

Oil Mill Creek Municipal Drain Report

For The City of Port Colborne



June 20, 2024

Project No: EWB-199998

Copyright © 2024, all rights reserved

Revision and Version Tracking

Title: Oil Mill Creek Drain Report
Submission Date: June 20, 2024

Version #	Issued As:	Prepared by	QA/QC	Editor	Date:
101	Final Report Adjusted	P.Marsh	A. Vander Veen	P.Marsh	June 20, 2024 April 29, 2024
100	Final Report	P. Marsh	Grammarly	P. Marsh	Dec. 4, 2023
90	Draft Report for Comment	P. Marsh	A. Vander Veen	P. Marsh	Sept. 12, 2023
50					

FileName: 199998-OMC_DrainReport_v101.docx

Seal Page:



© 2024 EWA Engineering Inc.

The conclusions, analysis and interpretations are based on the data and information available and in the condition and accuracy provided. EWA Engineering assumes no responsibility for data provided by others and has not reviewed nor verified the data's reliability, accuracy or representation.

The information contained in this document is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared, and EWA Engineering Inc. recognizes nor accepts the duty to or accepts any responsibility to any third party who may rely upon this document.

This document may not be used for any purpose other than that provided in the contract between the Owner/Client and the Engineer, nor may any section or element of this document be removed, reproduced, electronically stored or transmitted in any form.

Table of Contents

1	Executive Summary	1
2	Introduction	3
2.1	Objective	4
3	Background	5
3.1	Drain History and Past Reports.....	5
3.2	Oil Mill Creek Drain Watershed.....	5
4	Design Considerations	8
4.1	Design Scope	8
4.2	Watershed Characterization and Use	10
4.3	Oil Mill Creek Outlet	11
4.3.1	Gate and Outlet Capacity Assessment	12
4.4	OMC West Branch.....	13
4.5	Bell Acres	14
5	Drain Works Recommendations	15
5.1	Design Criteria.....	15
5.2	Description of the Works.....	15
5.2.1	Municipal and Private Crossings.....	16
5.2.2	Drain Grade Improvements	18
5.2.2.1	West Branch Grade Line Improvements	18
5.2.2.2	E1 Branch Grade Line Improvements	19
5.2.2.3	Bell Acres Outlet SWM Controls.....	20
5.2.3	Drain Integrated Watershed Improvements.....	20
5.2.4	Utility Conflicts & Coordination.....	24
5.2.5	Plans, Profiles & Specifications	24
5.2.6	Outlet Improvements	24
5.3	Construction and Constructability.....	25
5.3.1	Vegetation Removal	25
5.3.2	Spoil Material.....	26
5.3.2.1	Contaminated Spoils.....	26
5.3.3	Revegetation.....	27
5.3.4	Private Drain Connections	27
5.4	Future Maintenance and Repair Provisions	27
5.5	Construction Summary.....	30
6	Drainage Works Financing	34
6.1	Eligible Cost of Works.....	34
6.1.1	Admin & Engineering Costs	34
6.2	Capital Construction Cost.....	35
6.3	Maintenance Costs	35
6.4	Principles of Assessment.....	35
6.4.1	Allowances:.....	40
6.4.2	Riparian versus Watershed Benefit.....	41
6.4.3	General Instructions to Property Owners, Road Authorities and Public Utilities	42
6.4.4	Grants.....	43
6.5	Cost, Allowance and Assessment Schedules.....	43
7	Oil Mill Creek Drain Report Conclusions	49

- Appendix A: Drainage Design Drawings; Plans, Profiles**
- Appendix B: Cost Estimates & Assessment Schedules**
- Appendix C: Supplementary Information & Documents**
- Appendix D: Specifications**
- Appendix E: Assessment Map Atlas**

Table of Contents (continued)

Figures

Figure 1 Oil Mill Creek Drain	3
Figure 2 Oil Mill Creek Drain	7
Figure 3 Lake Erie monthly mean water levels, m to IGLD 1985.....	11
Figure 4 OMC Outlet	12
Figure 5 OMC Outlet Flap Gate	13
Figure 6 Bell Acres Roadside Swale.....	15
Figure 7 West Branch Proposed Grade Improvements.....	19
Figure 8 E1 Branch Design Grade Improvement	20
Figure 9 Centennial Park Culverts Proposed Riffles and Pool.....	21
Figure 10 Centennial Park Proposed Wetland.....	22
Figure 11 Proposed Wetland Inlet/Outlet Weir	22
Figure 12 Oil Mill Creek Grade Lines to Proposed Wetland	23
Figure 13 Centennial Park Proposed Wetland Hydrograph Results	23
Figure 14 Outlet Gate Passive Flow Changes	25

Tables

Table 1 Culvert Improvements	17
Table 2 Oil Mill Creek Drain Construction Summary	30
Table 3 West Branch Drain Construction Summary.....	30
Table 4 Oil Mill Creek Drain Maintenance Construction Summary	31
Table 5 E1, E2 and E3 Branch Drain Construction Summary	32
Table 6 Oil Mill Creek Estimated Cost of Construction	35
Table 7 Section 24 Special Assessments.....	38
Table 8 Oil Mill Creek Drain Assessment Summary.....	44

This page was left blank intentionally.

1 Executive Summary

On July 23, 2018, the City of Port Colborne approved the appointment of a Drainage Engineer, Paul Marsh, P.Eng. from EWA Engineering Inc., in accordance with the Drainage Act, Chapter D.17 of the Revised Statutes of Ontario, Section 74 & 78 to prepare an Engineer's Report for the Oil Mill Creek Drain within the City of Port Colborne.

Oil Mill Creek (OMC) Drain has experienced the following issues:

- The outlet has a low grade line to a steel flap gate controlled outfall positioned at the water's edge. The outlet is flow constrained with an effective limit on the flow to Lake Erie. The flap gate is manually operated using a hand crank operated winch mounted on top of the outlet structure.
- The upper portion of the watershed has an average slope of 0.15%, with one segment at 0.46% compared to the segment just in front of the outlet pipe intake at 0.04%. This results in a relatively quick runoff to the middle of the OMC Drain and then relatively slow through the outfall.
- Past excavations and the presence of rock outcrop compromise the West Branch positive drain grade.
- The Bell Acres subdivision has a reported problem with the existing roadside swale drainage system.

These and other drainage problems were investigated, and the following is a summary list of the proposed improvements in this report.

- A. Improvements in the operation of the outfall flap gate.
- B. Updated grade line drawings.
- C. Lowered grade line for E1 for the Bell Acres subdivision.
- D. Proposed rock removal of the existing grade hump on the West Branch to create a positive grade flow path to the West Branch Drain outlet at 0+475 OMC Drain.
- E. Construction of a wetland within Centennial Park to act as a stormwater runoff storage facility to reduce the flooding impact of the OMC Drain.

In addition to these specific programmed improvements, there are additional culvert replacements, repairs, and maintenance works based on the new grade lines.

The project cost is estimated to be \$611,601.33.

The project estimate is divided into main and branch drain costs.

• Construction Management Estimated Costs	\$41,000.00
Section 78 - Proposed Improvements for Construction	
• OMC Outlet Improvements	\$27,637.50
• Oil Mill Creek Improvements 0+360 to 0+480 Centennial Wetland	\$124,515.40
• West Branch Improvements - 968m	\$69,025.00
• E1 Branch Drain Sta 0+515 to 0+880	\$11,975.00
• E1 Branch Drain Sta 0+880 to Sta 1+277	\$6,455.00
Section 74 - Maintenance Works for Construction	
• E3 Branch	\$10,145.00
• E2 Branch	\$13,300.00
• Oil Mill Creek Drain - Upper Watershed	\$39,325.00

For a total construction cost of \$343,377.90.

The proposed OMC outlet and the OMC Centennial Wetland are improvements assessed to upstream landowners as Section 23 liability on a property area and land use basis. The same assessment, Section 23 liability is used for the West Branch grade line improvements that remove rock to grade.

The maintenance works, Section 74, are assessed on a Section 23 liability basis, and the culvert replacements are based on Section 24 special benefits, with 50% of the cost assigned to the benefitting landowner and 50% of the cost assessed to the watershed except for culverts at or near the outlet. The exception to the 50/50 approach is the existing concrete culvert, O-CS-08, which is to be re-laid to the design grade. The cost for this is assessed 100% to the municipal road.

There are Section 26 assessments for utilities responsible for specific infrastructure within the drainage works.

This report and the proposed improvements are based on instructions from the City of Port Colborne and in consultation with the local landowners. The cost of these improvements is shared with property owners using calculations for allowances and assessments consistent with the Drainage Act of Ontario.

2 Introduction

The City of Port Colborne retained Paul Marsh, P.Eng of EWA Engineers Inc., to prepare a Drainage Report under the Drainage Act R.S.O. 1990 for the Oil Mill Creek Drain.

The following Figure identifies the existing drain channels.

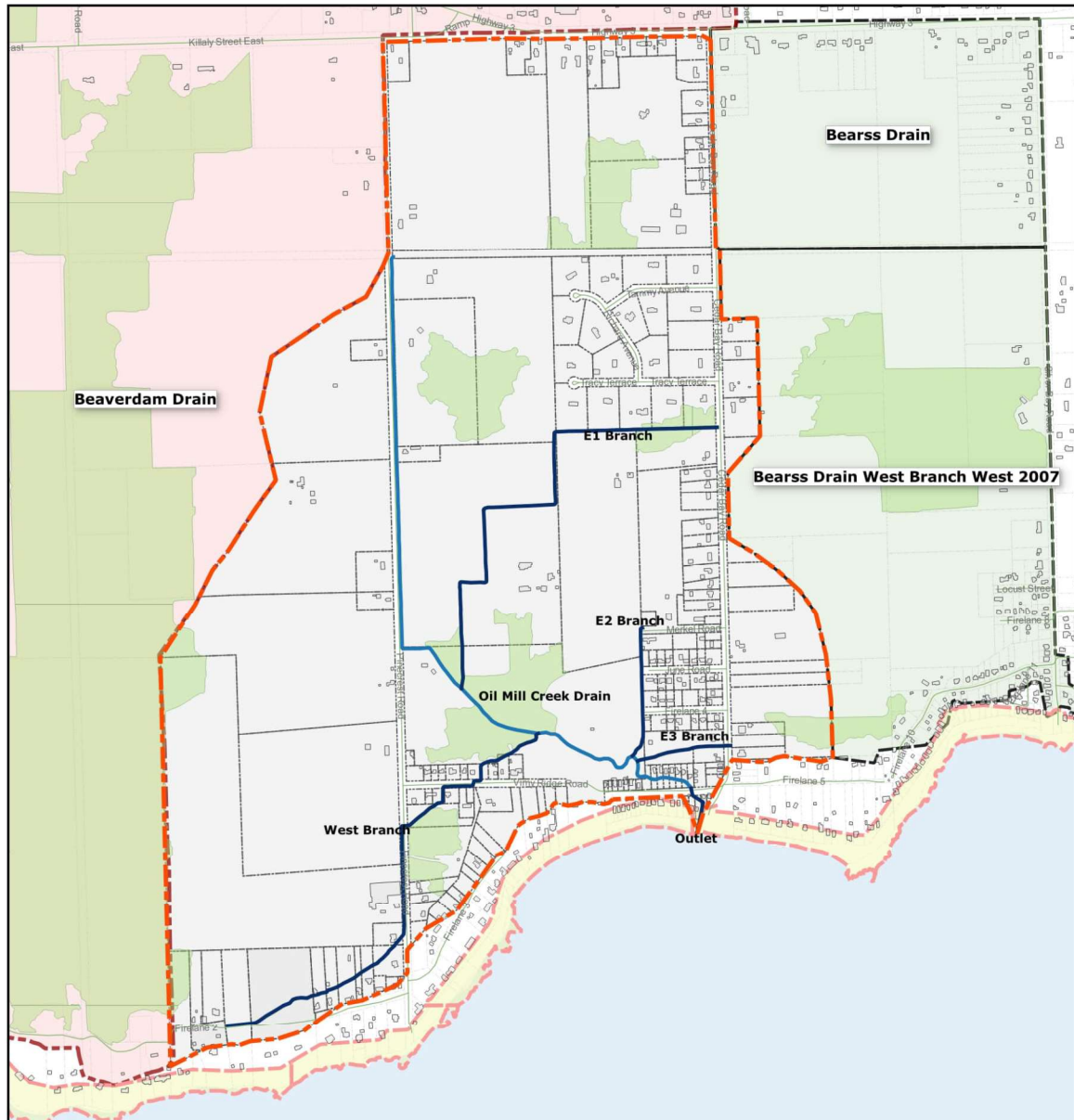


Figure 1 Oil Mill Creek Drain

This report includes a description of all work, associated plans, cost estimates, and assessment schedules for the proposed work on the existing Oil Mill Creek Drain and the proposed Branch Drains. The report has been prepared in accordance with the requirements of the Drainage Act, Chapter D.17 of the Revised Statutes of Ontario, Sections 4 and 78.

The Oil Mill Creek Drain Engineer's Report is prepared as follows:

- Baseline Drainage Report: provides an assessment of current drainage problems and identifies the extent of the drainage area to be serviced by the municipal drain. Baseline report includes a history of drainage and presents historical information such as grade lines.
- The Oil Mill Creek Watershed Assessment Report provides an assessment of existing capacity through hydrologic and hydraulic modelling, which identifies the options for resolving problems and recommends a preferred option to improve drainage.

The final Engineer's Report comprises the two previous reports, supporting documentation, final drainage cost estimates, and an assessment schedule or table.

The proposed improvement work for the Oil Mill Creek Drain is prepared as a Section 78 (1.1) of the Drainage Act. The works are described as maintenance except changes to grade lines, which are deemed required but do not require a Section 78 or 4 application of the Act.

2.1 Objective

The Oil Mill Creek Drain already exists and has for many years. The objective is maintaining the existing drains in a State of Good Repair (SOGR). Changes in land use practices have impacted the drains, and the shift from farming with row crops to significant numbers of rural residential lots affects the drains' function and purpose. The drains have been impacted by vegetation growth within the drain banks. This report addresses the growth through cleaning and clearing. This report provides a re-grading of the drain and branch drains in recognition of flow improvements.

No previously completed drainage works are included in this report.

The following were the original identified drainage services to be covered in the final report.

1. The existing outlet is working but will be reviewed for operational improvements, including a review of the existing 'j' shaped break wall structure.
2. The existing outlet includes a pump configuration with a maintenance hole for the wet well and an existing pipe for discharge. Investigate the cost vs benefit to re-instate the pump and consider a new pump station configuration.
3. The existing park located on the main branch of the drain is to be reviewed in the context of the park's relationship with the Drain. Specifically, it includes a stormwater management feature such as a pond or wetland along with a re-alignment of the existing swales to make improvements by increasing the available flow volumes for more significant precipitation events.

4. Ensure that the catchment boundaries between adjacent drains are consistent.
5. Investigate additional service capabilities to the Richard Avenue, Tammy Avenue and Tracey Terrace area called Bell Acres.
6. Review existing service to Merkel Rd., June Rd. and Firelane 4.
7. Review the structural (current condition) and capacity of culverts.
8. There was a past drawing to introduce a second outlet for the West Branch down Pinecrest Rd. However, this work does not appear to have progressed to a report. Review the cost benefit of a second outlet on Pinecrest Rd.
9. Investigate the benefits vs costs of a second outlet at or near 2685 Vimy Ridge Rd. This location would be protected from storms as it is on the back side of the point.

3 Background

3.1 Drain History and Past Reports

The earliest record of works related to the Oil Mill Creek Drain is 1888 with a report to extend the Drain and outlet improvement, a Report prepared by Geo. Ross. Up to the most recent report prepared in 1999, by K.Smart. This report included a Court of Revision and a Drainage Tribunal. The Tribunal's findings were reassessments. See file 2000onafraat30.pdf, which is included in the Baseline Report.

3.2 Oil Mill Creek Drain Watershed

The Oil Mill Creek Drain serves an area of 255.7 hectares based on the defined drain boundary. The main branch of the drain is 2,008m in length from the drain origin, defined as the south side of the Friendship Trail to the outlet into Lake Erie.

The watershed boundary is south of Highway 3 with a high point midway between Pinecrest Rd and Cedar Bay Rd, which is 182m. The outlet at the lake varies with the change in Lake Levels, but the recorded average lake level is 174.15 IGLD.

- Watershed average fall (slope) is given as 0.27% or 2.7m per 1000m
- Drain average fall (slope) is given as 0.13% or 1.3m per 1000m

This slope characterizes the Oil Mill Creek drain as a low slope or slow watershed.

The lower portion of the drain is highly influenced by Lake Erie's water elevation with a littoral sand beach influenced outlet that has a specially constructed outlet including a J-shaped break wall.

The Oil Mill Creek drain can be segregated into several distinct geographic areas as follows:

- E1 Branch
- E2 and E3 Branches
- West Branch
- Oil Mill Creek Drain

These five zones are described in more detail as follows.

Oil Mill Creek E1 Branch

E1 is 1277m long and with an overall grade of 0.23%. It's been over dug from the original RVA profile in several places.

Oil Mill Creek E2 & E3 Branches

E2 was lowered from its original intended profile mostly at the outlet as expected, creating a considerable grade back to Merkel Rd (original grade RVA 0.44% is now 0.54%). The 325m Drain has an overall grade of 0.54%, making it the steepest portion of the Oil Mill Creek drain segments.

E3 is 223m long with an overall grade of 0.22%, corresponding to 2.2m over 1000m of fall. The survey recorded significant ponded or still water with a culvert submerged.

Oil Mill Creek West Branch

The West Branch has a shallow grade profile over its 1265m of length, making it one of the poorer functioning portions of the Oil Mill Creek. The overall grade is 0.05% or 0.5m per 1000m.

Oil Mill Creek Drain

By design, the Oil Mill Creek Drain has a very low grade in the first 600m of the drain, roughly to the point of confluence with the West Branch outlet. From the point adjacent to Pinecrest Road, there is an improved grade line to the Friendship Trail.

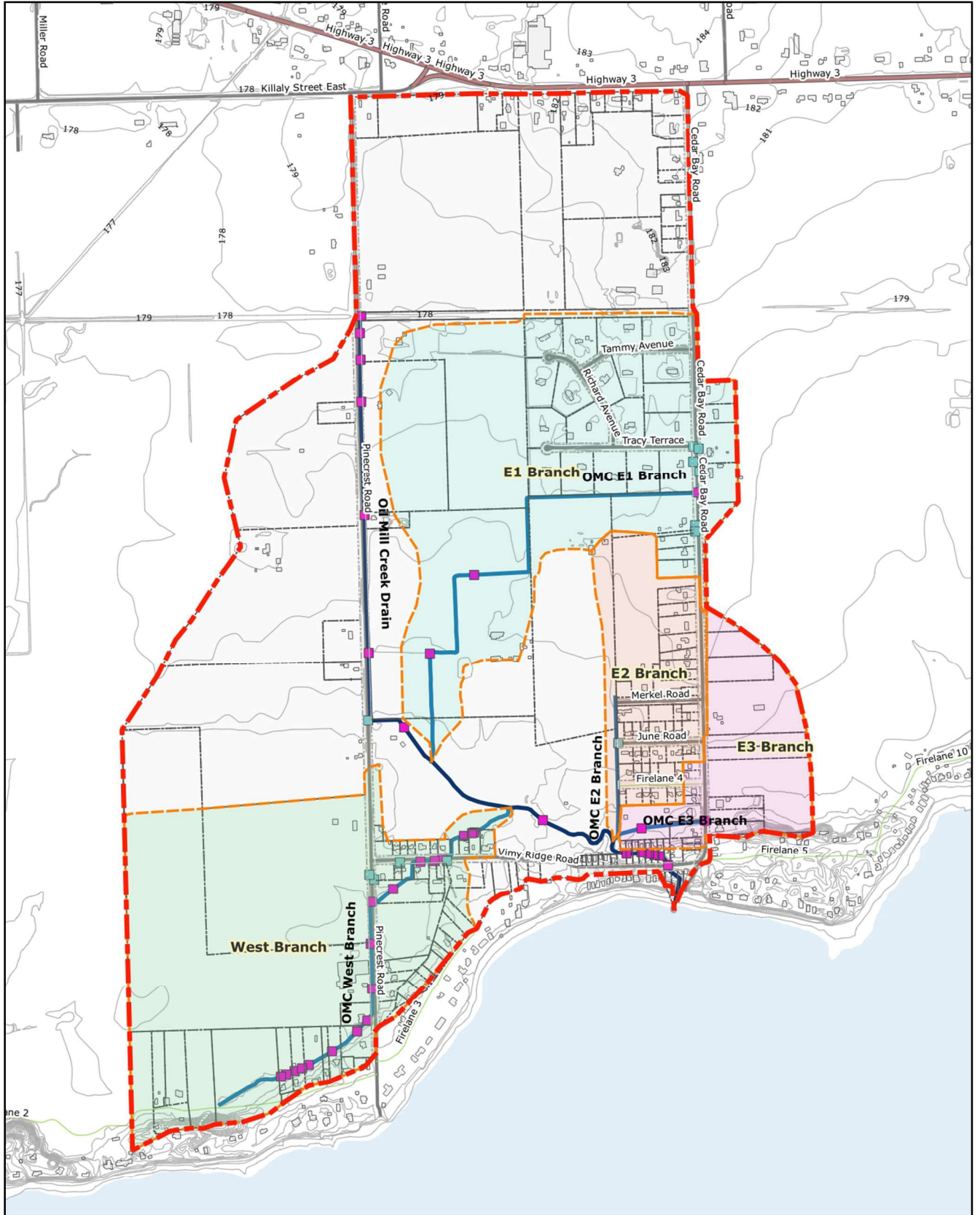


Figure 2 Oil Mill Creek Drain

4 Design Considerations

The Oil Mill Creek Watershed analysis is based on Hydrologic and Hydraulic analysis to predict runoff flow requirements and match channel capacity. Water monitoring and gauge measurements have not been practiced in the past; thus, calibration or validation of the computer-based model results is limited to historical anecdotal comparisons.

Included under a separate copy is the Report Titled “Oil Mill Creek Drain Watershed, Hydrology and Hydraulics Report.”

4.1 Design Scope

Review existing drains for improved maintenance where required and identify working zones and access as needed.

OMC Outlet improvements Sect. 78

- 1 Investigate design improvements to the surge/seiche control gate structure. Identify 3 options for consideration. Provide a Cost vs Benefit analysis of each and provide the final design for the preferred option.
- 2 Assess Opportunities to restore pumping. Develop preliminary design. Assess costs. Two Options to be considered:
 - #1 Restore existing but replace the discharge pipe.
 - #2 use existing wet well but replace discharge and suction pipelines. Suction line to draw from steel pipe built in 2000.
- 3 Provide improvements to the trash rack at the outlet entrance. This work was removed as the trash rack was identified as being adequate at this time.

Oil Mill Creek Main Branch as Sect. 74

Culvert improvements and Grade control 0+350 to 0+900 and to the End of the Drain (EOD) at 1+300.

West Branch STA 0+000 to 1+188 Sect 78

Survey investigation and past plan review

- Plan review indicates the use of clay as a means to level the grade line at the upstream portion of the existing Drain. Today, this past work appears compromised and no longer a functional positive grade. The rock hump causes a degraded positive slope within the West Branch outlet.

Bell Branch – Proposed STA 0+000 to 1+150

Trapezoidal channel south of the Friendship Trail

- Survey investigation and discussion with Mr. Vander Vart indicated the presence of rock along the proposed drainage pathway. The extent of rock present and the proposed grade line makes this pathway too

expensive as an option. However, using the existing connection to E1 and changing the E1 Grade line can deliver similar benefits.

Improved outlet conditions for Richard Ave, Tracey Terrace, and Tammy Ave. Three outlet connections to the existing channel are to be designed using the existing E1 Branch as the outlet.

Provide improved Grade Line to lower outlet elevation Sect 78

E1 Branch STA 0+000 to 1+278

- Review and improve grade line where possible.

E2 Branch STA 0+000 to 0+329 Sect 78

- New design grade line and improved connections to existing and proposed drainage on Merkel Rd, June Rd and Firelane 4.

E3 Branch STA 0+000 to 0+239 Sect 78

- New design grade line and culvert improvement

Merkel Branch – Possible by Petition Sect. 4

- The design review identified some options for service but determined them not to be cost-effective or otherwise difficult to implement.

Centennial Park Wetland integrated with E1 as an overflow interceptor. Sect. 78

- Incorporate existing parklands into a wetland detention basin, providing peak flow detention.

E2 overflow outlet to the proposed Centennial Wetland.

4.2 Watershed Characterization and Use

The Oil Mill Creek Drain Watershed is characterized through land use as a design consideration in the following ways:

1. Upper watershed has a barrier to overland flow south from the former CNR tracks, now the Friendship Trail. All lands north of the Friendship Trail are collected to a crossing located on the east side of Pinecrest Rd from north to south across the Friendship Trail.
2. The Oil Mill Creek is located on the edge of Pinecrest Rd with an overall grade of 0.23% and one 185m segment at 0.46%. Lands west of Pinecrest Rd are predominately row crop farms and connect through a municipal road culvert across Pinecrest Rd at station 0+905.
3. Branch E1 serves lands east of Pinecrest Rd over to Cedar Bay Rd, including the Bell Acres subdivision. With a fair grade line with south westerly orientation and rock outcrop influences in alignment, there is a mix of urban residential with row crop farmland in the upper portion and outlets to the OMC Drain through a designated wetland at station 0+705.
4. West Branch is predominately lakeshore influenced lands with a very low slope municipal drain providing service to urban properties with some row crops or farmland in the northwest portion of the catchment. The drain is influenced by a rock outcrop through the middle of the drain. The West Branch also outlets through a designated wetland.
5. E2 and E3 Branches serve urban properties west and east of Cedar Bay Rd at the south end of the catchment. Two existing outlets connect to the OMC Drain at station 0+303 for E3 and 0+322 for E2.
6. The OMC Drain outlets through a historical stream connection through the existing dune and lakeshore environment, which was converted into a concrete pipe conveyance with pumping in the 1960s and extended north of Vimy Ridge Rd in 1999 to connect to the existing box culvert crossing and providing a closed conduit over 122m of outlet. Upstream areas include urban properties and Centennial Park.

These are general descriptions of the watershed areas, and for more details, see the included maps and drawings in Appendix A.

Lake Erie Levels

In geologic time, Lake Erie levels have varied depending on glaciation and the various flow sills that have existed in and out of the Great Lakes basin. These sills have changed in elevation as landforms rebounded from the effects of glaciation. In the modern period, Lake Erie levels are dominated by flows out of Lake Huron and out of Lake Erie into the Niagara River and Welland Canal system.

The Government of Canada Fisheries & Oceans Hydrographic Service provides the following historic Lake levels based on 100+ years of monitoring data and

statistics. The values are quoted in monthly mean water levels reference to IGLD 1985.

Yearly Average	Minimum Monthly	Maximum Monthly
174.17	173.18	175.04

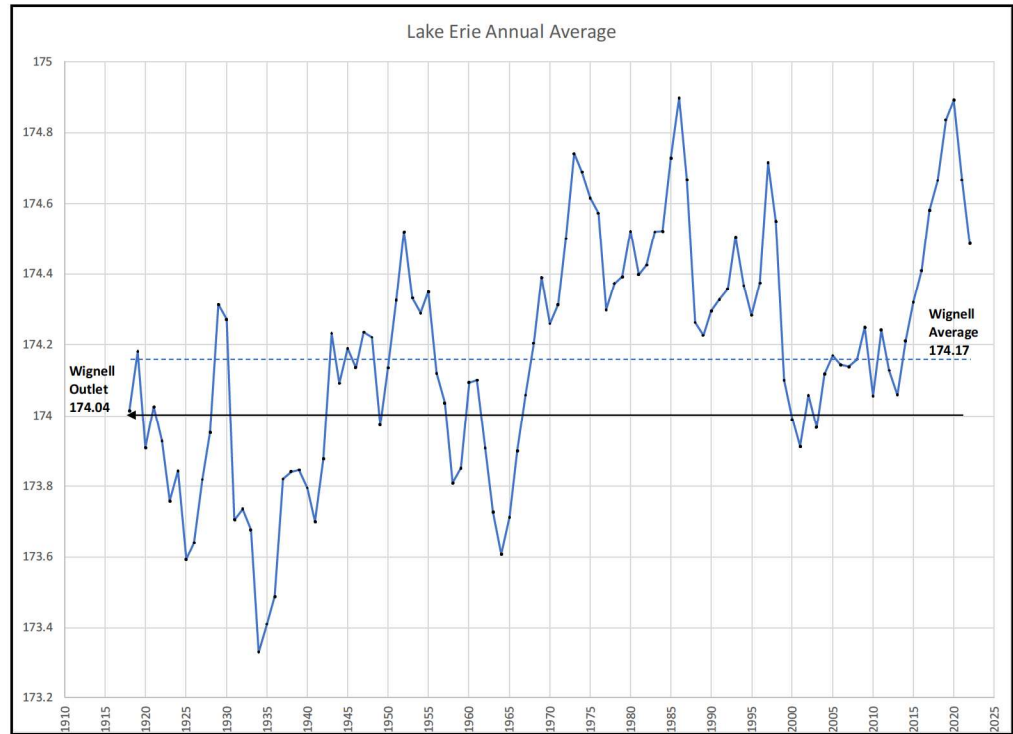


Figure 3 Lake Erie monthly mean water levels, m to IGLD 1985

The Lake Erie level influences Oil Mill Creek, and the lake continuously affects outlet flows. There are two effects from the lake;

- Flows to outlet. Once the lake level is below the outlet pipe inverts, outflow is unimpeded, but once the water surface is above the pipe invert, then the rate of flow out can still be positive but is not free flowing.
- Storm surges cause flows to run backwards up the pipe.

These effects are influenced and controlled by the outlet gate position.

4.3 Oil Mill Creek Outlet

The outlet has been composed of a piped portion for quite a long time. The piping still being used is estimated to be from the 1960s and initially commenced at the south limit of the existing properties along the outlet, conveying runoff to the lake through pipes and an outlet structure.



Figure 4 OMC Outlet

The original pumping was in place to benefit the upstream areas within the Oil Mill Creek watershed. The pump hasn't been in use for a significant amount of time, and the extension of the closed conduit portion extends past the former suction point of the pumping system another 74m upstream.

The existing steel pipe, shown in Figure 5, has significant rust, but pipe integrity is not assessed, and thus, it is not known if the discharge piping could still be used. No flap or other backflow prevention device exists on the pipe discharge outlet.

4.3.1 Gate and Outlet Capacity Assessment

The existing outlet gate is composed of three primary parts;

- A trapezoidal concrete outlet consisting of wing walls and headwall with a flat roof as cover.
- A swing grate made of steel that covers and protects the outlet.
- A top hinged steel flap gate that closes against a concrete outlet headwall to prevent high lake water surface levels from pushing flow backward.



Figure 5 OMC Outlet Flap Gate

The gate is heavy, approximately 400 kg, and open or closed using a winch with a handle mounted on the top of the concrete outlet. It is possible for the flow to push the gate open where the pressure of the flow against the gate is greater than the weight of the gate. If the winch pulls the gate open, it does not prevent the lake from flowing backwards up the drain through the outlet. The flow is only controlled if the gate is lowered into position such that it forms a seal against the concrete headwall.

4.4 OMC West Branch

The West Branch of Oil Mill Creek Drain is historically constructed with a low grade outlet at Station 0+475 Oil Mill Creek Drain. The middle of the West Branch was identified in the RVA report as having a rock outcrop, and there was work performed to lower a portion of the rock outcrop and backfilled the upstream portion with a clay liner, (see drawing in Baseline Report).

This appears to have been compromised by subsequent maintenance works or other work.

Culvert inspections identified some non-compliance capacities and structural conditions addressed by this report.

