

April 15, 2024

The Town of Plympton-Wyoming
546 Niagara Street
Wyoming, ON
N0N 1T0

Re: Montgomery Drain – Perry and Harrison Branch Drains

Introduction

In accordance with your instructions, M. Gerrits Consulting Inc. has undertaken an examination of the Montgomery Drain, with respect to incorporating the Michigan Line drain crossings, that service the Perry lands and the Harrison lands. The work is located in Part of Lot 2, Concession 7, within the Town of Plympton-Wyoming.

Authorization Under the Drainage Act

This Engineer's Report has been prepared, under Section 4 (1b) of the Drainage Act, as per the request of an affected landowner.

Existing Conditions

The Montgomery Drain is an open drain with twelve (12) branch drains. The Town of Plympton-Wyoming records indicate, that the Montgomery Drain has been improved under Engineer's Reports in 1931, 1951, 1955, 1966, 1980, 2001, 2013 and 2020. The Perry lands ending with the Area Roll Number (ARN) 20-044, do not currently have an outlet to the Montgomery Drain for subsurface flows. The Harrison lands ending with the ARN 20-045 convey subsurface flows across Michigan Line, via a failing corrugated steel pipe (CSP) outlet tile. The existing Harrison tile is a private drain crossing. A new 250mm Dia High Density Polyethylene (HDPE) tile crossing Michigan Line servicing the Perry and a new 200mm Dia. HDPE tile crossing Michigan Line servicing the Harrison lands, were installed as part of the recent road reconstruction project.

Drain Classification

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Agricultural mapping indicates that the Montgomery Drain is currently classified as a class "E" drain.

On Site Meeting

A site meeting was held virtually on March 15, 2024 at 3078 Michigan Line. The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming
M. Gerrits – M. Gerrits Consulting Inc.
B. Perry – Landowner

The following is a brief summary of the meeting.

- M. Gerrits completed a brief overview of the Drainage Act, and reviewed the crossing design.
- Following the meeting, M. Gerrits contacted B. Harrison via phone and reviewed the drain.

Recommendations

It is recommended that the following work be carried out:

- Prepare a new Drain Report to incorporate the 250mm Dia. HDPE Perry Michigan Line tile crossing, Perry Branch Drain (Branch Drain 13).
- Prepare a new Drain Report to incorporate the 200mm Dia. HDPE Harrison Michigan Line tile crossing, Harrison Branch Drain (Branch Drain 14).
- Prepare maintenance specifications for the drain.

Design

Black Creek Engineering Inc. completed the detailed design of the Michigan Line drain crossings. The Michigan Line drain crossings can convey the 37.5mm/24hr drainage coefficient. The Perry Branch Drain (Branch Drain 13) is 22m in length and is a 250mm Dia. HDPE tile. The Harrison Branch Drain (Branch Drain 14) is 22m in length and is a 200mm Dia. HDPE tile.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of \$33,930, which includes engineering fees and inspection during construction.

A watershed plan has been prepared by M. Gerrits Consulting Inc., showing the location of the work and the approximate drainage area. A profile has been prepared by Black Creek Engineering Inc. for the Montgomery Drain – Perry and Harrison Branch Drains.

Assessment

As per Section 21 of the Drainage Act, a Schedule of Assessment for the lands and roads affected by the Montgomery Drain – Perry and Harrison Branch Drains, has been prepared.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works, may be assessed for benefit (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet. The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow, may be assessed for injuring liability with respect to a drainage works to relieve the injury so caused to such other land or road (Section 23).

The Engineer may assess for special benefit, any lands for which special benefits have been provided by the drainage works (Section 24).

A Schedule of Assessment for the lands and roads affected by Montgomery Drain – Perry and Harrison Branch Drains, has been prepared as per the Drainage Act. Assessments may be made against any Public Utility or Road Authority, as per Section 26 of the Drainage Act, for any increased cost for locating, special backfill or construction, or for the removal or relocation of any of its facilities or plants that may be necessary for the construction or maintenance of the drainage works. Items to be assessed under Section 26 shall be tendered separately, and the Utility or Road Authority shall be assessed the actual construction costs, plus the associated overhead and engineering costs (25% of the construction costs).

