drainage Superintendent or Engineer.

All disturbed side slopes of the channel shall be restored with straw matting and hydroseed.

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.

21. Subsurface Drainage

All existing subsurface drains encountered during construction shall be reconnected to the open 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.

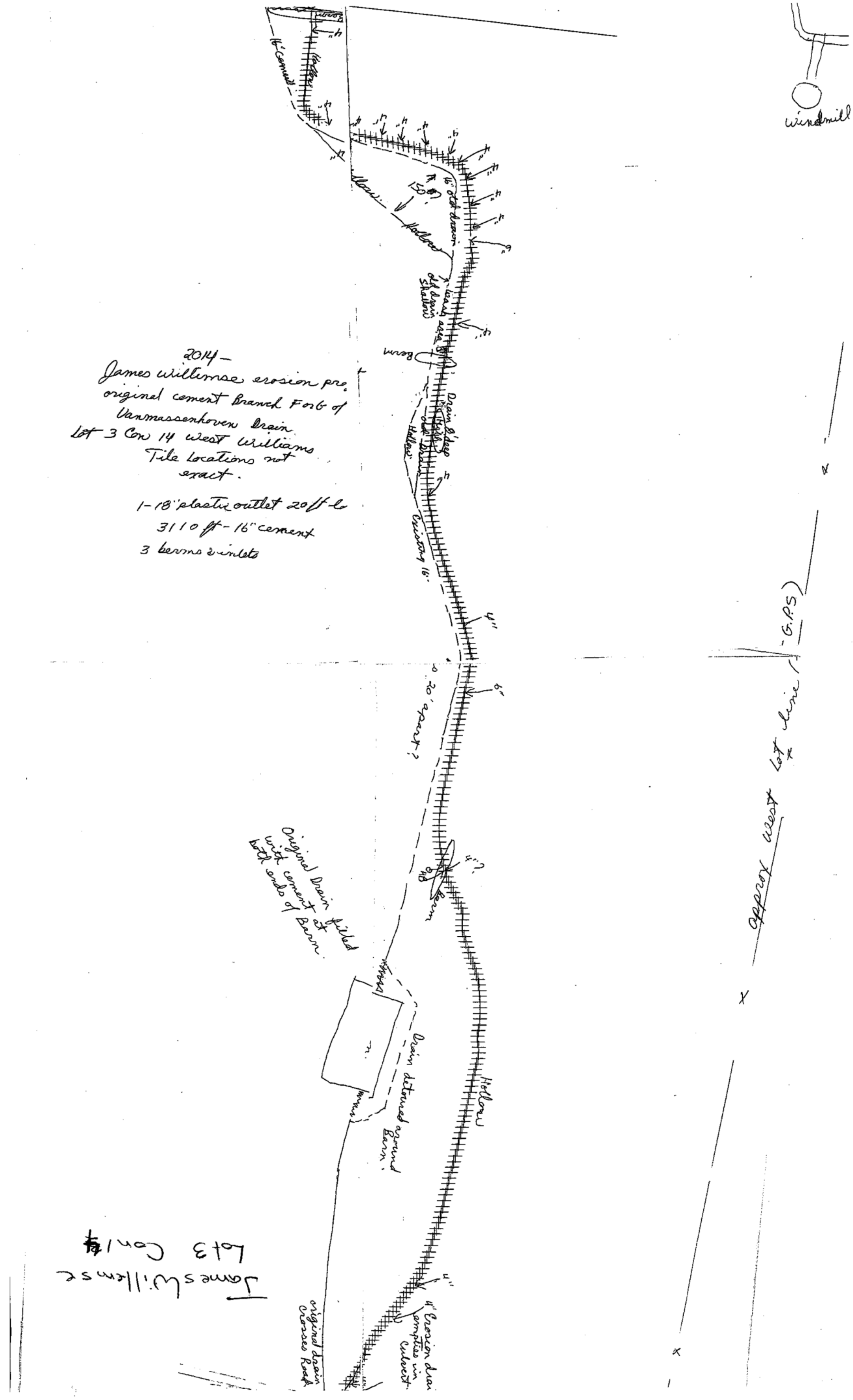
22. Environmental Considerations

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.


James Willemse
Lot 3 Con 14
2014 —
James Willemse erosion pro.
original cement Branch F&G of
Vanmassenhoven Drain
Lot 3 Con 14 West Williams
Tile Locations not
exact.
1-18" plastic outlet 20 ft-
3110 ft - 16" cement
3 berms & inlets
Berm
Hollow
Existing 16"
20' apart?
Original Drain filled
with cement at
both ends of Barn.
Drain detoured around
Barn.
Hollow
4" Erosion drain
empties in
culvert
original drain
crosses Road
approx West Lot line (~G.P.S)
windmill

