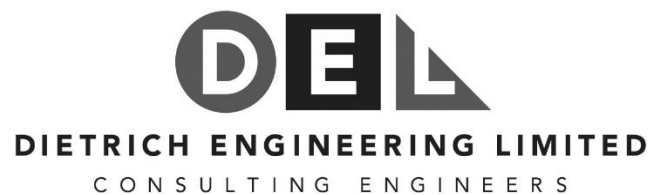


Pickering Municipal Drain 2022
Municipality of South Huron
(Stephen Ward)



Reference No. 2205

May 31, 2022

TABLE OF CONTENTS

1.0	Introduction.....	1
2.0	Authorization.....	1
3.0	History	1
4.0	On-Site Meeting.....	2
5.0	Recommendations.....	2
6.0	Environmental Considerations	2
7.0	Summary of Proposed Works	2
8.0	Working Area and Access	3
9.0	Watershed and Soils Characteristics	3
10.0	Allowances.....	3
11.0	Estimated Construction Costs.....	4
12.0	Summary of Estimated Project Costs	4
13.0	Assessment.....	4
14.0	Maintenance.....	5
15.0	Schedule A – Allowances	6
16.0	Schedule B – Estimated Construction Costs	7

Specification for Construction of Municipal Drainage Works

DIVISION A – General Conditions

DIVISION B – Specification for Open Drains

DIVISION H – Special Provisions



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Kitchener, Ontario

May 31, 2022

Pickering Municipal Drain 2022
Municipality of South Huron
(Stephen Ward)

To the Mayor and Council
of the Municipality of South Huron

Members of Council:

1.0 Introduction

We are pleased to present our report on the “Pickering Municipal Drain 2022”, serving the following Lots and Concessions in the Municipality of South Huron, Stephen Ward, County of Huron:

Parts of Lots 25 to 28, S.B. Concession, and
Part of Lot 3, Concession 14.

The attached Plan and Profile Drawing No. 1, Reference No. 2205, Specifications and the Instructions to Tenderers form part of this report. They show and describe in detail the location and extent of the work to be done and the lands which are affected.

2.0 Authorization

Authority to prepare this report was obtained by a resolution of the Municipality of South Huron Council at its January 17, 2022 meeting to appoint Dietrich Engineering Limited to prepare an Engineer’s Report.

In accordance with your instructions pursuant to a request received by Council under Section 78(5) of the Drainage Act, R.S.O. 1990, we have made an examination and survey of the affected area and submit herewith our Report which includes Plan, Profile and Specifications for this work.

3.0 History

The existing Pickering Municipal Drain was originally constructed under the authority of a report prepared by James A. Howes, O.L.S. dated, February 1, 1957.

The Main Drain consisted of the construction of 6260 feet of open ditch and the installation of 1140 feet of 10” diameter tile. ‘A’ Drain consisted of the installation of 543 feet of 8” diameter tile.

The Main Drain open portion of the Pickering Municipal Drain in the Municipality of South Huron was last cleaned out under the maintenance program in 2016.

4.0 On-Site Meeting

In accordance with Section 9(1) of the Drainage Act, R.S.O. 1990, an on-site meeting was held on Monday, April 4, 2022. The place of meeting was on Blackbush Line where the Pickering Drain crosses the road adjacent to the David McCann property; Lot 28, S.B.C. Persons in attendance were:

William J. Dietrich, P.Eng.	Dietrich Engineering Limited
Shane Timmermans	Manager of Operations, Municipality of South Huron
Rebekah Msuya-Collison	Director of Legislative Services/Clerk, Municipality of South Huron
Davin Heinbuck	Ausable Bayfield Conservation Authority
Landowners:	
David McCann	Brent Dixon
Steve McCann	Stephanie Dixon

5.0 Recommendations

It is our recommendation that:

1. A portion of the existing drainage ditch in Lot 28, S.B. Concession be relocated.
2. Approximately 160 metres of new open ditch be constructed and 170 metres of the existing ditch be filled in.
3. The owner of the Lot 28, S.B. Concession be responsible to relocate all private tile drains and connect to the new channel.
4. This proposed minor improvement meets the requirements of subsection 78(5) of the Drainage Act and the engineering design meets the requirements set out in subsection 7(1) of the Drainage Act.
5. This new drainage system shall be known as the "Pickering Municipal Drain 2022".

6.0 Environmental Considerations

The Ontario Ministry of Agriculture, Food and Rural Affairs' Agricultural Information Atlas indicates that the Fisheries and Oceans Canada (DFO) has classified this drain as an unrated drain.

An application for permission to alter a watercourse was forwarded to the Ausable Bayfield Conservation Authority (ABCA) on March 28, 2022. Davin Heinbuck from (ABCA) stated at the on-site meeting that a permit would not be required for the relocation of the channel as proposed in Lot 28, S.B. Concession.

The relocation of the channel includes the placement of quarry stone rip-rap protection on the westerly end of the 900mm diameter culvert under Blackbush Line and on the northeast side-slope of the channel at Sta. 0+000 and Sta. 0+160 to prevent channel erosion.

7.0 Summary of Proposed Works

The proposed work consists of:

1. Approximately 160 metres of open ditch excavation;
2. Filling in approximately 170 metres of open ditch;
3. The placement of approximately 75m² of quarry stone rip-rap and geotextile filter material.

8.0 Working Area and Access

Each landowner on whose property the drainage work is to be constructed shall designate access to and from the working area.

The working area shall be a width of eighteen (18) metres for the construction of the new channel and a width of ten (10) metres for backfilling the existing ditch.

The working area shall be a width of 10 metres for maintenance purposes on the side of the drain where the excavated material is to be placed and levelled.

9.0 Watershed and Soils Characteristics

The watershed was established through analysis of tile drainage maps, previous engineer's reports, field investigations, surveys, and data analysis of the Southwestern Ontario Orthophotographic Project (SWOOP).

The Drainage Area comprises of approximately 75 hectares. Land use within the watershed is primarily agricultural.

The Ontario Ministry of Agriculture, Food and Rural Affairs' Agricultural Information Atlas describes the soil types within the watershed and along the route of the drain as loam.

10.0 Allowances

In accordance with Sections 29 and 30 of the Drainage Act, R.S.O. 1990, we have calculated Allowances payable to Landowners using the following methodology.

10.1 Allowances for Right-of-Way (Section 29)

The agricultural land values used for calculating allowances for Right-of-Way was \$50,000/ha.

The allowances for Right-of-Way under Section 29 of the Drainage Act, R.S.O. 1990 were calculated based on 100% of the land value for the average proposed top width of the new open ditch less the average top width of the existing ditch plus a three (3) metre buffer strip along the new channel.