Table 1 - Public Utility/Road Authority Assessments under Section 26

Description	Quantity	Unit	Fixed Price (\$)	Estimated Price (\$/m)	Special Benefit Price (\$/m)	Total	Engineering, & Overhead (25%) (\$)	Net H.S.T. (\$)	Total Special Benefit (\$)
Perry Branch Drain (Branch Drain 13)									
Town of Plympton-Wyoming	1	LS		250.00	250	250	63	6	319
Town of Plympton-Wyoming	1	LS		600	600	600	150	13	763
Town of Plympton-Wyoming	1	LS	\$3,903	11877	7974	7974	1994	175	10143
									\$ 11,225
Harrison Branch Drain (Branch Drain 14)									
Town of Plympton-Wyoming	1	LS		500.00	250	250	63	6	319
Town of Plympton-Wyoming	1	LS		1200	600	600	150	13	763
Town of Plympton-Wyoming	1.00	LS	\$3,464	10639	7175	7175	1794	158	9127
									\$ 10,209

The estimated cost of the drainage works has been assessed in the following manner:

1. A connection benefit assessment of \$3,662 has been assessed to the agricultural landowner on each of the branch drains.
2. The remainder of the drain has generally been assessed as an outlet assessment to upstream properties, based on equivalent hectares.
3. The additional cost to work within the road allowance, has been assessed as a Section 26 assessment to the affected road authority and utilities.

Allowances

Under Section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land, that it is necessary to use for the construction or improvement of a drainage works, or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way. Section 29 allowances will not be provided under this report, since the work includes constructing a drain within existing road allowances.

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages. Section 30 allowances will not be provided under this report, since the work includes constructing a drain within existing road allowances.

Under Section 31 of the Drainage Act, where an existing drain or tile that was not constructed on requisition or petition under this Act or any predecessor of this Act is incorporated in whole or in part in a drainage works. Section 31 allowances will be provided to the Town of Plympton-Wyoming under this report. Section 31 allowances are \$25,066, and are based on the actual construction costs.

Conc.	Lot or Part	Roll No.	Owner	Section 29 (\$)	Section 30 (\$)	Section 31 (\$)	Total (\$)
Perry Branch Drain (Branch Drain 13)							
<u>Public Lands</u>							
	Michigan Line		Town of Plympton-Wyoming	-	-	12,727	12,727
Harrison Branch Drain (Branch Drain 14)							
<u>Public Lands</u>							
	Michigan Line		Town of Plympton-Wyoming	-	-	12,339.00	12,339
			Total Allowances	\$0	\$0		\$25,066

Access and Working Area

Access to the work site shall be gained from the Michigan Line, road allowance.

Restrictions

No trees may be planted within 15m of the drainage works. If planted trees interfere with the drainage work, access, or other maintenance activities, they shall be removed at the expense of the landowner. Permanent structures are not to be erected within 10m on either side of the drainage works.

Agricultural Grant

Under Section 85 of the Drainage Act, a grant may be available for assessments against privately owned parcels of land, which are used for agricultural purposes, and are eligible for the Farm Property Class Tax Rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of this drain.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained by the Town of Plympton-Wyoming, under the provisions of the Drainage Act as outlined below:

- The Perry Branch Drain (Branch Drain 13) between Station 13+000 and Station 13+022 - 65% of the costs applied as a benefit assessment to the road authority, and the remainder assessed as an outlet assessment to upstream lands, based on equivalent hectares.
- The Harrison Branch Drain (Branch Drain 14) between Station 14+000 and Station 14+022 - 65% of the costs applied as a benefit assessment to the road authority, and the remainder assessed as an outlet assessment to upstream lands, based on equivalent hectares.

All of the above is submitted for your consideration.

Yours truly,

M.R.M. Gerrits
APR 15, 2024
2024-013



Michael Gerrits, P. Eng.
M. Gerrits Consulting Inc.