North

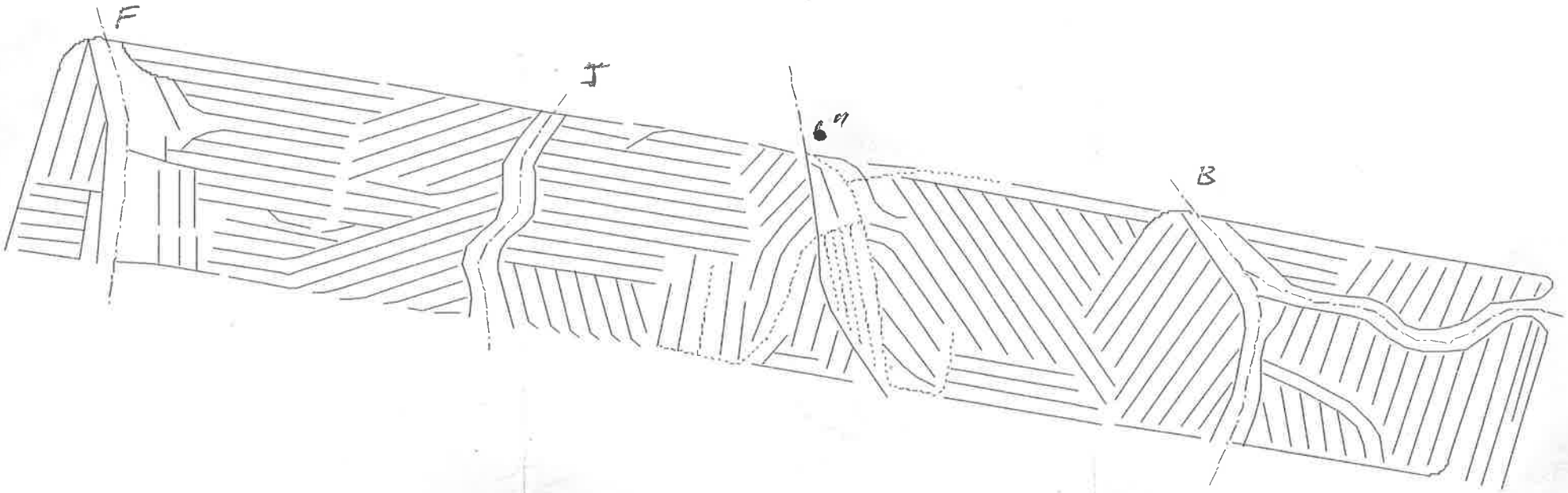
Plan Of Drains
Jack Kustermans
Lot 12 Con. WestCentre Rd.
West Williams Twp. Middlesex
Aug. 2004

Howard Cook Drainage
Stratford 273-4118

New Drains ——————

Existing Drains .....