10.2 Allowances for Damages to Lands and Crops (Section 30)

Allowances for Damages to Lands and Crops under Section 30 of the Drainage Act, R.S.O. 1990 were primarily calculated to compensate landowners for crop losses, bush losses and land damages due to the construction of the drain, including access to the working corridor.

We determined the allowances payable to Landowners entitled thereto as shown in Schedule A.

Total Allowances, under Sections 29 and 30 of the Drainage Act, R.S.O. 1990;

Pickering Municipal Drain 2022:

\$6,000

11.0 Estimated Construction Costs

We have made an estimate of the cost of the proposed work based on labour, equipment and materials. A detailed description of the costs involved can be found in Schedule B of this report.

The total estimated construction costs for this project are as follows:

Total Estimated Construction Costs	\$ 39,900
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12.0 Summary of Estimated Project Costs

The total estimated project costs are as follows:

Allowances under Sections 29 and 30 of the Drainage Act, R.S.O. 1990 (Refer to Schedule A)	\$ 6,000
Total Estimated Construction Costs (Refer to Schedule B)	\$ 39,900
Meetings, survey, design, preparation of preliminary cost estimates, preparation of final drainage report, consideration of report	\$ 9,000
Preparation of contract documents, contract administration, supervision and inspection of construction	\$ 5,000
Contingencies, Interest and net H.S.T.	\$ 1,000
TOTAL ESTIMATED PROJECT COSTS – PICKERING Municipal Drain 2022	\$ 60,900

The estimated cost of the work in the Municipality of South Huron is \$60,900.

The above costs are estimates only. The final costs of construction, engineering and administration cannot be determined until construction is completed.

The above cost estimate does not include costs associated with defending the drainage report should appeals be filed with the Court of Revision Drainage Tribunal and/or Drainage Referee.

13.0 Assessment

We assess the cost of this work as a Special Benefit (Section 24) to the J.A. McCann & Sons Ltd. property; Lot 28, S.B. Concession (Roll No. 27-036) in the Municipality of South Huron (Stephen Ward) in the total estimated amount of \$60,900.00.

The Net Assessment is estimated:

Total Assessment	\$ 60,900.00
Less 1/3 ADIP Grant	-\$ 20,300.00
Less Allowances	-\$ 6,000.00
Net Assessment	\$ 34,600.00

14.0 Maintenance

After completion, the Pickering Municipal Drain shall be maintained by the Municipality of South Huron at the expense of all the lands and roads assessed in accordance with the provisions in the current bylaw and drainage report prepared by James A. Howes O.L.S., dated February 1, 1957 and in the same relative proportions until such time as the assessment is changed under the Drainage Act.

Respectfully submitted,

DIETRICH ENGINEERING LIMITED



W. J. Dietrich, P.Eng.

WJD:sm



Schedule A - Allowances

Lot or Part	Con.	Landowner	Roll No.	Right-of-Way (Section 29)	Damages to Lands and Crops (Section 30)	Total Allowances
28	S.B.C.	J.A. McCann & Sons Ltd.	27-036	\$4,000	\$2,000	\$6,000
Total Allowances						
Pickering Municipal Drain 2022				\$4,000	\$2,000	\$6,000

Schedule B - Estimated Construction Costs

The estimated construction costs for the outlined proposed work below is as follows:

Description	Estimated Quantity	\$/Unit	Total
1 Open ditch excavation including stripping and stockpiling of topsoil (160m)	1,500 m ³	\$12.00	\$18,000.00
2 Fill in existing ditch with excavated material from the new channel and bulldozing in existing spoil and placing and spreading topsoil on the backfilled ditch (170m)	1,000 m ³	\$8.00	\$8,000.00
3 Haul and stockpile excess excavating material from the construction of the new channel at the southwest corner of Lot 28, S.B.C	500 m ³	\$4.00	\$2,000.00
4 Hydroseed new channel side-slopes and buffer strips	3,500 m ²	\$2.00	\$7,000.00
5 Supply and install quarry stone rip-rap protection and geotextile filter material (Mirafi 180N or approved equivalent) on side-slopes of new channel at Sta. 0+000 and Sta. 0+160) and the plunge pool at Sta. 0+000	70 m ²	\$70.00	\$4,900.00
TOTAL ESTIMATED CONSTRUCTION COSTS PICKERING MUNICIPAL DRAIN 2022			\$39,900.00

**SPECIFICATIONS FOR THE CONSTRUCTION OF
MUNICIPAL DRAINAGE WORKS**

DIVISION A – General Conditions

DIVISION B – Specification for Open Drains

DIVISION H – Special Provisions

DIVISION A – GENERAL CONDITIONS**TABLE OF CONTENTS**

A.1.	Scope	1
A.2.	Tenders	1
A.3.	Examinations of Site, Drawings, and Specifications	1
A.4.	Payment.....	2
A.5.	Contractor’s Liability Insurance	2
A.6.	Losses Due to Acts of Nature, Etc.....	2
A.7.	Commencement and Completion of Work	2
A.8.	Working Area and Access	3
A.9.	Sub-Contractors.....	3
A.10.	Permits, Notices, Laws and Rules	3
A.11.	Railways, Highways, and Utilities	3
A.12.	Errors and Unusual Conditions	3
A.13.	Alterations and Additions	4
A.14.	Supervision	4
A.15.	Field Meetings	4
A.16.	Periodic and Final Inspections	4
A.17.	Acceptance By the Municipality	4
A.18.	Warranty.....	4
A.19.	Termination of Contract By The Municipality	4
A.20.	Tests.....	5
A.21.	Pollution.....	5
A.22.	Species and Risk.....	5
A.23.	Road Crossings.....	5
A.24.	Laneways	6
A.25.	Fences.....	7
A.26.	Livestock	7
A.27.	Standing Crops.....	7
A.28.	Surplus Gravel.....	7
A.29.	Iron Bars.....	7
A.30.	Rip-Rap.....	7
A.31.	Clearing, Grubbing and Brushing.....	7
A.32.	Restoration of Lawns	8

DIVISION A – GENERAL CONDITIONS

A.1. Scope

The work to be done under this contract consists of supplying all labour, equipment and materials to construct the drainage work as outlined in the Scope of Work, Drawings, General Conditions and other Specifications.

A.2. Tenders

Tenders are to be submitted using the documents provided, completed & signed (where applicable), clearly marked with the name of the tender, uploaded through the Bidding System and must include the following:

- Completed Schedule 'A' Items and Prices
- Bidder information Form
- Ability and Experience Form
- Subcontractor Form
- Form of Tender and Agreement
- Scanned Copy of the Bid/Performance Deposit (Certified Cheque or Bid Bond) or Digital Bid Bond on a lump sum basis for the complete works or a portion thereof, as instructed by the Municipality.