The Hydrology and Hydraulics report identified that the Branch E1 and OMC Drain upper portion, above station 0+905, have significant grade lines such that the runoff is significantly faster than the runoff from the West Branch. The Stormwater model reports the West Branch running backwards in some conditions for a short time as the peak flow from E1 and OMC arrives at the West Branch confluence before the West Branch peak.

This report introduces a new West Branch Grade Line as a Section 78 Drain Improvement. The proposed design grade line requires rock removal and culvert replacement to new design grade inverts. One culvert is to be reused and laid on the proposed grade line.

4.5 Bell Acres

The existing roadside swales and channels were investigated by surveying the existing Bell Acres subdivision. Drawings with plans and profiles to show existing grades to the outlet were composed. This showed that several humps and over-deep sections exist within the roadside swales, as well as culverts installed at incorrect elevations; however, these minor defects do not impact the overall capacity of the existing roadside drainage system. Culvert sizes to determine capacity were not analyzed. The existing rock outcrop significantly influences the design of the existing stormwater swale system.

The existing drainage along roadways within the Bell Acres subdivision will remain roadside swales. The roadway swales outlet to ditch channels that outlet to E1 Branch. These channels will not be converted to Municipal Drains as the municipality has access for maintenance activities.

A new path to the outlet following the west side of property ARN 238600 / Vander Vart was investigated to provide an improved outlet condition. The initial survey was promising, with an improved grade line to OMC, but a second survey of subsurface rock identified significant challenges with the proposed alignment. This option was stopped in favour of continuing with the E1 Branch.

The E1 Branch grade line was compromised slightly by installing twin PE culverts, E1-CS-03, at station 0+566, just above the existing grade line. E1 Branch is improved by lowering the upper portion of the grade line while maintaining the existing lower reach within the designated wetland at the same grade line.



Figure 6 Bell Acres Roadside Swale

5 Drain Works Recommendations

5.1 Design Criteria

Channel size is confirmed to be based on a 1 in 5 year return period storm, which is expressed as a design storm as follows:

- 5-year design storm with a total rainfall amount of 68.90mm using an SCS Type II 24-hour storm distribution.
- 100-year design storm with a total rainfall amount of 121.1mm using an SCS Type II 24-hour storm distribution.

The 100-year design storm is accepted as the Probable Maximum Precipitation (PMP) event for consideration of impacts.

5.2 Description of the Works

The following presents a program of proposed improvement works for the Oil Mill Creek Drain. As a program, some works are staged at various times and may not proceed in a step-by-step manner but on an as and when available basis that best meets environmental and regulatory requirements.

5.2.1 Municipal and Private Crossings

The culverts are identified for replacement for structural or capacity requirements.

O-CS-05 Friendship Trail crossing is the municipally owned culvert being replaced. All other culverts are private access crossing culverts.

The following table identifies the proposed culvert works for drain improvements.

Table 1 Culvert Improvements

Name ID	Crossing	INSP Status	Q 5yr / Q _a	P/Fail	Diam	Material	Work Description	L, m
Oil Mill Creek Drain Culverts for Improvement								
O-CS-05	FRIENDSHIP TRAIL		.93/.58	Fail	500	CSP	Replace with PE 2W 600	11.6
O-CS-12	#851 PINECREST RD. DRIVEWAY			P	600	PE	PE 600	9
O-CS-11	#851 PINECREST RD. DRIVEWAY				600	PE	PE 600	6
O-CS-10	#813 PINECREST RD. DRIVEWAY	Replaced 2023	.		900	PE	Replaced by Roads	8
O-CS-09	#745 PINECREST RD. DRIVEWAY		(.94/.90)	P	750	PE	PE 750	12
O-CS-08	#663 PINECREST RD. DRIVEWAY	PIPE REPAIR REPLACE	.94/.63	Fail	950	Concrete	Reconstruct / Relay with bedding and Joint seal.	8.6
O-CS-06	CENTENNIAL PARK CROSSING		1.9/1.9	P		CSPA Poly-coated	Twin CSPA 1600x1200	6
O-CS-03	#2876 VIMY RIDGE RD. DRIVEWAY		1.9/1.9	P		CSP	1400	
E1 Branch Culverts for Improvement								
E1-CS-01	#663 PINECREST RD. DRIVEWAY		1.52/.73	Fail	700	CSP	CSP 700	5
E1-CS-03	Private Access		1.15/.69	Fail	600	Twin PE	Re-lay on Design Grade line using existing culverts	9
E1-CS-04	CEDAR BAY RD		.22/.22	P	600	CSP	CSP 600	9
E3 Branch Culverts for Improvement								
E3-CS-01	Private Access		.27/.22	Fail	450	CSP	Replace with HDPE 2W 525	6
E3-CS-03	CEDAR BAY RD.		.27/.27	P	450	PE	PE 450	12
West Branch Culverts for Improvement								
WB-CS-04	VIMY RIDGE RD.		.7/.69	P		CSPE 900x600		12.2
WB-CS-05	#2595 VIMY RD. DRIVEWAY	REPLACE	.7/.58	Fail		CSPE 800x600	Replace with CSPA 900x660	6
WB-CS-06	#2555 VIMY RD. DRIVEWAY		.7/.7	P		CSPE 800x600		6
WB-CS-07	PRIVATE DRIVEWAY		.7/.7			CSPA 1400x800		12
WB-CS-08	PINECREST RD.		.7/.7	P		CSPE 800x550		6
WB-CS-09	462 PINECREST RD. DRIVEWAY	REPLACE	.7/.7	Fail		CSP 450	Replace with CSP Arch 800x580	10
WB-CS-10	462 PINECREST RD. DRIVEWAY		.24/.24	P		CSP 600		10
WB-CS-11	446 PINECREST RD. DRIVEWAY	REPLACE	.16/.11	Fail		CSP 450	Replace with CSP Arch 680x500	14.3
WB-CS-12	426 PINECREST RD. DRIVEWAY	REPLACE	.16/.16	P		CSP Arch 900x550	Re-lay on new design grade with existing culvert	
WB-CS-14	2366 FIRELANE 2	REPLACE	.16/.11	Fail		CSP 450	Replace with PE 600	4.4
WB-CS-15	2334 FIRELANE 2	REPLACE	.16/.12	Fail	300	PE	Replace with PE 600	6
WB-CS-17	316 FIRELANE 2	REPLACE	.13/.11	Fail	350	CSP	Replace with PE 450	6

The following describes the recommended improvements for private and municipal drain crossing structures.

West Branch Drain

- Re-lay private access with existing pipe WB-CS-12 on the proposed design grade line.
- Replace 6 private access culverts with the recommended sized culvert at the proposed design grade line.

E1 Branch Drain

- Re-lay private access twin PE pipes E1-CS-03 on the proposed design grade line.

E2 Branch Drain has no culverts for improvement.

E3 Branch Drain

- Existing private culvert, E3-CS-01, in paddock to be replaced with 525mm PE with bedding to support to haunches.

OMC Drain

- Reconstruct O-CS-08 with existing concrete pipe. Re-lay with bedding, grout seal bell/spigot joint connection and backfill with Granular A gravel to design grade line.
- Replace Municipal crossing O-CS-05 at Friendship Trail for capacity requirements

5.2.2 Drain Grade Improvements

There are the distinct grade line improvements identified in the design drawing profiles. They are:

- West Branch starting at 0+647 to 1+170
- E1 Branch starting at 0+515 to EOD at 1+277 (West side of Cedar Bay Rd)

5.2.2.1 West Branch Grade Line Improvements

From the Baseline Report Drawings, the West Branch was identified as having a hump in the existing grade line at the alignment change from Pinecrest Rd to Firelane 2. Specifically at station 0+850 to 0+900 there is a rock hump that prevents the outlet of flows from the upper portion of the Drain along Firelane 2.

The proposed design grade line lowers the grade line by a small amount from station 0+647 to the End of the Drain (EOD).

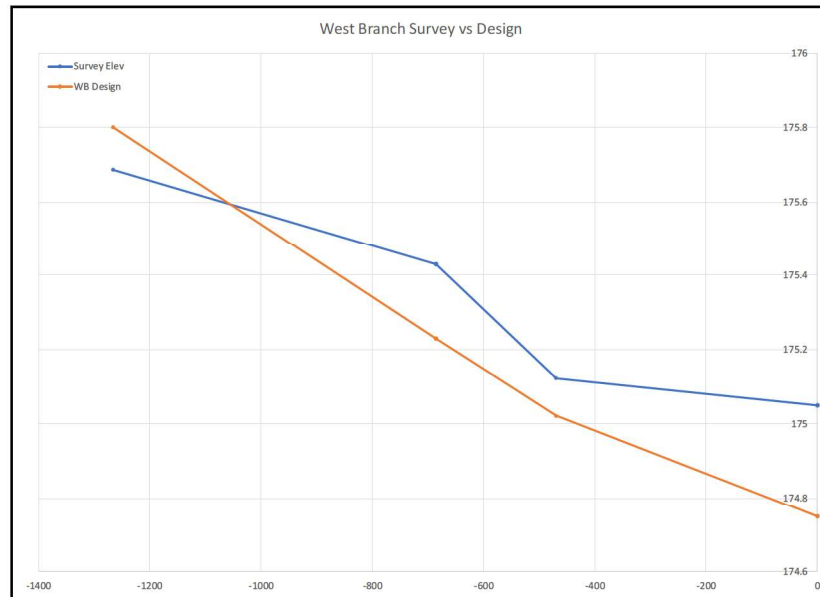


Figure 7 West Branch Proposed Grade Improvements

The proposed grade change results in changes to the existing culverts. Every effort to use existing culverts has been made. . The benefit is shown in Figure 7 as compared to the existing grade line. This summary chart does not show all the survey details, which are visible in the drawing OM.P5 included in Appendix A.

The improved grade line results in a very slight improvement in drain flow due to improved velocities. However, lowering the grade line through rock is not required to achieve the full design drain bottom and only to achieve the grade at the centreline of the drain. The intent is not to increase existing capacity, although that will be improved slightly, to improve positive grade to outlet to reduce standing water in the upper portion of the drain.

Riparian landowners can anticipate that flooding of the West Branch will still occur as the overall grade to the outlet is still a slow or low-grade drain. Reduced standing water post peak flows should be evident after construction.

5.2.2.2 E1 Branch Grade Line Improvements

The existing drainage concerns within the Bell Acres subdivision are assessed for the existing positive drain to outlet uses the elevations from the survey investigation and site inspection.

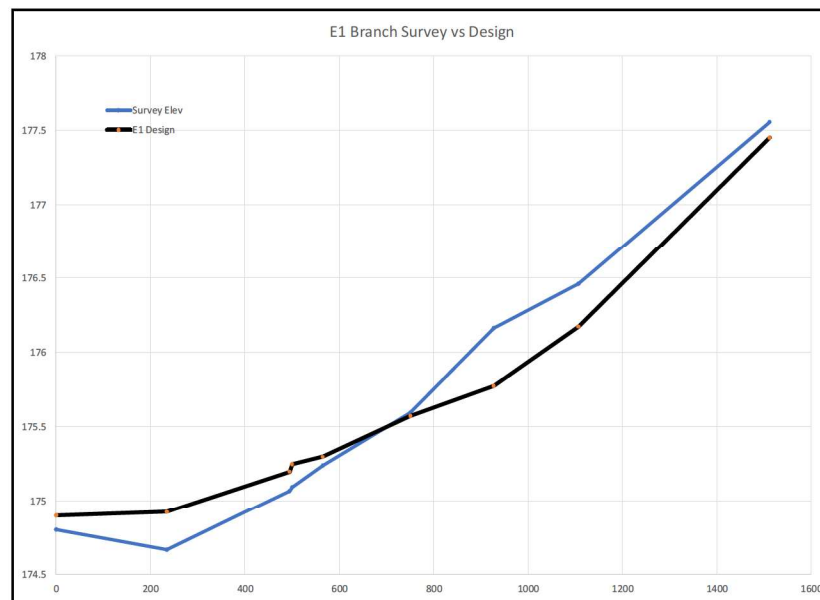


Figure 8 E1 Branch Design Grade Improvement

This grade line chart shows the existing over deep section of the E1 Branch with an ascribed design grade line used where no change in the existing grade line will occur. The over deep section will remain and not have maintenance for the lower reach to reestablish a grade line to outlet based on downstream flows.

The design grade line crosses over the existing grade survey line at station 0+515 and shows a lower, improved grade line for 762m to Cedar Bay Rd. This lower grade line allows for the existing channel serving the subdivision to be lower by a similar amount, 150mm to 275mm, and this will improve outlet conditions for the existing roadside swales through the subdivision. Drawing OM.P3 shows the E1 Branch improvement using a yellow fill for existing soil to be removed and spread adjacent to the drain.

The lowering of E1 allows for the improvement of the three swales serving the Bell Acres subdivision and the western edge swale connecting to E1 Branch.

5.2.2.3 Bell Acres Outlet SWM Controls

The improvements to the Bell Acres Subdivision swales with improved grade lines will result in marginally faster and higher peak flows passing downstream. The hydraulic analysis identifies a low-flow culvert with an embankment, including an overflow swale, to decrease the peak flow's downstream effect. This results in water backing in the existing swales during storms but draining away better using the improved grade lines. This work is outside the scope of the Oil Mill Creek Drain Report.

Technical analysis of the flow control method is described in detail in the Oil Mill Creek Watershed Report.

5.2.3 Drain Integrated Watershed Improvements

The existing OMC Drain watershed has components that do not meet the expected design standard of sustaining flows from the 1:5 year design storm,

68.9mm over 24 hours, and these are areas within the Centennial Park where the drain is compromised on an existing grade line to the existing piped outlet.

The proposed improvement for integrated watershed has two features:

- Pool and riffle channel construction above and below the existing culvert on the OMC crossing for the Centennial Park access lane.
- Constructed Wetland within Centennial Park consisting of 6000 m³ of detention storage volume available during peak flows and a 1,000 m³ permanent pool for wetland naturalization.

OMC Pool and Riffle

The functional design intends to restore some positive grade line to outlet in response to the past over digging of the grade line through Centennial Park.



Figure 9 Centennial Park Culverts Proposed Riffles and Pool

Centennial Wetland

The City of Port Colborne identified the opportunity for including a wetland on City owned land to reduce the extent of flooding. This option was identified along with an option to construct a second outlet through the park to the lake. Both options were investigated, and the wetland option was considered the preferred option as the environmental and social impacts were significantly less than construction of a new outlet to the lake through the park.

The wetland works as a stormwater detention facility where the stormwater peak flow is stored in the wetland and then slowly released. This capability is usually implemented with an inflow channel, and an outflow channel with flow control. However, this option was not possible with the existing space in the park. Instead, there is a single channel in, which is also the channel out, and the inflow/outflow structure works on both flows into the wetland and flows out of the wetland.

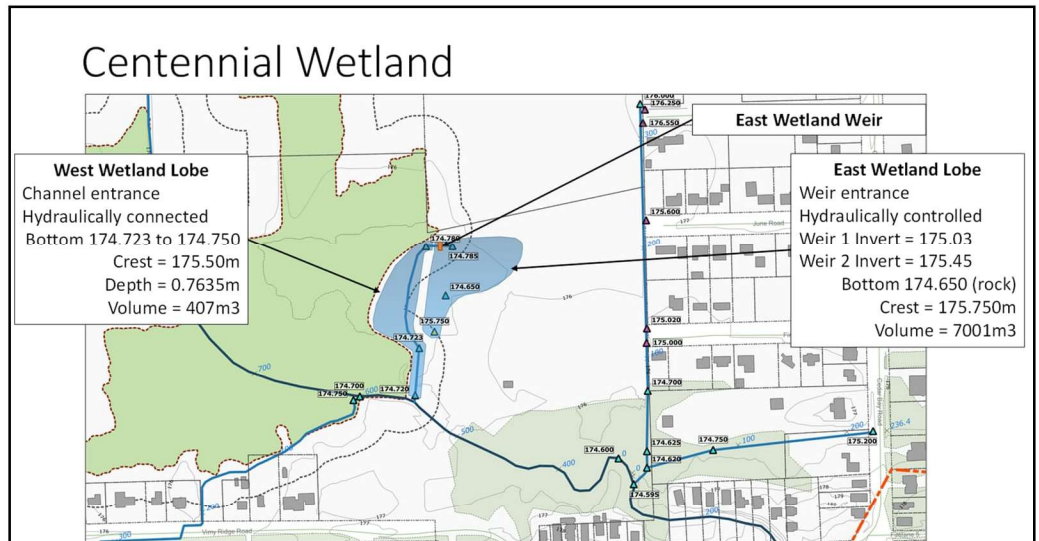


Figure 10 Centennial Park Proposed Wetland

The inlet/outlet weir has a two stage water control with a low flow notch weir and a higher flow rectangular weir.

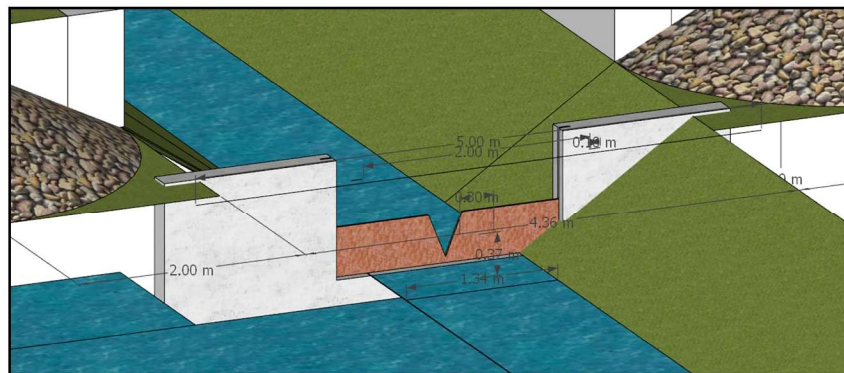


Figure 11 Proposed Wetland Inlet/Outlet Weir

The wetland takes the peak runoff from the upper watershed, OMC and E1 contributing flows, and provides a channel and volume for that runoff to go instead of backing into the West Branch and/or overflowing the OMC channel banks in the park. The role of the wetland can be visualized through the following chart of the main Oil Mill Creek watershed grade lines.

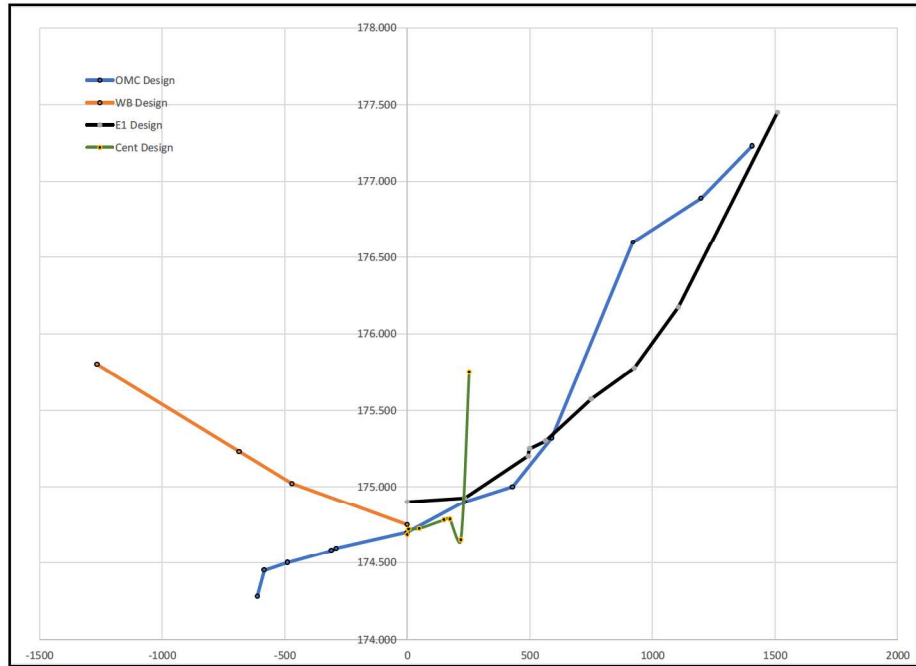


Figure 12 Oil Mill Creek Grade Lines to Proposed Wetland

The three contributing areas upstream from the proposed wetland; West Branch, E1 Branch and OMC Main Drain are each roughly 1000m in length, but the West Branch has much less slope over that same distance as E1 or OMC. The Centennial Park Wetland inlet/outlet channel (green line in Figure 13) is designed using a channel slope that is less than the West Branch with the objective that runoff will preferentially fill the wetland before filling the West Branch. The reality is that both will occur, but the existence of the wetland reduces the impact on the West Branch and the downstream runoff.

The Centennial Park Wetland was assessed using the PC-SWM model implemented for the Watershed Hydrology and Hydraulics Report.

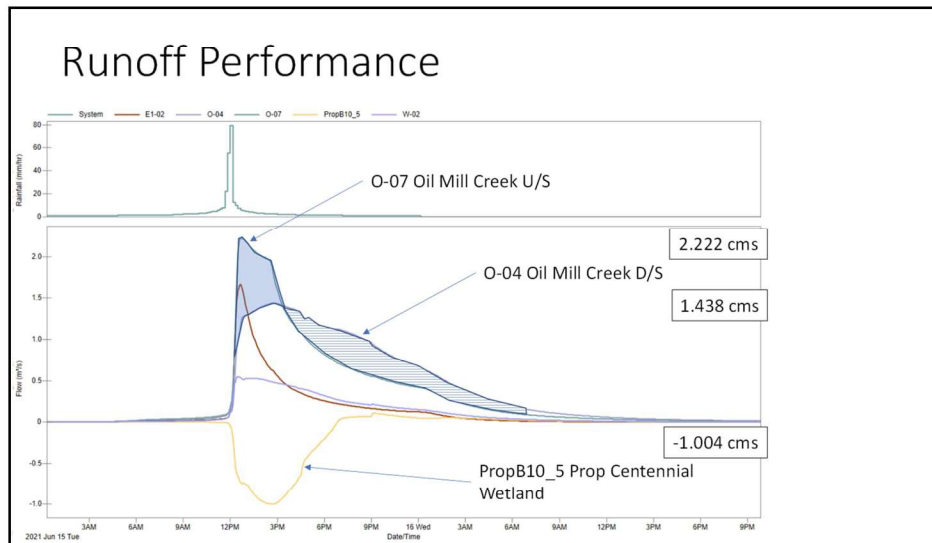


Figure 13 Centennial Park Proposed Wetland Hydrograph Results

Figure 13 illustrates the modelling results with the Wetland through the two shaded areas showing the hydrograph upstream and downstream of the Wetland channel. The upside-down hydrograph shows the flows entering the wetland (shown as backward to the direction of the channel in the model).

The rising peak hydrograph, O-07, represents the flow into the West Branch, Wetland and OMC outlet confluence. The modified peak, O-04, represents the flow downstream in OMC after the wetland and West Branch confluence. The peak flow is reduced, but the duration of the receding portion of the hydrograph is longer and slower. The reduction of peak flow from 2.2 m³/s to 1.4 m³/s is due to the success of the wetland and partially from challenges with peak flow through the outlet.

5.2.4 Utility Conflicts & Coordination

Not all utility locations and conflicts are known during design. Where a conflict has been identified a program cost has been allocated for the protection of the utility by the contractor during construction. Moving the utility for the drain hasn't been identified as a requirement during design.

5.2.5 Plans, Profiles & Specifications

The proposed Oil Mill Creek Drain works are described in the attached Plans, Profile Drawings, Specific Design Drawings, and Standard Detail Drawings, which are attached as Appendix A.

Project Specifications are attached in Appendix E.

5.2.6 Outlet Improvements

The following are planned improvements to the outlet and are recommended for consideration as an improvement under Section 78.

1. Relocating the winch from the top of the outlet structure to a position further up the beach, hopefully with less risk to the operator during storms. Alternatively, the winch could be converted to electric power to operate open and close.
2. Install passive flap gate ports on the existing heavy steel gate to accommodate flow switching to outflow in the OMC Drain.

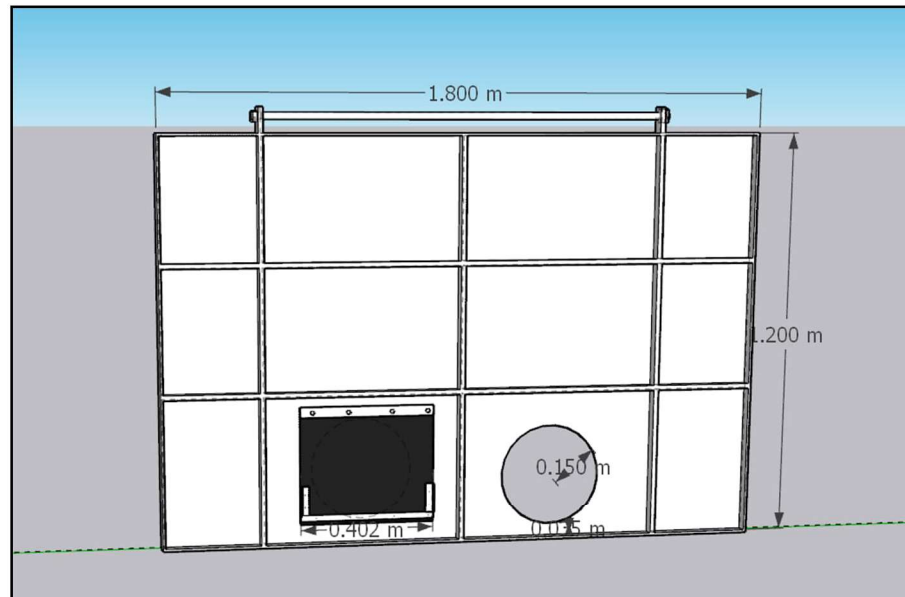


Figure 14 Outlet Gate Passive Flow Changes

The passive flap gate openings are intended to provide outlet flows even when the gate remains lowered. The gate is not really closed or open; it is either in the raised position or in the lowered position. When lowered, wave action or Lake Erie seiche conditions push against the gate, which seals against the outlet and prevents flows from passing upstream.

When the storm recedes, and the OMC flow is outflow instead of inflow, it will push the gate open, provided the force of the flow, or head, is higher than the weight of the gate. Unfortunately, the gate is heavy, and outflow depends on an operator returning to the OMC outlet site and lifting the gate using the hand crank winch. The weight of the gate reduces the passive outflow to only large events and restricts outflow by a significant degree.

Adding two 300mm openings in the lower two central panels of the gate with the installation of two Recycled Vulcanized Rubber covers or flaps allows for flows to pass through the gate even while the gate is lowered. The flexible mat flap has stainless steel angle iron pieces added to it, ensuring that it closes against the steel tightly and prevents backflow. This allows the flow to exit even if the steel flap gate is closed, and the resistance to outflow is the minimal flap gate weight.

For a 0.6m depth behind the steel flap gate, the orifice flow is calculated as 0.13 cms for each flapgate, achieving 0.26 cms for the two passive outlets.

5.3 Construction and Constructability

The following describes the specific requirements for drain construction.

5.3.1 Vegetation Removal

Vegetation, specifically trees are to be cut down outside of any bird nesting periods. The remaining stumps are to remain in place unless they obstruct flow or

they are Ash trees with re-growth from the lower truck already established. The stump will be ground down to match the existing channel section in those cases.

Tree removal within the Top of Bank to Top of Bank is to be 100 percent; however, tree removal within the work zone is at the discretion of the contractor and drainage superintendent while making every effort to preserve trees where possible. Where trees are removed in the work zone, they qualify for the tree replacement program as per the tree qualifying criteria.

5.3.2 Spoil Material

All spoils and spoil handling practices will comply with applicable legislation, including O. Reg. 406/19: ON-SITE AND EXCESS SOIL MANAGEMENT filed December 4, 2019, under the Environmental Protection Act, R.S.O. 1990, c. E.19

Where specified, excavated spoil material shall be disposed of and levelled a minimum of 2.5 m from the top of bank to ensure that sediment does not re-enter the drain. Spoil placed next to the drain shall be spread to permit access across the berm area and shall be placed to a maximum height of 0.6m. Spoil excavated along existing travelled road allowances and on private property, where requested, shall be disposed of by the Contractor off site. The benefiting property owner shall bear the cost of spoil trucked from the property.

Spoil shall be disposed of as noted in the description of the proposed work. Generally, the spoil will be disposed of adjacent to the drain unless otherwise specified. Should any property owner require that all or a portion of the spoil be trucked away from their property, the cost of trucking spoil shall be assessed totally to the property owner requesting same and will not form part of the total cost of the drainage system. The cost of trucking away spoil from any future maintenance work will be assessed directly to the property owner requesting the same. Debris from vegetation removal will be removed from the property or disposed of by agreement of the property owner.

For the reaches of drains within travelled municipal road allowances, the spoil will be trucked away during the initial construction and any future maintenance work where there is no opportunity to dispose of the material on site.

Access channels shall be provided through the levelled spoil material at every location where existing drainage outlets are visible and/or identified during construction by the Drainage Superintendent. The invert of the access channels shall be consistent with the drain cross-section at that location.

Spoil excavated from the drain shall be levelled in a manner suitable for cultivating crops where crops were previously cultivated. Where the drain is adjacent to a grassed area maintained by the owner, the spoil shall be levelled and re-seeded with grass so that the area is restored to a like or better condition than prior to construction.

5.3.2.1 Contaminated Spoils

Where soils are known to be contaminated but have been assessed to pose no human health risk, on site spreading adjacent to the drain will be the practice and acknowledge that the soils are not to be 'moved' off the property.

Where soils are to be removed from the property, a sample will be collected and analyzed for contamination prior to the commencement of removal. Where that sample is shown to be contaminated and disposal of the soil will require disposal at a registered facility in compliance with O.Reg 406/19, the owner will be responsible for the costs to dispose of the contaminated soil from their property.

Once a contaminated sample is returned, the owner will be given the opportunity to retain the soil on site instead of trucking for disposal.

5.3.3 Revegetation

The drain banks should be seeded as quickly as possible after excavating the existing and proposed channels, and the spoil should be seeded on the day of levelling. Seeding should occur in a manner that optimizes seed germination and establishment of vegetation before mid-October and after late April.

Seed mixture used shall be applied at a rate of 40 kg/ha in the following proportions:

Creeping red fescue	20 kg	50%
Perennial ryegrass	8 kg	20%
Birdsfoot trefoil	12 kg	30%
Total	40 kg/ha	100%

5.3.4 Private Drain Connections

Where private connections are made to the Municipal Drain, the connections are to be compliant with the City of Port Colborne's standards connection designs. This includes the following connection types:

- Open channel connection – minimal allowance for grade and freeboard.
- Surface water flows – rip rap rock requirements for reducing or amending sites of potential or evident erosion.
- Tile drain connections – use PE pipe to connect to a receiving channel.
- Berm and Orifice Flow Control - connections designed to control runoff to specified flow rates.

Private connections are not part of the drain but are owned, and the landowner is responsible for construction and maintenance. Where the Drainage Superintendent or Engineer identifies a deficiency, the landowner is to make good the connection. Deficiencies can be an eroded connection, a blocked connection or a poor connection, and the landowner can accept having work done by the City on their behalf to make good the connection based on a 50/50 cost sharing basis. Where the City identifies a deficiency and the repairs are not made by the landowner by the next cycle of drain maintenance, the City can make the required repairs, and 100% of the cost will be assessed to the landowner.

5.4 Future Maintenance and Repair Provisions

The Drainage Act, Chapter D.17, Sections 74 through 84 governs future maintenance, improvement and repair to any Drainage Works constructed under a By-Law passed under this Act or any predecessor of this Act.

Upon completion of the Oil Mill Creek Drain works described in this Report, the City of Port Colborne will be responsible for future maintenance of the drain with the cost assessed to the upstream lands and roads using the Assessment Schedule in Appendix B and pro-rating the assessment based on the actual cost using the Outlet Liability Assessment – Section 23. Special Assessment shall not apply to maintenance work except where maintenance works are related to culvert/bridge replacement or upgrades.