Municipal Drains —·—·—·—·—



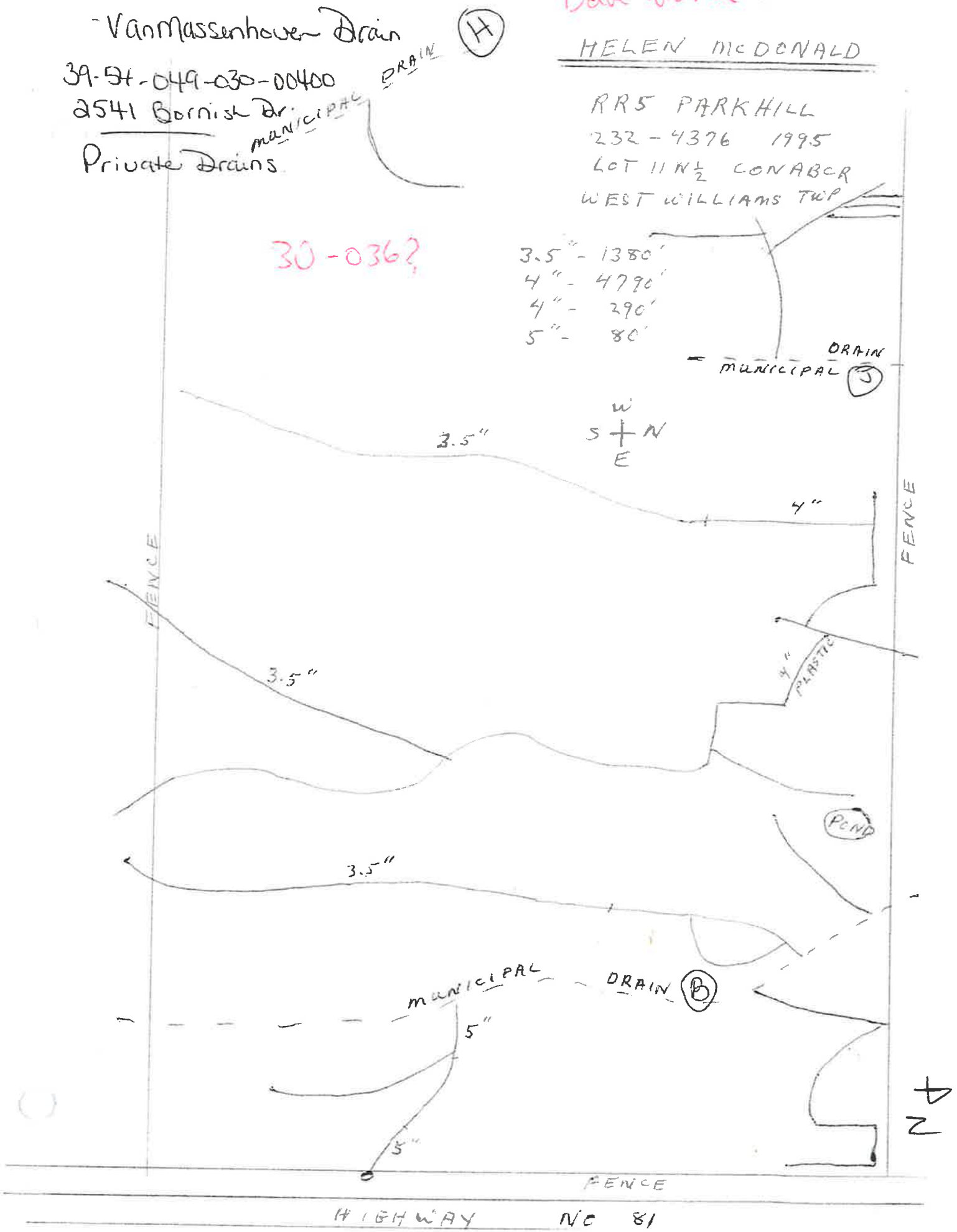
Dave Wideman Private Drains

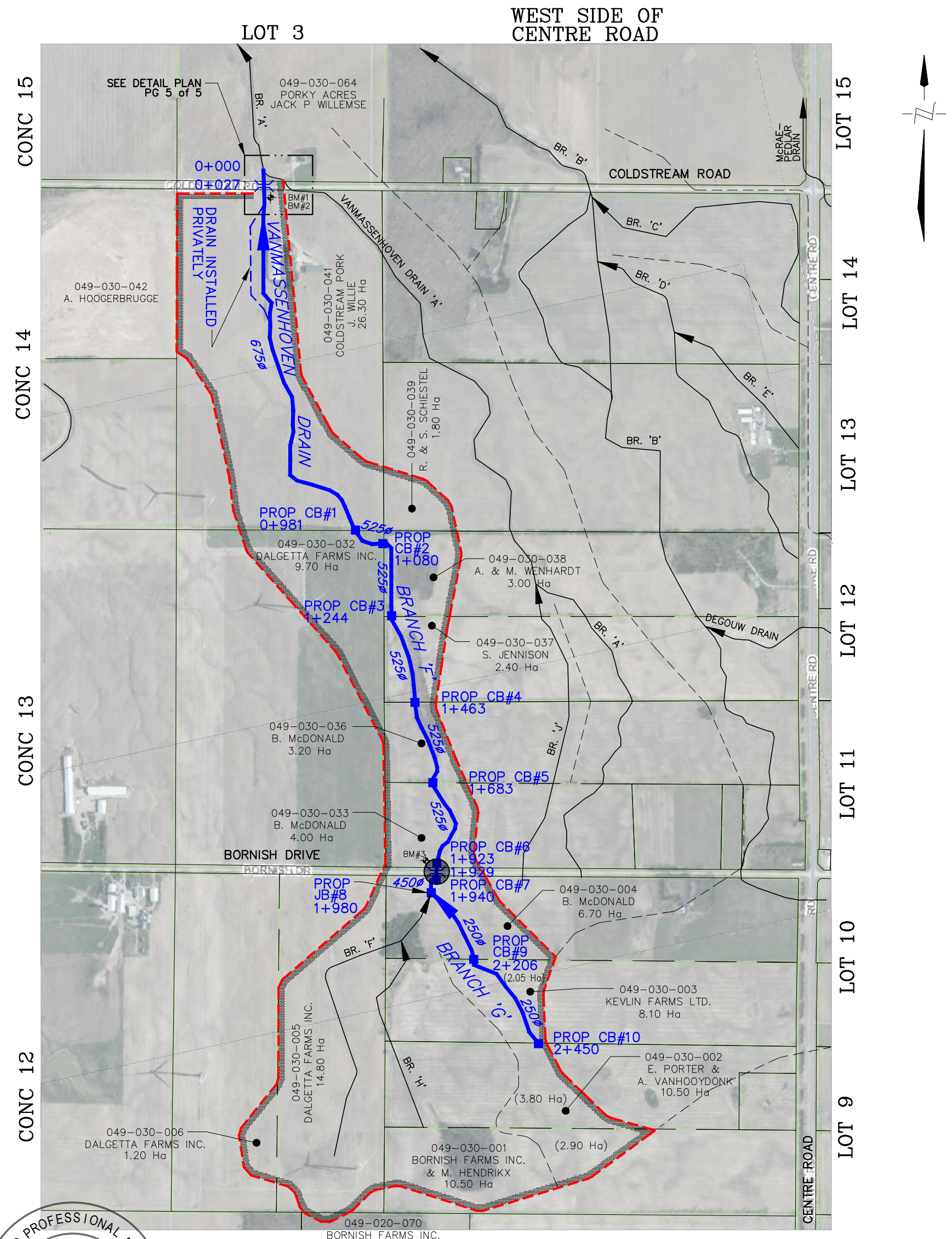
Van Massenhoven Drain

39-51-049-030-00400

2541 Bornish Dr.

Private Drains





LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
APR. 11, 2025
PROVINCE OF ONTARIO

LEGEND

- EXISTING CULVERT
- EXISTING CULVERT TO BE REMOVED & REINSTALLED
- DRAINAGE AREA
- VANMASSENHOVEN DRAIN – BRANCH 'F' & 'G'
- MUNICIPAL DRAIN

SCALE: 1:10,000
0 150 300 450m

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

DRAWING NAME: Vanmassenhoven Drain – Branches 'F' & 'G' Plan
PROJECT No. 2023-1540

APPROVED J. WARNER	SCALE		PLAN	
CHECKED B. VAN RUITENBURG			1:10,000	
DRAWN C. SAUNDERS	NO.	REVISIONS	DATE	BY
	1	FINAL REPORT	APR. 11, 2025	CS