Montgomery Drain – Perry and Harrison Branch Drains
Town of Plympton-Wyoming
April 15, 2024

ESTIMATE OF COST

	Quantity	Unit	Unit Price	Total
<u>Perry Branch Drain (Branch Drain 13)</u>				
1 Provide private utility locates	0.5	L.S.	500	250
2 Mobilization / De-mobilization	0.5	L.S.	1500	750
3 Daylight existing watermain	0.5	L.S.	1200	600
4 Excavate & salvage existing mixed granular road base	13	cu.m	27	351
5 Supply & install 22m of 250mm ø HDPE (320kPa, dual wall)	1	L.S.	7832	7832
6 Supply & install Granular 'B' - Type 2 backfill through road	62	t	30	1860
7 Place & compact salvaged granular road base	13	cu.m	27	351
8 Supply & place rip rap end treatment	1.1	t	211	233
9 Restore boulevard including seeding and straw mulch	1	L.S.	500	500
			Sub Total	12727
			Engineering	3755
			Certification and Final Assessment Table	100
			Inspection	750
			Net HST	224
			Total Estimate Perry Branch Drain (Branch Drain 13)	17556
<u>Harrison Branch Drain (Branch Drain 14)</u>				
10 Provide private utility locates	0.5	L.S.	500	250
11 Mobilization / De-mobilization	0.5	L.S.	1500	750
12 Daylight existing watermain	0.5	L.S.	1200	600
13 Excavate & salvage existing mixed granular road base	13	cu.m	27	351
14 Supply & install 22m of 200mm ø HDPE (320kPa, dual wall)	1	L.S.	7832	7832
15 Supply & install Granular 'B' - Type 2 backfill through road	50.5	t	30	1515
16 Place & compact salvaged granular road base	13	cu.m	27	351
17 Supply & place rip rap end treatment	0.9	t	211	190
18 Restore boulevard including seeding and straw mulch	1	L.S.	500	500
			Sub Total	12339
			Engineering	2968
			Certification and Final Assessment Table	100
			Inspection	750
			Net HST	217
			Total Estimate Harrison Branch Drain (Branch Drain 14)	16374
			Total Estimate Perry and Harrison Branch Drains (Branch Drains 13 & 14)	\$ 33,930

Montgomery Drain – Perry and Harrison Branch Drains
 Town of Plympton-Wyoming
 April 15, 2024

SCHEDULE OF ASSESSMENT

Montgomery Drain – Perry Branch Drain (Branch Drain 13)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha.
<u>Agricultural Lands</u>									
7	Pt Lot 2	1.9	340-020-044	2401056 Ontario Inc.	-	3,511	2,820	6,331	1.90
					\$0	\$3,511	\$2,820	\$6,331	
				Total Special Benefit	-				
				Total Benefit	3,511				
				Total Outlet	2,820				
				Total - Agricultural Lands	\$6,331				
<u>Public Lands</u>									
	Michigan Line			Town of Plympton-Wyoming	11,225	-	-	11,225	
					\$11,225	\$0	\$0	\$11,225	
				Total Special Benefit	11,225				
				Total Benefit	-				
				Total Outlet	-				
				Total - Public Lands	\$11,225				
				Total - Agricultural Lands	6,331				
				Total - Public Lands	11,225				
				Total Assessment	17,556				

Montgomery Drain – Perry and Harrison Branch Drains
 Town of Plympton-Wyoming
 April 15, 2024

SCHEDULE OF ASSESSMENT

Montgomery Drain – Harrison Branch Drain (Branch Drain 14)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha.
<u>Agricultural Lands</u>									
7	Pt Lot 2	1.9	340-020-045	B. Harrison	-	3,511	2,654	6,165	1.90
					\$0	\$3,511	\$2,654	\$6,165	
				Total Special Benefit	-				
				Total Benefit	3,511				
				Total Outlet	2,654				
				Total - Agricultural Lands	\$6,165				
<u>Public Lands</u>									
	Michigan Line			Town of Plympton-Wyoming	10,209	-	-	10,209	0.68
					\$10,209	\$0	\$0	\$10,209	
				Total Special Benefit	10,209				
				Total Benefit	-				
				Total Outlet	-				
				Total - Public Lands	\$10,209				
				Total - Agricultural Lands	6,165				
				Total - Public Lands	10,209				
				Total Assessment	16,374				

Montgomery Drain – Perry and Harrison Branch Drains
Town of Plympton-Wyoming
April 15, 2024

SPECIFICATION OF WORK

The specifications included in this report are to be read in conjunction with the appended “Michigan Line Reconstruction – 2023, Montgomery Drain – Perry and Harrison Branches Special Provisions” prepared by Black Creek Engineering Inc.

1. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination of the local conditions that may be encountered during this project. The Contractor shall make allowances in their tender for any difficulties which they may encounter. Quantities, or any information supplied by the Engineer, is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications but in no way decrease the proposed capacity of the drain.

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

2. Plans and Specifications

These specifications shall apply and be a part of the Contract, along with the Michigan Line Reconstruction – 2023, Montgomery Drain – Perry and Harrison Branches Special Provisions prepared by Black Creek Engineering Inc, General Specifications for Closed Drains and the General Specifications for Open Drains. Any work not described in these specifications, shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

3. Health and Safety

At all times, the Contractor shall be responsible for health and safety on the worksite, which includes ensuring that all employees wear suitable personal protective equipment.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act, to ensure that the work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance may 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 are supplied to all employees.

4. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by the Contractor's benefits. The WSIB Clearance Certificate must be furnished prior to the execution of the Contract, and updated every 90 days.

5. Benchmarks

The benchmark location is identified on the Black Creek Engineering Inc. Drawing DET2.

6. Access and Working Area

Access to the work site shall be gained from the Michigan Line, road allowance.

TOWN OF PLYMPTON-WYOMING

MICHIGAN LINE RECONSTRUCTION - 2023

Montgomery Drain – Perry & Harrison Branches

SPECIAL PROVISIONS

TOWN OF PLYMPTON-WYOMING

MICHIGAN LINE RECONSTRUCTION – 2023: MONTGOMERY DRAIN – PERRY & HARRISON

BRANCH DRAINS

SPECIAL PROVISIONS

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TOWN OF PLYMPTON-WYOMING

MICHIGAN LINE RECONSTRUCTION – 2023: MONTGOMERY DRAIN – PERRY & HARRISON BRANCH DRAINS

SPECIAL PROVISIONS

5.1 GENERAL

These Special Provisions shall apply and be part of the Contract and shall take precedence over all Plans, Specifications and General Conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, materials and supervision necessary to complete the work as shown in the Plans and described in the Specifications.

The work shall be carried out in accordance with the appropriate Ontario Provincial Standard Specifications except as altered herein. The Municipality reserves the right to delete all or portions of the work. The work will include:

- Daylighting
- Salvage existing road base
- Private drain crossings
- Granular backfill
- Road restoration
- Rip rap end treatment
- Restoration

All materials shall become the property of the Contractor. All debris, materials from the removals not incorporated in the new work shall be removed from the site. The Contractor shall note that asphalt must be deposited at a licensed site and a copy of the licence shall be provided by the Contractor before the start of removals.

The Contractor shall take care during any operation to carry out mitigating measures to minimize erosion sedimentation and migration at the site.

The Contractor shall adhere to all requirements of the approvals issued for the proposed work.

5.2 LIST OF DRAWINGS

Michigan Line Reconstruction – 2023: Sheet DET2 – Montgomery Drain – Perry & Harrison Branch Drains

5.3 **ONTARIO PROVINCIAL STANDARDS**

Standard Specifications of the Ontario Provincial Standard Specifications as listed within these Specifications or elsewhere referred to in these Contract Documents shall apply and shall form part of the Contract except that in this case, the Owner is the Town of Plympton-Wyoming hence any reference in the above Forms to the Ministry of Transportation of Ontario shall mean the Town and reference to the Engineer shall mean the Engineer authorized by the Town of Plympton-Wyoming to act on its behalf.