The following are the identified maintenance sections anticipated to meet the City target of performing maintenance on a drain once every 10 years with a site specific assessment on a 5 year schedule.

- OMC Drain
 - Outlet; including gate and closed conduit to Vimy Ridge Rd 0-119 to 0+000
A Regular Annual visual inspection.
Catchbasin inspection (2), and
a 10 year video inspection and/or Confined Space Entry (CSE) walk-through.
 - Middle 0+000 to 0+905
Where the existing bottom is deeper than the design grade line, no further excavation, bank obstruction removal only.
The riffle and pool addition will restore the grade line with no grade maintenance required. During this time, brushing and bank restoration are recommended on a 10-year cycle or as required by visual inspection on a 5-year cycle.
 - Upper OMC Drain, 0+905 to 1+944 EOD
Perform regular 5 year inspection cycle and maintenance as determined by survey inspection.
- E2 & E3 Branch Drains scheduled maintenance from inspection over length from outlet to EOD
 - E2: 0+000
 - E2: to 0+350 lower reach over excavated and realigned of new outlet monitor at 10 year interval.
 - E3: 0+000 to 0+222 grade reconstruction through paddock monitored at 5-year intervals.
- West Branch
 - West Branch, 0+000 to 0+208 North of Vimy Ridge Rd, minimal maintenance expected from existing over depth to grade line. Spot maintenance where required.
 - WB, 0+208 to 0+647,
regular 5 year inspection cycle and maintenance as determined by survey inspection.
 - WB, 0+647 to 1+188 EOD regular 5 year inspection cycle after rock removal to confirm grade line. Maintenance forecast for light work based on rock to grade line.
- E1 Branch Drain scheduled maintenance reflects proposed works.
 - E1: 0+000 to 0+515 lower than the proposed grade line, monitor only.

- E1: 0+515 to 1+277 inspect on 5-year interval. Maintenance only to grade line with survey validation.

These recommended maintenance and inspection cycles are to be adjusted as evidenced by physical conditions within each Drain and Branch Drain.

5.5 Construction Summary

The following table lists construction activities by property, starting from the outlet and proceeding upstream.

Section 78 – Proposed Improvements

Table 2 Oil Mill Creek Drain Construction Summary

Property / Owner	Drain Side	From STA	To STA	Length	Working Side	Work Description
Oil Mill Creek Drain						
Outlet Improvements						
271104000231501 / SOUDER, CATHERINE R	Both	0-088.7	0-119.3	30.617	Both	Improvements to the existing outlet: Flap Gate Changes and relocate winch.

Table 3 West Branch Drain Construction Summary

Property / Owner	Drain Side	From STA	To STA	Length	Working Side	Work Description
West Branch Drain						
271104000242101 / PORT COLBORNE CITY		0+000	0+098.5	98.5	East	
271104000241900 / FIDDY, CHARLES JOHN; FIDDY, LILLIAN NICOLE		0+098.5	0+129.1	30.6	East	
271104000242101 / PORT COLBORNE CITY		0+129.1	0+207.6	78.5	East	
Vimy Ridge Road		0+207.6	0+317.3	109.7	West	Replace Culvert WB-CS-05 2595 Vimy Rd. with CSPA 900x660
271104000243200 / FIGUEIRA, MARIO		0+317.3	0+367.0	43.6	West	
271104000243600 / MCADAM, RICHARD WILSON		0+367.0	0+458.7	97.8	West	
Pinecrest Road		0+458.7	0+750.0	291.3	West	Replace Culvert WB-CS-09 462 Pinecrest Rd with CSPA 800x580 excavate to design grade line starting at 0+647
271104000302610 / METCALF, IVANA KOMLJENOVIC; METCALF, THOMAS ASA		0+750.0	0+780.0	30	South	Replace Culvert WB-CS-11 446 Pinecrest Rd with CSPA 680x500 Excavate to design grade line
271104000302100 / BEGG, TERRY-LYNN		0+780.0	0+854.8	74.8	South	Relay Culvert WB-CS-12 426 Pinecrest Rd. at excavated lower design grade line. Rock removal to project riffles and pool.
271104000301700 / KRIEGER, LESLEY EILEEN		0+854.8	0+889.2	34.4	South	Excavate to design grade line, rock removal to project riffles and pool.
271104000301600 / MORRISON, HALEY MARILYN; MINOR, DUNCAN LINCOLN		0+889.2	0+907.5	34.4	South	Excavate to design grade line, rock removal to project riffles and pool.
271104000301500 / HOLODAY, SUSAN-PIETRAS; HOLODAY, RICHARD		0+907.5	0+957.7	50.2	South	Replace Culvert WB-CS-14 2366 Firelane 2 with PE600 2W. Excavate to design grade line and rock removal to project riffles.
271104000301400 / JASEK, COLLEEN R; JASEK, JOHN M		0+957.7	0+991.6	33.9	South	Replace Culvert WB-CS-15 2334 Firelane 2 with PE600 2W. Excavate to design grade line and rock removal to project riffles.
271104000301300 / GROOM, JOSHUA NATHAN; GROOM, KRISTAL LYNN		0+991.6	1+025.5	33.9	South	Replace Culvert WB-CS-17 316 Firelane 2 with PE450 2W. Excavate to design

						grade line and rock removal to project riffles.
271104000300900 / REPEC, JENNIFER		1+025.5	1+188	162.5	South	Excavate to design grade line and rock removal to project riffles.

Proposed Centennial Wetland Branch Drain

271104000242101 / PORT COLBORNE CITY	Both	0+000	0+173.5	173.5	East	Construction reverse channel to weir to control fill/outlet of runoff stormwater to detention wetland. Excavate detention wetland and stockpile spoils onsite.
--------------------------------------	------	-------	---------	-------	------	---

Section 74 – Maintenance Works

Table 4 Oil Mill Creek Drain Maintenance Construction Summary

Property / Owner	Drain Side	From STA	To STA	Length	Working Side	Work Description
Oil Mill Creek Drain						
271104000232900 / PARR, MARTIN JOHN; PARR, LINDSEY MARIE	Both	0-069.1	0-088.7	19.572	Both	
271104000233100 / PRUYN, FRANCIS MATHEUS ROBERT; PRUYN, HENRIETTE	Both	0-038.8	0-069.1	30.253	Both	reveal and maintain existing PE CB
271104000232900 / PARR, MARTIN JOHN; PARR, LINDSEY MARIE	Both	0-019.6	0-038.8	19.226	Both	
271104000233100 / PRUYN, FRANCIS MATHEUS ROBERT; PRUYN, HENRIETTE	Both	0-016.1	0-019.6	3.457	Both	reveal and maintain existing PE CB
Vimy Ridge Road		0+003.8	0-016.1	16.113	Both	Pipe inspections on an 8 to 10 year cycle. Last inspection was completed in 2016
271104000230000 / SCHULTZ, WINKLEY JANE; SCHULTZ, DOUGLAS ALLEN	Both	0+003.8	0+014.8	11	South side	
271104000230100 / ALEXANDER, KATHRYN RUTH	Both	0+014.8	0+033.5	18.7	South side	
271104000230200 / DE OCAMPO, MARTINIANO; DE OCAMPO, AMELIA	Both	0+033.5	0+049.3	15.8	South side	
271104000230300 / ZIEMIANSKI, DEREK; HOCHREITER, MELISSA MAY	Both	0+049.3	0+065.3	16	South side	
271104000230400 / VAN ESCH, STEVEN CARMEN; VAN ESCH, KAITLIN MICHELLE	Both	0+065.3	0+080.6	15.3	South side	
271104000230500 / GAME, RYAN DOUGLAS; GAME, RENEE MARIE	Both	0+080.6	0+096.3	15.7	South side	
271104000230600 / MCCOMBE, LAURIE; DEROSE, LEONARDO	Both	0+096.3	0+111.9	15.6	South side	
271104000230700 / DEROSE, LEONARDO; MCCOMBE, LAURIE	Both	0+111.9	0+127.3	15.4	South side	

271104000242101 / PORT COLBORNE CITY	Both	0+127.3	0+902.6	775.3	Both	Construct a plunge pool on the downstream side of the existing twin culverts. Construct riffles using West Branch rock spoils. Construct Wetland with branch drain outlet at OMC station 0+424
Pinecrest Road		0+902.6	1+292.6	1026.9	West	At 663 Pinecrest Rd Relay 950mm on proposed grade line with 50mm embedment, 150mm compacted granular base to SPD 95% , concrete grout the joint to seal.
271104000499900 / PORT COLBORNE CITY	Both	1+292.6	1+306.6	14	Both	Replace existing CSP 500 with 750PE 320 kPa to design grade with 25mm embedded.

Table 5 E1, E2 and E3 Branch Drain Construction Summary

Property / Owner	Drain Side	From STA	To STA	Length	Working Side	Work Description
E1 Branch						
271104000242101 / PORT COLBORNE CITY	Both	0+000	0+104.5	104.5	East	
271104000240900 / LAUR CAROL JAYNE ESTATE; LAUR, JOHN THOMAS; LAUR, MICHAEL JOHN	Both	0+104.5	0+846.9	742.4	East / South / East	Excavate to design grade line starting at 0+515 with spoil spread adjacent to the drain. Relay E1-CS-03 twin PE 600mm culverts to design grade line
271104000240710 / KALYNUIK, CATHY ANN; KALYNUIK, JAMES VAN	Both	0+846.9	0+874.6	27.7	East	Excavate to design grade line with spoil spread adjacent to the drain.
271104000238600 / VANDER VAART, LEONARDUS J; VANDER VAART, MARGARET ANN	Both	0+874.6	1+074.2	199.6	South	Excavate to design grade line with spoil spread adjacent to the drain.
271104000238700 / SZABO, MONICA ANN; GRAY, ROGER WAYNE	Both	1+074.2	1+273.5	199.3	South	Excavate to design grade line with spoil spread adjacent to the drain.
Cedar Bay Rd	Both	1+273.5	1+277.0	3.5		
E2 Branch						
271104000242101 / PORT COLBORNE CITY	Left	0+000	0+277.5	277.5	West	re-align 35m of the existing channel with improved flow connection to Oil Mill Creek Drain
271104000238600 / VANDER VAART, LEONARDUS J; VANDER VAART, MARGARET ANN	Left	0+277.5	0+348	70.5	West	Excavate to design grade line starting at station 0+225 to EOD 0+350 with spoil spread adjacent to the drain.
271104000233300 / MARTINEAU, WILFRED ROMEO; MARTINEAU, ROXANNE STEPHANIE	Right	0+020.1	0+089.7	69.6		
271104000234100 / SCHNEIDER, WENDY LORRAINE; STOUT, CHRISTOPHER JOHN	Right	0+089.7	0+130	40.3		
Firelane 4	Right	0+130	0+150.1	20.1		
271104000234200 / 788833 ONTARIO LIMITED; O'CONNOR, ELIZABETH	Right	0+150.1	0+190.3	40.2		
271104000235600 / ALEK, CHRISTOPHER PAUL; ALEK, WENDY LEE	Right	0+190.3	0+230.5	40.2		

June Rd	Right	0+230.5	0+250.6	20.1		
271104000235700 / KNIGHT- WOODWARD, BARBARA	Right	0+250.6	0+291	40.4		
271104000237300 / KELLY, ROBERT JAMES; KELLY, MARY ANN	Right	0+291	0+331	40		
271104000237610 / BEAM, JONATHAN IRVIN	Right	0+331	0+351.1	20.1		
271104000237400 / PORT COLBORNE CITY	Right	0+351.1	0+351.6	0.5		

E3 Branch

271104000242101 / PORT COLBORNE CITY	Both	0+000	0+004	4	Both	realign to E2 revised outlet.
271104000233300 / MARTINEAU, WILFRED ROMEO; MARTINEAU, ROXANNE STEPHANIE	Both	0+004	0+127.3	123.3	South	replace the existing culvert with a new, construct a cobblestone low flow channel with an overflow channel to a new outlet
271104000233200 / PETRUS, MICHAEL LESLIE; PETRUS, BRADLY MICHAEL	Both	0+127.3	0+204.5	77.2	South	
Cedar Bay Rd	Both	0+204.5	0+222	17.5		

6 Drainage Works Financing

6.1 Eligible Cost of Works

The Drainage Act stipulates what is or isn't eligible as a cost of construction or cost of the proposed works. Many reports are prepared on the basis that a single aspect of construction will be undertaken; however, for the Oil Mill Creek Drain, there may be one period of construction or several depending on the construction progress selected by the City of Port Colborne. The implementation of the proposed works is not detailed in this report. It is implemented by the City of Port Colborne to make the most effective use of existing resources and ensure the most cost-effective construction effort is achieved on behalf of the assessed landowners.

As required by the Drainage Act, Chapter D.17, Section 59(1), the Council may call a meeting if the contract price exceeds 133 percent of the estimated construction costs. These costs are estimated and shown in Table 6 Oil Mill Creek Estimated Cost of Construction

6.1.1 Admin & Engineering Costs

Administration costs identified with the Oil Mill Creek Drain are two items:

- City project-related interest charges, and
- GST tax charged to the project at the municipal rate.

A survey was completed of the Drain at a cost of \$15,394.50

The fees for EWA Engineering Inc. are assessed to the project as \$103,535.52 and will be assessed to the cost of the works. There were two Change Orders to complete the work authorized, and assessed as part of the cost of producing the report.

CAD effort expended by the City is presented as \$73,424.

A budget for engineering services during construction is set at \$1,500.

The total Engineering costs for the Oil Mill Creek Drain included in the Assessment Tables is \$193,854.02

The administration portion of the assessable fees is \$74,369.41 for a total assessed Engineering and Administration cost of **\$268,223.43**.

6.2 Capital Construction Cost

The estimated construction cost of the project is shown in the following table.

Table 6 Oil Mill Creek Estimated Cost of Construction

Construction Management Estimated Costs	\$	41,000.00	
Section 78 - Proposed Improvements for Construction			
OMC Outlet Improvements	\$	27,637.50	
Oil Mill Creek Improvements - 0+360 to 0+480	\$	124,515.40	
West Branch Improvements - 1188m	\$	69,025.00	
Interval E1 Branch Drain Sta 0+515 to 0+880	\$	11,975.00	
Interval E1 Branch Drain Sta 0+880 to Sta 1+277 - 400m	\$	6,455.00	
Section 74 - Maintenance Works for Construction			
E2 Branch	\$	13,300.00	
E3 Branch	\$	10,145.00	
Oil Mill Creek Drain - Upper Watershed	\$	39,325.00	
Sub-Total Estimated Cost of Construction			\$343,377.90

6.3 Maintenance Costs

Included in the estimated cost of construction are allocations for costs related to drain maintenance works, including vegetation removal and re-grading, that are included in the construction cost as Section 78/74 works.

Adjustments from the previous grade lines are identified as works to be completed as Schedule 74 maintenance. These are not a redesign of a grade line in most cases as much as they are recognizing the grade line using metric and new datums.

6.4 Principles of Assessment

The following are general and specific principles used to assess costs for the Oil Mill Creek Drain according to the Regulations formed under the Drainage Act using our understanding of the Act and seeking the most fair methods to share costs to ratepayers within the Oil Mill Creek Drain Watershed.

1. Assessments are a method to calculate a contributing property's share of drainage works, hereafter referred to as a Drain.
2. Each Drain is defined by a fixed point of commencement that traverses to a fixed Outlet, which may be a receiver or another Drain.
3. A property contributes to drainage work if any portion of the property directly or indirectly contributes to a runoff flow to the Drain.

4. A Drain is any constructed or existing natural method of conveyance or stormwater management function that moves or controls water from one collection point to a discharge point, an Outlet.
5. The use of a property, whether farming, residential, or vacant, does not define the benefit of the Drain. The benefit of a drain is realized equally among all properties with runoff to the Drain.
6. An excess or additional benefit is realized for any property or group of properties for which a higher standard of drainage service is required for the specific use of a property for which a higher value is realized.

As an example, where a market garden farm requires additional pumping for either irrigation or reducing the water surface in the drain, then the additional costs for that are borne by the benefitting lands.

7. Similarly, where a property or group of properties is provided with a lower standard of drainage service or where such property or properties provides a stormwater management function within the drainage works of the Drain, the value of the lower service or function is determined at a rate commensurate with the benefit to the drain.

As an example, where a property converts a portion of their lands (or the entire property) to a wetland or other stormwater management feature that reduces the peak flow of the runoff, thereby reducing or enhancing the capacity of the Drain to improve drainage and reduce flooding, then a commensurate benefit is realized to the volume of water removed from the runoff hydrograph.

Where the volume of detained runoff is small relative to the capacity of the drain, this contribution is deemed to be negligible. Where the volume detained is below 1% of the total runoff volume for the Drain, there is no real benefit realized for an individual Stormwater Management Feature.

8. The capacity of the Drain is determined based on a hydrologic model forecast of precipitation based runoff. Therefore, each property realizes a drain benefit based on the proportion of predicted runoff for their property. Predicted runoff is a product of the following attributes, which are determined for each property:
 - a. Area contributing to runoff;
 - b. Land use as it relates to runoff;
 - c. Land topography;
 - d. Proportion of hard surfaces vs soft surfaces as they relate to infiltration; and
 - e. Stormwater management features specially built to reduce the rate of runoff.
9. A benefit is realized for a property that causes a physical change in the Drain works to serve a particular use or surface water benefit to the property. An example is a culvert, which provides access to a property across a drain.
10. A benefit/assessment is realized for Municipal, Regional or Provincial lands held as Rights of Way that cause or require additional infrastructure, effort or costs related to the Drain. (Section 26)

11. Where a cost to the drain is realized through effort during construction or otherwise for the protection of flora, fauna or quantity or quality of stormwater runoff, this cost is born proportionally amongst all watershed contributing owners at the same rate as established for Drain benefit.

12. For the Oil Mill Creek Drainage works being considered, a Drain already exists, and the proposed assessment is to recognize a service or benefit that already exists and is being confirmed to exist through the creation of the report and assessment schedule.

13. For utilities that require additional work, changes in design, or protection during construction, those costs are borne by the owner of the utility.

A modern infrastructure concept missing from the Drainage Act, or not explicitly directed regarding assessment, is the service level of the drain. For an urban area, explicit service levels are documented through municipal design standards and expectations, often codified into operation manuals that establish the expected service levels. While there are aspects of this in the Drainage Act, service levels and the possibility that they may vary from property to property or region within a Drain area are not explicitly discussed. The concept is that for a basic service level for a farm, the requirement is for flooding not to be sustained such that plants are drowned. However, there is no direct link between depth to damage such as what is accepted in an urban area. Rural residential properties as compared with farm properties where the farm service level is to have the flooding removed within 24 to 36 hours while the residential service level expectation is to have no flooding within the property limits that might enter a building below grade and cause damage. Flooding depth is to be kept below all sill levels.

This difference in service level expectation, for example, are market garden farm operations when present in a drain seeking flood elevation control using mechanical pumping systems.

While efforts within the drain design and assessment have been made to address water quality as well as quantity, there are limits within the Drainage Act to address water quality as a direct benefit from drainage.

Benefit (Section 22)

This Assessment is based on the creation of land value through the creation of a new or additional drainage system. In the Oil Mill Creek Drains, the drain already exists and has for some time (more than 100 years).

Outlet Liability (Section 23)

This is the primary basis for the assessment of the maintenance and drain works. Assessment is based on each individual property's contributing runoff. This is determined by the area flowing to the drain and runoff factor C. The runoff factor C is the Rational Method for predicting peak runoff and does not predict the runoff volume (note special benefit used for site-specific SWM facilities).

The C factor for assessing property runoff is selected based on the property zoning. Where a property is not currently farmed but is zoned for farming, then a C factor is selected based on the potential use of the property. C factors are not

adjusted for variations in Residential properties. Residential properties with or without buildings are assigned the same C factor. Thus, the C factor is not a current prediction of runoff for an individual property but a Factor to assess the potential runoff based on the property's potential use in the present and in the future.

The following drain features are part of the whole system and are paid for through the outlet assessment:

- Channel Clearing and Re-grading
- Sediment Basins
- Where a channel is re-aligned to improve the drain function and not caused by a property's use, the cost of the channel re-alignment is assessed as an outlet liability assessment.

Special Benefit (Section 24)

The following are assessed costs considered as special benefits:

- Culverts,
- Fordings,
- Closed Conduit conveyance (piped flow)
- Erosion protection works,
- Channel re-alignment for property improvement.

The cost of a culvert is assessed against the property owner based on a 50/50 split in the cost assessed against the drain watershed. Unless the culvert is near the outlet and the cost is shared on an area proportional basis.

Table 7 Section 24 Special Assessments

Roll No	Owner	Proposed work	Owner Portion	Assessed Benefit
E1 Branch				
271104000240900	LAUR CAROL JAYNE ESTATE; LAUR, JOHN THOMAS; LAUR, MICHAEL JOHN	Existing twin PE culverts to be relaid to grade. All costs shared 50/50 with owner.	50%	\$4,263.23
E2 Branch				
271104000242101	PORT COLBORNE CITY	Re-align outlet construct new confluence with existing spoil to fill in the previous channel. Restoration includes seeding on natural materials fibermat.	100%	\$13,642.35
E3 Branch				
271104000233300	MARTINEAU, WILFRED ROMEO; MARTINEAU, ROXANNE STEPHANIE	replace culvert and improve inlet/outlet conditions E3-CS-01: 6m-HDPE 450mm REMOVE AND REPLACE CULVERT WITH 525mm D PE CULVERT 6m WITH 100mm B GRAVEL BEDDING AND TO THE PIPE HAUNCHES	20%	\$850.00
West Branch				
271104000301300	GROOM, JOSHUA NATHAN; GROOM, KRISTAL LYNN	WB-CS-17 - 2316 Firelane 2 Replace with 6m @ 0.11% PE 450	50%	\$3,255.56

271104000301400	JASEK, COLLEEN R; JASEK, JOHN M	WB-CS-15 - 2334 Firelane 2 Replace with 6m @ 0.11% PE 600	50%	\$3,348.58
271104000301500	HOLODAY, SUSAN-PIETRAS; HOLODAY, RICHARD	WB-CS-14 - 2366 Firelane 2 Replace with 4m @ 0.11% PE 600	50%	\$3,178.05
271104000302100	BEGG, TERRY-LYNN	WB-CS-12 - 426 Pinecrest Rd lower existing 3m - CSP Arch 550x900 culvert	50%	\$2,325.40
271104000302610	METCALF, IVANA KOMLJENOVIC; METCALF, THOMAS ASA	WB-CS-11 - 446 Pinecrest Rd Replace with 15m@0.11% CSP 900 with 0.050 embedded	50%	\$5,115.88
271104000302700	1000071167 ONTARIO INC	WB-CS-09 - 462 Pinecrest Rd Replace with 10m@0.11% CSP 900 with 0.050 embedded	50%	\$4,185.72
271104000242700	MACCABE, NATALIE ANN BETHANY; APOLCER, JEREMY MATHEW	WB-CS-05 - 2595 Vimy Ridge Rd Replace with 6m@ 0.11% CSPA 889x610 with 0.050 emb	50%	\$3,604.37
OMC Upper				
271104000499900	PORT COLBORNE CITY	REPLACE O-CS-05 EXISTING 500mm WITH 600 PE 320 kPa Replace TO DESIGN GRADE WITH 25mm EMBEDDED INVERTS, 12m @ 0.2% US INV = 177.235 DS INV = 177.210	100%	\$10,580.57

In addition to assessed costs considered for special benefits, there is also recognition through the use of the Special Benefit for stormwater management facilities within the watershed that reduce the peak flow used to determine the outlet assessment. These facilities that may already exist in the watershed are recognized as having a benefit in reducing peak flow by determining the available volume is greater than the 24 hour peak flow volume predicted for the 1:2-year design storm.

- Site Specific Stormwater Management (SWM) Facilities
 - Wetlands,
 - Ponds, (natural and stormwater)
- Natural occurring features
 - Kettle lakes, and
 - Bog lands.

Special Assessment (Section 26)

There are special assessments, as recognized under the Act, for public (not private) roads and utilities that have or require additional costs to the drainage system.

In addition to the projected assessments for Right of Way lands as determined by the outlet assessment, any other costs for road crossings or protection of utilities during construction are assessed to the road owner or utility owner. In the case of Oil Mill Creek Drains, all of the existing drain culverts and road crossings are to

be maintained as is, and additional costs are not planned or identified. If replacement is required in the future, drain crossing culverts for roads are replaced 100% at the road authority's cost.

Also included are costs related to impacted utilities such as Enbridge. These costs can be additional effort during construction to protect or meet site supervision requirements by the utility. This may also include costs to move infrastructure if required by site conditions.

6.4.1 Allowances:

1. Where a Drain assessment schedule already exists, and a prior maintenance and assessment schedule is known to exist, then a Schedule 29 allowance is accepted and recognized through a past report and schedule unless it can be shown otherwise.
2. Where a Drain is re-aligned to a new path, then a Section 29 allowance for land taken is recognized. This can be amended by the restoration of any lands to the same owner by the same re-alignment. Thus, a net allowance can be realized where that is shown to be the case.
3. Where previously no Drain was recognized but already existed as a flow path, then a Section 31 allowance can be realized along with a one-time creation of a current and future easement for Drain maintenance activities as a Section 29 allowance. This is specifically for the creation of Branch Drains.
4. All property valuations are based on the same basic valuation per the Schedule of Costs.
5. Any tree or feature placed within a drainage works right of access for maintenance is not eligible for compensation.

Section 29 Allowance

(One time payment for land taken)

Where a Drain already exists and has had maintenance in the past, a work zone is assumed to exist, and a one-time payment for the work zone easement has been made. No further payment for a work zone or easement is deemed to be required based on the pre-existing work zone, regardless of whether that is known to exist or shown to exist in an explicit reference in a previous Engineer's report.

Where a Drain re-alignment is proposed, then a Section 29 allowance is determined. The determination is based on a 10m work zone running parallel to one side of the drain commencing at the Top of Bank. The Drainage Engineer determines the side from which work is done and shown on the Plans for Construction. The value is based on a single value of land figure as shown in the Schedule of Costs, and because the access is intermittent with the owner retaining ownership and access / use of the land for farming or otherwise, a factor in the assessment value of land is applied. Since the work zone is likely to be occupied on a 20-year maintenance cycle, a 1/20 factor is to be applied.

Where a buffer is established that restricts the use of the land adjacent to the drain, then a full payment for land taken based on the value established is made.

Section 30 Allowance

(Payment for damages during construction)

Awarded where work on the drain, such as maintenance, that damages crops which can not be restored. This does not apply to grass or any other ornamental feature restored to a similar condition as existed pre-construction. All damage calculations are based on agricultural crop losses.

For any trees removed for construction with a greater diameter than 150mm at breast height (DBH), compensation in the form of saplings is offered. Where a tree is removed, 2 saplings of a variety native to the area are offered for planting outside the work zone as compensation, and no award for compensation is made.

Section 31 Allowance

(Incorporate a Private Drain)

This type of allowance is to credit the construction effort of a private drain as it relates to the private drain being incorporated into a municipal Drain.

The value of the private drain depends on the condition and contribution to the function of the Drain. The cost to construct a similar channel would be based on the Schedule of Prices for valuation purposes. The cost to maintain it would be subtracted.

Section 32 Allowance

(Insufficient Outlet)

This compensates affected owners for whom lands are not sufficiently drained by the service level provided by the Drain or where lands are discharged into instead of having a sufficient outlet.

No allowance is made for Section 32 in the OMC watershed.

Section 33 Allowance

(Loss of Access)

Where a re-aligned Drain crosses the property and cuts off access, an allowance can be granted. This is offered as compensation where the landowner accepts the loss of access as the lessor of the cost to construct a culvert, bridge or fording to provide access. It can also be used to recognize a wetland where drainage is deferred in favour of the wetland's use of storage of runoff within the Watershed.

No occurrences of this within the Oil Mill Creek watershed are newly recognized within this report. There may be previous occurrences which are assumed to have been recognized in previous reports.

6.4.2 Riparian versus Watershed Benefit

The Drainage Act contains several key concepts, of which two are directly relevant to determining assessments:

- Injuring liability, Section 23 (1), and Outlet liability, Section 23 (2).

- Special Benefit Assessment, Section 24.

Where there is no extenuating circumstance to the direct flow of the channel, the whole benefit of the Bank Restoration and Improvement Program is that 100% of the cost is assessed to the adjacent landowner as a Special Benefit.

Where there is an extenuating circumstance to the flow of the channel, such as a bend, or other alignment adjustment, a tree or other object that obstructs flow and causes a change in velocity against a bank, then the cost of the Bank Restoration and Improvement Program is split with a portion allocated to the upstream watershed and a portion assigned to the benefiting adjacent landowner(s) as a Special Benefit. The ratio of an upstream area determines the portion compared as a percentage of the entire watershed area.

The Engineer's determination of the external influences of flow impacts requires the application of a bank protection measure. Bank protection measures rely on the acceptance and at the request of the adjacent landowner and are not applied without the landowner's acceptance. It is the choice of the Engineer to select the appropriate measure for the Drain.

6.4.3 General Instructions to Property Owners, Road Authorities and Public Utilities

The principles of the Drainage Act are:

- Drainage is a collective good that benefits all landowners. However, drainage does not have to benefit all landowners equally.
- All landowners cooperatively fund the drainage works proposed. There is no direct financial government role in the drainage works other than administrative.
- Landowners are assessed a financial share of the cost for the drainage works based on their respective drainage benefit.
- All drainage costs are borne by landowners, including allowances.
- Drainage is provided based on an identified service level for a specified size of storm. The standard storm, 1 in 5-year frequency, for basic open channel design is 68.9mm over 24 hours. A storm of a larger size or intensity may cause flooding. The tile placed at the bottom of an open channel is provided for drainage, not conveyance capacity.

For more details, refer to the OMC Watershed Hydrology and Hydraulics Report.

A best effort has been made to compose a fair and reasonable assessment of costs to each portion of the contributing lands.

6.4.4 Grants

Owners of qualifying agricultural land are presently eligible for a grant from the Ontario Ministry of Agriculture, Food and Rural Affairs of up to one-third of the cost of their assessment. This grant would be applied for by the City of Port Colborne and applied to the property owners' assessment at the time of final billing. The Assessment Schedule indicates lands that, based on information provided by the municipality, qualify for the agricultural land use rebate. The final determination of eligibility is the decision of the Ontario Ministry of Agriculture, Food and Rural Affairs. To be eligible for a grant, the property owner must have a Farm Property Class Tax Rate.

For additional information on the Agricultural Drainage Infrastructure Program, refer to the OMAFRA website at www.omafra.gov.on.ca.

6.5 Cost, Allowance and Assessment Schedules

The Assessment Tables are included in Appendix B. The following sections provide a summary report of those calculations.

Construction costs are allocated using the Interval ratio along with the Administration and Engineering Costs.

The cost of a new culvert to replace the Friendship Trail crossing east of Pinecrest Rd is allocated to the City of Port Colborne along with approach channel improvements and associated swale re-grading as a Private Drain Connection responsibility in recognition of the Friendship Trail as a barrier to the natural drainage. There is an assessment of cost during the construction of the culvert to the Niagara Regional Broadband Network for the cable that currently passes underneath the existing culvert. The cost is related to the protection and/or lowering of the cable to facilitate the construction of a new culvert.

Additional to these costs will be Administration and Engineering Costs related to the design.