MUNICIPALITY of NORTH MIDDLESEX

VANMASSENHOVEN DRAIN - BRANCHES 'F' & 'G' PLAN

1 of 5

Last Updated: April 11, 2025

GENERAL NOTES

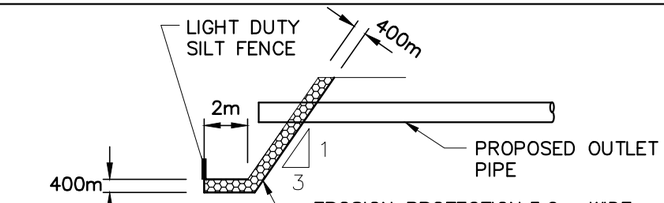
1. BENCHMARK No.1 ELEV. 217.51
   TOP OF SOUTH END OF EXISTING 1200mmø CSP, CROSSING COLDSTREAM ROAD. WEST OF PROPOSED DRAIN CROSSING.

   BENCHMARK No.2 ELEV. 216.89
   TOP OF EXISTING 450mmø HDPE OUTLET PIPE WEST OF PROPOSED DRAIN. STATION 0+036

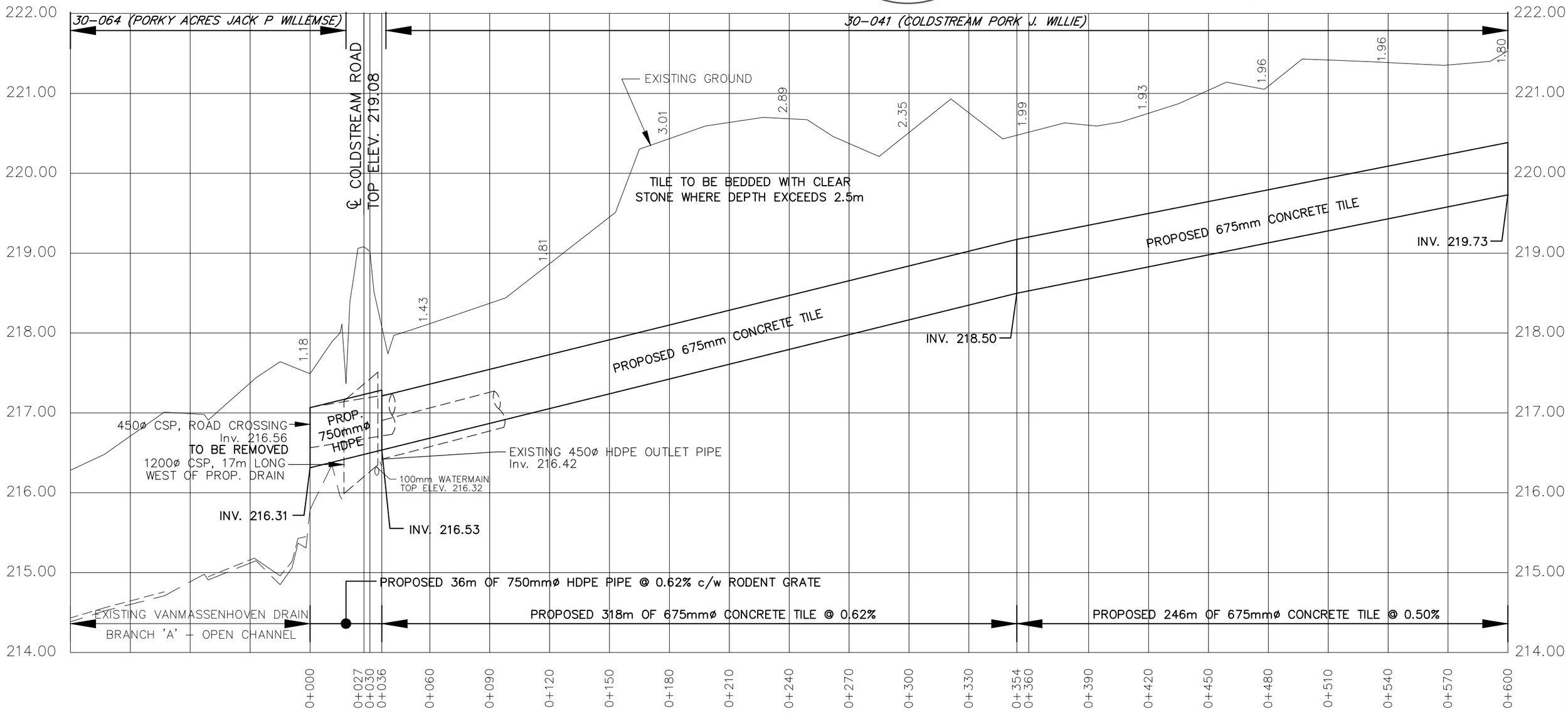
BENCHMARK
R. DOBBIN ENGINEERING TO PROVIDE BENCHMARKS EVERY 300m ONCE ALIGNMENT HAS BEEN VERIFIED.

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

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
APR. 11, 2025
PROVINCE OF ONTARIO



OUTLET DETAIL
NTS



Dobbin Engineering Inc.
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Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Vanmassenhoven Drain Branch 'F' Profile 1

PROJECT No. 2023-1540

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	APR. 11, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

MUNICIPALITY of NORTH - MIDDLESEX

VANMASSENHOVEN DRAIN BRANCH 'F'

PROFILE

Last Updated: April 11, 2025

GENERAL NOTES

1. BENCHMARK No.1 ELEV. 217.51
   TOP OF SOUTH END OF EXISTING 1200mmø CSP, CROSSING COLDSTREAM ROAD. WEST OF PROPOSED DRAIN CROSSING.