The Scope of Work must be completed and submitted with the Form of Tender and Agreement. A certified cheque is required as Tender Security, payable to the Treasurer of the Municipality.

The original bid bond and/or bid deposit (cheque/draft) is required to follow within five (5) business days of the Bid Closing Time and Date from the two (2) lowest Bidders. The Bid deposits of all Bidders, except the most feasible and second most feasible Bidders, will be returned within Twenty-One (21) calendar days of the Tender Closing. The Bid Deposit of the second most feasible Bidder will be returned when the successful bidder has provided the required documentation, to the Corporation.

The certified cheque of the bidder to whom the work is awarded will be retained as Contract Security and returned when the Municipality receives a Completion Certificate for the work.

A certified cheque is not required if the Contractor provides an alternate form of Contract Security such as a Performance Bond for 100% of the amount of the Tender or other satisfactory security, if required/permitted by the Municipality. A Performance Bond may also be required to insure maintenance of the work for a period of one (1) year after the date of the Completion Certificate.

A.3. Examinations of Site, Drawings, and Specifications

The Tenderer must examine the premises and site to compare them with the Drawings and Specifications in order to satisfy himself of the existing conditions and extent of the work to be done before submission of his Tender. No allowance shall subsequently be made on behalf of the Contractor by reason of any error on his part. Any estimates of quantities shown or indicated on the Drawings, or elsewhere are provided for the convenience of the Tenderer. Any use made of these quantities by the Tenderer in calculating his Tender shall be done at his own risk. The Tenderer for his own protection should check these quantities for accuracy.

The standard specifications (Divisions B through G) shall be considered complementary and where a project is controlled under one of the Divisions, the remaining Divisions will apply for miscellaneous works.

In case of any inconsistency or conflict between the Drawings and Specifications, the following order of precedence shall apply:

- Direction of the Engineer
- Special Provisions (Division H)
- Scope of Work
- Contract Drawings
- Standard Specifications (Divisions B through G)
- General Conditions (Division A)

A.4. Payment

Progress payments equal to 87±% of the value of work completed and materials incorporated in the work will be made to the Contractor monthly. An additional ten per cent (10±%) will be paid 45 days after the final acceptance by the Engineer, and three per cent (3±%) of the Contract price may be reserved by the Municipality as a maintenance holdback for a one (1) year period from the date of the Completion Certificate. A greater percentage of the Contract price may be reserved by the Municipality for the same one (1) year period if in the opinion of the Engineer, particular conditions of the Contract requires such greater holdback.

After the completion of the work, any part of this reserve may be used to correct defects developed within that time from faulty workmanship and materials, provided that notice shall first be given to the Contractor and that he may promptly make good such defects.

A.5. Contractor's Liability Insurance

Prior to commencement of any work, the Contractor shall file with the Municipality evidence of compliance with all Municipality insurance requirements (Liability Insurance, WSIB, etc.) for no less than the minimum amounts as stated in the Purchasing Procedures of the Municipality. All insurance coverage shall remain in force for the entire contract period including the warranty period which expires one year after the date of the Completion Certificate.

The following are to be named as co-insured:

- Successful Contractor
- Sub-Contractor Municipality
- Dietrich Engineering Ltd.

A.6. Losses Due to Acts of Nature, Etc.

All damage, loss, expense and delay incurred or experienced by the Contractor in the performance of the work, by reason of unanticipated difficulties, bad weather, strikes, acts of nature, or other mischances shall be borne by the Contractor and shall not be the subject of a claim for additional compensation.

A.7. Commencement and Completion of Work

The work must commence as specified in the Form of Tender and Agreement. If conditions are unsuitable due to poor weather, the Contractor may be required, at the discretion of the Engineer to postpone or halt work until conditions become acceptable and shall not be subject of a claim for additional compensation.

The Contractor shall give the Engineer a minimum of 48 hours notice before commencement of work. The Contractor shall then arrange a meeting to be held on the site with Contractor, Engineer, and affected Landowners to review in detail the construction scheduling and other details of the work.

If the Contractor leaves the job site for a period of time after initiation of work, he shall give the Engineer and the Municipality a minimum of 24 hours notice prior to returning to the project. If any work is commenced without notice to the Engineer, the Contractor shall be fully responsible for all such work undertaken prior to such notification.

The work must proceed in such a manner as to ensure its completion at the earliest possible date and within the time limit set out in the Form of Tender and Agreement.

A.8. Working Area and Access

Where any part of the drain is on a road allowance, the road allowance shall be the working area. For all other areas, the working area available to the Contractor to construct the drain is specified in the Special Provisions (Division H).

Should the specified widths become inadequate due to unusual conditions, the Contractor shall notify the Engineer immediately. Where the Contractor exceeds the specified working widths without authorization, he shall be held responsible for the costs of all additional damages.

If access off an adjacent road allowance is not possible, each Landowner on whose property the drainage works is to be constructed, shall designate access to and from the working area. The Contractor shall not enter any other lands without permission of the Landowner and he shall compensate the Landowner for damage caused by such entry.

A.9. Sub-Contractors

The Contractor shall not sublet the whole or part of this Contract without the approval of the Engineer.

A.10. Permits, Notices, Laws and Rules

The Contractor shall obtain and pay for all necessary permits or licenses required for the execution of the work (but this shall not include MTO encroachment permits, County Road permits permanent easement or rights of servitude). The Contractor shall give all necessary notices and pay for all fees required by law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public's health and safety.

A.11. Railways, Highways, and Utilities

A minimum of 72 hours' notice to the Railway or Highways, exclusive of Saturdays, Sundays, and Statutory Holidays, is required by the Contractor prior to any work activities on or affecting the applicable property. In the case of affected Utilities, a minimum of 48 hours' notice to the utility owner is required.

A.12. Errors and Unusual Conditions

The Contractor shall notify the Engineer immediately of any error or unusual conditions which may be found. Any attempt by the Contractor to correct the error on his own shall be done at his own risk. Any additional cost incurred by the Contractor to remedy the wrong decision on his part shall be borne by the Contractor. The Engineer shall make the alterations necessary to correct errors or to adjust for unusual conditions during which time it will be the Contractor's responsibility to keep his men and equipment gainfully employed elsewhere on the project.

The Contract amount shall be adjusted in accordance with a fair evaluation of the work added or deleted.