Oil Mill Creek Municipal Drain
 City of Port Colborne
 Regional Municipality of Niagara

Assessment Summary

Farm As F'	Owner	Legal_Txt	Roll No	ARN ABBREV	Area Ha	Area in Drain Ha	Sect. 23	Sect. 24	Total Assessed	Allowances	Net
City of Port Colborne - Lands Assessed											
	AZOPARDI, THERESA FRANCES	CON 1 PT LOT 12	271104000226100	226100	3.8339	0.8620	\$2,643.87		\$2,643.87	\$0.00	\$2,643.87
	BRYAN, MILDRED AGNES	CON 1 PT LOT 12 RP 59R12293 PART 2	271104000226200	226200	3.6457	0.4970	\$1,524.73		\$1,524.73	\$0.00	\$1,524.73
	SNEEK, GREGORY ALAN; SNEEK, ARIANE KATRINA	CON 1 PT LOT 12 RP 59R12293 PART 1	271104000226210	226210	0.4046	0.4020	\$1,231.91		\$1,231.91	\$0.00	\$1,231.91
	BULGER, CAROL ANN	CON 1 PT LOT 12	271104000226300	226300	3.8977	0.8720	\$2,675.05		\$2,675.05	\$0.00	\$2,675.05
	RIZZI GIOVANNI ESTATE; RIZZI, MEMA	CON 1 PT LOT 12	271104000226301	226301	10.0639	0.5930	\$1,271.32		\$1,271.32	\$0.00	\$1,271.32
	SCHUIJT, JOHN; DUMA, PAMELA SUSAN	HUMERSTONE CON 1 PT LOT 12	271104000226400	226400	9.4729	3.1000	\$5,497.47		\$5,497.47	\$0.00	\$5,497.47
	DUMA, PAMELA SUSAN; SCHUIJT, JOHN	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 3	271104000226402	226402	0.9997	1.0000	\$1,751.76		\$1,751.76	\$0.00	\$1,751.76
	KLAUCK, WESLEY; KLAUCK, LISA	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 2	271104000226403	226403	0.9997	0.8030	\$1,370.59		\$1,370.59	\$0.00	\$1,370.59
	TAVANO, ANTONIO FELICE	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 1	271104000226404	226404	0.9997	0.3220	\$520.77		\$520.77	\$0.00	\$520.77
	BOSLEY, MARY ANN; BOSLEY, ROBERT J	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 1	271104000226417	226417	6.4219	3.3000	\$4,366.41		\$4,366.41	\$0.00	\$4,366.41
	BABIRAD, RACHAEL LYNN	CON 1 PT LOT 12 PLAN 59R-6139 PART 1	271104000226418	226418	0.4044	0.4040	\$978.28		\$978.28	\$0.00	\$978.28
	BABIRAD, RACHAEL LYNN	CON 1 PT LOT 12 RP59R-6139 PART 2	271104000226419	226419	0.4044	0.4040	\$1,183.22		\$1,183.22	\$0.00	\$1,183.22
	FORDY, MARY ANN; FORDY, BRUCE GLEN	CON 1 PT LOT 12 RP59R-6139 PART 3	271104000226420	226420	0.4045	0.3950	\$1,172.75		\$1,172.75	\$0.00	\$1,172.75
	MINOR, MARK FRANKLIN; CHRISTIE MINOR, AMBER NOELLE	HUMERSTONE CON 1 PT LOT 12 RP 59R16386 PART 1	271104000226422	226422	1.0009	0.7390	\$1,317.65		\$1,317.65	\$0.00	\$1,317.65
	MINOR, ANNE CATHERINE; MINOR, MORGAN PAUL	HUMERSTONE CON 1 PT LOT 12 RP 59R16386 PART 2	271104000226423	226423	1.0010	0.7480	\$1,332.62		\$1,332.62	\$0.00	\$1,332.62
	THOMSON, WAYNE ROBERT; BROWN, NANCY ANN	PLAN 24 PT LOT 1 NP783	271104000226500	226500	0.1635	0.0210	\$31.00		\$31.00	\$0.00	\$31.00
	HRABOWSKY, YVONNA VLADISLAVA	PLAN 24 S PT LOT 1 NP783	271104000226800	226800	0.1705	0.0210	\$31.08		\$31.08	\$0.00	\$31.08
	MCWHINNIE, EILEEN	PLAN 24 LOT 27 PT LOT 26 NP 783 RP59R 8197 PART 1	271104000229000	229000	0.1579	0.0170	\$25.02		\$25.02	\$0.00	\$25.02
	MAFFEI, CHERYL; MAFFEI, TERRY	PLAN 24 LOT 28 LOT 29 NP783	271104000229100	229100	0.2125	0.0310	\$45.83		\$45.83	\$0.00	\$45.83
	KAVANAGH, RUTH	PLAN 24 LOT 30 NP783	271104000229200	229200	0.1076	0.0060	\$0.00		\$0.00	\$0.00	\$0.00
	VESPER, DEBORAH SUZZANE	PLAN 36 LOT 1 NP795	271104000229500	229500	0.0690	0.0690	\$204.96		\$204.96	\$0.00	\$204.96
	VESPER, DEBORAH	PLAN 36 LOT 2 NP795	271104000229600	229600	0.0710	0.0710	\$164.97		\$164.97	\$0.00	\$164.97
	MARQUES, SILVINO MIGUEL DA CRUZ; PEREIRA MARQUES, MARIA	PLAN 795 LOTS 3 AND 4	271104000229700	229700	0.1152	0.1150	\$46.07		\$46.07	\$0.00	\$46.07
	MOORE, HARRY JR; MOORE, CAROL	PLAN 36 LOT 5 LOT 6 NP785	271104000229900	229900	0.1826	0.1830	\$267.92		\$267.92	\$0.00	\$267.92
	SCHUIJT, WINKLEY JANE; SCHUIJT, DOUGLAS ALLEN	PLAN 36 LOT 7 NP795	271104000230000	230000	0.0914	0.0910	\$130.95		\$130.95	\$0.00	\$130.95
	ALEXANDER, KATHRYN RUTH	PLAN 36 LOT 8 NP795	271104000230100	230100	0.0915	0.0910	\$129.09		\$129.09	\$0.00	\$129.09
	DE OCAMPO, MARTINIANO; DE OCAMPO, AMELIA	PLAN 36 LOT 9 NP795	271104000230200	230200	0.0916	0.0920	\$127.62		\$127.62	\$0.00	\$127.62
	ZIEMANSKI, DEREK; HOCHREITER, MELISSA MAY	PLAN 36 LOT 10 NP795	271104000230300	230300	0.0916	0.0920	\$125.76		\$125.76	\$0.00	\$125.76
	VAN ESCH, STEVEN CARMEN; VAN ESCH, KAITLIN MICHELLE	PLAN 36 LOT 11 NP795	271104000230400	230400	0.0917	0.0920	\$123.89		\$123.89	\$0.00	\$123.89
	GAME, RYAN DOUGLAS; GAME, RENEE MARIE	PLAN 36 LOT 12 NP795	271104000230500	230500	0.0918	0.0920	\$122.02		\$122.02	\$0.00	\$122.02
	MCCOMBE, LAURIE; DE ROSE, LEONARDO	PLAN 36 LOT 13 NP795	271104000230600	230600	0.0918	0.0920	\$120.15		\$120.15	\$0.00	\$120.15
	DE ROSE, LEONARDO; MCCOMBE, LAURIE	PLAN 36 LOT 14 PT LOT 15 NP795	271104000230700	230700	0.1077	0.1080	\$116.18		\$116.18	\$0.00	\$116.18
	HALL JILLIAN; HALL, BRIAN	PLAN 36 PT LOT 15 PT LOT 16 NP795	271104000230800	230800	0.0409	0.0410	\$16.43		\$16.43	\$0.00	\$16.43
	NORMAN, ERNEST J; NORMAN, LOIS A	PLAN 36 PT LOT 16 PT LOT 17 NP795	271104000230900	230900	0.0490	0.0490	\$19.63		\$19.63	\$0.00	\$19.63
	MAHONEY, BRIAN	PLAN 36 PT LOT 17 PT LOT 18 NP795	271104000231000	231000	0.0327	0.0330	\$13.22		\$13.22	\$0.00	\$13.22
	WILSON, ROBERT FRED JOHN; CANAVAN, WENDY ELIZABETH; WILSON, KIM GREGORY	PLAN 36 PT LOT 18 PT LOT 19 NP795	271104000231100	231100	0.0394	0.0390	\$15.62		\$15.62	\$0.00	\$15.62
	PIDB PROPERTIES INC	PLAN 36 PT LOT 19 NP795	271104000231200	231200	0.0387	0.0390	\$15.62		\$15.62	\$0.00	\$15.62
	LANDON, HANKLIN LIVINGSTONE	PLAN 36 PT LOT 20 NP795	271104000231300	231300	0.0277	0.0280	\$11.22		\$11.22	\$0.00	\$11.22
	SWARTZ, DEBORAH ANN LOUISE; SWARTZ, DOUGLAS	PLAN 36 PT LOT 20 NP795	271104000231400	231400	0.0263	0.0260	\$10.42		\$10.42	\$0.00	\$10.42
	SOUDER, CATHERINE R	PLAN 795 SAND BEACH	271104000231501	231501	0.5995	0.0230	\$3.69		\$3.69	\$0.00	\$3.69
	MEYER, PETER; SAHS-MEYER, EVA-LYN	PLAN 36 LOT 32 NP795	271104000232700	232700	0.0835	0.0260	\$4.17		\$4.17	\$0.00	\$4.17
	DEMERY, RUTH; DEMERY, GEORGE	PLAN 36 LOT 33 NP795	271104000232800	232800	0.0874	0.0540	\$8.65		\$8.65	\$0.00	\$8.65
	PARR, MARTIN JOHN; PARR, LINDSEY MARIE	PLAN 36 LOT 34 NP795	271104000232900	232900	0.0912	0.0870	\$13.94		\$13.94	\$0.00	\$13.94
	NARDONE, WILMA; NARDONE, JESSICA	PLAN 36 PT LOT 35 NP795	271104000233000	233000	0.0254	0.0250	\$4.01		\$4.01	\$0.00	\$4.01

Assess Summary

Farm	Owner	Legal_Txt	Roll No	ARN	Area	Area in Drain	Sect. 23	Sect. 24	Total	Allowances	Net
F	JACKSON, GLEN BRUCE; JACKSON, EONNIE LEE	CON 1 PT LOT 13	271104000238500	238500	0.4041	0.4040	\$1,360.58		\$1,360.58	\$0.00	\$1,360.58
	VANDER VAART, LEONARDUS J.; VANDER VAART, MARGARET ANN	CON 1 PT LOT 13	271104000238600	238600	11.6929	11.6930	\$15,502.69		\$15,502.69	\$0.00	\$15,502.69
	SZABO, MONICA ANNI; GRAY, ROGER WAYNE	CON 1 PT LOT 13	271104000238700	238700	1.9803	1.9800	\$2,966.99		\$2,966.99	\$0.00	\$2,966.99
	BABCOCK, CHARLYN KIMI; BARCOCK, TIMOTHY DAVID	RP 59M140 LOT 4 CON 1 PT LOT 13	271104000238701	238701	0.8148	0.8150	\$1,376.50		\$1,376.50	\$0.00	\$1,376.50
	MEDINA OIL FIELD SUPPLY INC	CON 1 PT LOT 13 RP 59R1063 PART 1	271104000238702	238702	6.0722	6.0720	\$8,298.91		\$8,298.91	\$0.00	\$8,298.91
	SAHS-MEYER, EVA-LYN; MEYER, PETER	CON 1 PT LOT 13 PLAN 59R4571 PART 1	238705	238705	0.8092	0.8090	\$2,481.35		\$2,481.35	\$0.00	\$2,481.35
	MEYER, PETER SAHS-MEYER, EVA-LYN	RP 59M140 LOT 3	271104000238706	238706	0.8091	0.8090	\$2,481.23		\$2,481.23	\$0.00	\$2,481.23
	PETRI, SUSANNE CECILE; PETRI HAROLD ESTATE	RP 59M140 LOT 2	271104000238707	238707	0.8091	0.8090	\$2,481.13		\$2,481.13	\$0.00	\$2,481.13
	ROVERSI, JUDITH ANN	P 59M140 LOT 1	271104000238708	238708	0.8090	0.8090	\$2,481.00		\$2,481.00	\$0.00	\$2,481.00
	POULIOT, LIAM ROLAND; BARTOK, ELISE AMANDA	CON 1 PT LOT 13	271104000238800	238800	0.2027	0.2030	\$438.51		\$438.51	\$0.00	\$438.51
	MARSHALL, RODERICK MARK; RUFFO, LEONA JOANNE	HUMBERSTONE CON 1 PT LOT 13 AND RP 59R5794 PART 1	238900	238900	0.1850	0.1850	\$400.09		\$400.09	\$0.00	\$400.09
	DESCHAMPS, SALLY ANN; DESCHAMPS, DENZIL ADELARD	CON 1 PT LOT 13	271104000239000	239000	0.2757	0.2760	\$596.30		\$596.30	\$0.00	\$596.30
	WINGER, KAREN JOANNE	CON 1 PT LOT 13	271104000239200	239200	0.1842	0.1840	\$398.39		\$398.39	\$0.00	\$398.39
	NESBITT, DANIELLE MICHELLE; SCOT, KEVIN JOHN	CON 1 PT LOT 13	271104000239300	239300	0.1997	0.2000	\$431.96		\$431.96	\$0.00	\$431.96
GEADY, CINDY JO; CARRIGAN, FRANCIS JAMES	CON 1 PT LOT 13 RP 59R3347 PART 1 TO PART 4	271104000239400	239400	0.3789	0.3790	\$819.44		\$819.44	\$0.00	\$819.44	
PHELAN, DAISY; PHELAN, CHRISTOPHER	CON 1 N PT LOT 13	271104000239600	239600	5.6972	5.6970	\$7,236.93		\$7,236.93	\$0.00	\$7,236.93	
DIMOND, DOUGLAS PATRICK; DIMOND, JANETTE KATHERINE	CON 1 PT LOT 13 RP 59R6412 PART 2	239601	239601	0.4089	0.4090	\$884.38		\$884.38	\$0.00	\$884.38	
SEREDINE, MATHEW WILLIAM	CON 1 PT LOT 13 RP 59R6412 PART 1	239602	239602	0.4525	0.4460	\$963.66		\$963.66	\$0.00	\$963.66	
O'REILLY, LAURENCE MARIE; HOBMAN, GLEN RICHARD	CON 1 PT LOT 13 RP 59R1063 PART 2	239700	239700	0.2199	0.2160	\$463.02		\$463.02	\$0.00	\$463.02	
SNEECCO LTD	CON 1 PT LOT 13 RP 59R 1063 PART 3	239800	239800	0.1319	0.1310	\$280.96		\$280.96	\$0.00	\$280.96	
KOCH, KIRK DOUGLAS; KOCH, NANETTE ANNE	HUMBERSTONE CON 1 PT LOT 13 AND RP 59R1063 PART 4	239900	239900	0.1962	0.1960	\$420.29		\$420.29	\$0.00	\$420.29	
MORRIS, TIMOTHY HENRY; MORRIS, JAMIE LYNN	CON 1 PT LOT 13 RP 59R344 PART 5	240000	240000	0.1692	0.1690	\$363.41		\$363.41	\$0.00	\$363.41	
GILLESPIE, RITA; GILLESPIE, BLAIR A	CON 1 PT LOT 13 RP 59R3144 PART 2	240100	240100	0.5020	0.5020	\$1,084.31		\$1,084.31	\$0.00	\$1,084.31	
KORTEN, RICHARD	CON 1 PT LOT 13 RP 59R3144 PART 1	240101	240101	0.4601	0.4600	\$2,116.84		\$2,116.84	\$0.00	\$2,116.84	
GUDRUNAS, PETER ERWIN	CON 1 PT LOT 13	271104000240200	240200	5.2970	5.2970	\$6,577.77		\$6,577.77	\$0.00	\$6,577.77	
SHIBLEY, JASON HAROLD	CON 1 PT LOT 14	271104000240300	240300	0.4067	0.3950	\$853.73		\$853.73	\$0.00	\$853.73	
TAGGART, BRENDA; SCHIRMEISTER, MICHAEL BURT	CON 1 PT LOT 14	271104000240600	240600	0.4988	0.4920	\$1,063.27		\$1,063.27	\$0.00	\$1,063.27	
BARRETT, GORDON JAMES	CON 1 PT LOT 14 RP 59R8871 PART 1	240700	240700	0.5470	0.5470	\$1,183.06		\$1,183.06	\$0.00	\$1,183.06	
GRANT, LINDA MARGARET	CON 1 PT LOT 14 RP 59R947 PART 1	240701	240701	7.3555	7.3550	\$7,418.45		\$7,418.45	\$0.00	\$7,418.45	
THIESSEN, STEPHANIE	HUMBERSTONE CON 1 PT LOT 14 RP 59R8871 PART 2	240705	240705	17.0560	17.0560	\$28,588.41		\$28,588.41	\$0.00	\$28,588.41	
WILLIAMS, ROBERT LEE; WILLIAMS, MARGARET HELEN	HUMBERSTONE CON 1 PT LOT 14 RP 59R1717 PART 1	240707	240707	2.3175	2.3120	\$3,889.08		\$3,889.08	\$0.00	\$3,889.08	
KALYNUK, CATHY ANN; KALYNUK, JAMES VAN	CON 1 PT LOT 14 PT 3 - RAILWAY LAND	240710	240710	11.0393	11.0390	\$15,132.75		\$15,132.75	\$0.00	\$15,132.75	
BROWN, THEODORE THOMAS RICHARD	CON 1 PT LOT 14	271104000240800	240800	0.4121	0.4120	\$991.62		\$991.62	\$0.00	\$991.62	
LAUR CAROL JAYNE ESTATE; LAUR, JOHN THOMAS; LAUR, MICHAEL JOHN	CON 1 PT LOT 14	271104000240900	240900	19.5469	19.5470	\$38,669.03	\$4,284.39	\$42,953.43	\$0.00	\$42,953.43	
MAZZA, RAYMOND; JORGE, JACINTA	CON 1 PT LOT 14	271104000241000	241000	0.0813	0.0810	\$362.85		\$362.85	\$0.00	\$362.85	
ZAJAC, JOHN	CON 1 PT LOT 14	271104000241100	241100	0.1660	0.1660	\$741.21		\$741.21	\$0.00	\$741.21	
ZAJAC, JOHN	CON 1 PT LOT 14	271104000241200	241200	0.0695	0.0700	\$310.64		\$310.64	\$0.00	\$310.64	
HAAZER, DARIE	CON 1 PT LOT 14	271104000241300	241300	0.0695	0.0690	\$310.07		\$310.07	\$0.00	\$310.07	
CRANE, CORNELIA; CRANE, STEPHEN	CON 1 PT LOT 14	271104000241400	241400	0.0694	0.0690	\$309.90		\$309.90	\$0.00	\$309.90	
STICKLAND, TANYA; STICKLAND, MATTHEW	CON 1 PT LOT 14	271104000241500	241500	0.1390	0.1390	\$620.81		\$620.81	\$0.00	\$620.81	
MCINTYRE, TEIGHAN BEVERLY; DAVIES, FREDERICK CONRAD	CON 1 PT LOT 14	271104000241600	241600	0.0693	0.0690	\$309.38		\$309.38	\$0.00	\$309.38	
PRESSE, CATHERINE ANN; PRESSE, LORIN EARL	CON 1 PT LOT 14	271104000241700	241700	0.1198	0.1200	\$534.92		\$534.92	\$0.00	\$534.92	
ICON REINSURANCE INC	CON 1 PT LOT 14	271104000241800	241800	0.0933	0.0930	\$416.48		\$416.48	\$0.00	\$416.48	
FIDDY, CHARLES JOHN; FIDDY, LILLIAN NICOLE	CON 1 PT LOT 14 RP 59R 8956 PART 1	241900	241900	0.1678	0.1680	\$749.12		\$749.12	\$0.00	\$749.12	
TURNER, DAVID BRETT; SINDERLY, MICHAEL JOSEPH; SINDERLY, BARBARA RUTH	CON 1 PT LOT 14 RP 59R3837 PART 2 RP 59R8956 PART 2	242100	242100	0.2135	0.2140	\$953.56		\$953.56	\$0.00	\$953.56	
PORT COLBORNE CITY	CON 1 PT LOT 13 PT LOT 14 PLAN 36 PT BLK A	242101	242101	19.0899	18.1900	\$15,121.40	\$13,710.06	\$28,831.46	\$0.00	\$28,831.46	
GRAYDON, AMANDA	HUMBERSTONE CON 1 PT LOT 14 RP 59R16071 PART 1	242200	242200	0.4174	0.4160	\$29.25		\$29.25	\$0.00	\$29.25	
BASCIANO, MARKUS ALEXANDER	HUMBERSTONE CON 1 PT LOTS 13 AND 14 RP 59R16071 PART 2	242202	242202	0.4502	0.1290	\$25.84		\$25.84	\$0.00	\$25.84	
EVANS, LANA; EVANS, MARK RANDALL	CON 1 PT LOT 14	271104000242300	242300	0.3339	0.1270	\$25.44		\$25.44	\$0.00	\$25.44	
KIS, GARY MICHAEL	CON 1 PT LOT 14	271104000242500	242500	0.8129	0.3220	\$64.50		\$64.50	\$0.00	\$64.50	
BARKER, VICTOR THOMAS; BARKER, GISELE BRIGITTE	PLAN 42, LOT 80, PT LOTS 70 & 79 NP 801 59R 9778 PART 1	271104000242600	242600	0.5014	0.5010	\$1,349.41		\$1,349.41	\$0.00	\$1,349.41	

Assess Summary

Farm	Owner	Legal Txt	Roll No	ARN ABBREV	Area	Area in Drain	Sect. 23	Sect. 24	Total	Allowances	Net
	MACCABE, NATALIE ANN BETHANY; APOLCER, JEREMY MATTHEW	CON 1 PT LOT 14 RP 59R3783 PART 1 PART 2	271104000242700	242700	0.2090	0.2090	\$933.03	\$3,622.26	\$4,555.29	\$0.00	\$4,555.29
	APOLCER, JEREMY MATTHEW; MACCABE, NATALIE ANN BETHANY	CON 1 PT LOT 14	271104000242900	242900	0.0696	0.0700	\$311.13		\$311.13	\$0.00	\$311.13
	SCEPPACERQUA, DREW ALBERT	CON 1 PT LOT 14 RP 59R3783 PART 4	271104000243100	243100	0.1393	0.1390	\$621.89		\$621.89	\$0.00	\$621.89
	FIGUEIRA, MARIO	CON 1 PT LOT 14	271104000243200	243200	0.1144	0.1140	\$510.44		\$510.44	\$0.00	\$510.44
	FIGUEIRA, MARIO	CON 1 PT LOT 14	271104000243300	243300	0.0697	0.0700	\$311.15		\$311.15	\$0.00	\$311.15
	PIZZO, THEODORE ORLANDO	CON 1 PT LOT 14	271104000243400	243400	0.1742	0.1740	\$777.91		\$777.91	\$0.00	\$777.91
	8798494 CANADA CORP	CON 1 PT LOT 14	271104000243500	243500	2.0227	2.0230	\$1,187.17		\$1,187.17	\$0.00	\$1,187.17
	MCCADAM, RICHARD WILSON	CON 1 PT LOT 14	271104000243600	243600	0.7984	0.7980	\$652.48		\$652.48	\$0.00	\$652.48
	TOMLINSON, RICHARD WILSON	CON 1 PT LOT 14	271104000243700	243700	0.3482	0.3480	\$527.26		\$527.26	\$0.00	\$527.26
	HENDERSON, PERIANNE LYNNE; HENDERSON, BRIAN RICHARD	CON 1 PT LOT 14	271104000243800	243800	0.1865	0.1860	\$371.57		\$371.57	\$0.00	\$371.57
	JAEGER, STEPHAN; JAEGER, TAMMY	CON 1 PT LOT 14	271104000243900	243900	0.2321	0.2320	\$518.11		\$518.11	\$0.00	\$518.11
	WELLS, BARBARA ELLEN; BELL, DAVID ANDREW	PLAN 40 LOT 42 LOT 43 NP799	271104000245000	244500	0.1298	0.0170	\$38.92		\$38.92	\$0.00	\$38.92
	MCAVOY, MATTHEW JOHN; MCAVOY, CARRIE	PLAN 40 PT LOTS 39,40 & 30 LOTS 41,49 NP 799 RP59R10110 PART 1	271104000244501	244501	0.1697	0.0800	\$177.84		\$177.84	\$0.00	\$177.84
	ST JOHN'S LUTHERAN CHURCH TRUSTEES	PLAN 40 LOT 48 NP799 CON 1 PT LOT 14	271104000244601	244601	0.4725	0.1940	\$433.53		\$433.53	\$0.00	\$433.53
	SOLOMON, NATHAN ALLEN; SOLOMON, RACHEL CHRISTINE	PLAN 40 LOTS 38 51 52 PT LOTS 37 39 40 50 53 NP799 RP 59R167 PT 2 RP 59R10110 PT 2	271104000244602	244602	0.2364	0.1590	\$354.00		\$354.00	\$0.00	\$354.00
	PRATT, GARY; PRATT, IRENE	PLAN 40 LOT 36 LOT 54 PT LOTS 35 37 53 & 55 NP799 RP 59R167 PART 1	271104000244900	244900	0.1838	0.1240	\$276.86		\$276.86	\$0.00	\$276.86
	LECKIE, PATRICIA EVELYN; LECKIE, JAMES FERRELL	PLAN 799 PT BLK A LOTS 34 AND 56 PT LOTS 35 AND 55	245000	245000	0.1229	0.0860	\$191.84		\$191.84	\$0.00	\$191.84
	BANATO, DONNA MARIE; SMITH, PETER WAIT	PLAN 799 LOTS 31 TO 33 57 TO 59	245100	245100	0.2362	0.1610	\$358.66		\$358.66	\$0.00	\$358.66
	8798494 CANADA CORP	PLAN 799 LOTS 23,24 30 AND 60 PT LOTS 25 29 61 PT BLK C	245200	245200	0.1057	0.0970	\$216.06		\$216.06	\$0.00	\$216.06
	OLEKSIAK, JAMIESON DEAKIN; OLEKSIAK, ALISON MARIE	PLAN 799 PT LOTS 29&61 PLAN 801 L 74,75 & PT LOTS 73,76 RP59R7934 PT 1	245301	245301	0.2108	0.1960	\$437.76		\$437.76	\$0.00	\$437.76
	ALLEN, CHRISTINE; STINZIANNI, LUIGI GINO	PLAN 801 PT BLKS A D AND E PT LOTS 65 66 72 73 76 AND 77 RP 59R15049 PARTS 1 TO 4	245400	245400	0.4451	0.2350	\$523.95		\$523.95	\$0.00	\$523.95
	KELLER, ROGER L	PLAN 42 LOT 67 LOT 71 LOT 78 PT LOT 66 PT LOT 72 PT LOT 77 PT BLK D PT BLK E PLAN 46 PT BLK A	245500	245500	0.5330	0.2730	\$608.60		\$608.60	\$0.00	\$608.60
	PRIMERANO, ROBIN; CLARE, IRENE; CLARE, JOHN; CLARE, RANDY	PLAN 42 LOT 68 LOT 69 PT LOT 70	245600	245600	1.2159	0.8350	\$732.60		\$732.60	\$0.00	\$732.60
	ASHBY, JORDAN; ASHBY, MIRANDA	PLAN M-168 LOT 1	252800	252800	0.8255	0.8260	\$2,287.53		\$2,287.53	\$0.00	\$2,287.53
	LUNDY, JANET; LUNDY, JAMES	PLAN 59M168 LOT 2	252900	252900	0.8364	0.8360	\$2,530.64		\$2,530.64	\$0.00	\$2,530.64
	SAXTON, THOMAS ROBERT; SAXTON, MARIA	PLAN 59M168 LOT 3	253000	253000	0.8468	0.8470	\$2,596.80		\$2,596.80	\$0.00	\$2,596.80
	JAMES, WILLIAM RUSSELL	PLAN 59M168 LOT 4	253100	253100	0.8802	0.8800	\$2,699.30		\$2,699.30	\$0.00	\$2,699.30
	DANIEL, VINCENT; DANIEL, ARUNA	PLAN 59M168 LOT 5	253200	253200	0.8147	0.8150	\$2,498.50		\$2,498.50	\$0.00	\$2,498.50
	PETERSON, ALLAN BERT; PETERSON, LISA MARIE	PLAN 59M168 LOT 6	253300	253300	0.8156	0.8160	\$2,501.27		\$2,501.27	\$0.00	\$2,501.27
	SALIBA, CARMEL JOSEPH; SALIBA, CHRISTINA GRACE	PLAN 59M175 LOT 1	253400	253400	0.7515	0.7520	\$2,304.82		\$2,304.82	\$0.00	\$2,304.82
	MORRISON, DAVID JOHN; MORRISON, BONNIE SUE	PLAN 59M175 LOT 3	253500	253500	0.8188	0.8190	\$2,511.16		\$2,511.16	\$0.00	\$2,511.16
	ASHBY, JOANNE; SIMPSON, BRIAN	PLAN 59M-175 LOT 4	253600	253600	0.8341	0.8340	\$2,557.76		\$2,557.76	\$0.00	\$2,557.76
	YOUNG, CHANTAL	PLAN 59M175 LOT 5	253700	253700	0.8423	0.8420	\$2,582.87		\$2,582.87	\$0.00	\$2,582.87
	GIRARD, ANGELA JACQUELINE; GIRARD, STEED	PLAN 59M175 LOT 6	253800	253800	0.8343	0.8340	\$2,558.52		\$2,558.52	\$0.00	\$2,558.52
	TYPFER, JULIANNA MARIANNA	PLAN 59M175 LOT 7	253900	253900	0.8083	0.8080	\$2,478.74		\$2,478.74	\$0.00	\$2,478.74
	COMFORT, CHRISTOPHER HERMAN; COMFORT, JOSEPHINE ANN	PLAN 59M175 LOT 1	254100	254100	0.6468	0.6470	\$1,983.53		\$1,983.53	\$0.00	\$1,983.53
	FONTAINE, BARBARA	PLAN 59M175 LOT 2	254100	254100	0.6235	0.6240	\$1,912.31		\$1,912.31	\$0.00	\$1,912.31
	REPEC, JENNIFER	HUMBERSTONE CON 1 PT LOT 15 PLAN 796 PT BLKS A AND B LOTS 8 TO 14 PT LOT 15 PT WATER LOT	300900	300900	5.9988	3.4410	\$7,682.87		\$7,682.87	\$0.00	\$7,682.87
	VIOLIN, ELIZABETH IRENE; VIOLIN, VICTOR EMILIO	PLAN 796 PT BLK B BROKEN LOTS 15 AND 16	301000	301000	2.2699	1.5320	\$3,422.10		\$3,422.10	\$0.00	\$3,422.10
	KEPPY, JANE AUDREE; COCKSHUTT, WILLIAM ANTHONY	HUMBERSTONE CON 1 PT LOT 16 PLAN 796 PT BLK B PT WATER LOT RP 59R15083 PARTS 1 AND 2	301100	301100	1.3959	0.5590	\$1,235.53		\$1,235.53	\$0.00	\$1,235.53
	BODNER, MEGAN; FARNAM, SCOTT	PLAN 796 PT BLK B RP 59R12610 PART 1	301101	301101	0.5496	0.5496	\$1,164.59		\$1,164.59	\$0.00	\$1,164.59
	FALLON, KERRY BERNARD	PLAN 796 PT BLK B RP 59R12610 PART 2	301105	301105	0.9272	0.9270	\$2,069.89		\$2,069.89	\$0.00	\$2,069.89
	FLETT, SUSANNE MAY; FLETT, JOHN ROSS	PLAN 796 PT BLK B HUMBERSTONE CON 1 PT WATER LOT IN FRONT OF LOT 16 AND RP 59R11670 PART 1 UNREG	301200	301200	2.3190	1.4780	\$1,714.76		\$1,714.76	\$0.00	\$1,714.76
	GROOM, JOSHUA NATHAN; GROOM, KRISTAL LYNN	PLAN 37 LOT 16 PT LOT 15 NP796	301300	301300	0.5266	0.5270	\$1,175.78		\$1,175.78	\$0.00	\$1,175.78
	JASEK, COLLEEN R; JASEK, JOHN M	PLAN 37 LOT 17 NP796	301400	301400	0.4571	0.4570	\$1,020.14		\$1,020.14	\$0.00	\$1,020.14