   BENCHMARK No.2 ELEV. 216.89
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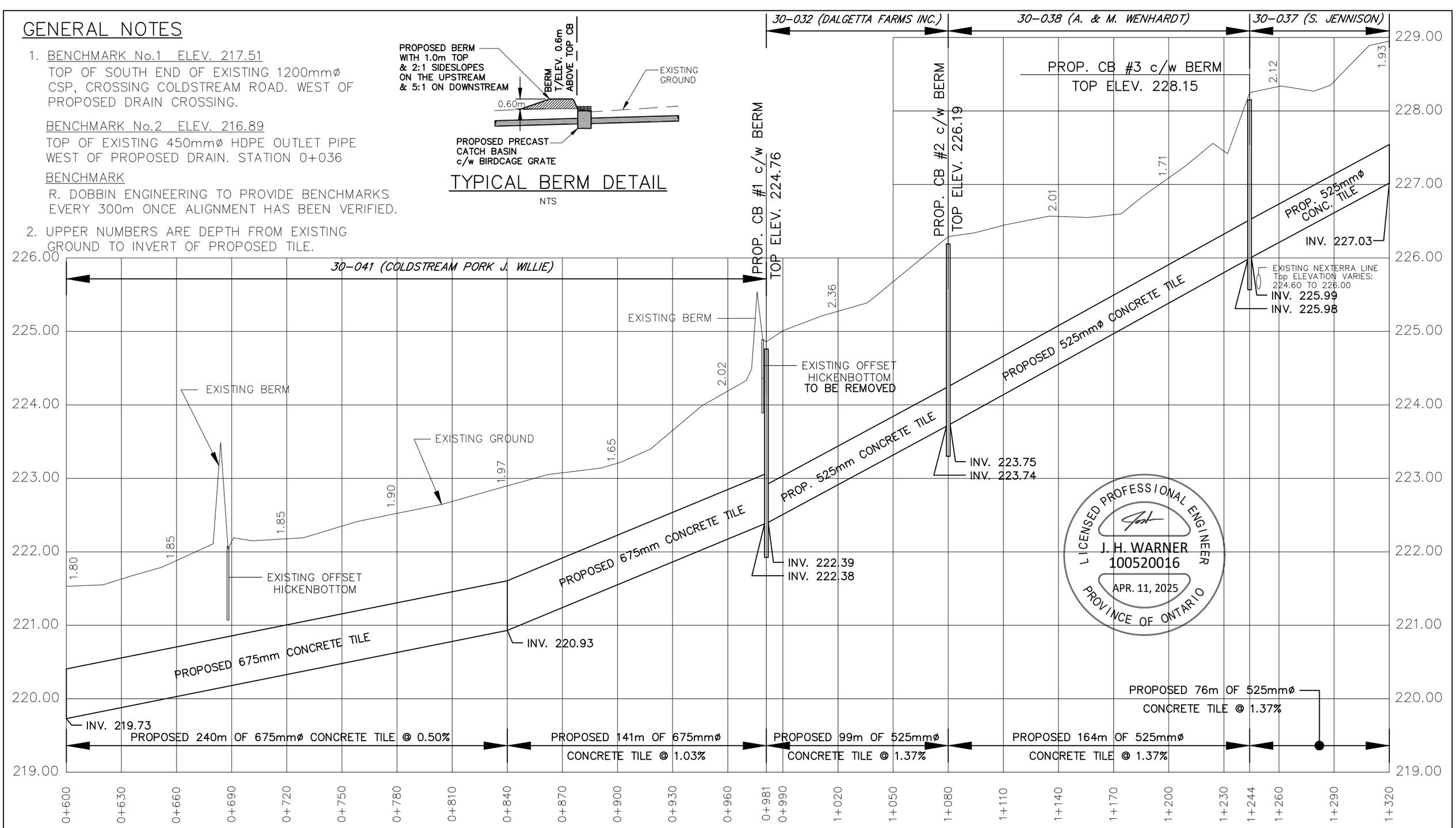
   BENCHMARK
   R. DOBBIN ENGINEERING TO PROVIDE BENCHMARKS EVERY 300m ONCE ALIGNMENT HAS BEEN VERIFIED.

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

TYPICAL BERM DETAIL

NTS



LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
APR. 11, 2025
PROVINCE OF ONTARIO

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DRAWING NAME: Vanmassenhoven Drain Branch 'F' Profile 2

PROJECT No. 2023-1540

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

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	APR. 11, 2025	CS

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

MUNICIPALITY of NORTH - MIDDLESEX

VANMASSENHOVEN DRAIN BRANCH 'F'