A.13. Alterations and Additions

The Engineer shall have the power to make alterations in the work shown or described in the Drawings and Specifications and the Contractor shall proceed to make such changes without causing delay. In every such case, the price agreed to be paid for the work under the Contract shall be increased or decreased as the case may require according to a fair and reasonable evaluation of the work added or deleted. The valuation shall be determined as a result of negotiations between the Contractor and the Engineer, but in all cases the Engineer shall maintain the final responsibility for the decision. Such alterations and variations shall in no way render the Contract void. No claims for a variation or alteration in the increased or decreased price shall be valid unless done in pursuance of an order from the Engineer and notice of such claims made in writing before commencement of such work. In no such case shall the Contractor commence work which he considers to be extra before receiving the Engineer's approval.

A.14. Supervision

The Contractor shall give the work his constant supervision and shall keep a competent foreman in charge at the site.

A.15. Field Meetings

At the discretion of the Engineer, a field meeting with the Contractor or his representative, the Engineer and with those others that the Engineer deems to be affected, shall be held at the location and time specified by the Engineer.

A.16. Periodic and Final Inspections

Periodic inspections by the Engineer will be made during the performance of the work. If ordered by the Engineer, the Contractor shall expose the drain as needed to facilitate inspection by the Engineer.

Final inspection by the Engineer will be made within twenty (20) days after he has received notice from the Contractor that the work is complete.

A.17. Acceptance By the Municipality

Before any work shall be accepted by the Municipality, the Contractor shall correct all deficiencies identified by the Engineer and the Contractor shall leave the site neat and presentable.

A.18. Warranty

The Contractor shall repair and make good any damages or faults in the drain that may appear within one (1) year after its completion (as dated on the Completion Certificate) as the result of the imperfect or defective work done or materials furnished if certified by the Engineer as being due to one or both of these causes; but nothing herein contained shall be construed as in any way restricting or limiting the liability of the Contractor under the laws of the Country, Province or Locality in which the work is being done. Neither the Completion Certificate nor any payment there under, nor any provision in the Contract Documents shall relieve the Contractor from his responsibility.

A.19. Termination of Contract By The Municipality

If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days notice in writing from the Engineer to supply additional workmen or materials to commence or complete the works, or if he should fail to make prompt payment to Sub-Contractors, or for material, or labour, or persistently

disregards laws, ordinances, or the instruction of the Engineer, or otherwise be guilty of a substantial violation of the provisions of the Contract, then the Municipality, upon the certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy, by giving the Contractor written notice, terminate the employment of the Contractor and take possession of the premises, and of all materials, tools and appliances thereon, and may finish the work by whatever method the Engineer may deem expedient but without delay or expense. In such a case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price will exceed the expense of finishing the work including compensation to the Engineer for his additional services and including the other damages of every name and nature, such excess shall be paid by the Contractor. If such expense will exceed such unpaid balance, the Contractor shall pay the difference to the Municipality. The expense incurred by the Municipality, as herein provided, shall be certified by the Engineer.

If the Contract is terminated by the Municipality due to the Contractor's failure to properly commence the works, the Contractor shall forfeit the certified cheque bid deposit and furthermore shall pay to the Municipality an amount to cover the increased costs, if any, associated with a new Tender for the Contract being terminated.

If any unpaid balance and the certified cheque do not match the monies owed by the Contractor upon termination of the Contract, the Municipality may also charge such expense against any money which may thereafter be due to the Contractor from the Municipality.

A.20. Tests

The cost for the testing of materials supplied to the job by the Contractor shall be borne by the Contractor. The Engineer reserves the right to subject any lengths of any tile or pipe to a competent testing laboratory to ensure the adequacy of the tile or pipe. If any tile supplied by the Contractor is determined to be inadequate to meet the applicable A.S.T.M. standards, the Contractor shall bear full responsibility to remove and/or replace all such inadequate tile in the Contract with tile capable of meeting the A.S.T.M. Standards.

A.21. Pollution

The Contractor shall keep their equipment in good repair. The Contractor shall refuel or repair equipment away from open water.

If polluted material from construction materials or equipment is caused to flow into the drain, the Contractor shall immediately notify the Ministry of the Environment, and proceed with the Ministry's protocols in place to address the situation.

A.22. Species and Risk

If a Contractor encounters a known Species at Risk as designated by the MNR or DFO, the Contractor shall notify the Engineer immediately and follow the Ministry's guidelines to deal with the species.

A.23. Road Crossings

This specification applies to all road crossings (Municipality, County, Regional, or Highway) where no specific detail is provided on the drawings or in the standard specifications. This specification in no way limits the Road Authority's regulations governing the construction of drains on their Road Allowance.

A.23.1 Road Occupancy Permit

Where applicable, the Contractor must submit an application for a road occupancy permit to the Road Authority and allow a minimum of five (5) working days for its review and issuance.

A.23.2 Road Closure Request and Construction Notification

The Contractor shall submit written notification of construction and request for road closure (if applicable) to the Road Authority and the Engineer for review and approval a minimum of five (5) working days prior to proceeding with any work on the road allowance. The Contractor shall be responsible for notifying all applicable emergency services, schools, etc. of the road closure or construction taking place.

A.23.3 Traffic Control

The Contractor shall supply flagmen, and warning signs and ensure that detour routes are adequately signed in accordance with no less than the minimum standards as set out in the Ontario Traffic Manual's Book 7.

A.23.4 Weather

No construction shall take place during inclement weather or periods of poor visibility.

A.23.5 Equipment

No construction material and/or equipment is to be left within three (3) metres of the travelled portion of the road overnight or during periods of inclement weather.

If not stated on the drawings, the road crossing shall be constructed by open cut method. Backfill from the top of the cover material over the subsurface pipe or culvert to the under side of the road base shall be Granular "B". The backfill shall be placed in lifts not exceeding 300mm in thickness and each lift shall be thoroughly compacted to 98% Standard Proctor. Granular "B" road base for County Roads and Highways shall be placed to a 450mm thickness and Granular "A" shall be placed to a thickness of 200mm. Granular road base materials shall be thoroughly compacted to 100% Standard Proctor.

Where the road surface is paved, the Contractor shall be responsible for placing HL-8 Hot Mix Asphalt patch at a thickness of 50mm or of the same thickness as the existing pavement structure. The asphalt patch shall be flush with the existing roadway on each side and without overlap.

Excavated material from the trench beyond 1.25 metres from the travelled portion or beyond the outside edge of the gravel shoulder may be used as backfill in the trench in the case of covered drains. The material shall be compacted in lifts not exceeding 300mm.

A.24. Laneways

All pipes crossing laneways shall be backfilled with material that is clean, free of foreign material or frozen particles and readily tamped or compacted in place unless otherwise specified. Laneway culverts on open ditch projects shall be backfilled with material that is not easily erodible. All backfill material shall be thoroughly compacted as directed by the Engineer.