Farm	Owner	Legal_Txt	Roll No	ARN ABBREV	Area	Area in Drain	Sect. 23	Sect. 24	Total	Allowances	Net
	HODOVAY, SUSAN-PIETRAS; HOLODAY, RICHARD	PLAN 37 LOT 18 PT LOT 19 NP796	271104000301500	301500	0.6340	0.6340	\$-,415.05	\$3,193.82	\$4,608.87	\$0.00	\$4,608.87
	MORRISON, HALEY MARILYN; MINCR, DUNCAN LINCOLN	PLAN 37 PT LOT 19 NP796	271104000301600	301600	0.2054	0.2040	\$454.51		\$454.51	\$0.00	\$454.51
	KRIEGER, LESLEY EILEEN	PLAN 37 LOT 20 NP796	271104000301700	301700	0.3953	0.3850	\$858.51		\$858.51	\$0.00	\$858.51
	BUCHANAN, CHERIE ELIZABETH; BUCHANAN, ROBERT JOSEPH	PLAN 37 PT LOT 21 NP796	271104000301800	301800	0.1490	0.1490	\$273.23		\$273.23	\$0.00	\$273.23
	SMITH, MARGORY LEE; SMITH, BRIAN WESLEY	PLAN 37 PT LOT 22 NP796	271104000301900	301900	0.1194	0.1194	\$171.08		\$171.08	\$0.00	\$171.08
	SIMPSON, KORY; BELSKY, IGOR	PLAN 37 PT LOT 22 NP796	271104000302000	302000	0.0510	0.0740	\$30.30		\$30.30	\$0.00	\$30.30
	WINGER, W A	PLAN 796 PT BLK A	271104000302001	302001	0.4597	0.0660	\$148.93		\$148.93	\$0.00	\$148.93
	BEGG, TERRY-LYNN	PLAN 37 PT LOT 21 PT LOT 22 NP796	271104000302100	302100	0.5792	0.5790	\$-,293.04	\$2,336.94	\$3,629.98	\$0.00	\$3,629.98
	METCALF, IVANA KOMLENOVIC; METCALF, THOMAS ASA	CON 1 PT LOT 15 RP 59R7605 PART 1	271104000302610	302610	0.4045	0.4050	\$903.24	\$5,141.27	\$6,044.51	\$0.00	\$6,044.51
	1000071167 ONTARIO INC	HUMBERSTONE CON 1 PT LOT 16 PT LOT 15	271104000302700	302700	21.1469	21.1470	\$56,957.89	\$4,206.50	\$61,164.39	\$0.00	\$61,164.39
F	SAWDON, SONIA ODARKA; SAWDON, DEBORAH ANN	CON 1 PT LOT 15	271104000302800	302800	14.0778	14.0780	\$44,000.31		\$44,000.31	\$0.00	\$44,000.31
F	CROWDER, MARTHA; MOORE, RICHARD WILLIAM	CON 1 PT LOT 15 PT LOT 15	271104000302900	302900	20.8284	14.9820	\$24,459.16		\$24,459.16	\$0.00	\$24,459.16
	JONES, LARRY WAYNE	CON 1 PT LOT 15	271104000303000	303000	0.4046	0.4050	\$875.12		\$875.12	\$0.00	\$875.12
	SHAUBEL, ALLEN WILLIAM	CON 1 PT LOT 15	271104000303100	303100	0.9148	0.9150	\$-,978.66		\$-,978.66	\$0.00	\$-,978.66
F	NIGHT, HAROLD ALFRED; NIGHT, JANE CAROLYN	CON 1 PT LOT 15 PT LOT 15	271104000303200	303200	20.4940	11.3440	\$19,082.46		\$19,082.46	\$0.00	\$19,082.46
F	FEHRMAN, AMY LEE; FEHRMAN, PAUL ALLAN	CON 1 PT LOT 15 PT LOT 15	271104000303400	303400	39.5797	10.3560	\$17,420.36		\$17,420.36	\$0.00	\$17,420.36
	FANNON, SYLVIA ROSE; FANNON, WILLIAM THOMAS	CON 1 PT LOT 15	271104000303500	303500	0.4473	0.4470	\$967.38		\$967.38	\$0.00	\$967.38
	PORT COLBORNE CITY	CON 1 PT LOTS 1-22	271104000499900	499900	1.6006	1.6010	\$6,800.38	\$10,633.09	\$17,433.47	\$0.00	\$17,433.47
							253,865	\$482,286.19	\$536,901.43	\$0.00	\$536,901.43

Section 23: Roadway Assessment

Roads

City of Port Colborne	Pinecrest Road	4.062	148317	\$23,607.08
City of Port Colborne	Richard Avenue	0.616	148341	\$3,987.37
City of Port Colborne	Tammy Avenue	0.549	148342	\$3,553.61
City of Port Colborne	Tracy Terrace	0.750	148362	\$4,854.90
City of Port Colborne	Vimy Ridge Road From Pinecrest Road To Centennial Park	0.790	148378	\$4,713.43
City of Port Colborne	Vimy Ridge Road From Centennial Park To Cedar Bay Road	0.571	148415	\$434.30
City of Port Colborne	Firelane 4 From Centennial Park To Cedar Bay Road	0.399	148461	\$2,122.59
City of Port Colborne	June Road From Centennial Park To Cedar Bay Road	0.399	148477	\$2,248.25
City of Port Colborne	Cedar Bay Road	3.343	148506	\$17,669.90
		11.478		\$63,191.43
				\$611,601.34

Section 26: Special Assessments

City of Port Colborne	Relay Culvert O-CS-08 to design gradeline includes grouted joint seal and new bedding	\$7,912		\$7,912.08
Niagara Regional Broadband Network, (NRBN)	Utility protection and relaying during construction of the culvert.	\$3,596		\$3,596.40
				\$11,508.47

Oil Mill Creek Drain

	Total Assessed:			\$611,601.34
--	------------------------	--	--	---------------------

Notes:

- The above lands marked "F" are currently classified as agricultural according to the OMAFRA and are therefore entitled to a 1/3 grant.
- Section 21 of the Drainage Act, RSO 1990 requires that assessments be shown for each parcel of land and road affected. The affected parcels of land are identified using the roll number received from the City. For convenience only, the owners' names are shown by the last revised assessment roll.
- The value of the assessments identified in this schedule are estimates only, and should not be considered final.
- Property 271104000302001 is a private road, Firelane 2 and ownership is shared. W A Winger is the name on the property record.

7 Oil Mill Creek Drain Report Conclusions

This report has identified a series of drain improvements, including maintenance, to ensure suitable channel design flows are achieved. Also, drain alignments based on identified property impacts have been developed through the plan and profile.

The following are summary descriptions of the planned improvements:

1. The existing Oil Mill Creek Outlet.
The primary improvements are related to site safety for the operation of the raising and lowering of the existing flap gate.
The inclusion of smaller flap gates to provide more passive flow opportunities is a low-cost adjustment to reduce the frequency of gate adjustment.
2. Grade line improvements to the E1 Branch
The proposed improvement to the grade line of E1 achieves a lower upper channel bottom that will improve the outlet drainage serving the Bell Acres subdivision.
3. Maintenance work and outlet re-alignment for E2 Branch
Convert the two outlet branch connections into one improved alignment flow path for E2 and E3. Clean and improve the existing channel to Merkel Rd.
4. Channel geometry conversion for E3 Branch with culvert improvement.
The channel is compromised, and the existing culvert has grade line problems. Reconstruction into a low flow and high flood channel geometry with new culvert is proposed.
5. West Branch grade line culvert improvements, including rock removal and reuse as riffles and pools on the OMC main channel.
6. The proposed Centennial Wetland will reduce runoff peak flow using flow storage and slow release. The cost of the wetland is balanced against the reduction in regular flooding that currently exists. However, the wetland does not eliminate flooding, which still occurs for larger storms. The wetland does reduce the impact of flooding events in all cases by giving room for each flood event.

These improvements reduce the flooding impacts but do not eliminate the impact of flooding especially for storms larger than the design case, 68.9mm per 24 hours.

**Appendix A:
Drainage Design Drawings;
Plans, Profiles**

OIL MILL CREEK DRAIN



PROPOSED 600mm HDPE DOUBLE WALL 320kPa - 9m CULVERT INSTALLED AS PER GD-05 PROTECT EXISTING NRBN FIBRE

CLEAR VEGETATION AND CLEAN DRAIN BOTTOM TO DESIGN GRADE. 1000m SECTION 74

RELAY CONCRETE PIPE AT PROPOSED DESIGN GRADE WITH 50mm EMBEDMENT. COMPLETED WITH CONCRETE PIPE JOINT WITH GROUT OR WITH EQUIVALENT APPROVED

CLEAR VEGETATION AND CLEAN DRAIN BOTTOM TO DESIGN GRADE FOR EXISTING E1 BRANCH DRAIN. 770m OF MAINTENANCE WORK.

PROPOSED CENTENNIAL SWM WETLANDS EAST AND WEST BASINS SEE OM.SD-1 & OM.SD-2

PROPOSED CHANNEL, 30m RIFFLE CONSTRUCTED WITH WEST BRANCH ROCK SPOIL AS PER OPSP 222.050 & 222.060

REPLACE 7 CULVERTS AT DESIGN GRADE SIZED AS PER OM.P5. RESTORE ACCESS TO LIKE OR BETTER CONDITION

PROPOSED REGRADE TO DESIGN WITH ROCK REMOVAL TO BW=0.6m. 380m WITH ROCK USED ON SITE AS PER LANDOWNER DIRECTION OR REMOVED TO BE USED WITH THE RIFFLE, POOL & WETLAND CONSTRUCTION

E1 BRANCH TO BE RE-GRADED TO THE NEW DESIGN GRADE AND CROSS-SECTION. SEE OM.P3

E1-CS03 TWIN 600MM PE CULVERTS TO BE RECONSTRUCTED ON DESIGN GRADE. SEE DWG P3.

RE-ALIGN E2 AND E3 BRANCH OUTLET TO SINGLE CONNECTION TO OMC DRAIN

RECONSTRUCT 110m OF EXISTING DRAIN TO LOW FLOW FLOOD FLOW CROSS-SECTION. REPLACE EXISTING CULVERT WITH A DOUBLE WALL 525mm D PE CULVERT - 6m WITH 100mm B GRAVEL BEDDING AND TO THE PIPE HAUNCHES.

SEE PRELIMINARY DESIGN REPORT FOR SUBMERSIBLE PUMP SERVICE

ADJUST EXISTING FIXED POSITION STEEL FLAP GATE WITH PASSIVE COMPOSITE STEEL/ PE PASSIVE OUTLETS. REPLACE LIFTING WINCH ON EXISTING CONCRETE PAD



NOTES:
1. DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED

PLAN VIEW LEGEND:

- DRAINAGE AREA BOUNDARY
- DRAIN CENTERLINE
- PROPOSED DRAIN CENTERLINE
- DRAIN CHAINAGE
- ABREVIATED ROLL NUMBERS
- SITE SPECIFIC DETAIL I.D.
- BOUNDARY OF AREA CAPTURED IN SITE DETAIL
- DRAINAGE WORK PROPOSED
- DRAINAGE WORK COMPLETED - TO BE ASSESSED

BENCHMARK INFORMATION:
• 0+000 OIL MILL CREEK DRAIN LOCATED ON NORTH EAST CORNER OF HEADWALL (0+000+001)

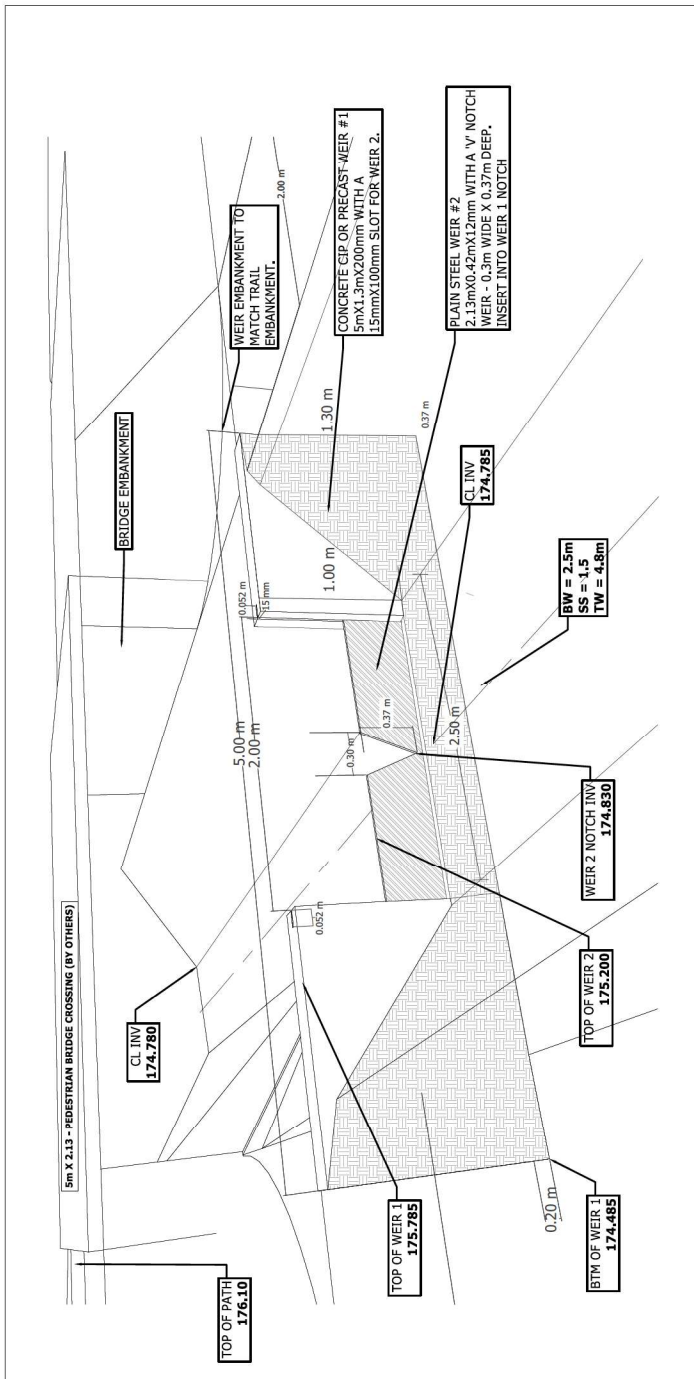
5		
4		
3		
2		
1	ISSUED FOR REPORT	June 20, 2024
NO.	REVISION DESCRIPTION	DATE

OIL MILL CREEK DRAIN PLAN OF CONSTRUCTION

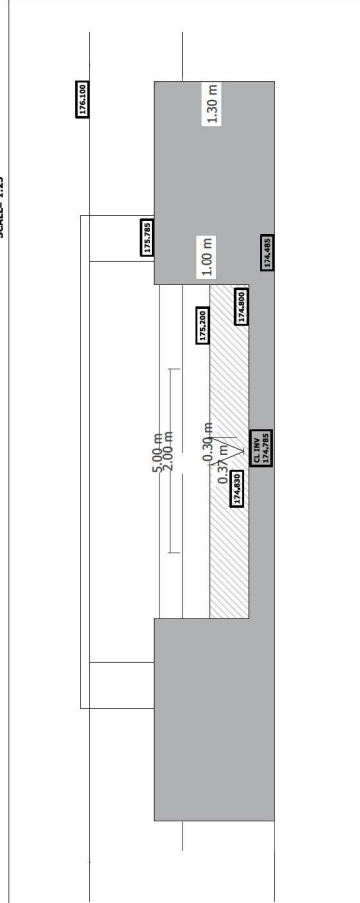


DRAWN BY: KD	APPROVED BY: PCM	PROJECT NO.: 19-9998	DRAWING NO.: OM.PLAN
DESIGNED BY: PCM	DATE: 30-APR-2024	SCALE: F.T.A.	

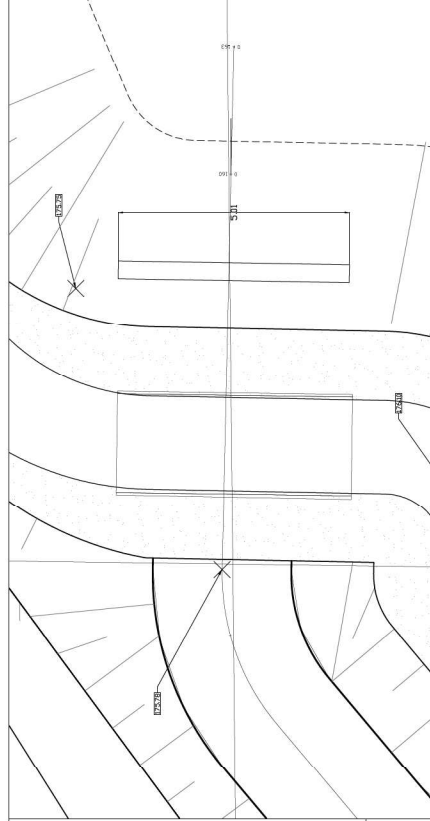
CENTENNIAL WETLANDS ENTRANCE WEIR DETAIL



SPECIAL DETAIL SD-3-01
SCALE= 1:25



SPECIAL DETAIL SD-3-02
SCALE= 1:25



SPECIAL DETAIL SD-3-03
SCALE= 1:50

NOTES:

1. DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED, THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
3. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
4. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
5. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
6. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
7. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.
8. THE CONTRACTOR IS TO TAKE CARE TO PROTECT ALL EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO THE CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES, AND TO TAKE CARE TO PROTECT ALL EXISTING STRUCTURES AND CONDUITS TO POWER, TELEPHONE, CABLE, GAS, WATER, SEWER, AND OTHER UTILITIES.

SPATIAL DATA:

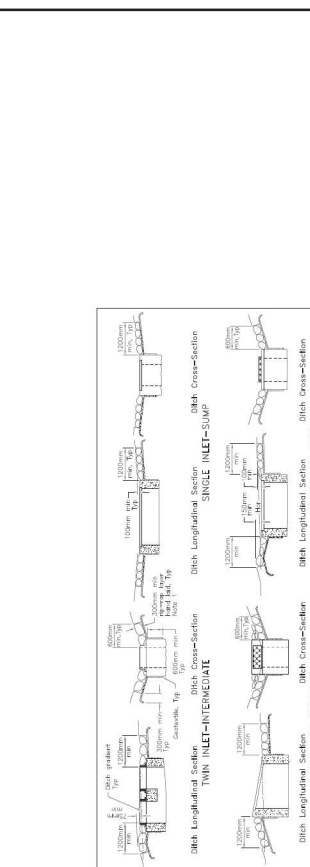
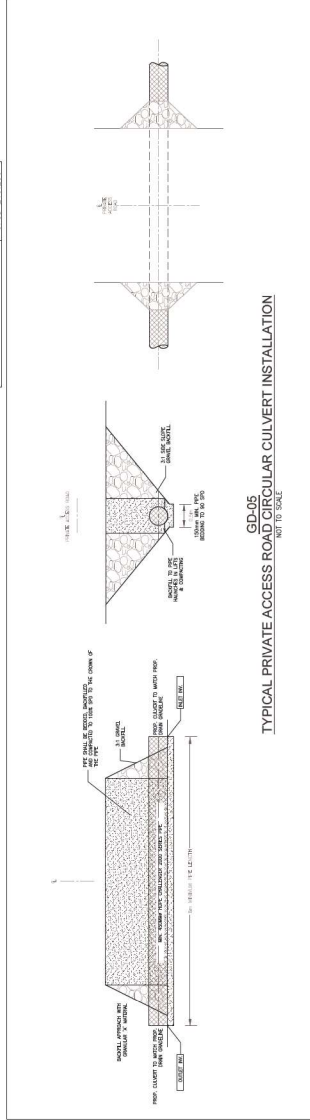
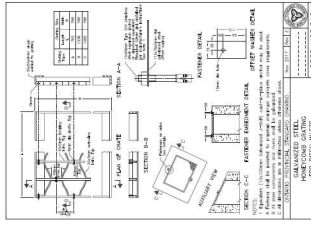
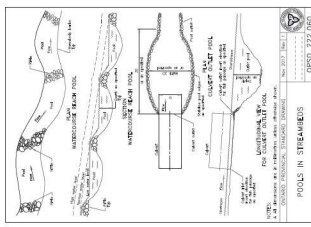
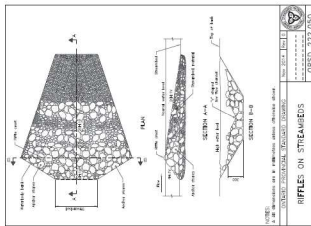
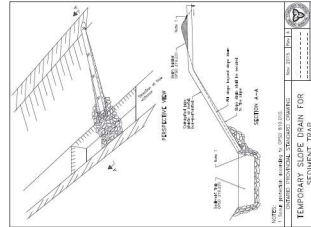
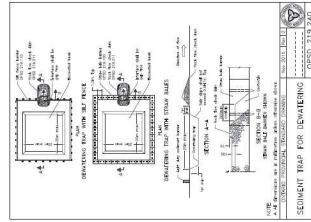
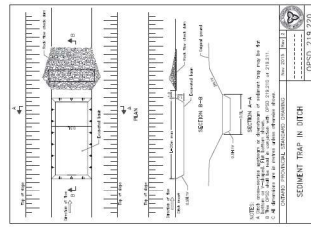
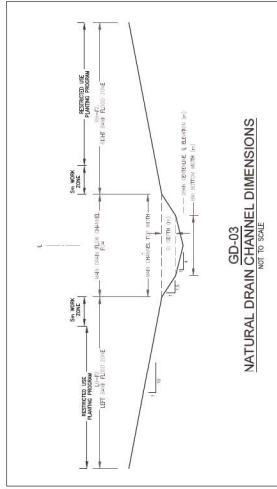
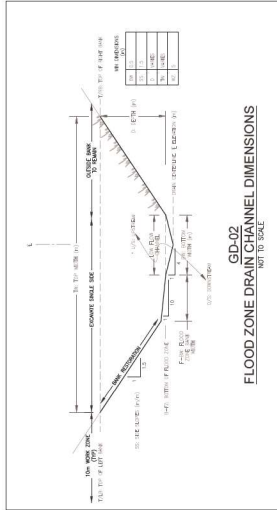
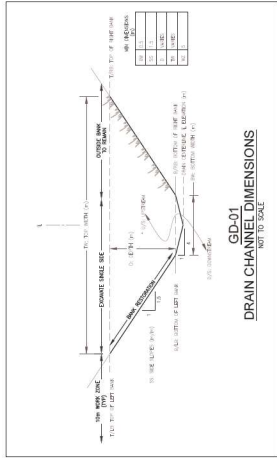
- HORIZONTAL DATUM: UTM, NAD83-COORD. ZONE 7N
- VERTICAL DATUM: CONZ84-1978
- ACCURACY: ABSOLUTE HORIZONTAL AND VERTICAL: 1:10000
- RELATIVE: 1:5000

LEGEND

	EXISTING DITCH BOTTOM (NOT SHOWN)
	EXISTING DITCH BOTTOM (SHOWN)
	HISTORICAL GRADELINE
	PROPOSED DRAIN GRADELINE (SHOWN)
	LEFT BANK
	RIGHT BANK
	EXISTING DRAIN BOTTOM
	ASSUMED STRUCTURE DETAILS
	ASSUMED EXISTING STRUCTURE DETAILS
	PROPOSED DRAIN BOTTOM ELEVATION
	PROPOSED DRAIN BOTTOM ELEVATION (SHOWN)
	PROPOSED DRAIN BOTTOM ELEVATION (NOT SHOWN)
	EXISTING DRAIN BOTTOM ELEVATION
	EXISTING DRAIN BOTTOM ELEVATION (SHOWN)
	EXISTING DRAIN BOTTOM ELEVATION (NOT SHOWN)
	BRIDGE STRUCTURES
	WATER LEVEL FROM SURVEY DATA, INDICATING

5			
4			
3			
2			
1	ISSUED FOR REPORT	JUNE 19, 2024	DATE
	REVISION DESCRIPTION		

DRAWN BY:	PROJECT NO.:	DRAWING NO.:
19-9998	19-9998	SD-3
DESIGNED BY:	DATE:	SCALE:
19-9998	19-9998	1:50

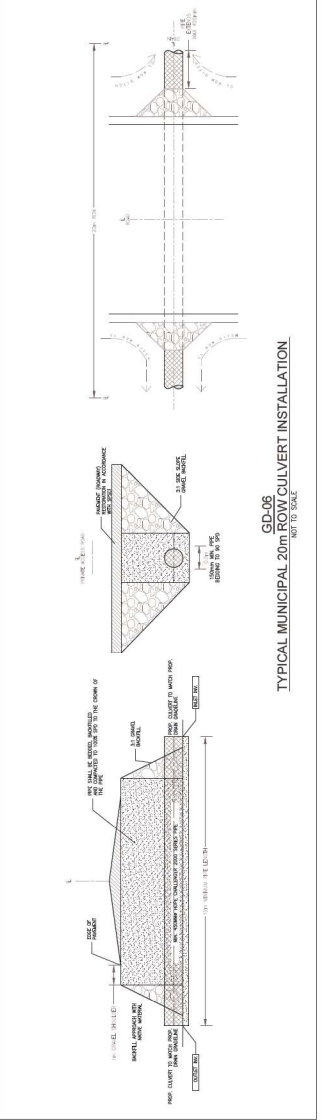


OIL MILL CREEK MUNICIPAL DRAIN

PAUL WASH
2024.03.20

APPROVED BY: [Signature]
DATE: 20-MAR-2024

PROJECT NO.: [Blank]
SCALE: N/A
DRAWING NO.: OM/CD



CITY OF PORT COLBORNE DRAINAGE CONTACTS:

APPOINTED DRAINAGE ENGINEER:
MR. PAUL C. MARSH, P.ENG.
EWA ENGINEERING INC.
27 CHADWICK AVENUE, GUELPH, ONTARIO N1H 3E7
POMARSH@EWA-ENG.COM
647-400-2824

DRAINAGE SUPERINTENDENT:
ALANA VANDER VEEN
DRAINAGE SUPERINTENDENT
1 KILLALY STREET WEST, PORT COLBORNE, ONTARIO L3K 6H1
TEL: 905-228-8127
ALANA.VANDERVEEN@PORTCOLBORNE.CA

DEPARTMENT OF FISHERIES AND OCEANS:
867 LAKESHORE RD
BURLINGTON ON L7S 1A1
TELEPHONE: 905-336-4999
EMAIL: INFO@DFO-MPO.GC.CA

MINISTRY OF NATURAL RESOURCES AND FORESTRY
ELIZABETH REIMER
ADMINISTRATION BUILDING
4890 VICTORIA AVE N
VINELAND STATION, ON L0R 2E0
905-562-4147

NIAGARA PARKS CONSERVATION AUTHORITY, NPCA
DIRECTOR, WATERSHED MANAGEMENT
NIAGARA PENINSULA CONSERVATION AUTHORITY
250 THOROLD ROAD WEST, 3RD FLOOR
WELLAND, ON, L3C 3W2
P: 905-788-3135 EXT. 229
F: 905-788-1121
WWW.NPCA.CA

GENERAL NOTES:

THE CITY SHALL ARRANGE A PRE-CONSTRUCTION MEETING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
ALL CONSTRUCTION MATERIALS AND METHODOLOGIES SHALL BE IN ACCORDANCE WITH:
- SPECIAL PROVISIONS - SUPPLEMENTARY GENERAL CONDITIONS (SPSGC)
- SPECIAL PROVISIONS - SUPPLEMENTARY CONTRACT ITEMS (SPSCI)
- NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS (NPSCD)
- ONTARIO PROVINCIAL STANDARDS FOR ROADS & PUBLIC WORKS (OPSS & OPSP)
AND ANY OTHER APPLICABLE STANDARDS THAT MAY APPLY.
IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THESE MATERIALS AND METHODOLOGIES ARE STRICTLY ADHERED TO.

THE CITY OF PORT COLBORNE AND STAFF DISCLAIMS ANY LIABILITY AS TO THE CURRENT ACCURACY OF THE DRAWINGS PROVIDED. IN USING THE INFORMATION SHOWN OR CONTAINED ON THESE DRAWINGS, THE USER AGREES IMPLICITLY AND EXPLICITLY THAT THE CITY OF PORT COLBORNE AND STAFF SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES ARISING FROM THE USE OF SUCH INFORMATION. THE USER SHALL DO AN IN-FIELD VERIFICATION OF THE INFORMATION SHOWN ON OR CONTAINED WITHIN THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY APPROVALS WHICH MAY BE REQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE CONTRACT ADMINISTRATOR.

DIMENSIONING SHALL GOVERN OVER SCALED DIMENSIONS.

ANY WORKS COMPLETED IN SET-BACK AREAS, AND DISCHARGE TO CREEKS, STREAMS AND WATERCOURSES MAY BE SUBJECT TO FEDERAL AND PROVINCIAL APPROVALS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN SUCH APPROVALS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION IF REQUIRED FOR THE PROJECT.

PUBLIC UTILITIES:

THE CONTRACTOR SHALL NOTE THAT PUBLIC UTILITIES SHALL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING, HYDRO, GAS, BELL, CABLE AND FIBRE OPTIC.
IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN THE NECESSARY CLEARANCES FROM SAID PUBLIC UTILITIES WHICH MAY BE IN DIRECT CONFLICT WITH THIS PROJECT.

ANY WORK REQUIRING EITHER RELOCATION/LOWERING OF SAID PUBLIC UTILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY, AND ANY WORKS WILL BE REQUIRED TO BE COMPLETE PRIOR TO THE INSTALLATION OF THE WORK.

ENVIRONMENTAL COMPLIANCE:

THE CONTRACTOR SHALL PREPARE AN ENVIRONMENTAL MANAGEMENT PLAN (EMP) PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. THE EMP WILL ADDRESS THE FOLLOWING MAJOR SUBJECT AREAS:

- EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION
 - TREE PROTECTION & REMOVAL (SAR - BUTTERNUT)
 - MINIMIZE AND/OR MITIGATION MEASURES FOR CONSTRUCTION IMPACTS ON SPECIES AND SPECIES HABITAT INCLUDING STOPPING CONSTRUCTION PROCEDURES.
 - AGENCY CONTACTS - IDENTIFY RESOURCES & CONTACT INFO.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH SPECIES AT RISK (SAR) LEGISLATION. BY LAW, YOU MUST IMMEDIATELY:

- AVOID DRAINAGE WORK DURING REPRODUCTION AND REARING SEASONS
- PREVENT A SPECIES FROM ENTERING THE WORK AREA (E.G. PUTTING UP A FENCE)
- GIVE THE SPECIES ADEQUATE TIME TO LEAVE THE AREA, BEFORE STARTING WORK
- GET ADVICE/HELP BEFORE YOU MOVE IT
- PROTECT AREAS THAT ARE IMPORTANT TO THE SPECIES (E.G. SPAWNING AREAS)
- CONTROL EROSION AND SEDIMENT
- STABILIZE WATER BANKS IN AFFECTED AREAS

TURTLES:

- YOU CANNOT REDUCE THE AMOUNT OF WATER IN A DRAIN OR DITCH WHERE A TURTLE IS HIBERNATING.