PROFILE

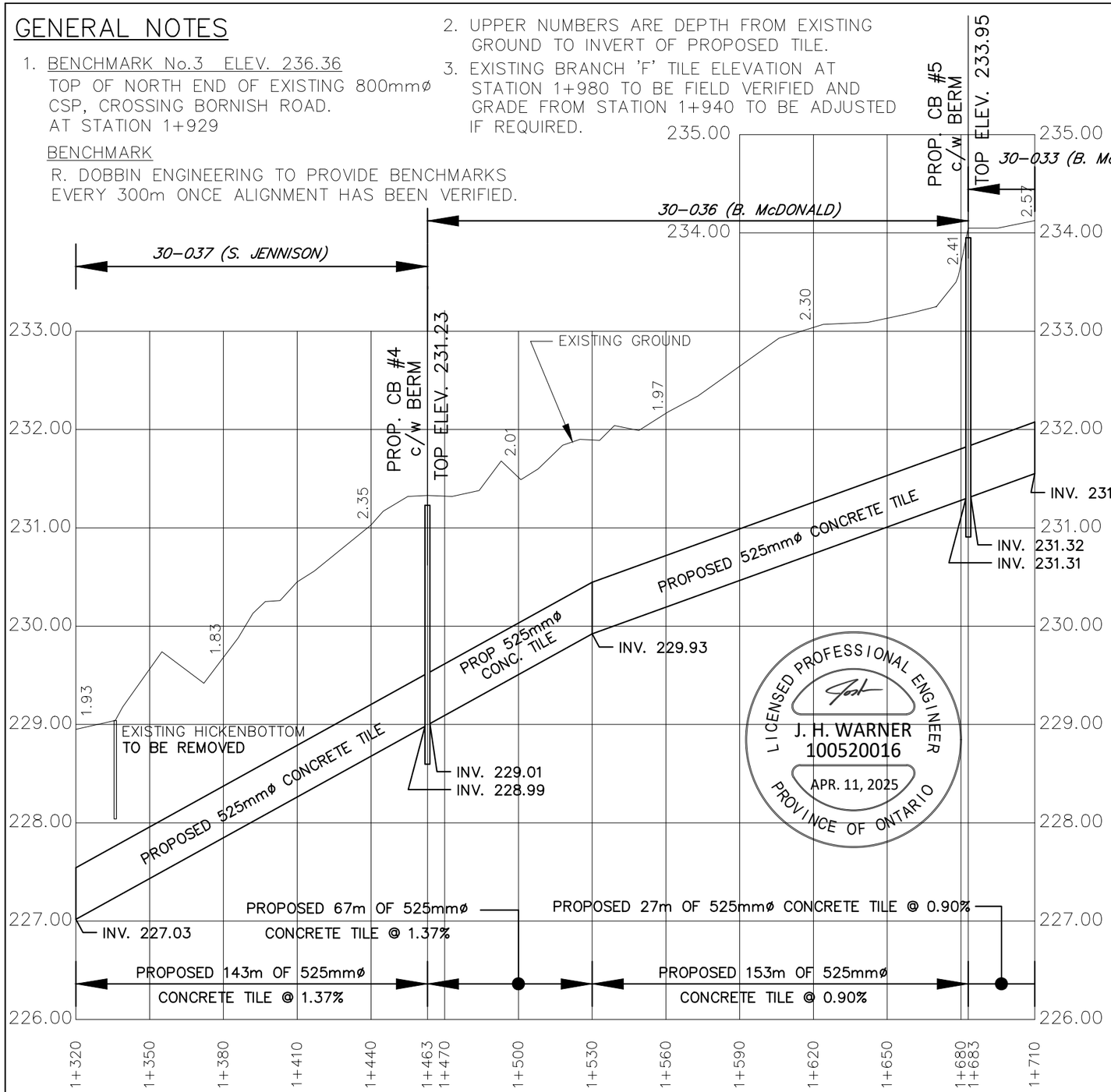
Last Updated: April 11, 2025

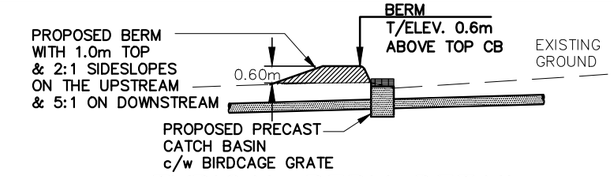
GENERAL NOTES

1. BENCHMARK No.3 ELEV. 236.36
   TOP OF NORTH END OF EXISTING 800mmø CSP, CROSSING BORNISH ROAD. AT STATION 1+929

   BENCHMARK
   R. DOBBIN ENGINEERING TO PROVIDE BENCHMARKS EVERY 300m ONCE ALIGNMENT HAS BEEN VERIFIED.