5.4 **ONTARIO PROVINCIAL STANDARD DRAWINGS**

Standard Drawings of the Ontario Provincial Standard Drawings as listed within these Specifications or elsewhere referred to in these Contract Documents shall apply and shall form part of the Contract.

5.5 **TICKETS SUPPLIED BY CONTRACTOR**

Tickets shall be supplied by the Contractor and the following information shall be printed on each ticket:

- 1) Truck and Trailer Number
- 2) Ticket Number
- 3) Gross Weight
- 4) Tare Weight
- 5) Net Weight
- 6) Time and Date of Transaction
- 7) Owner
- 8) Contract Number

5.6 **ACCESS TO PROPERTY**

The Contractor shall ensure that access to properties is restored at the end of each day.

5.7 **LAYDOWN AREA**

The Contractor shall be responsible for making arrangements for a lay-down area, if necessary. Upon the completion of the work, the lay-down area shall be restored and the Contractor shall provide written documentation to the Town of Plympton-Wyoming from the landowner that the restoration is to their satisfaction.

5.8 **GEOTECHNICAL REPORT**

The Municipality and Engineer have conducted test holes at the locations indicated on the plans. It was determined that 200-250mm of mixed granular material of suitable quality was present and is to be salvaged and re-used as road base.

5.9 **HAUL ROUTE**

Loaded trucks shall access the site from/egress the site to Mandaumin Road (County Road 26).

Empty trucks may egress the site to/access the site from London Line (County Road 22) via Camlachie Road. Under no circumstances shall trucks utilize Camlachie Road through the community of Camlachie.

5.10 **PRIVATE LANDS**

The Contractor shall not enter upon or occupy with workers, tools, equipment or materials of any nature, any lands outside of the public streets and roadways and the right of way shown on the Plans, except after consent has been received by him from the proper parties, a certified copy of which shall have been furnished to the Municipality.

Any damage to private property as a result of the Contractor's operations shall be the responsibility of the Contractor and repair costs in connection therewith shall be chargeable to the Contractor.

When private land is used or damaged by the Contractor, the Municipality requires that the Contractor obtain and forward to the Municipality a form of release which releases the Municipality from all future claims and which is signed by the owner of the private land.

5.11 **PRIVATE UTILITY LOCATES**

GENERAL

This item includes all expenses incurred by the Contractor to obtain private utility locates.

PAYMENT

Payment will be at the Contract Lump Sum Price and shall be compensation in full for all costs involved in obtaining private utility locates, complete.

5.12 **MOBILIZATION AND DEMOBILIZATION**

GENERAL

This item includes all expenses incurred by the Contractor for mobilization and demobilization at the jobsite of offices, stores, conveniences and other temporary facilities required to complete the work in a safe manner along with all required signs, barriers, lights and equipment in and around the work site, in accordance with these specifications. The Contractor shall also obtain all locates and comply with all requirements of any crossing agreements or permits issued for this project.

PAYMENT

Payment will be at the Contract Lump Sum Price and shall be compensation in full for all costs involved in mobilization and demobilization and all other costs incurred for construction signing and maintaining the construction site in a safe manner. The Lump

Sum Price entered for this item shall not exceed ten percent (10%) of the Total Tender Price. Sixty percent (60%) of the price for mobilization and demobilization shall be considered as relating to mobilization and the balance to demobilization.

5.13 **DAYLIGHT EXISTING WATERMAIN**

GENERAL

The Contractor shall supply all labour and equipment to excavate to daylight the existing watermain.

EXECUTION

The Contractor shall excavate by hydro-vac unit to confirm the elevation of the top of the existing watermain.

PAYMENT

Payment at the contract price for the above item shall be full compensation for all labour, material and equipment to excavate to daylight the existing watermain, complete.

5.14 **ROAD BASE EXCAVATION**

GENERAL

The Contractor shall be responsible for the supply of all labour and equipment to excavate and salvage the existing mixed-granular road base. All work shall conform to OPSS 510 (MUNI).

EXECUTION

The existing road base shall be excavated and salvaged for later replacement.