ABBREVIATIONS USED:

- BD - SEDIMENT BASIN BOTTOM DEPTH (FROM GRADE LINE)
- BL - SEDIMENT BASIN LENGTH
- BOD - BEGINNING OF DRAIN
- BW - BOTTOM WIDTH OF CHANNEL
- BTM - BOTTOM
- CL - CENTRELINE OF ROAD, CHANNEL
- CLK - CENTRELINE OF CREEK OR CHANNEL
- D - DEPTH
- E - EASTING
- ELEV - ELEVATION
- EOD - END OF DRAIN
- EX - EXISTING
- INV - INVERT
- LB - LEFT BANK, LOOKING UPSTREAM
- N - NORTHING
- PL - PROPERTY LINE
- PR - PROPOSED
- RB - RIGHT BANK, LOOKING UPSTREAM
- RH - RIFFLE HEIGHT
- ROW - RIGHT OF WAY
- SS - SIDE SLOPE: RUN(m)/RISE, WHERE RISE=1m
- SB - SEDIMENT BASIN
- T/C - TOP OF CONCRETE
- T/B - TOP OF BANK
- TW - TOP WIDTH OF CHANNEL
- TYP - TYPICAL
- WZ - WORK ZONE
- U/S - UPSTREAM
- D/S - DOWNSTREAM

OPSD REFERENCED DETAILS:

- OPSD 219.200
- OPSD 219.220
- OPSD 222.050
- OPSD 400.020
- OPSD 403.010
- OPSD 705.040
- OPSD 803.010

OIL MILL CREEK MUNICIPAL DRAIN



DESIGNED BY JF	APPROVED BY JF	PROJECT NO. 20-000-004	DRAWING NO. 1/1
ISSUED BY JF	DATE 20-MAR-2024	SCALE N/A	DATE O.M.C.N.

**Appendix B:
Cost Estimates &
Assessment Schedules**

Oil Mill Creek Municipal Drain
 City of Port Colborne
 Regional Municipality of Niagara

Section 74/78 & Section 4 Works under the Municipal Drainage Act.

Oil Mill Creek Summary of Proposed Works

Eligible Administration Costs		\$268,223.43
Previous Construction Works Completed but not Assessed		\$0.00
Estimated Cost of Construction		
Construction Management Estimated Costs	\$ 41,000.00	
Section 78 - Proposed Improvements for Construction		
OMC Outlet Improvements	\$ 27,637.50	
West Branch Drain Improvements - 968m	\$ 69,025.00	
Oil Mill Creek Improvements - 0+360 to 0+480 Centennial Wetland	\$ 124,515.40	
Interval E1 Branch Drain Sta 0+515 to 0+880	\$ 11,975.00	
Interval E1 Branch Drain From Sta 0+880 to Sta 1+277 - 400m	\$ 6,455.00	
Section 74 - Maintenance Works for Construction		
E3 Branch Drain	\$ 10,145.00	
E2 Branch Drain	\$ 13,300.00	
Oil Mill Creek Drain - Upper Watershed	\$ 39,325.00	
Sub-Total Estimated Cost of Construction		\$343,377.90
Drain Allowances		
		\$0.00
Forecasted Total Costs		\$611,601.33
Assessment Schedule		
Benefit Assessment (Section 22)		\$0.00
Total - Benefit Assessment (Section 22)		\$0.00
Outlet Liability Assessment (Section 23)		
Private Lands	\$482,286.19	
Road Right of Way Lands	\$63,191.43	
Total - Outlet Liability Assessment (Section 23)		\$545,477.62
Special Benefit Assessment (Section 24)		
Cedar of E1 Branch	\$0.00	
E1 Branch	\$4,284.39	
E2 Branch		
PORT COLBORNE CITY	\$13,710.06	
E3 Branch	\$850.00	
West Branch	\$25,137.70	
OMC Upper		
City of Port Colborne	\$10,633.09	
OMC Middle - Centennial Wetland	\$0.00	
OMC - Outlet works	\$0.00	
Total - Special Benefit Assessment (Section 24)		\$54,615.24
Special Assessments (Section 26)		
E1 Branch		
West Branch		
E2 Branch		
E3 Branch		
OMC Upper		
City of Port Colborne	\$7,912.08	
Niagara Regional Broadband Network, (NRBN)	\$3,596.40	
OMC Middle - Centennial Wetland		
OMC - Outlet works		
City of Port Colborne		
Total - Special Assessments (Section 26)		\$11,508.47
Forecasted Total Assessments		\$611,601.34
		-\$0.01



OMC Admin Costs

Oil Mill Creek Municipal Drain
City of Port Colborne
Regional Municipality of Niagara

Administration Costs

0.05
\$6,021.50

Categories	Eligible Costs as per Act	Items	Cost	HST	Sub-totals, \$	Totals, \$
ENGINEERING	Report Preparation by EWA Engineering Inc.	Study, Analysis and Report Adj CAD CO-25 Final CO-30	\$108,535.52	\$13,459.62 \$0.00	\$108,535.52	53%
	Sprint Associates CoPC - Supply of CAD services for design	Survey - Topographic 2020 2021 2022 2023	\$15,394.50 \$22,087.00 \$16,601.00 \$34,216.00 \$520.00	\$2,001.29	\$15,394.50 \$73,424.00	8% 38%
	Appeal Process Costs including CoR and Tribunal (not estimated and assumed to be zero) Tendering, Contract Administration and Construction Inspection Services (estimated)		\$1,500.00	\$195.00	\$0.00 \$1,500.00	1%
	Total - ENGINEERING				\$193,854.02	
ADMINISTRATION	Interim Financing Allowance	Engineering Fee Interest Charges Financing Charge - 2022 Financing Charge - 2023 Financing Charge - 2024	\$7,798.00 \$17,500.00 \$18,500.00			
	Legal and Permitting Fees Expenses, where applicable Applicable Taxes	Construction Fee Interest Charges	\$24,549.90		\$68,347.90	
		GST Municipal portion (5%)		\$6,021.50	\$6,021.50	
	Total - ADMINISTRATION				\$74,369.41	
	Total Administration Cost				\$268,223.43	

id	A_Name	A_Area	A_NumProp	Priv_Area	Roads	Road_area	Outlet	Area_Ha	Interval Admin Cost
E1 Branch	561455.7	0.0	0	0	0	0	0 OMC main	56.146	\$1,010.83
E2 Branch	149166.8	0.0	0	0	0	0	0 OMC main	14.917	\$56,753.78
E3 Branch	141443.6	0.0	0	0	0	0	0 OMC main	14.144	\$15,078.48
West Branch	540758.4	0.0	0	0	0	0	0 OMC main	54.076	\$14,297.11
OMC	2653514.9	0.0	0.00%	0	\$0.00	0	0.155586	265.351	\$54,661.37
Interval Middle OMC	2316827.4	0.0	0.00%	0	\$0.00	0	0.178776	231.683	\$41,731.93
Interval Upper OMC	958342.8	0.0	0.00%	0	\$0.00	0	0.140736	95.834	\$47,951.95
								0.475	\$37,788.81
								676.005	\$211,469.66



Proposed Construction - Cost Estimate

Construction Management Estimated Costs

Cost ID:	Drain	From STA	To STA	Work	Description	Cost Type	Length	\$/m	Qty	/each	\$	Notes
	Oil Mill Creek Drain			Bonding	Preparation of Environmental Management Plan - Exclusions for SAR incidents that require on site expertise.	Lump Sum					\$12,000.00	Budget @ 3.0% of total
	Oil Mill Creek Drain			Environmental Management - Compliance with legislative requirements		Lump Sum					\$10,500.00	Program budget - actual cost will vary
	Oil Mill Creek Drain			Erosion Control During construction -		Lump Sum					\$3,500.00	Program budget - actual cost will vary
	Oil Mill Creek Drain			Construction Management	Traffic Control, Layout, and all compliance items for submission on construction startup.	prorated lump sum					\$10,000.00	Budget @ 2.5% of total
	Oil Mill Creek Drain			Tree Replacement Program	Where private trees are removed for the drain and in lieu of compensation a 2 for 1 tree planting program is available for owners.	Each			100	\$50.00	\$5,000.00	Program budget - actual cost will vary

SubTotal for: \$ 41,000.00

Section 78 - Proposed Improvements for Construction

Cost ID:	Drain	From STA	To STA	Work	Description	Cost Type	Length	\$/m	Qty	/each	\$	Notes
	Oil Mill Creek	0+000	0+050	Flap Gate Improvements	Cut 300mm circular holes into existing gate sheet steel	each			2	\$1,200.00	\$2,400.00	
				Gate Winch replacement	Install new PE flap gate to cover new holes	each			2	\$4,200.00	\$8,400.00	
				Alternate #1: Power Winch	Replace existing wire cable with new longer cable; including new hole through concrete.		22	\$12.50			\$275.00	
					Replace existing hand winch with electric power winch, 110/120V							
					Winch Lock Box and protective Shield				1	\$1,250.00	\$1,250.00	
					Install new winch (Sherpa ATV 4,500 lb SATVW4512VT or approved equivalent) or Thern SERIES 4WP2D HIGH SPEED WORM GEAR PORTABLE POWER WINCH				1	\$600.00	\$2,100.00	
					New 110/120V electric service to winch protective box; including all associated panels and switches. Includes transformer to 12V.				1	\$11,000.00	\$11,000.00	\$14,350.00
				Alternate #2:	Thern Hand winch with brake 4MM2 or approved equivalent				1	\$1,452.00	\$0.00	
					Include protective lockable box.				1	\$850.00	\$0.00	\$3,802.00
					Cable cover; installed and fixed to existing concrete pipe.		17.5	\$55.00	1	\$350.00	\$1,312.50	
					Daylight existing 600mm PECB and fix/repair existing lids as required.				2	\$450.00	\$900.00	
											\$0.00	

SubTotal for: OMC Outlet Improvements \$ 27,637.50



Section 74 - Maintenance Works for Construction

Linear, Each or Lump Sum

Cost ID:	Drain	From STA	To STA	Work	Description	Cost Type	Length	\$/m	Qty	/each	\$	Notes
E3-01	E3 Branch	0+000	0+019	Re-align	convert existing to a low-flow / flood-flow cross section	per m	10	\$70.00			\$700.00	
E3-02	E3 Branch	0+019	0+143	Reconstruct to new cross-section	convert existing to a low-flow / flood-flow cross section	per m	124	\$25.00			\$3,100.00	
E3-03	E3 Branch	0+143	0+226	Re-grade to design		per m	83	\$15.00			\$1,245.00	
E3-04	E3 Branch	0+079	0+085	replace culvert and improve inlet/outlet conditions	E3-CS-01: 6m-HDPE 450mm REMOVE AND REPLACE CULVERT WITH 525mm D PE CULVERT 6m WITH 100mm B GRAVEL BEDDING AND TO THE PIPE HAUNCHES	both	6	\$125.00	1	\$3,500.00	\$4,250.00	improve bedding to haunches of pipe.
				Remove existing fence and replace with like or better gate for future maintenance access.		each			1	\$850.00	\$850.00	
SubTotal for: E3 Branch Drain											\$10,145.00	

Linear, Each or Lump Sum

Cost ID:	Drain	From STA	To STA	Work	Description	Cost Type	Length	\$/m	Qty	/each	\$	Notes
E2-01	E2 Branch Drain			Clean and clear Re-align outlet	construct new confluence with existing spoil to fill in previous channel. Restoration includes seeding on natural materials fibermat.		300	\$15.00	1	\$ 2,500.00	\$4,500.00	
							90	\$70.00			\$6,300.00	
SubTotal for: E2 Branch Drain											\$ 13,300.00	

Linear, Each or Lump Sum

Cost ID:	Drain	From STA	To STA	Work	Description	Cost Type	Length	\$/m	Qty	/each	\$	Notes
OMC-01	Oil Mill Creek Drain - Upper Watershed	0+905	1+943	Perform maintenance on existing drain Relay Culvert O-CS-08 to design gradeline	includes grouted joint seal and new bedding	per m each	1800	\$15.00	1	\$5,500.00	\$27,000.00 \$5,500.00	
				REPLACE O-CS-05 EXISTING 500mm WITH 600 PE 320 kPa	Replace TO DESIGN GRADE WITH 25mm EMBEDDED INVERTS, 12m @ 0.2% US INV = 177.210	both	12	225	1	4,125.00	\$6,825.00	
SubTotal for: Oil Mill Creek											\$ 39,325.00	

\$ 343,377.90

Maintenance Schedule

Oil Mill Creek Municipal Drain
City of Port Colborne
Regional Municipality of Niagara

Maintenance Schedule

Owner	Legal_Txt	Land Area			Watershed			Interval 1: Watershed less Wetland			Interval 2: E1 Branch					
		Roll No	Ha	Area in Drain Ha	Runoff Factor 'C'	QRF	SWM	SWMF	QRF-SWMF	QRF Ratio	Total Adjusted Area Int#1	QRF	QRF Ratio	Total Adjusted Area Int#2	QRF	QRF Ratio
City of Port Colborne - Lands Assessed																
AZZOPARDI, THERESA FRANCES	CON 1 PT LOT 12	271104000226100	3.8339	0.8620	45	2.53066	0	0	2.53066	0.00233	0.862	2.5306596	0.00413	0.8621526	2.53111	0.01912
BRYAN, MILDRED AGNES	CON 1 PT LOT 12 RP 59R12293 PART 2	271104000226200	3.6457	0.4970	45	1.45909	0	0	1.45909	0.00221	0.497	1.4590926	0.00238	0.4972217	1.45974	0.01103
SNEEK, GREGORY ALAN; SNEEK, ARIANE KATHRINA	CON 1 PT LOT 12 RP 59R12293 PART 1	271104000226210	0.4046	0.4020	45	1.80119	0	0	1.80119	0.00179	0.402	1.801916	0.00193	0.4016712	1.17923	0.00891
BULLGER, CAROL ANN	CON 1 PT LOT 12	271104000226300	3.8977	0.8720	45	2.56002	0	0	2.56002	0.00387	0.872	2.5600176	0.00418	0.8723415	2.56102	0.01935
RIZZI GIOVANNI ESTATE; RIZZI, MENA	CON 1 PT LOT 12	271104000226301	10.0639	0.5330	35	1.21705	0	0	1.21705	0.00184	0.533	1.2170522	0.00199	0.5330089	1.21707	0.00919
SCHULT, JOHN; DUMA, PAMELA SUSAN	HUMERSTONE CON 1 PT LOT 12	271104000226400	9.4729	3.1000	30	6.05732	0	0	6.05732	0.00918	3.1	6.05732	0.00991			
DUMA, PAMELA SUSAN; SCHULT, JOHN	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 3	271104000226402	0.9997	1.0000	30	1.95720	0	0	1.95720	0.00296	1	1.9572	0.00920			
KLAUCK, WESLEY KLAUCK, LISA	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 2	271104000226403	0.9997	0.8030	30	1.57163	0	0	1.57163	0.00238	0.803	1.5716316	0.00257			
TAVANO, ANTONIO FELICE	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 1	271104000226404	0.9997	0.3220	30	0.63022	0	0	0.63022	0.00095	0.322	0.6302184	0.00103			
BOSLEY, MARY ANN; BOSLEY, ROBERT J	HUMERSTONE CON 1 PT LOT 12 RP 59R15490 PART 1	271104000226417	6.4219	3.3000	30	6.45876	0	0	6.45876	0.00977	2.45	6.45876	0.00783	2.45	4.79514	0.00783
BARBAD, RACHAEL LYNN	CON 1 PT LOT 12 PLAN 59R-6139 PART 1	271104000226418	0.4044	0.4040	50	1.31785	0	0	1.31785	0.00199	0.329	1.073198	0.00175			
BARBAD, RACHAEL LYNN	CON 1 PT LOT 12 RP 59R-6139 PART 2	271104000226419	0.4044	0.4040	50	1.31785	0	0	1.31785	0.00199	0.398	1.298276	0.00212			
FORDY, MARY ANN; FORDY, BRUCE GLEN	CON 1 PT LOT 12 RP 59R-6139 PART 3	271104000226420	0.4045	0.3850	50	1.38849	0	0	1.38849	0.00195	0.395	1.28849	0.00210			
WINOR, MARK FRANKLIN; CHRISTIE MINOR, AMBER NOELLE	HUMERSTONE CON 1 PT LOT 12 RP 59R16386 PART 1	271104000226421	1.0009	0.7930	30	1.44637	0	0	1.44637	0.00219	0.739	1.4463708	0.00236			
WINOR, ANNE CATHERINE; MINOR, MORGAN FAUL	HUMERSTONE CON 1 PT LOT 12 RP 59R16386 PART 2	271104000226423	1.0010	0.7480	30	1.46599	0	0	1.46599	0.00221	0.748	1.4639856	0.00239			
HUMERSTONE CON 1 PT LOT 12 RP 59R16386 PART 2	PLAN 24 PT LOT 1 NP783	271104000226500	0.1635	0.0210	25	0.03425	0	0	0.03425	0.00005	0.021	0.034251	0.00006			
THOMSON, WAYNE ROBERT; BROWN, NANCY ANN	PLAN 24 PT LOT 27 PT LOT 28 NP 783 RP 59R 8197 PART 1	271104000226600	0.1579	0.0170	25	0.02773	0	0	0.02773	0.00004	0.017	0.027727	0.00005			
HABOWSKI, YVONNA VLADISLAVA	PLAN 24 PT LOT 28 LOT 29 NP783	271104000226900	0.1276	0.0310	25	0.05056	0	0	0.05056	0.00008	0.031	0.050561	0.00008			
MAFFEI, CHERYL; MAFFEI, TERRY	PLAN 24 LOT 30 NP783	271104000226900	0.1066	0.0660	25	0.09979	0	0	0.09979	0.00001	0	0.09979	0.00000			
KAWANAGH, RUTH	PLAN 36 LOT 1 NP795	271104000229500	0.0690	0.0690	50	2.25078	0	0	2.25078	0.00034	0.069	2.25078	0.00037			
VESPER, DEBORAH SUZANE	PLAN 36 LOT 2 NP795	271104000229500	0.0710	0.0710	50	2.31600	0	0	2.31600	0.00035	0.071	2.31602	0.00038			
VESPER, DEBORAH	PLAN 795 LOTS 3 AND 4	271104000229700	0.1152	0.1150	50	3.75113	0	0	3.75113	0.00057	0.115	3.7513	0.00061			
MARQUES, SILVINO MIGUEL DA CRUZ; PEREIRA MARQUES, MARIA	MOORE, HARRY JR. MOORE, CAROL	271104000229900	0.1876	0.1830	50	0.59695	0	0	0.59695	0.00090	0.183	0.596946	0.00097			
SCHULTZ, WINKLEY JANE; SCHULTZ, DOUGLAS ALLEN	PLAN 36 LOT 5 LOT 6 NP795	271104000230000	0.0914	0.0910	50	0.29684	0	0	0.29684	0.00045	0.091	0.296842	0.00048			
ALEXANDER, KATHRYN RUTH	PLAN 36 LOT 7 NP795	271104000230000	0.0915	0.0910	50	0.29684	0	0	0.29684	0.00045	0.091	0.296842	0.00048			
DE OCAMPO, MARTINIANO; DE OCAMPO, AMELIA	PLAN 36 LOT 8 NP795	271104000230200	0.0916	0.0920	50	0.30010	0	0	0.30010	0.00045	0.092	0.300104	0.00049			
ZEMANSKI, DEREK; HOCCHREITER, MELISSA MAY	PLAN 36 LOT 10 NP795	271104000230300	0.0916	0.0920	50	0.30010	0	0	0.30010	0.00045	0.092	0.300104	0.00049			
VAN ESCH, STEVEN CARMEN; VAN ESCH, KAITLIN MICHELLE	PLAN 36 LOT 11 NP795	271104000230400	0.0917	0.0920	50	0.30010	0	0	0.30010	0.00045	0.092	0.300104	0.00049			
GAME, RYAN DOUGLAS; GAME, RENEE MARIE	PLAN 36 LOT 12 NP795	271104000230500	0.0918	0.0920	50	0.30010	0	0	0.30010	0.00045	0.092	0.300104	0.00049			
MCCOMBE, LAURIE; DEROSE, LEONARDO	PLAN 36 LOT 13 NP795	271104000230600	0.0918	0.0920	50	0.30010	0	0	0.30010	0.00045	0.092	0.300104	0.00049			
DE-ROSE, LEONARDO; MCCOMBE, LAURIE	PLAN 36 LOT 14 PT LOT 15 NP795	271104000230700	0.1077	0.1080	50	0.35230	0	0	0.35230	0.00053	0.108	0.352296	0.00058			
HALL, JILLIAN; HALL, BRIAN	PLAN 36 PT LOT 15 PT LOT 16 NP795	271104000230800	0.0490	0.0410	50	0.13374	0	0	0.13374	0.00020	0.041	0.133742	0.00022			
NORMAN, ERNEST J.; NORMAN, LOIS A	PLAN 36 PT LOT 16 PT LOT 17 NP795	271104000230900	0.0490	0.0490	50	0.15984	0	0	0.15984	0.00024	0.049	0.159838	0.00026			
MAHONEY, BRIAN	PLAN 36 PT LOT 17 PT LOT 18 NP795	271104000231000	0.0327	0.0330	50	0.10765	0	0	0.10765	0.00016	0.033	0.107646	0.00018			
WILSON, ROBERT FRED JOHN; CANAVAN, WENJY ELIZABETH; WILSON, KIM GREGORY	PLAN 36 PT LOT 18 PT LOT 19 NP795	271104000231100	0.0394	0.0390	50	0.12722	0	0	0.12722	0.00019	0.039	0.127218	0.00021			
P-DB PROPERTIES INC	PLAN 36 PT LOT 19 NP795	271104000231200	0.0387	0.0390	50	0.12722	0	0	0.12722	0.00019	0.039	0.127218	0.00021			
LANDON, HANLIN LIVINGSTONE	PLAN 36 PT LOT 20 NP795	271104000231300	0.0277	0.0280	50	0.09134	0	0	0.09134	0.00014	0.028	0.091336	0.00015			
SWARTZ, DEBORAH ANN LOUISE; SWARTZ, DOUGLAS	PLAN 36 PT LOT 20 NP795	271104000231400	0.0263	0.0260	50	0.08481	0	0	0.08481	0.00013	0.026	0.084812	0.00014			
SOULDER, CATHERINE R	PLAN 795 SAND BEACH	271104000231501	0.5959	0.0230	20	0.03001	0	0	0.03001	0.00005	0.023	0.0300104	0.00005			
MEYER, PETER; SANS-MEYER, EVA-LYN	PLAN 36 LOT 32 NP795	271104000232700	0.0835	0.0360	20	0.03392	0	0	0.03392	0.00005	0.036	0.0339268	0.00006			
PARR, MARTIN JOHN; PARR, LINDSEY MARIE	PLAN 36 LOT 33 NP795	271104000232800	0.0874	0.0540	20	0.07046	0	0	0.07046	0.00011	0.054	0.0704592	0.00012			
NARDONE, WILLMA; NARDONE, JESSICA	PLAN 36 LOT 34 NP795	271104000232900	0.0912	0.0870	20	0.11352	0	0	0.11352	0.00017	0.087	0.1135176	0.00019			
PRUVY, FRANCIS MATHEUS ROBERT; PRUVY, HENRIETTE	PLAN 36 PT LOT 35 NP795	271104000233000	0.0254	0.0250	20	0.03262	0	0	0.03262	0.00005	0.025	0.03262	0.00005			
MARTINEAU, WILFRED ROIMEO; MARTINEAU, ROYANNE STEPHANIE	CON 1 PT LOT 13	271104000233200	0.0578	0.0580	20	0.07568	0	0	0.07568	0.00011	0.058	0.0756784	0.00012			
MARTINEAU, WILFRED ROIMEO; MARTINEAU, ROYANNE STEPHANIE	CON 1 PT LOT 13	271104000233300	1.3341	1.3340	35	3.04606	0	0	3.04606	0.00461	1.334	3.0460556	0.00497			
GAMOSH, ETHAN	PLAN 59 LOT 1 NP818	271104000233400	0.0809	0.0810	50	0.26422	0	0	0.26422	0.00040	0.081	0.264222	0.00043			
WATY, JANSEN; GOLF, KRISTINE	PLAN 59 LOT 2 NP818	271104000233500	0.0809	0.0810	50	0.26422	0	0	0.26422	0.00040	0.081	0.264222	0.00043			
EBERHARDT, PAULINE	PLAN 59 LOT 3 NP818	271104000233600	0.0809	0.0810	50	0.26422	0	0	0.26422	0.00040	0.081	0.264222	0.00043			
DIPLOCK, MICHAEL CRAIG	PLAN 59 LOT 4 NP818	271104000233700	0.0809	0.0810	50	0.26422	0	0	0.26422	0.00040	0.081	0.264222	0.00043			

Maintenance Schedule

Owner	Legal_Txt	Land Area				Watershed				Interval 1: Watershed less Wetland				Interval 2: E1 Branch			
		Roll No	Area in Drain Ha	Runoff Factor 'C'	QRF	SWM	SWMF	QRF-SWMF	QRF Ratio	Total Adjusted Area Int#1	QRF	QRF Ratio	Total Adjusted Area Int#2	QRF	QRF Ratio		
GELKA, BRADLEY GEORGE	PLAN 59 LOT 5 LOT 6 NP818	271104000234800	0.1618	0.1620	50	0.52844	0	0	0.52844	0.00080	0.162	0.52844	0.00086	0.52844	0.00086		
MCCARTHY, MICHAEL EARL	PLAN 59 LOT 7 NP818	271104000234900	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
WARNER, ROSE MARIE; WARNER, TERRY RAY	PLAN 59 LOT 8 LOT 9 NP818	271104000234900	0.1594	0.1590	50	0.51866	0	0	0.51866	0.00078	0.159	0.51866	0.00089	0.51866	0.00089		
SCHNEIDER, WENDY LORRAINE; STOUT, CHRISTOPHER JOHN	PLAN 59 LOT 10 NP818	271104000234400	0.0725	0.0730	50	0.23813	0	0	0.23813	0.00036	0.073	0.23813	0.00039	0.23813	0.00039		
78833 ONTARIO LIMITED, O'CONNOR, ELIZABETH	PLAN 59 LOT 11 LOT 12 NP818	271104000234200	0.1509	0.1510	50	0.49256	0	0	0.49256	0.00075	0.151	0.49256	0.00080	0.49256	0.00080		
AKINS, ANNETTE MARIE; BARCOCK, AKINS, DAVID LLOYD	PLAN 59 LOT 13 NP818	271104000234300	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
DE MELLO, SUSETE MARIA; DE MELLO, KRISTEN TAYLOR; DE MELLO, KYLE DANIEL	PLAN 59 LOT 14 NP818	271104000234400	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
DANIS, GUY GERALD; DANIS, SUSANI ELAINE	PLAN 59 LOT 16 LOT 17 NP818	271104000234500	0.1618	0.1620	50	0.52844	0	0	0.52844	0.00080	0.162	0.52844	0.00086	0.52844	0.00086		
DE MELLO, KRISTEN TAYLOR; DE MELLO, KYLE DANIEL; DE MELLO, SUSETE MARIA	PLAN 59 LOT 15 N° 818	271104000234501	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
DANILEWICZ, LESZEK; DANILEWICZ, GRAZYNA	PLAN 59 LOT 18 NP818	271104000234600	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
MCCLEMMONT, DIANE MARLENE; MCCLEMMONT, KENNETH GRANT	PLAN 59 LOT 19 NP818	271104000234700	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
REZZA, VITO; REZZA, MARGARET	PLAN 59 LOT 20 NP818	271104000234800	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
MAGY, ANITA LOUISE	PLAN 59 LOT 21 NP818	271104000234900	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
MAGY, ANITA LOUISE	PLAN 59 LOT 22 NP818	271104000235000	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
CARMICHAEL, BAYLEY; GUTTIN, CORDELL	PLAN 59 LOTS 23, 24 NP818	271104000235100	0.1618	0.1620	50	0.52844	0	0	0.52844	0.00080	0.162	0.52844	0.00086	0.52844	0.00086		
DANIS, SUSAN ELAINE; DANIS, GUY GERALD	PLAN 59 LOT 25 LOT 26 NP818	271104000235200	0.1618	0.1620	50	0.52844	0	0	0.52844	0.00080	0.162	0.52844	0.00086	0.52844	0.00086		
WYBROW, ROBERT WILLIAM	PLAN 59 LOT 27 NP818	271104000235300	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
WYBROW, ROBERT WILLIAM	PLAN 59 LOT 28 NP818	271104000235400	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
ALEX, CHRISTOPHER PAUL; ALEX, WENDY LEE	PLAN 59 LOT 29 LOT 30 NP818	271104000235500	0.1508	0.1510	50	0.49256	0	0	0.49256	0.00075	0.151	0.49256	0.00080	0.49256	0.00080		
KNIGHT-WOODWARD, BARBARA	CON 1 PT LOT 13	271104000235700	0.0668	0.0690	50	0.22508	0	0	0.22508	0.00034	0.069	0.22508	0.00037	0.22508	0.00037		
SCOTT, TARA ELIEN	CON 1 PT LOT 13	271104000235800	0.0812	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
RUSTON, CHRISTINE ANN	CON 1 PT LOT 13	271104000235900	0.0812	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
ZIMMERMAN, CARRIE ANN; ZIMMERMAN, JODY ANTHONY	CON 1 PT LOT 13	271104000236000	0.0811	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
SLITER, JOSHUA RAYMOND	CON 1 PT LOT 13	271104000236100	0.1622	0.1620	50	0.52844	0	0	0.52844	0.00080	0.162	0.52844	0.00086	0.52844	0.00086		
MCVAY, KIMBERLY MARIE	CON 1 PT LOT 13	271104000236200	0.0810	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
ASHBRIDGE, ALAN; ASHRIDGE, MARC PETER	CON 1 PT LOT 13	271104000236300	0.0810	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
WEST, DARREN; WEST, ONNA	CON 1 PT LOT 13	271104000236400	0.1628	0.1630	50	0.53171	0	0	0.53171	0.00080	0.163	0.53171	0.00087	0.53171	0.00087		
FEARD, KIMBERLEY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 41)	271104000236600	0.0807	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
FEARD, KIMBERLEY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 42)	271104000236800	0.0813	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
GRACE, KATHRYN; GRACE, JOHN	HUMBERSTONE CON 1 PT LOT 13	271104000236900	0.0813	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
SHERSTYK, ANDREY	HUMBERSTONE CON 1 PT LOT 13	271104000237000	0.2421	0.2420	50	0.78940	0	0	0.78940	0.00119	0.242	0.78940	0.00129	0.78940	0.00129		
KELLY, ROBERT JAMES; KELLY, MARY ANN	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 49 LOT 5)	271104000237300	0.3094	0.3090	50	1.00796	0	0	1.00796	0.00152	0.309	1.00796	0.00166	1.00796	0.00166		
PORT COLBORNE CITY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 51 LOT 5)	271104000237400	0.1428	0.1430	50	0.46647	0	0	0.46647	0.00071	0.143	0.46647	0.00076	0.46647	0.00076		
CDX, REGINAL RICKY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 68)	271104000237500	0.0809	0.0810	50	0.52844	0	0	0.52844	0.00040	0.081	0.52844	0.00043	0.52844	0.00043		
CON 1 PT LOT 13 PLAN S986615 PART 1	CON 1 PT LOT 13	271104000237600	0.4047	0.4050	50	1.32111	0	0	1.32111	0.00200	0.405	1.32111	0.00216	1.32111	0.00216		
BEAM, JONATHAN IRVIN	CON 1 PT LOT 13	271104000237610	4.6164	4.6160	30	9.03444	0	0	9.03444	0.01367	4.616	9.03444	0.01475	9.03444	0.01475		
BACSO, MIKLOS; BACSO, NICOLE ELIZABETH	CON 1 PT LOT 13 RP S98900 PART 3	271104000237700	0.2209	0.2210	50	0.72090	0	0	0.72090	0.00109	0.221	0.72090	0.00118	0.72090	0.00118		
STOUT, CHRIS	CON 1 PT LOT 13 RP S98900 PART 1	271104000237800	0.2140	0.2140	50	0.69807	0	0	0.69807	0.00106	0.214	0.69807	0.00114	0.69807	0.00114		
WHITE, MATH ANTHONY	CON 1 PT LOT 13 RP S98900 PART 2	271104000237801	0.2347	0.2350	50	0.76657	0	0	0.76657	0.00116	0.235	0.76657	0.00125	0.76657	0.00125		
HILBORN, KATHERINE ADA; HILBORN, BRYAN PAUL	CON 1 PT LOT 13 RP S98900 PART 2	271104000237801	0.3247	0.3250	50	0.76657	0	0	0.76657	0.00116	0.325	0.76657	0.00125	0.76657	0.00125		
BODSKI, ANNETTE MAUREN; BODSKI, MURRAY ALLAN	CON 1 PT LOT 13 AND RP S981267 PART 1	271104000237900	0.3565	0.3570	50	1.16453	0	0	1.16453	0.00176	0.357	1.16453	0.00190	1.16453	0.00190		
HIGH, DEREK ALLAN; HIGH, KERRI JOANNE	CON 1 PT LOT 13	271104000238000	0.4033	0.4030	50	1.31459	0	0	1.31459	0.00199	0.403	1.31459	0.00215	1.31459	0.00215		
SCHNEIDER, JOHN LOUIS; SCHNEIDER, PATRICIA AILEEN	CON 1 PT LOT 13	271104000238100	0.2607	0.2700	50	0.88074	0	0	0.88074	0.00133	0.27	0.88074	0.00146	0.88074	0.00146		
MADDON, TROY RENE DONALD; ARMENT-FADON, ANITA	CON 1 PT LOT 13	271104000238200	0.3501	0.3500	50	1.14170	0	0	1.14170	0.00173	0.35	1.14170	0.00186	1.14170	0.00186		
JACKSON, GLEN BRUCE; JACKSON, BONNIE LEE	CON 1 PT LOT 13	271104000238300	0.2652	0.2780	50	0.90684	0	0	0.90684	0.00137	0.278	0.90684	0.00148	0.90684	0.00148		
ANDERSON, TIMOTHY MICHAEL; ANDERSON, MELISSA MARIE	CON 1 PT LOT 13	271104000238400	0.4041	0.4040	50	1.31785	0	0	1.31785	0.00199	0.404	1.31785	0.00215	1.31785	0.00215		
VANDER VAART, LEONARDUS J; VANDER VAART, MARGARET ANN	CON 1 PT LOT 13	271104000238500	11.6929	11.6930	35	26.69800	0	0	26.69800	0.04039	11.678	26.69800	0.04354	26.69800	0.04354		
SKABO, MONICA ANN; GRAY, ROGER WAYNE	CON 1 PT LOT 13	271104000238700	1.9803	1.9800	35	4.52113	0	0	4.52113	0.00684	1.277	4.52113	0.00716	4.52113	0.00716		
BARCOCK, CHARLYN KIM; BARCOCK, TIMOTHY DAVID	CON 1 PT LOT 13	271104000238701	0.8148	0.8150	45	2.39268	0	0	2.39268	0.00362	0.815	2.39268	0.00381	2.39268	0.00381		
MEDINA OIL FIELD SUPPLY INC	CON 1 PT LOT 13	271104000238702	6.0722	6.0720	45	17.82618	0	0	17.82618	0.02687	3.837	17.82618	0.02839	17.82618	0.02839		
SMS-MEYER, EVA-LYN; MEYER, PETER	CON 1 PT LOT 13 PLAN S981063 PART 1	271104000238705	0.8092	0.8090	45	2.37506	0	0	2.37506	0.00359	0.809	2.37506	0.00368	2.37506	0.00368		
MEYER, PETER; SMS-MEYER, EVA-LYN	CON 1 PT LOT 13 PLAN S984571 PART 1	271104000238706	0.8091	0.8090	45	2.37506	0	0	2.37506	0.00359	0.809	2.37506	0.00368	2.37506	0.00368		
MEYER, PETER; SMS-MEYER, EVA-LYN	CON 1 PT LOT 13 PLAN S984571 PART 1	271104000238707	0.8091	0.8090	45	2.37506	0	0	2.37506	0.00359	0.809	2.37506	0.00368	2.37506	0.00368		
PETRI, SUSANNE CECILE; PETRI HAROLD ESTATE	CON 1 PT LOT 13	271104000238708	0.8090	0.8090	45	2.37506	0	0	2.37506	0.00359	0.809	2.37506	0.00368	2.37506	0.00368		
ROVERS, JUDITH ANN	CON 1 PT LOT 13	271104000238800	0.2027	0.2030	45	0.59597	0	0	0.59597	0.00090	0.203	0.59597	0.00097	0.59597	0.00097		
POLLITT, LAM ROLAND; BARTOK, ELISE AMANDA	CON 1 PT LOT 13	271104000238800	0.2027	0.2030	45	0.59597	0	0	0.59597	0.00090	0.203	0.59597	0.00097	0.59597	0.00097		
MARSHALL, RODERICK MARK; RUFFO, LEONA JOANNE	HUMBERSTONE CON 1 PT LOT 13 AND RP S98																