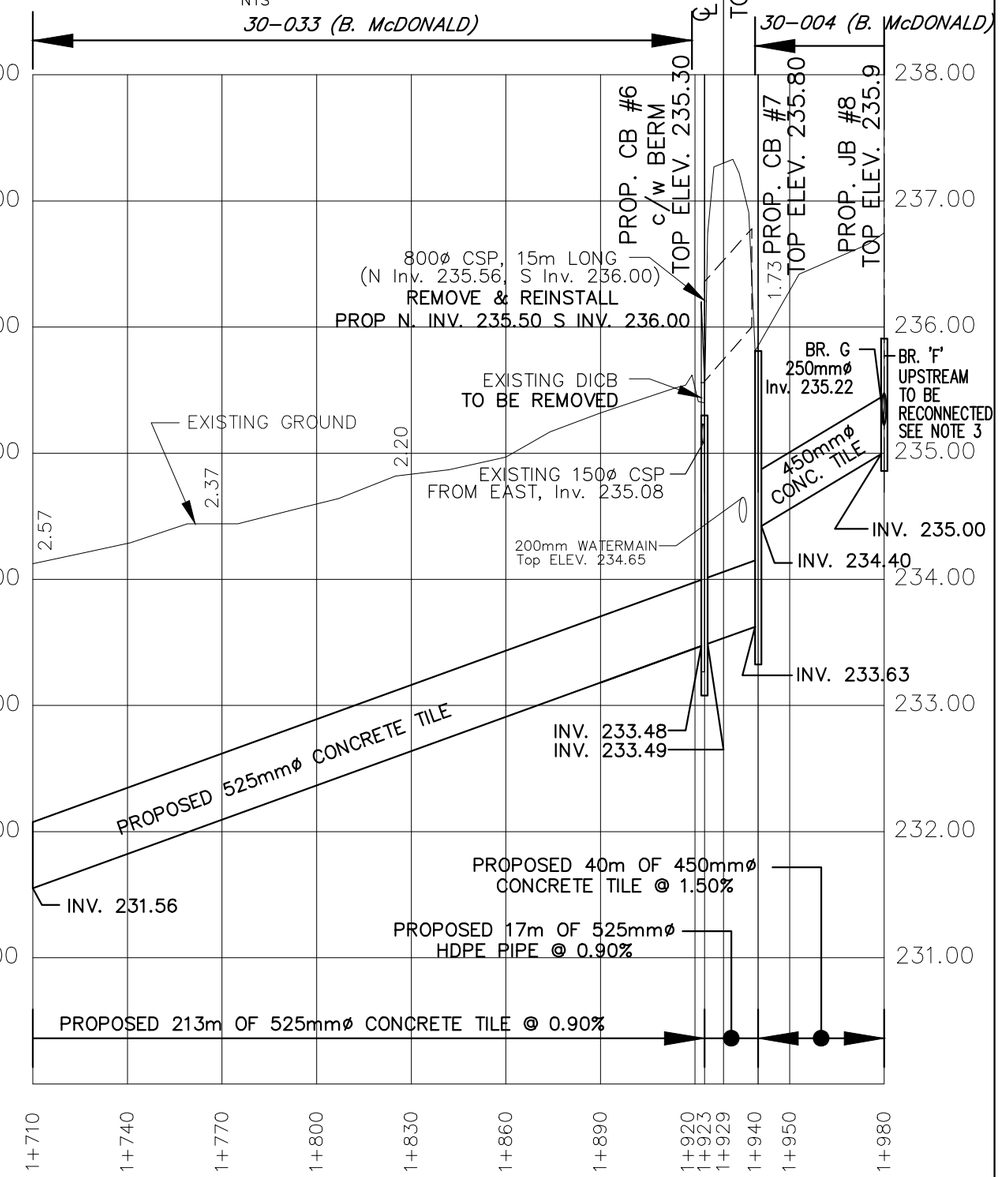
2. UPPER NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE.
3. EXISTING BRANCH 'F' TILE ELEVATION AT STATION 1+980 TO BE FIELD VERIFIED AND GRADE FROM STATION 1+940 TO BE ADJUSTED IF REQUIRED.





TYPICAL BERM DETAIL

NTS



LICENSED PROFESSIONAL ENGINEER
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PROVINCE OF ONTARIO

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DRAWING NAME: Vanmassenhoven Drain Branch 'F' Profile 3

PROJECT No. 2023-1540

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J. WARNER				
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B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

MUNICIPALITY of NORTH - MIDDLESEX

VANMASSENHOVEN DRAIN BRANCH 'F'