Culverts shall be bedded with a minimum of 300mm of granular material. Granular material shall be placed simultaneously on each side of the culvert in lifts not exceeding 150mm in thickness and compacted to 95% Standard Proctor Density. Culverts shall be installed a minimum of 10% of the culvert diameter below design grade with a minimum of 450mm of cover over the pipe unless otherwise noted on the Drawings.

The backfill over culverts and subsurface pipes at all existing laneways that have granular surfaces on open ditch and closed drainage projects shall be surfaced with a minimum of 300mm of Granular "B" material and 150mm of Granular "A" material. All backfill shall be thoroughly compacted as directed by the Engineer. All granular material shall be placed to the full width of the travelled portion.

Any settling of backfilled material shall be repaired by or at the expense of the Contractor during the warranty period of the project and as soon as required.

A.25. Fences

No earth is to be placed against fences and all fences removed by the Contractor shall be replaced by him in as good a condition as found. Where practical the Contractor shall take down existing fences in good condition at the nearest anchor post and roll it back rather than cutting the fence and attempting to patch it. The replacement of the fences shall be done to the satisfaction of the Engineer. Any fences found in such poor condition where the fence is not salvageable, shall be noted and verified with the Engineer prior to commencement of work.

Fences damaged beyond repair by the Contractor's negligence shall be replaced with new materials, similar to those materials of the existing fence, at the Contractor's expense. The replacement of the fences shall be done to the satisfaction of the Landowner and the Engineer.

Any fences paralleling an open ditch that are not line fences that hinder the proper working of the excavating machinery, shall be removed and rebuilt by the Landowner at his own expense.

The Contractor shall not leave fences open when he is not at work in the immediate vicinity.

A.26. Livestock

The Contractor shall provide each landowner with 48 hours notice prior to removing any fences along fields which could possibly contain livestock. Thereafter, the Landowner shall be responsible to keep all livestock clear of the construction areas until further notified. The Contractor shall be held responsible for loss or injury to livestock or damage caused by livestock where the Contractor failed to notify the Landowner, or through negligence or carelessness on the part of the Contractor.

A.27. Standing Crops

The Contractor shall be responsible for damages to standing crops which are ready to be harvested or salvaged along the course of the drain and access routes if the Contractor has failed to notify the Landowners 48 hours prior to commencement of the work on that portion of the drain.

A.28. Surplus Gravel

If as a result of any work, gravel or crushed stone is required and not all the gravel or crushed stone is used, the Contractor shall haul away such surplus material.

A.29. Iron Bars

The Contractor is responsible for the cost of an Ontario Land Surveyor to replace any iron bars that are altered or destroyed during the course of the construction.

A.30. Rip-Rap

Rip-rap shall be quarry stone rip-rap material and shall be the sizes specified in the Special Provisions. Broken concrete shall not be used as rip-rap unless otherwise specified.

A.31. Clearing, Grubbing and Brushing

This specification applies to all brushing where no specific detail is provided on the drawings or in the Special Provisions.

The Contractor shall clear, brush and stump trees from within the working area that interfere with the installation of the drainage system.

All trees, limbs and brush less than 150mm in diameter shall be mulched. Trees greater than 150mm in diameter shall be cut and neatly stacked in piles designated by the Landowners.

A.32. Restoration of Lawns

This specification applies to all lawn restoration where no specific detail is provided on the drawings or in the Special Provisions and no allowance for damages has been provided under Section 30 of the Drainage Act RSO 1990 to the affected property.

The Contractor shall supply “high quality grass seed” and the seed shall be broadcast by means of an approved mechanical spreader. All areas on which seed is to be placed shall be loose at the time of broadcast to a depth of 25mm. Seed and fertilizer shall be spread in accordance with the supplier’s recommendations unless otherwise directed by the Engineer. Thereafter it will be the responsibility of the Landowner to maintain the area in a manner so as to promote growth

END OF DIVISION

DIVISION B – SPECIFICATIONS FOR OPEN DRAINS

TABLE OF CONTENTS

B.1.	Alignment	1
B.2.	Profile.....	1
B.3.	Excavation.....	1
B.4.	Excavated Material	1
B.5.	Excavation at Existing Bridge and Culvert Sites.....	2
B.6.	Pipe Culverts	2
B.7.	Rip-Rap Protection For Culverts	2
B.8.	Clearing, Grubbing and Mulching	2
B.9.	Tributary Tile Outlets.....	3
B.10.	Seeding	3
B.11.	Hydro Seeding.....	3
B.12.	Hand Seeding.....	3
B.13.	Completion	3

DIVISION B – SPECIFICATIONS FOR OPEN DRAINS

B.1. Alignment

The drain shall be constructed in a straight line and shall follow the course of the present drain or water run unless noted on the drawings. Where there are unnecessary bends or irregularities on the existing course of the drain, the Contractor shall contact the Engineer before commencing work to verify the manner in which such irregularities or bends may be removed from the drain. All curves shall be made with a minimum radius of fifteen (15) metres from the centre line of the drain.

B.2. Profile

The Profile Drawing shows the depth of cuts from the top of the bank to the final invert of the ditch in metres and decimals of a metre, and also the approximate depth of excavated material from the bottom of the existing ditch to the final invert of the ditch. These cuts are established for the convenience of the Contractor; however, bench marks (established along the course of the drain) will govern the final elevation of the drain. The location and elevation of the bench marks are given on the Profile Drawing. Accurate grade control must be maintained by the Contractor during ditch excavation.

B.3. Excavation

The bottom width and the side slopes of the ditch shall be those shown on the drawings. If the channel cross-section is not specified it shall be a one metre bottom width with 1.5(h):1(v) side slopes. At locations along the drain where the cross section dimensions change, there shall be a transitional length of not less than 10:1 (five metre length to 0.5 metre width differential). Where the width of the bottom of the existing ditch is sufficient to construct the design width, then construction shall proceed without disturbing the existing banks.

Where existing side slopes become unstable, the Contractor shall immediately notify the Engineer. Alternative methods of construction and/or methods of protection will then be determined prior to continuing work.

Where an existing drain is being relocated or where a new drain is being constructed, the Contractor shall strip the topsoil for the full width of the drain, including the location of the spoil pile. Upon completion of levelling, the topsoil shall be spread to an even depth across the full width of the spoil.

An approved hydraulic excavator shall be used to carry out the excavation of the open ditch unless otherwise directed by the Engineer.

B.4. Excavated Material

Excavated material shall be placed on the low side of the drain or opposite trees and fences. The Contractor shall contact all Landowners before proceeding with the work to verify the location to place and level the excavated material.