Maintenance Schedule

Owner	Legal_Txt	Land Area				Watershed				Interval 1: Watershed less Wetland				Interval 2: E1 Branch			
		Roll No	Ha	Area in Drain Ha	Runoff Factor 'C'	QRF	SWM	SWMF	QRF-SWMF	QRF Ratio	Total Adjusted Area Int#1	QRF	QRF Ratio	Total Adjusted Area Int#2	QRF	QRF Ratio	
WINIGER, KAREN JOANNE	CON 1 PT LOT 13	271104000249200	0.1840	0.1840	45	0.54019	0	0	0.54019	0.00088	0.184	0.5401872	0.00088				
NESSBIT, DANIELLE MICHELLE; SCOTT, KEVIN JOHN	CON 1 PT LOT 13	271104000249300	0.1997	0.2000	45	0.58716	0	0	0.58716	0.00089	0.2	0.58716	0.00089				
GEADY, CINDY JO; CARRIGAN, FRANCIS JAMES	CON 1 PT LOT 13 RP59R3847 PART 1 TO PART 4	271104000249400	0.3789	0.3790	45	1.11267	0	0	1.11267	0.00168	0.379	1.126682	0.00182				
PHELAN, DAVID; PHELAN, CHRISTOPHER	CON 1 IN PT LOT 13	271104000249500	5.6972	5.6970	30	11.15017	0	0	11.15017	0.01687	5.019	9.8231868	0.01604				
DIRMOND, DOUGLAS PATRICK; DIMOND, JANNETTE KATHERINE	CON 1 PT LOT 13 RP 59R6442 PART 2	271104000249600	0.4089	0.4090	45	1.20074	0	0	1.20074	0.00182	0.409	1.2007422	0.00196				
SEWING, MATTHEW WILLIAM	CON 1 PT LOT 13 RP 59R6442 PART 1	271104000249700	0.4460	0.4460	45	1.30937	0	0	1.30937	0.00198	0.446	1.3093668	0.00214				
O'REILLY, LAURENCE MARIE; HOBMAN, GLEN RICHARD	CON 1 PT LOT 13 RP 59R1063 PART 2	271104000249800	0.1319	0.1310	45	0.63413	0	0	0.63413	0.00096	0.131	0.6341328	0.00104				
SNEEKO, LTD	CON 1 PT LOT 13 RP 59R1063 PART 1	271104000249900	0.1962	0.1960	45	0.75442	0	0	0.75442	0.00087	0.196	0.7545158	0.00094				
KOCH, KIRK DOUGLAS; KOCH, NANETTE ANNE	HUMBERSTONE CON 1 PT LOT 13 AND RP 59R1063 PART 4	271104000250000	0.1692	0.1690	45	0.49651	0	0	0.49651	0.00075	0.169	0.4965102	0.00081				
MORRIS, TIMOTHY HENRY; MORRIS, JAMIE LYNN	CON 1 PT LOT 13 RP 59R1063 PART 5	271104000250100	0.5020	0.5020	45	1.47377	0	0	1.47377	0.00223	0.502	1.4737716	0.00241				
GILLESPIE, RITA; GILLESPIE, BLAIR A	CON 1 PT LOT 13 RP 59R1344 PART 1	271104000250200	0.4601	0.4600	45	1.35047	0	0	1.35047	0.00204	0.46	1.3504668	0.00220				
KORTEN, RICHARD	271104000250300	271104000250300	0.4601	0.4600	45	1.35047	0	0	1.35047	0.00204	0.46	1.3504668	0.00220				
GUDRUNAS, PETER ERWIN	271104000250400	271104000250400	5.2970	5.2970	30	10.36729	0	0	10.36729	0.01568	4.562	8.9287464	0.01458				
SHIBLEY, JASON HAROLD	271104000250500	271104000250500	0.4067	0.3950	45	1.15964	0	0	1.15964	0.00175	0.395	1.159641	0.00189				
TAGGART, BRENDA; SCHIRMEISTER, MICHAEL FUERT	271104000250600	271104000250600	0.4968	0.4920	45	1.44441	0	0	1.44441	0.00219	0.492	1.4444136	0.00236				
BARBETT, GORDON JAMES	271104000250700	271104000250700	7.3555	7.3550	30	11.99601	0	0	11.99601	0.01815	4.885	7.967435	0.01301				
GRANT, LINDA MARGARET	271104000250800	271104000250800	17.0560	17.0560	35	38.94567	0	0	38.94567	0.05952	16.995	38.806383	0.06346				
THIESSEN, STEPHANIE	271104000250900	271104000250900	2.3175	2.3120	35	5.27922	0	0	5.27922	0.00799	2.312	5.2792208	0.00862				
WILLIAMS, ROBERT LEE; WILLIAMS, MARGARET HELEN	HUMBERSTONE CON 1 PT LOT 14 RP 59R8871 PT PART 2	271104000251000	0.0813	0.0810	50	0.26422	0	0	0.26422	0.00040	0.081	0.264222	0.00043				
KALYNIUK, CATHY ANN; KALYNIUK, JAMES VAN	271104000251100	271104000251100	0.1660	0.1660	50	0.54149	0	0	0.54149	0.00082	0.166	0.541492	0.00088				
BROWN, THEODORE THOMAS RICHARD	271104000251200	271104000251200	0.0695	0.0690	50	0.22834	0	0	0.22834	0.00035	0.07	0.22834	0.00037				
LAUR, CAROL JAYNE ESTATE; LAUR, JOHN THOMAS; LAUR, MICHAEL JOHN	271104000251300	271104000251300	0.0694	0.0690	50	0.22508	0	0	0.22508	0.00034	0.069	0.225078	0.00037				
HAZZER, DARIE	271104000251400	271104000251400	0.0694	0.0690	50	0.22508	0	0	0.22508	0.00034	0.069	0.225078	0.00037				
CRANE, CORNELIA; CRANE, STEPHEN	271104000251500	271104000251500	0.1390	0.1390	50	0.45342	0	0	0.45342	0.00069	0.139	0.453418	0.00074				
STICKLAND, TANYA; STICKLAND, MATTHEW	271104000251600	271104000251600	0.0693	0.0690	50	0.22508	0	0	0.22508	0.00034	0.069	0.225078	0.00037				
MCINTYRE, TEIGHAN BEVERLEY; DAVIES, FREDERICK CONRAD	271104000251700	271104000251700	0.1198	0.1200	50	0.39144	0	0	0.39144	0.00059	0.12	0.39144	0.00064				
PRESE, CATHERINE ANN; PRESSE, LORIN EARL	271104000251800	271104000251800	0.0933	0.0930	50	0.30337	0	0	0.30337	0.00046	0.093	0.303366	0.00050				
KESON REINSURANCE INC	271104000251900	271104000251900	0.1678	0.1680	50	0.54802	0	0	0.54802	0.00083	0.168	0.548016	0.00089				
FIDDY, CHARLES JOHN; FIDDY, LILLIAN NICOLE	271104000252000	271104000252000	0.2135	0.2140	50	0.69807	0	0	0.69807	0.00106	0.214	0.698068	0.00114				
TURNER, DAVID BRETT; SINDERLY, MICHAEL JOSEPH; SINDERLY, BARBARA RUTH	271104000252100	271104000252100	19.0899	18.1900	40	47.46862	0	0	47.46862	0.07181	12.078	31.5187488	0.05146				
PORT COLBORNE CITY	271104000252200	271104000252200	0.4124	0.4160	25	0.23813	0	0	0.23813	0.00036	0.146	0.238126	0.00039				
GRAYDON, AMANDA	271104000252300	271104000252300	0.4502	0.1390	25	0.21040	0	0	0.21040	0.00032							
BASCIANO, MARKUS ALEXANDER	271104000252400	271104000252400	0.3359	0.1270	25	0.20714	0	0	0.20714	0.00031	0.129	0.210399	0.00034				
EVANS, LANA; EVANS, MARK RANDALL	271104000252500	271104000252500	0.8129	0.3220	25	0.52518	0	0	0.52518	0.00079	0.322	0.525182	0.00086				
KIS, GARY MICHAEL	271104000252600	271104000252600	0.5014	0.5010	50	1.63426	0	0	1.63426	0.00247	0.501	1.634262	0.00267				
BARKER, WICTOR THOMAS; BARKER, GISELE BRIGITTE	271104000252700	271104000252700	0.2090	0.2090	50	0.68176	0	0	0.68176	0.00103	0.209	0.681758	0.00111				
MACCABE, NATALIE ANN BETHANY; APOLCER, JEREMY MATHEW	271104000252800	271104000252800	0.0696	0.0700	50	0.22834	0	0	0.22834	0.00035	0.07	0.22834	0.00037				
APOLCER, JEREMY MATHEW; MACCABE, NATALIE ANN BETHANY	271104000252900	271104000252900	0.0696	0.0700	50	0.22834	0	0	0.22834	0.00035	0.07	0.22834	0.00037				
SCEPPACORUA, DREW ALBERT	271104000253000	271104000253000	0.1144	0.1140	50	0.45342	0	0	0.45342	0.00069	0.139	0.453418	0.00074				
FIGUERA, MARIO	271104000253100	271104000253100	0.1697	0.1740	50	0.37187	0	0	0.37187	0.00056	0.114	0.371868	0.00061				
FIGUERA, MARIO	271104000253200	271104000253200	0.1697	0.1740	50	0.37187	0	0	0.37187	0.00056	0.114	0.371868	0.00061				
PIZZO, THEODORE ORLANDO	271104000253300	271104000253300	0.1742	0.1740	50	0.56759	0	0	0.56759	0.00086	0.174	0.567588	0.00093				
FIGUERA, MARIO	271104000253400	271104000253400	2.0277	2.0230	20	2.63961	0	0	2.63961	0.00399	0.665	0.867692	0.00142				
8798494 CANADA CORP	271104000253500	271104000253500	0.7984	0.7980	20	1.04123	0	0	1.04123	0.00158	0.365	0.476252	0.00078				
MCADAM, RICHARD WILSON	271104000253600	271104000253600	0.3482	0.3480	25	0.56759	0	0	0.56759	0.00086	0.236	0.384916	0.00063				
TOMLINSON, RICHARD MATTHEW	271104000253700	271104000253700	0.1865	0.1860	25	0.30337	0	0	0.30337	0.00046	0.166	0.270746	0.00044				
HENDERSON, PERIANNE LYNNE; HENDERSON, BRIAN RICHARD	271104000253800	271104000253800	0.2321	0.2320	25	0.37839	0	0	0.37839	0.00057	0.232	0.378392	0.00062				
JREGG, STEPHAN; JREGG, TAMMY	271104000253900	271104000253900	0.1697	0.1700	25	0.27273	0	0	0.27273	0.00044	0.017	0.272727	0.00045				
WELLS; BARBARA ELLEN; BELL, DAVID ANDREW	271104000254000	271104000254000	0.1298	0.0800	25	0.13048	0	0	0.13048	0.00020	0.08	0.13048	0.00021				
MCVAVOY, MATTHEW JOHN; MCVAVOY, CARRIE	271104000254100	271104000254100	0.4725	0.1940	25	0.31641	0	0	0.31641	0.00048	0.194	0.316414	0.00052				
ST. JOHN'S LUTHERAN CHURCH TRUSTEES	271104000254200	271104000254200	0.2364	0.1990	25	0.25933	0	0	0.25933	0.00039	0.159	0.259329	0.00042				
SOLOMON, NATHAN ALLEN; SOLOMON, RACHEL CHRISTINE	271104000254300	271104000254300	0.2364	0.1990	25	0.25933	0	0	0.25933	0.00039	0.159	0.259329	0.00042				
59R1767 PT 2, RP 59R10110 PT 2	271104000254400	271104000254400	0.1697	0.0800	25	0.13048	0	0	0.13048	0.00020	0.08	0.13048	0.00021				
PLAN 40 PT LOTS 39, 40 & 50 LOTS 41, 49 NP 799 R-59R10110 PART 1	271104000254501	271104000254501	0.1697	0.0800	25	0.13048	0	0	0.13048	0.00020	0.08	0.13048	0.00021				
PLAN 40 LOT 48 N799 CON 1 PT LOT 14	271104000254601	271104000254601	0.4725	0.1940	25	0.31641	0	0	0.31641	0.00048	0.194	0.316414	0.00052				
PLAN 40 LOTS 38, 51, 52 PT LOTS 37, 39, 40, 50, 53 N799 RP 59R1767 PT 2, RP 59R10110 PT 2	271104000254602	271104000254602	0.2364	0.1990	25	0.25933	0	0	0.25933	0.00039	0.159	0.259329	0.00042				

Maintenance Schedule

Owner	Legal_Txt	Roll No	Land Area				Watershed						Interval 1: Watershed less Wetland			Interval 2: E1 Branch		
			Area in Drain Ha	Runoff Factor 'C'	QRF	SWM	SWMF	QRF-SWMF	QRF Ratio	Total Adjusted Area Int#1	QRF	QRF Ratio	Total Adjusted Area Int#2	QRF	QRF Ratio			
City of Port Colborne	Richard Avenue		0.6159	95	3.81748	0	0	3.81748	0.00578	0.00623	0.61590	3.81723	0.02883					
City of Port Colborne	Tommy Avenue		0.5489	95	3.40191	0	0	3.40191	0.00515	0.00555	0.54890	3.40197	0.03570					
City of Port Colborne	Tracy Terrace		0.7899	95	4.64792	0	0	4.64792	0.00703	0.00759	0.78990	4.64773	0.03511					
City of Port Colborne	Vimy Ridge Road		0.7898	95	4.89472	0	0	4.89472	0.00741	0.00799								
City of Port Colborne	Vimy Ridge Road		0.5705	95	3.53609	0	0	3.53609	0.00535	0.00577								
City of Port Colborne	Firelane 4		0.3991	95	2.47359	0	0	2.47359	0.00374	0.00404								
City of Port Colborne	June Road		0.3984	95	2.47285	0	0	2.47285	0.00374	0.00404								
City of Port Colborne	Cedar Bay Road		3.3437	95	20.71912	0	0	20.71912	0.03135	0.03383	1.35420	8.39306	0.06340					
			11.4778					71.1366			3.2689	20.2600						
											612.4915	1.0000						
											49.5086	132.3828	1.0000					

Maintenance Schedule

Owner	Legal_Txt	Roll No	Interval 3: West Branch		Interval 4: E2 Branch		Interval 5: E3 Branch		Interval 6: Upper OMC Watershed						
			Total Adjusted Area Int#3	QRF Ratio	Total Adjusted Area Int#4	QRF	Total Adjusted Area Int#5	QRF	Total Adjusted Area Int#6	QRF	Outlet Improve ments & Maintenananc	QRF Ratio			
GELKA, BRADLEY GEORGE	PLAN 59 LOT 5 LOT 6 NP818	271104000238000			0.16182	0.52785	0.01361								
MCCARTHY, MICHAEL EARL	PLAN 59 LOT 7 NP818	271104000239000			0.08091	0.26393	0.00680								
WARNER, ROSE MARIE; WARNER, TERRY RAY	PLAN 59 LOT 8 LOT 9 NP818	271104000234000			0.15537	0.51985	0.01340								
SCHNEIDER, WENDY LORRAINE; STOUT, CHRISTOPHER JOHN	PLAN 59 LOT 10 NP818	271104000234100			0.07253	0.23658	0.00610								
788833 ONTARIO LIMITED, O'CONNOR, ELIZABETH	PLAN 59 LOT 11 LOT 12 NP818	271104000234200			0.15085	0.49208	0.01269								
AKINS, ANNETTE MARIE MARGARET; AKINS, DAVID LLOYD	PLAN 59 LOT 13 NP818	271104000234300			0.08091	0.26392	0.00680								
DE MELO, SUSETE MARIA; DE MELO, KRISTEN TAYLOR; DE MELO, KYLE DANIEL	PLAN 59 LOT 14 NP818	271104000234400			0.08091	0.26392	0.00680								
DANIS, GUY GERALD; DANIS, SUSANI ELAINE	PLAN 59 LOT 16 LOT 17 NP818	271104000234500			0.16182	0.52786	0.01361								
DE MELO, KRISTEN TAYLOR; DE MELO, KYLE DANIEL; DE MELO, SUSETE MARIA	PLAN 59 LOT 15 N° 818	271104000234501			0.08091	0.26393	0.00680								
DANILEWICZ, LESZEK; DANILEWICZ, GRAZYNA	PLAN 59 LOT 18 NP818	271104000234600			0.08091	0.26393	0.00680								
MCCLEMMONT, DIANE MARLENE; MCCLEMMONT, KENNETH GRANT	PLAN 59 LOT 19 NP818	271104000234700			0.08091	0.26393	0.00680								
REZZA, VITO; REZZA, MARGARET	PLAN 59 LOT 20 NP818	271104000234800			0.16182	0.52786	0.01361								
NAGY, ANITA LOUISE	PLAN 59 LOT 21 NP818	271104000234900			0.08091	0.26393	0.00680								
CARMICHAEL, BAYLEY; GUTTIN, CORDELL	PLAN 59 LOT 22 NP818	271104000235000			0.16182	0.52787	0.01361								
DANIS, SUSAN ELAINE; DANIS, GUY GERALD	PLAN 59 LOTS 23, 24 NP818	271104000235100			0.16182	0.52787	0.01361								
WYBROW, ROBERT WILLIAM	PLAN 59 LOT 27 NP818	271104000235400			0.08091	0.26393	0.00680								
WYBROW, ROBERT WILLIAM	PLAN 59 LOT 28 NP818	271104000235500			0.08091	0.26393	0.00680								
ALEK, CHRISTOPHER PAUL; ALEK, WENDY LEE	PLAN 59 LOT 29 LOT 30 NP818	271104000235600			0.15076	0.49178	0.01268								
KNIGHT-WOODWARD, BARBARA	PLAN 59 LOT 35 LOT 36	271104000235700			0.06687	0.22466	0.00579								
SCOTT, TARA ELIEN	CON 1 PT LOT 13	271104000235800			0.08121	0.26490	0.00683								
RUSTON, CHRISTINE ANN	CON 1 PT LOT 13	271104000235900			0.08118	0.26479	0.00683								
ZIMMERMAN, CARRIE ANN; ZIMMERMAN, JODY ANTHONY	CON 1 PT LOT 13	271104000236000			0.08124	0.26467	0.00682								
SLITER, JOSHUA RAYMOND	CON 1 PT LOT 13	271104000236100			0.16217	0.52901	0.01364								
M'CNAY, KIMBERLY MARIE	CON 1 PT LOT 13	271104000236200			0.08103	0.26431	0.00681								
ASHBRIDGE, ALAN; ASHBRIDGE, MARC PETER	CON 1 PT LOT 13	271104000236300			0.08100	0.26422	0.00681								
WEST, DARREN; WEST, ONNA	CON 1 PT LOT 13	271104000236400			0.16278	0.53099	0.01369								
FEAR, KIMBERLEY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 41)	271104000236600			0.08072	0.26331	0.00679								
FEAR, KIMBERLEY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 42)	271104000236800			0.08132	0.26527	0.00684								
GRACE, KATHRYN; GRACE, JOHN	HUMBERSTONE CON 1 PT LOT 13	271104000236900			0.08134	0.26532	0.00684								
SHERSTYUK, ANDRIY	HUMBERSTONE CON 1 PT LOT 13	271104000237000			0.24210	0.78972	0.02036								
KELLY, ROBERT JAMES; KELLY, MARY ANN	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 49 LOT 5)	271104000237300			0.30937	1.00916	0.02602								
PORT COLBORNE CITY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 51 LOT 52)	271104000237400			0.14276	0.46569	0.01201								
CDX, REGINAL RICKY	CON 1 PT LOT 13 (ALLOUET SKETCH LOT 68)	271104000237500			0.08091	0.26393	0.00680								
CDX, REGINAL RICKY	CON 1 PT LOT 13 PLAN 5986615 PART 1	271104000237600			0.40473	1.32022	0.03404								
BEAM, JONATHAN IRVIN	CON 1 PT LOT 13	271104000237610			4.54055	8.88676	0.27912								
BACSO, MIKLOS; BACSO, NICOLE ELIZABETH	CON 1 PT LOT 13 RP 598900 PART 3	271104000237700			0.22091	0.72059	0.01858								
STOUT, CHRIS	CON 1 PT LOT 13 RP 598900 PART 1	271104000237800			0.21396	0.69792	0.01799								
WHITE, MARK ANTHONY	CON 1 PT LOT 13 RP 598900 PART 2	271104000237801			0.23471	0.76562	0.01974								
HILBORN, KATHERINE ADA; HILBORN, BRYAN PAUL	CON 1 PT LOT 13 AND RP 5981267 PART 1	271104000237900			0.35652	1.16296	0.02998								
BODSKI, ANNETTE MAUREN; BODSKI, MURRAY ALLAN	CON 1 PT LOT 13	271104000238000			0.40230	1.31555	0.03392								
HIGH, DEREK ALLAN; HIGH, KERRI JOANNE	CON 1 PT LOT 13	271104000238100			0.26668	0.87968	0.02268								
SCHNEIDER, JOHN LOUIS; SCHNEIDER, PATRICIA AILEEN	CON 1 PT LOT 13	271104000238200			0.35013	1.14213	0.02945								
MADDON, TROY RENE DONALD; ARMENT-FADON, ANITA	CON 1 PT LOT 13	271104000238300													
ANDERSON, TIMOTHY MICHAEL; ANDERSON, MELISSA MARIE	CON 1 PT LOT 13	271104000238400													
JACKSON, GLEN BRUCE; JACKSON, BONNIE LEE	CON 1 PT LOT 13	271104000238500													
VANDER VAART, LEONARDUS J; VANDER VAAR, MARGARET ANN	CON 1 PT LOT 13	271104000238600			0.08663	0.26392	0.00522								
STABO, MONICA ANN; GRAY, ROGER WAYNE	CON 1 PT LOT 13	271104000238700													
BARCOCK, CHARLYN KIM; BARCOCK, TIMOTHY DAVID	RP 59M140 LOT 4 CON 1 PT LOT 13	271104000238701													
MEDINA OIL FIELD SUPPLY INC	CON 1 PT LOT 13 RP 5981063 PART 1	271104000238702													
SAHS-MEYER, EVA-LYN; MEYER, PETER	CON 1 PT LOT 13 PLAN 59M4571 PART 1	271104000238705													
MEYER, PETER; SAHS-MEYER, EVA-LYN	RP 59M140 LOT 3	271104000238706													
PETRI, SUSANNE CECILE; PETRI HAROLD ESTATE	RP 59M140 LOT 2	271104000238707													
ROVERS, JUDITH ANN	CON 1 PT LOT 13	271104000238708													
POULIOT, LIAM ROLAND; BARTOK, ELISE AMANDA	CON 1 PT LOT 13	271104000238800													
MARSHALL, RODERICK MARK; RUFFO, LEONA JOANNE	HUMBERSTONE CON 1 PT LOT 13 AND RP 5985794 PART 1	271104000238900													
DESCHAMPS, SALLY ANN; DESCHAMPS, DENZILADELARD	CON 1 PT LOT 13	271104000239000													