PAYMENT

Measurement for the excavation and salvaging of the existing road base material shall be in cubic metres, based on measurements taken by the Engineer during the excavation operations. Payment at the contract price for the above item shall be full compensation for all labour and equipment to excavate and salvage the existing road base material, complete.

5.15 **PRIVATE DRAIN CROSSING**

GENERAL

The Contractor shall be responsible for supplying all materials, labour and equipment to install private drain crossings to the lines and grades shown on the drawings. All work under this item shall conform to OPSS 421 (MUNI).

MATERIALS

HDPE pipe shall be 320kPa double wall pipe complete with gasketed bell & spigot joints (watertight).

Pipe bedding and cover (to 300mm above the top of the pipe) and backfill shall be a sandy material that complies with all the requirements for granular "B", Type I as detailed by OPSS

1010 (MUNI) except that 100% of the material shall pass the 9.5mm (3/8") sieve. Pipe bedding shall comply with OPSD 802.010 for flexible pipe. Recycled road base shall not be used for pipe bedding, cover or backfill.

EXECUTION

The Contractor shall supply all labour equipment and material to install private drain crossings, as shown on the drawings, including all necessary removal, disposal of existing materials and reconnection to existing drains.

Cover material shall be compacted in 100mm lifts to a minimum of 300mm above the top of the pipe. Granular backfill shall extend to the level of the subgrade. Cover material and backfill shall be compacted to 98% of the maximum dry density.

Trench ends shall be capped with 600mm of clay.

All excavated material not incorporated into the work shall be disposed of off-site by the Contractor.

PAYMENT

Payment at the contract price for the above item shall be full compensation for all labour, equipment and material required to install private drain crossings, complete.

5.16 **GRANULAR BACKFILL**

GENERAL

The Contractor shall provide all labour and equipment to place and compact granular backfill. All work shall conform to OPSS 314.

MATERIAL

Granular backfill material shall be Granular 'B' – Type II, produced from 100% crushed dolomite, as per OPSS 1001 & OPSS 1010 (MUNI).

EXECUTION

The Contractor shall place, shape and compact the granular material across the entire width of the proposed road.

Granular backfill shall be placed in maximum 150mm lifts and compacted to 100% of maximum dry density of the granular sub-base.

The Contractor shall supply water, as required to achieve the required compaction.

PAYMENT

Measurement for granular backfill shall be by the metric tonne. Daily weight tickets shall be available to the Engineer at the end of each day. Payment at the contract price for the above item shall be full compensation for all labour and equipment to supply, place and compact the proposed granular backfill, complete.

5.17 **ROAD BASE & SHOULDERING**

GENERAL

The Contractor shall be responsible for supplying, placing and compacting the salvaged granular road base and shouldering. All work shall conform to OPSS 314 (MUNI).

EXECUTION

The Contractor shall place, grade and compact the salvaged granular road base to restore the road profile and shoulders to that shown on the drawings.

All granular base shall be compacted to 100% of maximum dry density. The Contractor shall supply water, as required to achieve the required compaction of the granular base and shouldering.

The cross fall on roadways shall be 3% on the travelled portion and 6% on the shoulder portion.

PAYMENT

Measurement for granular road base shall be by the cubic metre. Payment at the contract price for the above item shall be full compensation for all labour, material and equipment to place, grade and compact the salvaged road base and shouldering, complete.

5.18 **CULVERT END TREATMENT**

GENERAL

The Contractor shall supply all labour, equipment and material to place rip rap culvert end treatments. All work under this item shall conform to OPSS 511 (MUNI).

MATERIAL

Rock for erosion protection shall be 100-200mm diameter rip rap stone. Under no circumstances shall broken concrete be used.

Geotextile underlay shall be Terrafix 270R or approved equal.

EXECUTION

The Contractor shall supply and place a 300mm thick layer of 100-200mm diameter rip rap at the ends of the proposed culvert replacement(s). The rip rap shall be placed in a neat and workman like manner.

A layer of geotextile shall be placed on the end slopes prior to installing rip rap.

PAYMENT

Measurement for the rip rap will be made in metric tonnes at the actual number of metric tonnes of rip rap delivered to the site as determined by the Engineer from material weigh tickets. Payment for this item shall be for full compensation for all required materials, labour and equipment to complete the work as described herein including geotextile, complete.