No excavated material shall be placed in tributary drains, depressions, or low areas which direct water behind the spoil bank. The excavated material shall be placed and levelled to a maximum depth of 200 mm, unless instructed otherwise and commence a minimum of one (1) metre from the top of the bank. The edge of the spoil bank away from the ditch shall be feathered down to the existing ground; the edge of the spoil bank nearest the ditch shall have a maximum slope of 2(h):1(v). The material shall be levelled such that it may be

cultivated with ordinary farm equipment without causing undue hardship to the farm machinery and farm personnel. No excavated material shall cover any logs, brush, etc. of any kind.

Any stones or boulders which exceed 300mm in diameter shall be removed and disposed of in a location specified by the Landowner.

Where it is necessary to straighten any unnecessary bends or irregularities in the alignment of the ditch or to relocate any portion or all of an existing ditch, the excavated material from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and the old ditch, no extra compensation will be allowed for this work and must be included in the Contractor's lump sum price for the open work.

B.5. Excavation at Existing Bridge and Culvert Sites

The Contractor shall excavate the drain to the full specified depth under all bridges and to the full width of the structure. Temporary bridges may be carefully removed and left on the bank of the drain but shall be replaced by the Contractor when the excavation is complete. Permanent bridges must, if at all possible, be left intact. All necessary care and precautions shall be taken to protect the structure. The Contractor shall notify the Landowner if excavation will expose the footings or otherwise compromise the structural integrity of the structure.

The Contractor shall clean through all pipe culverts to the grade and width specified on the profile.

B.6. Pipe Culverts

All pipe culverts shall be installed in accordance with the standard detail drawings. If couplers are required, five corrugation couplers shall be used for up to and including 1200mm diameter pipes and 10 corrugation couplers for greater than 1200mm diameter pipes.

When an existing crossing is being replaced, the Contractor may backfill the new culvert with the existing native material that is free of large rocks and stones. The Contractor is responsible for any damage to a culvert pipe that is a result of rocks or stones in the backfill.

B.7. Rip-Rap Protection For Culverts

Quarry stone rip-rap shall be used as end treatment for new culverts and placed on geotextile filter material (Mirafi 160N or approved equal). The rip-rap shall be adequately keyed in along the bottom of the slope, and shall extend to the top of the pipe or as directed on the drawings. The maximum slope for rip-rap shall be 1(h):1(v) or as directed by the Engineer.

The Contractor shall be responsible for any defects or damages that may develop in the rip-rap or the earth behind the rip-rap that the Engineer deems to have been fully or partially caused by faulty workmanship or materials.

B.8. Clearing, Grubbing and Mulching

Prior to excavation, all trees, scrub, fallen timber and debris shall be removed from the side slopes of the ditch and for such a distance on the working side so as to eliminate any interference with the construction of the drain or the spreading of the spoil. The side slopes shall be neatly cut and cleared flush with the slope whether or not they are affected directly by the excavation. With the exception of large stumps causing damage to the drain, the side slopes shall not be grubbed. All other cleared areas shall be grubbed and the stumps put into piles for disposal by the Landowner.

All trees or limbs 150mm or larger, that is necessary to remove, shall be cut, trimmed and neatly stacked in the working width for the use or disposal by the Landowner. Brush and limbs less than 150mm in diameter shall be mulched. Clearing, grubbing and mulching shall be carried out as a separate operation from the excavation of the ditch, and shall not be completed simultaneously at the same location.

B.9. Tributary Tile Outlets

All tile outlets in existing ditches shall be marked by the Landowner prior to excavation. The Contractor shall guard against damaging the outlets of tributary drains. Any tile drain outlets that were marked or noted on the drawings and are subsequently damaged by the Contractor shall be repaired by the Contractor at his expense. The Landowner shall be responsible for repairs to damaged tile outlets that were not marked.

B.10. Seeding

The side slopes where disturbed shall be seeded using an approved grass seed mixture. The grass seed shall be applied the same day as the excavation of the open ditch.

Grass seed shall be fresh, clean and new crop seed, meeting the requirements of the MTO and composed of the following varieties mixed in the proportion by weight as follows:

- 55% Creeping Red Fescue
- 40% Perennial Rye Grass
- 5% White Clover

Grass seed shall be applied at the rate of 100 kg/ha.

B.11. Hydro Seeding

The areas specified in the contract document shall be hydro seeded and mulched upon completion of construction in accordance with O.P.S.S. 572.

B.12. Hand Seeding

Placement of the seed shall be of means of an approved mechanical spreader.

B.13. Completion

At the time of completion and final inspection, all work in the Contract shall have the full dimensions and cross-sections specified without any allowance for caving of banks or sediment in the ditch bottom.

END OF DIVISION

DIVISION H – SPECIAL PROVISIONS

TABLE OF CONTENTS

H.1	General	1
H.2	Utilities.....	1
H.3	Working Area And Access.....	1
H.4	Clearing and Grubbing.....	1
H.5	Filling in Existing Open Ditches.....	2
H.6	Seeding	2
H.7	Sediment Erosion Control Measures.....	2
H.8	Buffer Strips.....	2

DIVISION H – SPECIAL PROVISIONS

Pickering Municipal Drain 2022

Municipality of South Huron

Reference No. 2205

Special provisions mean special directions containing requirements peculiar to the work not adequately provided for by the standard or supplemental Specifications. Special provisions shall take precedence and govern any standard or supplemental Specifications.

H.1 General

The Contractor shall notify the Landowners, the Drainage Superintendent, and the Engineer forty-eight (48) hours prior to construction and arrange a pre-construction meeting.

The Contractor shall verify the location of the new drainage system with the Engineer and Landowners prior to construction.

The Contractor shall check and verify all dimensions and elevations and report any discrepancies to the Engineer prior to proceeding with the work.

H.2 Utilities

All utilities shall be located and uncovered in the affected areas by the Contractor prior to construction.

The Contractor shall arrange to have a representative of the utility owner on site during construction if it is a requirement by the utility owner.

H.3 Working Area And Access

Each Landowner on whose property the drainage works is to be constructed shall designate access to and from the working area.

The working area shall be eighteen (18) metres for the construction of the new channel and ten (10) metres for backfilling the existing ditch in Lot 28, S.B. Concession.

H.4 Clearing and Grubbing

The Contractor shall clear, brush and mulch all trees from within the ditch and the working area along the section of the existing ditch to be backfilled.

An approved mulching attachment for a hydraulic excavator or woodchipper shall be used. Clearing and grubbing, mulching shall be done prior to the construction of the drain.

All trees, limbs and brush less than 150mm in diameter shall be mulched/chipped. Trees greater than 150mm in diameter shall be cut into lengths of no greater than four (4) metres and neatly placed into piles designated by the Landowners. All stumps removed shall be placed in piles designated by the Landowner.

H.5 Filling in Existing Open Ditches

The Contractor shall strip the topsoil in the area where the new channel is to be constructed. Topsoil shall later be spread over the backfilled ditch and final grading shall be done using a trim dozer.