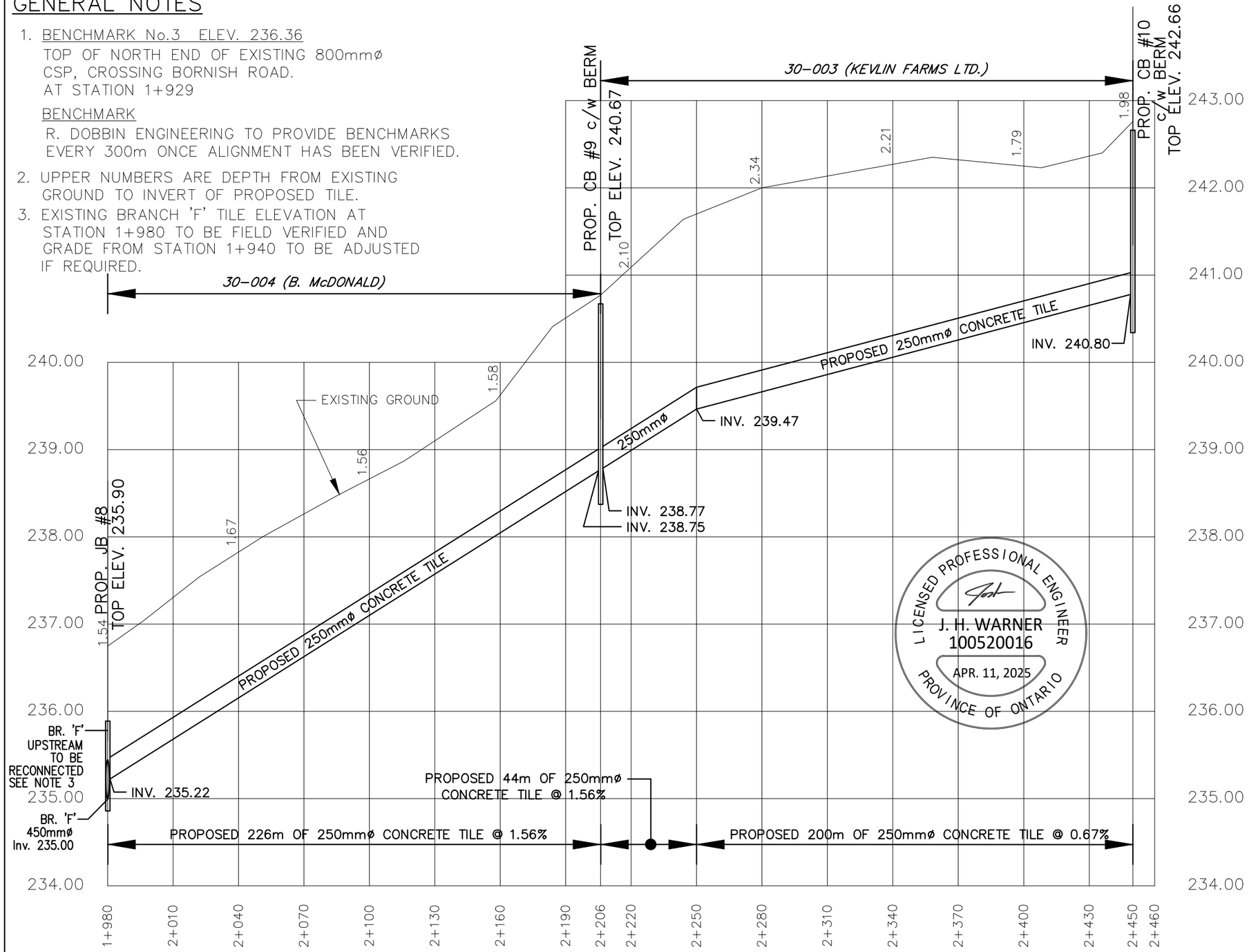
PROFILE

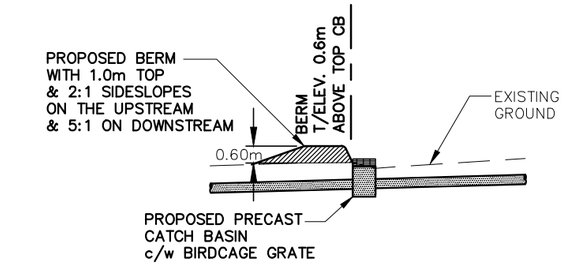
Last Updated: April 11, 2025

GENERAL NOTES

1. BENCHMARK No.3 ELEV. 236.36
   TOP OF NORTH END OF EXISTING 800mmø CSP, CROSSING BORNISH ROAD. AT STATION 1+929

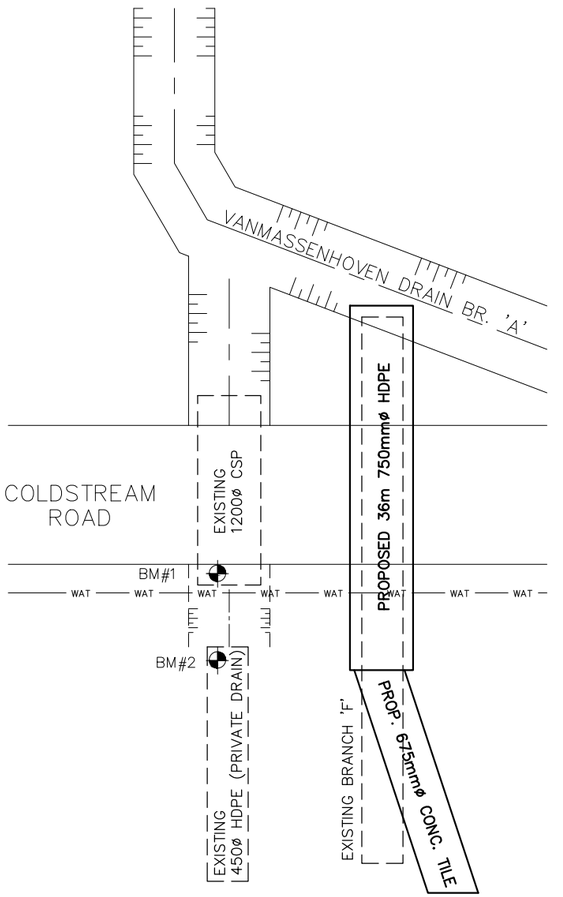
   BENCHMARK
   R. DOBBIN ENGINEERING TO PROVIDE BENCHMARKS EVERY 300m ONCE ALIGNMENT HAS BEEN VERIFIED.
2. UPPER NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE.
3. EXISTING BRANCH 'F' TILE ELEVATION AT STATION 1+980 TO BE FIELD VERIFIED AND GRADE FROM STATION 1+940 TO BE ADJUSTED IF REQUIRED.





TYPICAL BERM DETAIL

NTS



COLDSTREAM ROAD CROSSING DETAIL (BR "F")

NTS

LICENSED PROFESSIONAL ENGINEER
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APR. 11, 2025
PROVINCE OF ONTARIO

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Petrolia Ontario, N0N 1R0
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DRAWING NAME: Vanmassenhoven Drain Branch 'G' Profile 1

PROJECT No. 2023-1540

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B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

MUNICIPALITY of NORTH - MIDDLESEX

VANMASSENHOVEN DRAIN BRANCH 'G'

PROFILE

Last Updated: April 11, 2025