5.19 **RESTORATION**

GENERAL

The Contractor shall be responsible for restoring the site to the limits as specified herein. All work shall conform to OPSS 802 (MUNI) and OPSS 804 (MUNI).

MATERIALS

Topsoil is to be stripped, stockpiled and re-used in any areas to be disturbed.

EXECUTION

All grassed areas shall be restored with a minimum of 100mm of topsoil and shall be seeded including straw mulch.

Select salvaged topsoil shall be worked into all disturbed and regraded areas at a minimum depth of 100 mm and shall be seeded. The seed shall consist of a mixture of creeping red fescue-55%, Kentucky blue grass-25%, and 20% perennial ryegrass. Fertilizer shall be 8-32-16, nitrogen, phosphorus and potassium. The application rates shall be 100 kg/Ha. for seed and 350kg/Ha. for fertilizer. All areas shall be restored to equal or better condition.

PAYMENT

Payment at the contract price for the above item shall be full compensation for all labour, material and equipment to restore the site including topsoil and seeding, complete.

GENERAL NOTES

- REFER TO BLACK CREEK ENGINEERING INC. DRAWING DET2 DATED AUGUST 14, 2023 FOR BRANCH DRAIN SPECIFICATIONS AND DETAILS.



LOT 1

LOT 2

CON. 7

MANDAUMIN ROAD

MICHIGAN LINE

0+321

MONTGOMERY DRAIN

PERRY BRANCH DRAIN
(BRANCH DRAIN 13)

HARRISON BRANCH DRAIN
(BRANCH DRAIN 14)