The Contractor shall haul the excavated material from the new channel and place and compact this material in the open ditch to be filled.

The Contractor shall excavate a new channel (Sta. 0+000 to Sta. 0+160). Excavated material from the new channel shall be used to fill in the existing ditch. The topsoil stripped from the area where the new ditch is constructed shall be spread over the backfilled ditch.

The Contractor shall fill in the existing ditch after the new ditch is constructed.

All the stone rip rap shall be quarry stone (angular rock) approx. 200mm to 300mm in diameter and placed to a depth of 450mm. All rip-rap material shall be placed on geotextile filter material (Mirafi 180N or approved equivalent).

An approved hydraulic backhoe shall be used on this project to carry out the excavation of the open ditch.

The Contractor shall construct and maintain silt traps during construction.

H.6 Seeding

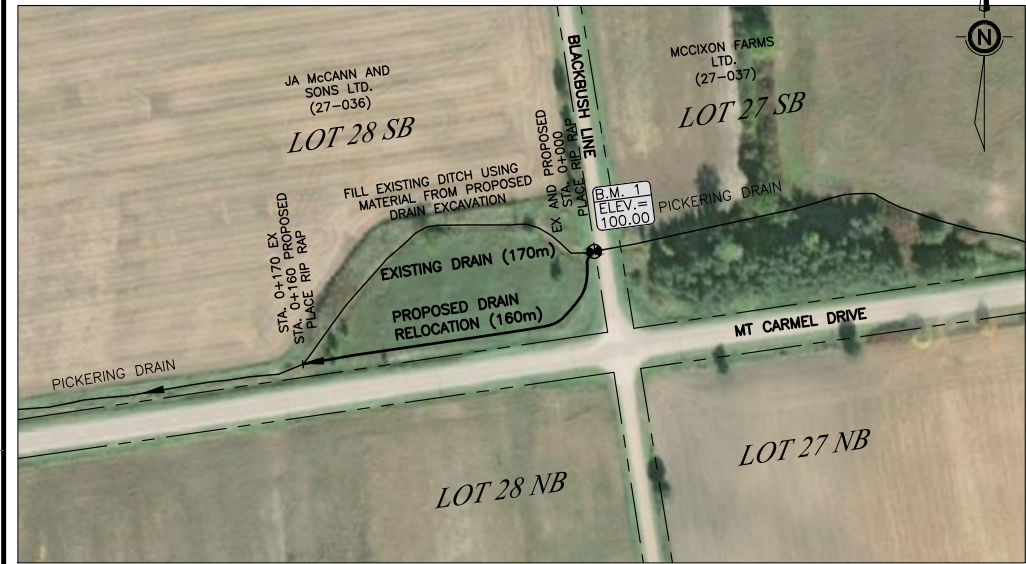
The Contractor shall hydro seed and mulch the buffer strips (1.5 metres on each side of the new channel) and side slopes of the new channel with an approved bonded fiber matrix hydroseed mixture. The Contractor shall be responsible for at least 80% successful coverage.

H.7 Sediment Erosion Control Measures

1. A silt fence/silt trap will be installed at the lower end of the open ditch.
2. The open ditch will be backfilled in dry conditions.
3. Quarry stone rip rap and geotextile filter material shall be placed on the side-slopes of the ditch at the junction of the new channel and the existing ditch at Sta. 0+000 and Sta. 0+160.

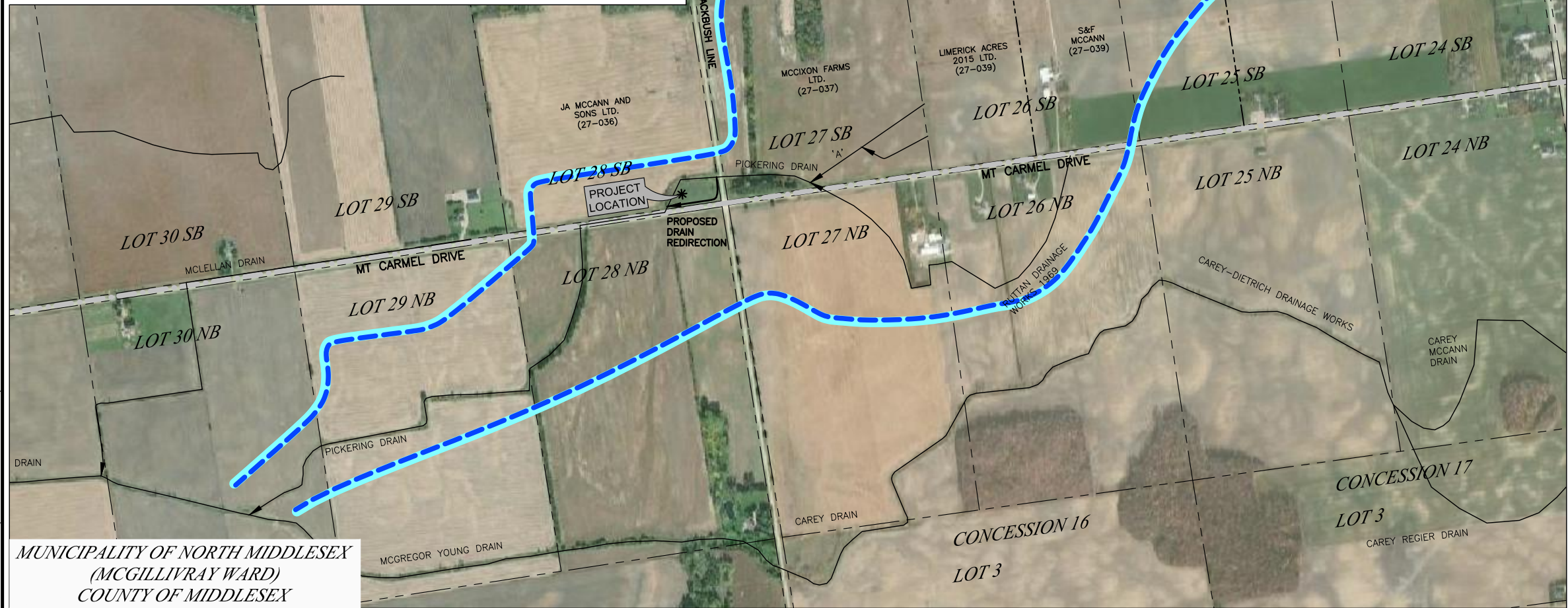
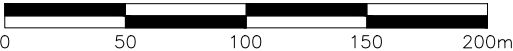
H.8 Buffer Strips

Grassed buffer strips shall be constructed along the total length of the newly constructed municipal drain. The width of the grassed buffer strips shall be 1.5 metres.