13+022

13+000

14+022

14+000

20-044
2401056 ONTARIO
1.90 Ha

20-045
B. HARRISON
1.90 Ha



LEGEND

- DRAINAGE AREA
- MONTGOMERY DRAIN - PERRY AND HARRISON BRANCH DRAINS
- EXISTING MONTGOMERY MUNICIPAL DRAIN

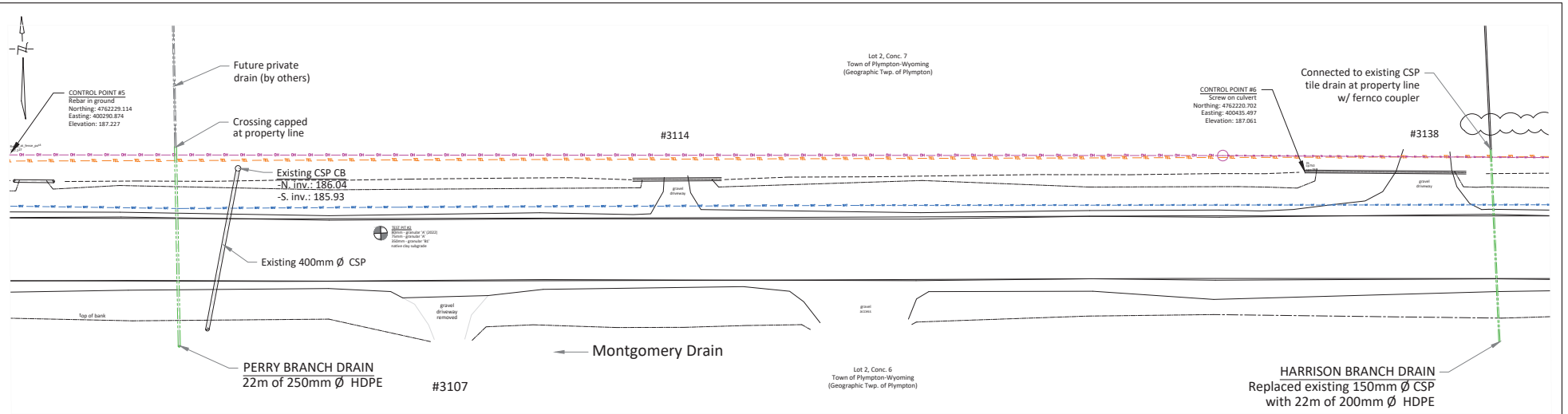


No.	REVISIONS	DATE	BY
1	FOR REPORT	APRIL 15, 2024	MG

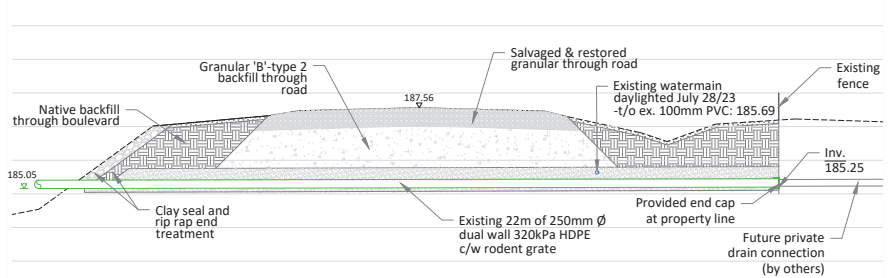
**MONTGOMERY DRAIN
PERRY AND HARRISON BRANCH DRAINS**
TOWN OF PLYMPTON-WYOMING

WATERSHED PLAN

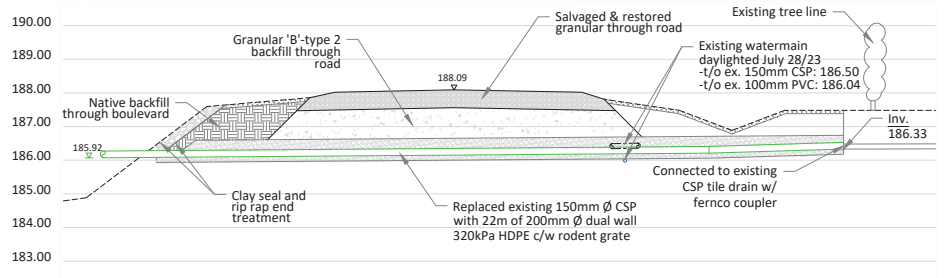
SCALE	N.T.S.
DRAWN	MG
CHECKED	EG
DATE	APRIL 15, 2024
PROJECT NO.	24-013
SHEET	1 OF 1



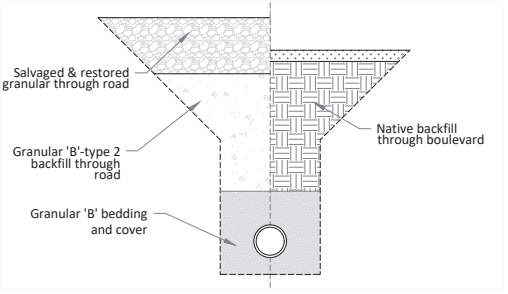
PLAN



PERRY BRANCH DRAIN PROFILE



HARRISON BRANCH DRAIN PROFILE



HALF SECTION

SURVEY	K. GRAHAM			
DESIGN	2	RECORD DRAWING	K.G.	AUG 14/23
	1	LOWERED GRADE OF HARRISON BRANCH	K.G.	AUG 3/23
DRAWN	0	FOR CONSTRUCTION	K.G.	JUL 30/23
	B	FOR CHANGE ORDER #1	K.G.	JUL 19/23
DATE	A	FOR REVIEW	K.G.	JUL 7/23
	No.	REVISION	BY	DATE

The Town Of
PLYMPTON-WYOMING
546 Niagara Street
Wyoming, Ontario
(519) 845-3939

STAMP
L. GRAHAM, JR.
Aug 14/23
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

BLACK CREEK ENGINEERING INC.
1086 Modeland Road
Building 1010, Suite 266
Sarnia, Ontario
(519) 333-5893

TOWN OF PLYMPTON-WYOMING
MICHIGAN LINE RECONSTRUCTION - 2023
MONTGOMERY DRAIN - PERRY & HARRISON BRANCH DRAINS
PLAN & PROFILE

PROJECT NO. **2044.03**
SHEET NO. **DET2**

LIST NUMBER: AUGUST 14, 2023