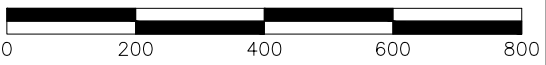
PICKERING DRAIN DETAIL

PLAN SCALE



PLAN

PLAN SCALE



NOTES:

BENCHMARK No. 1 ELEV.=100.00
TOP OF EXISTING 900MM DIA. CMP WEST END AT STATION 0+000

LEGEND:

— DRAIN NAME —	→ EXISTING MUNICIPAL DRAIN
---	INTERIOR/EXTERIOR WATERSHED BOUNDARY
---	PROPERTY BOUNDARY
---	LOT OR CONCESSION BOUNDARY
---	TOWNSHIP BOUNDARY
□	EXISTING CATCH BASIN OR JUNCTION BOX
○	EXISTING MANHOLE
→ DRAIN NAME →	MUNICIPAL DRAIN (AREA OF WORK)
---	WATERSHED BOUNDARY
---	CONSTRUCTION ACCESS
---	PROPOSED CATCH BASIN OR JUNCTION BOX
●	PROPOSED MANHOLE
● B.M. 1 ELEV.=100.00	BENCHMARK No.
● B.M. 1 ELEV.=50.00	BENCHMARK ELEVATION

1.	ON-SITE MEETING	2022-04-04	DEL
No.	ISSUES AND REVISIONS	DATE	BY

DRAFT

MAY 31, 2022

PROJECT: PICKERING MUNICIPAL DRAIN 2022

DRAWING: PLAN

DIETRICH ENGINEERING LIMITED
CONSULTING ENGINEERS
10 Alpine Court, Kitchener, ON, N2E 2M7

PROJ. MGR: W.J.D	DESIGNED BY: W.J.D	DRAWN BY: K.M	CHECKED BY: W.J.D
DRAWING SCALE: AS NOTED	DATE: May 31, 2022	PROJECT No. 2205	DRAWING No. 1 of 2

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NOTES:

BENCHMARK No. 1 ELEV.=100.00
TOP OF EXISTING 900MM DIA. CMP WEST END AT STATION 0+000

LEGEND:

DRAIN NAME → EXISTING MUNICIPAL DRAIN
--- INTERIOR/EXTERIOR WATERSHED BOUNDARY
--- PROPERTY BOUNDARY
--- LOT OR CONCESSION BOUNDARY
--- TOWNSHIP BOUNDARY

□ EXISTING CATCH BASIN OR JUNCTION BOX
○ EXISTING MANHOLE

DRAIN NAME → MUNICIPAL DRAIN (AREA OF WORK)
--- WATERSHED BOUNDARY
--- CONSTRUCTION ACCESS
--- PROPOSED CATCH BASIN OR JUNCTION BOX
--- PROPOSED MANHOLE

BENCHMARK LOCATION: B.M. 1 ELEV. = 50.00
← BENCHMARK No.
← BENCHMARK ELEVATION

1.	ON-SITE MEETING	2022-04-04	DEL
No.	ISSUES AND REVISIONS	DATE	BY

DRAFT

MAY 31, 2022

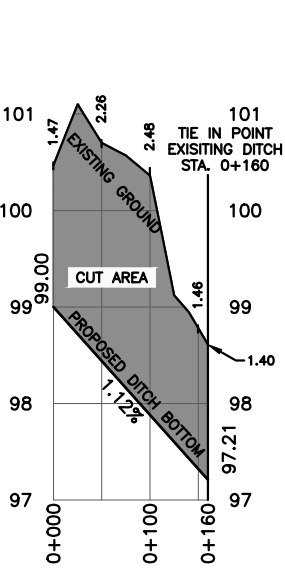
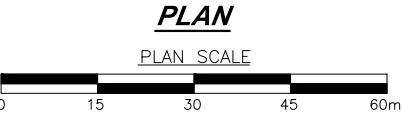
PROJECT: PICKERING MUNICIPAL DRAIN 2022

DRAWING: **PLAN & PROFILE**

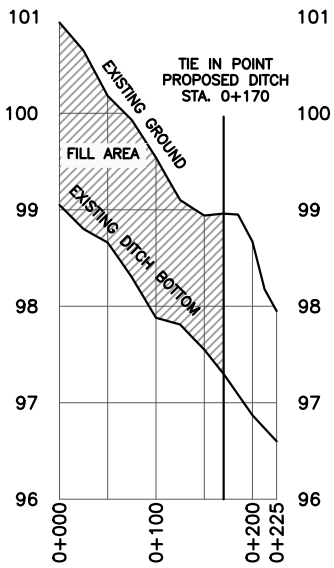
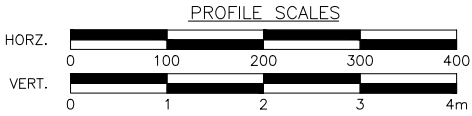
DIETRICH ENGINEERING LIMITED
CONSULTING ENGINEERS

10 Alpine Court, Kitchener, ON, N2E 2M7

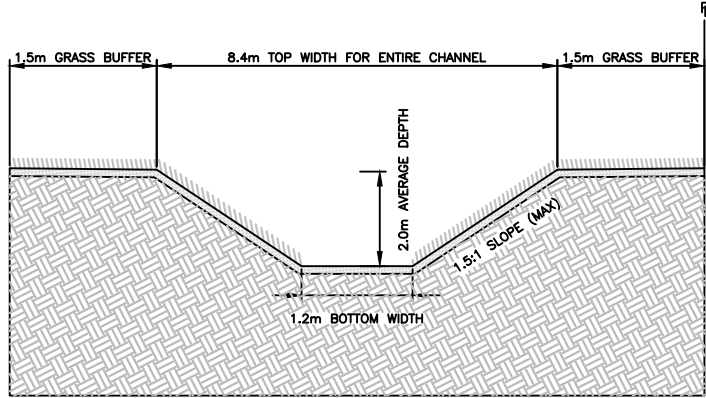
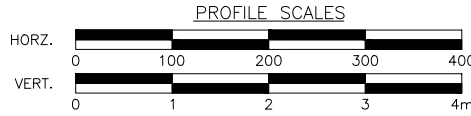
PROJ. MGR:	W.J.D	DESIGNED BY:	W.J.D	DRAWN BY:	K.M	CHECKED BY:	W.J.D
DRAWING SCALE:	AS NOTED	DATE:	May 31, 2022	PROJECT No.	2205	DRAWING No.	2 of 2



PROPOSED DITCH PROFILE



EXISTING DITCH PROFILE



CROSS-SECTION OF NEW CHANNEL

SCALE: 1:50

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