Maintenance Schedule

Owner	Legal_Txt	Roll No	Interval 3: West Branch		Interval 4: E2 Branch		Interval 5: E3 Branch		Interval 6: Upper OMC Watershed		
			Total Adjusted Area Int#3	QRF Ratio	Total Adjusted Area Int#4	QRF Ratio	Total Adjusted Area Int#5	QRF Ratio	Total Adjusted Area Int#6	Outlet Improve ments & Maintenance QRF	QRF Ratio
WINIGER, KAREN JOANNE	CON 1 PT LOT 13	271104000239200							0.1842429	0.54090031	0.00242
NESSBITT, DANIELLE MICHELLE; SCOTT, KEVIN JOHN	CON 1 PT LOT 13	271104000239300							0.1996693	0.58618913	0.00262
GEADY, CINDY JO; CARRIGAN, FRANCIS JAMES	CON 1 PT LOT 13 RP59R3347 PART 1 TO PART 4	271104000239400							0.3788554	1.11224368	0.00497
PHELAN, DAISY; PHELAN, CHRISTOPHER	CON 1 IN PT LOT 13	271104000239600							0.50192079	0.82329597	0.00487
DIMOND, DOUGLAS PATRICK; DIMOND, JANNETTE KATHERINE	CON 1 PT LOT 13 RP 59R6442 PART 2	271104000239602							0.4088907	1.20042132	0.00536
SEREDINE, MATTHEW WILLIAM	CON 1 PT LOT 13 RP 59R6142 PART 1	271104000239700							0.4441978	1.3040759	0.00582
O'REILLY, LAURENCE MARIE; HOBMAN, GLEN RICHARD	CON 1 PT LOT 13 RP59R 1063 PART 3	271104000239800							0.1277802	0.37513711	0.00277
SNEKCO LTD	HUMBERSTONE CON 1 PT LOT 13 AND RP 59R1063 PART 4	271104000239900							0.1912764	0.56154936	0.00251
KOCH, KIRK DOUGLAS; KOCH, NANETTE ANNE	CON 1 PT LOT 13 RP 59R1063 PART 5	271104000240000							0.1661666	0.4878319	0.00218
MORRIS, TIMOTHY HENRY; MORRIS, JAMIE LYNN	CON 1 PT LOT 13 RP 59R3144 PART 2	271104000240100							0.500188	1.46844312	0.00656
GILLESPIE, RITA; GILLESPIE, BLAIR A	CON 1 PT LOT 13 RP 59R3144 PART 1	271104000240200							0.4595265	1.3490779	0.00602
KORTEN, RICHARD	CON 1 PT LOT 13	271104000240300							4.562013	8.92877184	0.00987
GUDRUNAS, PETER ERWIN	CON 1 PT LOT 14	271104000240400							0.3946807	1.1587036	0.00644
SHIBLEY, JASON HAROLD	CON 1 PT LOT 14	271104000240500							0.4915426	1.4430707	0.00644
TAGGART, BRENDA; SCHIRMEISTER, MICHAEL EURT	CON 1 PT LOT 14 RP 59R8871 PART 1	271104000240700							0.5470063	1.6059011	0.00717
BARBETT, GORDON JAMES	CON 1 PT LOT 14 RP 59R947 PART 1	271104000240701							1.7977293	2.93209649	0.01309
GRANT, LINDA MARGARET	HUMBERSTONE CON 1 PT LOT 14 RP 59R7117 PART 2	271104000240705							16.994992	38.8063647	0.17330
THIESSEN, STEPHANIE	HUMBERSTONE CON 1 PT LOT 14 RP 59R7117 PART 1	271104000240707							2.3119375	5.27907809	0.00257
WILLIAMS, ROBERT LEE; WILLIAMS, MARGARET HELEN	CON 1 PT LOT 14 PT 3 - RAILWAY LAND	271104000240800							0.3010093	0.8837031	0.00395
KALYNIUK, CATHY ANN; KALYNIUK, JAMES VAN	CON 1 PT LOT 14	271104000240900							3.9846677	9.09859023	0.04063
BROWN, THEODORE THOMAS RICHARD	CON 1 PT LOT 14	271104000241000									
LAUR CAROL JAYNE ESTATE; LAUR, JOHN THOMAS; LAUR, MICHAEL JOHN	CON 1 PT LOT 14	271104000241100									
MAZZA, RAYMOND; JORGE, JACINTA	CON 1 PT LOT 14	271104000241200									
ZAJAC, JOHN	CON 1 PT LOT 14	271104000241300									
ZAJAC, JOHN	CON 1 PT LOT 14	271104000241400									
HAZZER, DARIE	CON 1 PT LOT 14	271104000241500									
CRANE, CORNELIA; CRANE, STEPHEN	CON 1 PT LOT 14	271104000241600									
STICKLAND, TANYA; STICKLAND, MATTHEW	CON 1 PT LOT 14	271104000241700									
MCINTYRE, TEIGHAN BEVERLEY; DAVIES, FREDERICK CONRAD	CON 1 PT LOT 14	271104000241800									
PRESSE, CATHERINE ANN; PRESSE, LORIN EARL	CON 1 PT LOT 14	271104000241900									
ICON REINSURANCE INC	CON 1 PT LOT 14	271104000242000									
FIDDY, CHARLES JOHN; FIDDY, LILLIAN NICOLE	CON 1 PT LOT 14 RP59R 8956 PART 1	271104000242100									
TURNER, DAVID BRETT; SINDERLY, MICHAEL JOSEPH; SINDERLY, BARBARA RUTH	CON 1 PT LOT 14 RP59R3837 PART 2 RP59R8956 PART 2	271104000242200									
PORT COLBORNE CITY	CON 1 PT LOT 13 PT LOT 14 PLAN 36 PT BLK A	271104000242300									
HUMBERSTONE CON 1 PT LOT 14 RP 59R16071 PART 1	CON 1 PT LOT 14	271104000242400									
GRAYDON, AMANDA	HUMBERSTONE CON 1 PT LOTS 13 AND 14 RP 59R16071 PART 2	271104000242500									
BASCIANO, MARKUS ALEXANDER	CON 1 PT LOT 14	271104000242600									
EVANS, LANA; EVANS, MARK RANDALL	CON 1 PT LOT 14	271104000242700									
KIS, GARY MICHAEL	CON 1 PT LOT 14	271104000242800									
BARKER, WICTOR THOMAS; BARKER, GISELE BRIGITTE	PLAN 42 LOT 80 PT LOTS 70 & 79 NP 801 59R 9378 PART 1	271104000242900									
MACCABE, NATALIE ANN BETHANY; APOLLER, JEREMY MATTHEW	CON 1 PT LOT 14 RP 59R3783 PART 1 PART 2	271104000243000									
APOLLER, JEREMY MATTHEW; MACCABE, NATALIE ANN BETHANY	CON 1 PT LOT 14	271104000243100									
SCEPPACERUA, DREW ALBERT	CON 1 PT LOT 14 RP 59R3783 PART 4	271104000243200									
FIGUERA, MARIO	CON 1 PT LOT 14	271104000243300									
FIGUERA, MARIO	CON 1 PT LOT 14	271104000243400									
PIZZO, THEODORE ORLANDO	CON 1 PT LOT 14	271104000243500									
8798494 CANADA CORP	CON 1 PT LOT 14	271104000243600									
MCADAM, RICHARD WILSON	CON 1 PT LOT 14	271104000243700									
TOMLINSON, RICHARD MATTHEW	CON 1 PT LOT 14	271104000243800									
HENDERSON, PERIANNE LYNNE; HENDERSON, BRIAN RICHARD	CON 1 PT LOT 14	271104000243900									
JREGG, STEPHAN; JREGG, TAMMY	CON 1 PT LOT 14	271104000244000									
WELLS; BARBARA ELLEN; BELL, DAVID ANDREW	PLAN 40 PT LOTS 39, 40 & 50 LOTS 41, 49 NP 799 P-59R10110 PART 1	271104000244100									
MCVOY, MATTHEW JOHN; MCVOY, CARRIE	CON 1 PT LOT 14	271104000244200									
ST. JOHN'S LUTHERAN CHURCH TRUSTEES	PLAN 40 LOT 48 NP799 CON 1 PT LOT 14	271104000244300									
SOLOMON, NATHAN ALLEN; SOLOMON, RACHEL CHRISTINE	PLAN 40 LOTS 38, 51, 52 PT LOTS 37, 39, 40, 50, 53 NP799 RP 59R1767 PT 2, RP 59R10110 PT 2	271104000244400									

Maintenance Schedule

Owner	Legal_Txt	Roll No	Interval 3: West Branch		Interval 4: E2 Branch		Interval 5: E3 Branch		Interval 6: Upper OMC Watershed	
			Total Adjusted Area Int#3	QRF Ratio	Total Adjusted Area Int#4	QRF Ratio	Total Adjusted Area Int#5	QRF Ratio	Total Adjusted Area Int#6	QRF Ratio
PHATT, GARY; PRATT, IRENE	PLAN 40 LOT 36 LOT 54 PT LOTS 35 37 55 & 55 NP799 RP 59R1767 PART 1	271104000244800	0.12401	0.20236						
LECKE, PATRICIA EVELYN; LECKE, JAMES FERRELL	PLAN 799 PT BLK A LOTS 34 AND 56 PT LOTS 35 AND 55	271104000245000	0.08591	0.14011						
BAMATO, DONNA MARIE; SMITH, PETER WATT	PLAN 799 LOTS 31 TO 33 57 TO 59	271104000245100	0.16056	0.26187						
8798-494 CANADA CORP	PLAN 799 LOTS 23 24 30 AND 60 PT LOTS 25 29 61 PT BLK C	271104000245200	0.09672	0.15775						
OLEKSIAK, JAMIESON DEAKIN; OLEKSIAK, ALISON MARIE	PLAN 799 PT LOTS 29&61 PLAN 801 L 74,75 & PT LIS 73,76 RP59R7934 PT 1	271104000245301	0.19605	0.31976						
ALLEN, CHRISTINE; STINZIANI, LUIGI GINO	PLAN 801 PT BLKS A D AND E PT LOTS 65 66 72 73 76 AND 77	271104000245400	0.23464	0.38271						
KELLER, ROGER L	PLAN 42 LOT 67 LOT 71 LOT 78 PT LOT 66 PT LOT 72 PT LOT 77 PT BLK D PT BLK E PLAN 40 PT BLK A	271104000245500	0.27257	0.44456						
PRIMERANO, ROBIN; CLARE, IRENE; CLARE, RANDY	PLAN 42 LOT 68 LOT 69 PT LOT 70	271104000245600	0.27818	0.45372						
ASHBY, JORDAN; ASHBY, MIRANDA	PLAN M-168 LOT 1	271104000252800	0.00393							
LUNDY, JANET; LUNDY, JAMES	PLAN 59M168 LOT 2	271104000252900								
SAXTON, THOMAS ROBERT; SAXTON, MARIA	PLAN 59M168 LOT 3	271104000253000								
JAMES, WILLIAM RUSSELL	PLAN 59M168 LOT 4	271104000253100								
DANIEL, VINCENT; DANIEL, ARUNA	PLAN 59M168 LOT 5	271104000253200								
PETERSON, ALLAN BERT; PETERSON, LISA MARIE	PLAN 59M168 LOT 6	271104000253300								
SALIBA, CARMEL JOSEPH; SALIBA, CHRISTINA GRACE	PLAN 59M168 LOT 7	271104000253400								
MORRISON, DAVID JOHN; MORRISON, BONNIE SUE	PLAN 59M175 LOT 3	271104000253500								
ASHBY, JOANNE; SIMPSON, BRIAN	PLAN 59M175 LOT 4	271104000253600								
GIRARD, ANGELA JACQUELINE; GIRARD, STEED	PLAN 59M175 LOT 5	271104000253700								
YIPER, JULIANA MARIANNA	PLAN 59M175 LOT 6	271104000253800								
TYPER, JULIANA MARIANNA	PLAN 59M175 LOT 7	271104000253900								
COMFORT, CHRISTOPHER HERMAN; COMFORT, JOSEPHINE ANN	PLAN 59M175 LOT 1	271104000254000								
FONTAINE, BARBARA	PLAN 59M175 LOT 2	271104000254100								
REPEC, JENNIFER	HUMBERSTONE CON 1 PT LOT 15 PLAN 796 PT BLKS A AND B LOTS 8 TO 14 PT LOT 15 WATER LOT	271104000300900	3.44139	5.61291	0.48600					
VIOLIN, ELIZABETH IRENE; VIOLIN, VICTOR EMILIO	PLAN 796 PT BLK B BROKEN LOTS 15 AND 16	271104000301000	1.53335	2.50089	0.02165					
KEPPY, JANE AUDREE; COCKSHUTT, WILLIAM ANTHONY	HUMBERSTONE CON 1 PT LOT 16 PLAN 796 PT BLK B PT WATER LOT RP 59R15083 PARTS 1 AND 2	271104000301100	0.55247	0.90271	0.00782					
BDONER, MEGAN; FARNAN, SCOTT	PLAN 796 PT BLK B RP 59R12610 PART 1	271104000301101	0.52162	0.85076	0.00737					
FALLOTT, KERRY BERNARD	PLAN 796 PT BLK B RP 59R12610 PART 2	271104000301105	0.92717	1.51222	0.01309					
FLETT, SUSANNE MARY; FLETT, JOHN ROSS	PLAN 796 PT BLK B HUMBERSTONE CON 1 PT WATER LOT IN FRONT OF LOT 16 AND RP 59R11670 PART 1 UNREG	271104000301200	0.78804	1.25268	0.01085					
GROOM, JOSHUA NATHAN; GROOM, KRISTAL LYNN	PLAN 37 LOT 16 PT LOT 15 NP796	271104000301300	0.52663	0.85893	0.00744					
JASEK, COLLEEN R; JASEK, JOHN M	PLAN 37 LOT 17 NP796	271104000301400	0.45695	0.74528	0.00645					
HODDAR, SUSAN; PETRAS, HOLODAY, RICHARD	PLAN 37 LOT 18 PT LOT 19 NP796	271104000301500	0.63883	1.03377	0.00895					
MORRISON, HALEY MARILYN; MINOR, DUNCAN LINCOLN	PLAN 37 LOT 20 NP796	271104000301600	0.20355	0.33199	0.00287					
KRIEGER, LESLEY EILEEN	PLAN 37 LOT 21 NP796	271104000301700	0.38450	0.62713	0.00543					
BUCHANAN, CHERIE ELIZABETH; BUCHANAN, ROBERT JOSEPH	PLAN 37 PT LOT 21 NP796	271104000301800	0.12242	0.19967	0.00173					
SMITH, MARGIORY LEE; SMITH, BRIAN WESLEY	PLAN 37 PT LOT 22 NP796	271104000301900	0.07659	0.12492	0.00108					
SIMPSON, KORY; BELSKY, IGOR	PLAN 37 PT LOT 23 NP796	271104000302000	0.01345	0.02193	0.00019					
WINGER, W A	PLAN 796 PT BLK A	271104000302001	0.06709	0.10943	0.00095					
BE-GG, TERRY LYNN	PLAN 37 PT LOT 21 PT LOT 22 NP796	271104000302100	0.57920	0.94468	0.00818					
WETCALF, IVANA KOMIJEUNOVIC; WETCALF, THOMAS ASA	CON 1 PT LOT 15 RP 59R7605 PART 1	271104000302200	0.40454	0.65981	0.00571					
1000771167 ONTARIO INC	HUMBERSTONE CON 1 PT LOT 16 PT LOT 15	271104000302700	17.13891	39.12356	0.3876					
SAWDON, SONIA ODARKA; SAWDON, DEBORAH ANN	CON 1 PT LOT 15	271104000302800	14.07773	32.14509	0.27834					
CROWDER, MARTHA; MOORE, RICHARD WILLIAM	CON 1 PT LOT 15 PT LOT 16	271104000302900								
JONES, LARRY WAYNE	CON 1 PT LOT 15	271104000303000								
SHAJBEL, ALLEN WILLIAM	CON 1 PT LOT 15	271104000303100								
NIGH, HAROLD ALFRED; NIGH, JANE CAROLYN	CON 1 PT LOT 15 PT LOT 16	271104000303200								
FERMAN, AMY LEE; FERMAN, PAUL ALLAN	CON 1 PT LOT 15 PT LOT 16	271104000303400								
PARRON, SYLVIA ROSE; FANNON, WILLIAM THOMAS	CON 1 PT LOT 15	271104000303500								
PORT COLBORNE CITY	CON 1 PT LOTS 1-2	271104000499900	48.89409	104.12775						
Roads			13.3061	35.56762						
City of Port Colborne	Pincrest Road		1.32990	8.24245	0.07137					
			86.6758	203.6690						
			12.67864	28.11471						

Maintenance Schedule

Owner	Legal_Txt	Roll No	Interval 3: West Branch		Interval 4: E2 Branch		Interval 5: E3 Branch		Interval 6: Upper OMC Watershed			
			Total Adjusted Area Int#3	QRF Ratio	Total Adjusted Area Int#4	QRF Ratio	Total Adjusted Area Int#5	QRF Ratio	Total Adjusted Area Int#6	QRF Ratio	Outlet Improvements & Maintenance QRF	
City of Port Colborne	Richard Avenue									0.6159	3.8172502	0.01705
City of Port Colborne	Tommy Avenue									0.5489	3.40197242	0.01519
City of Port Colborne	Tracy Terrace									0.7499	4.64773022	0.02076
City of Port Colborne	Vimy Ridge Road		0.50320	3.11873								
City of Port Colborne	Vimy Ridge Road				0.08090	0.50140	0.01293					
City of Port Colborne	Firelane 4				0.43850	2.71774	0.07007					
City of Port Colborne	June Road											
City of Port Colborne	Cedar Bay Road		1.8931	11.9612	0.5194	3.2191		1.4960	9.2719	1.3542	8.39306076	0.03748
			50.7272	115.4889	13.8200	38.7868	1.0000	14.1746	37.3866	3.2689	20.2600	1.0000
										89.9447	223.9290	1.0000

**Appendix C:
Supplementary Information &
Documents**



PORT COLBORNE

Public Works Services

Memorandum

Date: March 12, 2024
To: Amy Parks, Theresa Bukovics
From: Tommy Flannigan, Municipal Drain Technologist
CC'd: Alana Vander Veen, Drainage Superintendent
Paul Marsh, EWA Engineering Appointed Engineer
Re: Recap of May 9th 2022 Oil Mill Creek Drain site visit

Wetland creation

- met at Centennial Park located in Port Colborne, where the Oil Mill Creek Drain crosses through the park
- took a look at the proposed wetland ponds on the North side of the park
- there wasn't any concern expressed from NPCA with what was proposed for the proposed wetland creations

Re-aligning the oxbow west of tennis court

- area of the drain, to create a more direct and easier flow path at the junction of where E2 and E3 Branches connect to the main drain
- discovered a lot more material to be removed than first anticipated for this work to happen
- the suggestion was made that the E2 branch outlet be re-aligned and connect to the main drain at a better angle to increase a better flow

663 Pinecrest Road, Property Roll #240900, E1 Branch location

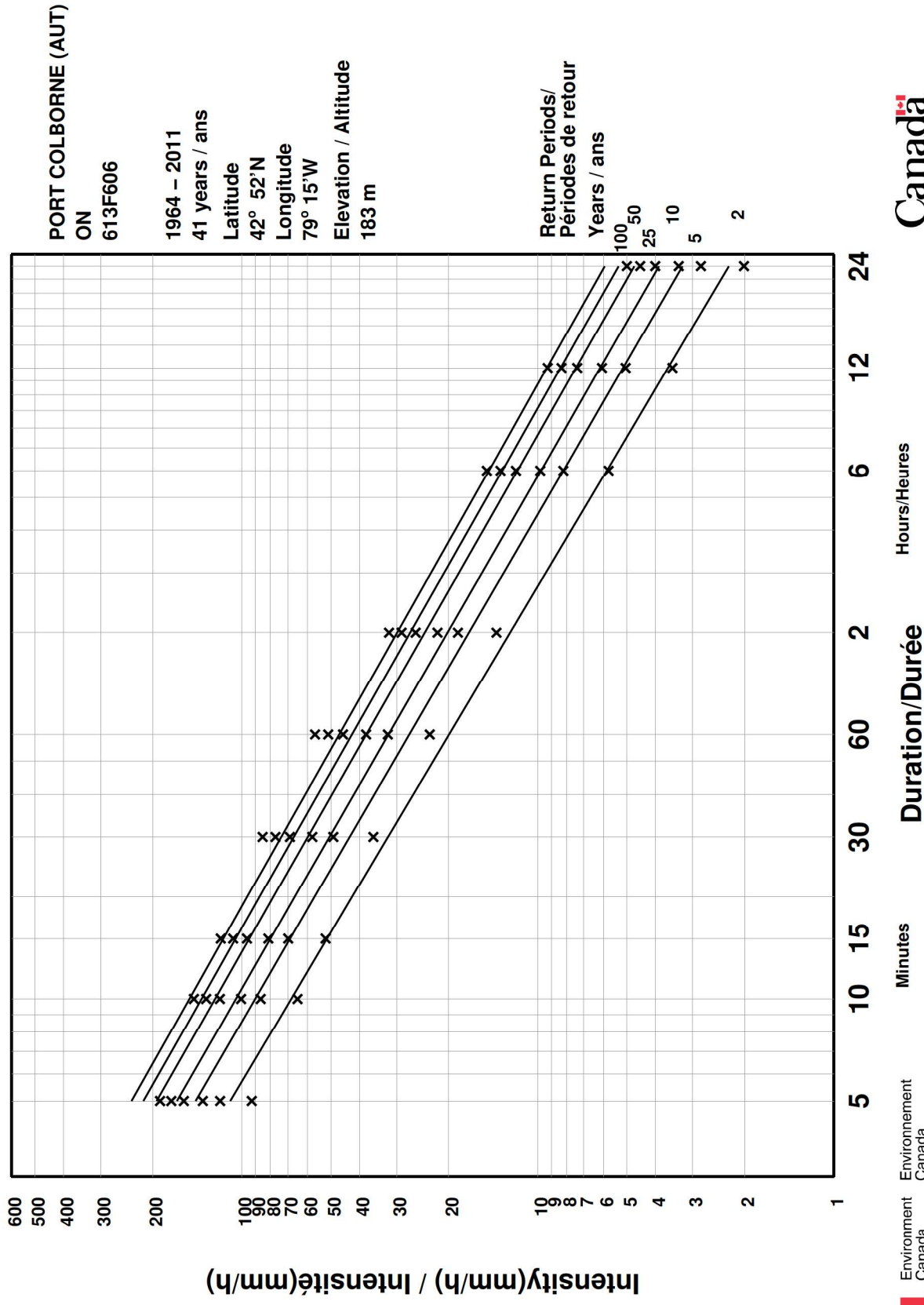
- looked at the proposed abandonment (but to remain in place) piece that runs East to West stationed 0+516 to 0+645 ish
- the proposed re-alignment that would run from station 0+516 to the North edge of property 663 Pinecrest Rd
- walked the proposed E1 Branch re-alignment
- noticed there is currently a ditch already in place overgrown with weeds and brush
- NPCA agreed this re-alignment doesn't cause any concern as it is already a ditch

If we do not hear from you by May 31, 2022, we will assume the notes recorded above to be correct.

Short Duration Rainfall Intensity–Duration–Frequency Data

2022/10/31

Données sur l'intensité, la durée et la fréquence des chutes de pluie de courte durée



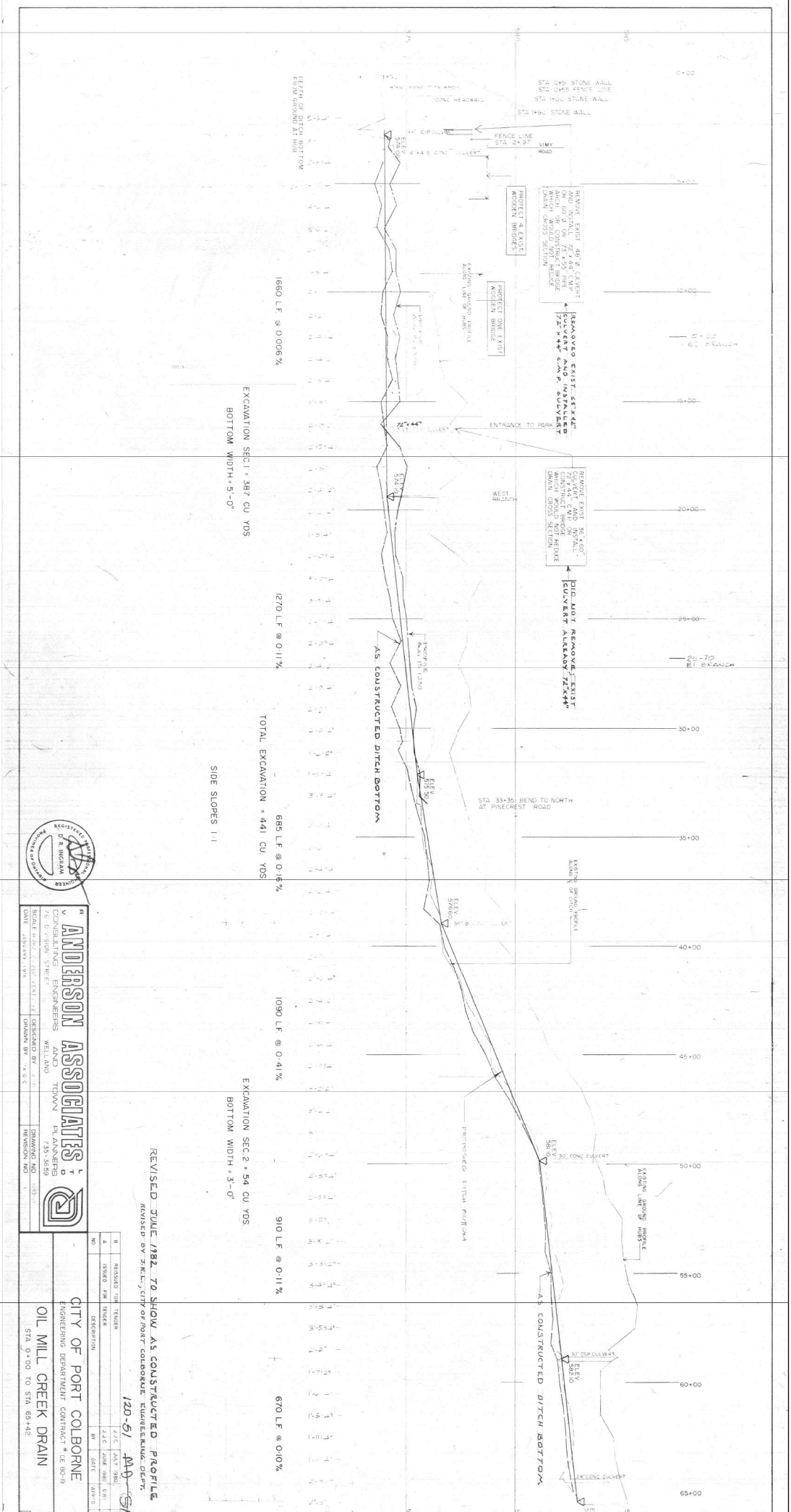
Environnement
Canada

Minutes

Duration/Durée

Hours/Heures





EXCAVATION SEC. 1 = 387 CU YDS
 BOTTOM WIDTH = 5'-0"

TOTAL EXCAVATION = 441 CU YDS

EXCAVATION SEC. 2 = 54 CU YDS
 BOTTOM WIDTH = 3'-0"

SIDE SLOPES 1:1

REVISED TO BE SHOWN AS CONSTRUCTED PROFILE

120-5/1 110-5/1



ANDERSON ASSOCIATES, INC.
 CONSULTING ENGINEERS
 742 DIVISION STREET
 WELLSVILLE, MICHIGAN 49883
 PHONE: (616) 895-1100
 FAX: (616) 895-1101
 DATE: 08/24/93 BY: JJC
 DRAWN BY: JJC



CITY OF PORT COLBORNE
 ENGINEERING DEPARTMENT
 CONTRACT # 02-80-3
 STA. 91+00 TO 51+00

NO.	ISSUED FOR	BY	DATE
1	ISSUED FOR TENDER	JJC	JAN 2000
2	TRUCK	JJC	JAN 2000

120-5/1 110-5/1

**Appendix D:
Specifications**

OIL MILL CREEK MUNICIPAL DRAIN PROJECT SPECIFICATIONS

A1. ROLES 1

A2 ENVIRONMENTAL CONDITIONS AND COMPLIANCE 1

A3 CONSTRUCTION LAYOUT 1

 A) STAKES 1

 B) PROJECT SIGNAGE 2

A4 INSTALL AND MAINTAIN SEDIMENT CONTROL DEVICES 2

 A) SILT FENCE 2

 B) SEDIMENT BASINS..... 2

A5 ACCESS & NOTICE 2

A6 AS-CONSTRUCTED DOCUMENTATION 3

B1 EARTH EXCAVATION 4

B2 CONSTRUCTION 4

 A) VEGETATION REMOVAL 4

 B) EXCAVATION 4

 C) PROFILE 4

 D) LINE..... 4

 E) EXCAVATED MATERIAL..... 4

 G) EXCAVATION AT BRIDGE AND CULVERT SITES..... 6

 H) OBSTRUCTIONS..... 6

 I) FENCES AND PRIVATE FURNITURE OR EQUIPMENT 6

 J) TILE OUTLETS..... 6

B3 INSTALLATION OF NEW CULVERT..... 6

B4 HAND LAND RIP RAP WITH FILTER CLOTH..... 7

B5 TREE PLANTING..... 8

B6 BANK RESTORATION 9

 B6.1 'IN WATER WORK' 9

 B6.2 LIVE STAKES AND NATIVE PLANT MATERIALS 10

 B6.3 EROSION CONTROL BLANKET 10

B.11 OMC DRAIN MECHANICAL ADDITIONS..... 12

 B11.1 WINCH REPLACEMENT 12

Hand Operated Winch..... 12

Electrical Operated Power Winch 12

 B11.2 WINCH COVER BOX 12

 B11.3 ELECTRICAL SUPPLY..... 12

 B11.4 RECTANGULAR FLEX FLAP GATE..... 12

C1 COMPLETION 13

C2 AS-CONSTRUCTED DOCUMENTATION..... 13

A1. ROLES

The Contractor is responsible for the construction site including all approvals required for compliance with applicable legislation not already completed by the City of Port Colborne.

The City of Port Colborne, who is further recognized as The Owner, shall be responsible party for allocation of resources in support of construction where required, such as road occupancy permits during construction.

The Drainage Engineer or the Drainage Superintendent shall supervise construction and the Drainage Engineer, Drainage Superintendent or their representative shall respond to any requests by the Contractor and identify any deficiencies between the Contractor's work and the Design documents.

The Drainage Engineer is the responsible designer and will provide technical direction to the Contractor on an as needed and as requested basis from the Drainage Superintendent or their representative.

A2 ENVIRONMENTAL CONDITIONS AND COMPLIANCE

The Contractor is wholly responsible for the site environmental conditions, compliance with applicable approvals and existing legislation. The Owner will facilitate environmental approvals, but the Contractor shall control the site and be the responsible party for all construction activities.

General requirements to be fulfilled by Contractor:

- a) Department of Fisheries and Oceans, DFO.
Requirements to protect Fish and Fish habitat.
- b) Endangered Species Act, 2007 ONTARIO REGULATION 230/08
<https://www.ontario.ca/page/species-risk>
- c) Ontario Water Resources Act, R.S.O. 1990, c. O.40
- d) On-Site and Excess Soil Management, 2019 ONTARIO REGULATION 406/19 Environmental Protection Act
- e) O. Reg. 675/98: Classification and Exemption of Spills and Reporting of Discharges, Environmental Protection Act, R.S.O. 1990

Any other legislation applicable to the jurisdiction of the works.

A3 CONSTRUCTION LAYOUT

Conditions stipulated in the Niagara Peninsula Standard Contract Document also apply. Failure to comply with these conditions will result in a reduction in payment to this item.

a) Stakes

Contractor is responsible for setting any layout, alignment or grade control stakes required for construction. A Stake shall be placed to mark every cross-section grade and a second stake shall be placed to mark the limits of the Working Zone. Work Zone Stake shall be 4' wooden stake painted red at the top of the stake. Grade stake shall be placed at the Work Zone Top of Bank. X-Section stakes shall be placed at a maximum spacing of 25m. A recommended spacing shall coincide with the Profile drawings.

Prior to the start of Construction, the Contractor will stake and identify the difference between the existing grade and the design grade. The Drainage Engineer shall review the stakes and the measurement of the soil to be removed. Post Construction, the Contractor shall remove all stakes.

b) Project Signage

The Contractor is responsible for the installation and removal of all construction signage and is responsible for daily maintenance of all signage throughout the contract.

A4 INSTALL AND MAINTAIN SEDIMENT CONTROL DEVICES

In addition to the conditions stipulated in the Niagara Peninsula Standard Contract Document and OPSS 577, the following shall also apply:

a) SILT FENCE

Silt fence is to be placed prior to disturbing soil adjacent to the drain that could be carried by runoff into the drain. This excludes the area of the drain where The Contractor is working to re-establish Drain grade and cross-section. It includes areas adjacent to the drain impacted by clearing and grubbing for work access.

Silt fence shall be installed in accordance with OPSD 219.190, except that the minimum height above the invert of the drain shall be 500 mm. Silt fence materials shall be in accordance with OPSS 577.05.02.02 for geotextile and OPSS 577.05.03 for stakes. Stakes shall be 1.5 m minimum height.

The silt fence shall remain in place for the duration of the section that the Contractor is working and the Contractor shall make every effort to maintain it throughout the project. The Contractor shall request Approval from the Engineer or the Drainage Superintendent for the removal of the silt fence once each section of the drain is complete. Prior to the removal of the silt fence, the accumulated silt shall be removed and levelled adjacent to the drain in accordance with the disposal of excavated material section.

b) SEDIMENT BASINS

Sediment basins have been provided along the length of the drain in an effort to minimize the transport of sediment. The Contractor shall construct the sediment basins in accordance with the construction drawings in the locations indicated. Relocation of sediment basins can only be undertaken upon approval of the Engineer.

The Sediment basin is to be constructed prior to the upstream work and shall be monitored during construction for sediment accumulation and sediment removed if the basin has more than 50% of the 0.5m depth occupied with sediment. Once the upstream work is complete, the Sediment basin shall be converted from Construction to Final as per the Design Detail Drawings. Sediment accumulated during construction shall be removed and disposed of in the manner directed by the Contract.

A5 ACCESS & NOTICE

The City of Port Colborne's Drainage Superintendent or designate shall provide affected landowners with notice of the commencement of construction.

It will be the Contractor's responsibility to inform the various businesses and residences of daily construction impacts in order to reduce/eliminate any problems with parked vehicles that may

interfere with their operations. Ingress & egress to the abutting businesses and residences must be maintained at all times.

The Contractor shall advise the Police Department, Fire Department and Niagara Emergency Medical Service on a daily basis, with current status of the construction as it pertains to the passage of traffic within the contract limits.

The Contractor will co-ordinate with local transit to ensure minimum interruption to bus schedules. Transit, school buses and garbage and recycling service vehicles will be given priority to maintain their schedule.

The Contractor shall also maintain/provide existing pedestrian access at all times to the businesses and residents during all phases of construction in an acceptable manner.

A6 AS-CONSTRUCTED DOCUMENTATION

For the 'as-constructed' works, the Contractor must provide the City of Port Colborne with an electronic version of the final drainage works as surveyed post construction, to be imported into AutoCAD or GIS. This copy must confirm that the design grade and cross-section details for all drainage work and the invert elevations and lengths for all culverts complies with the Engineer's Report. Survey spacing shall be to a minimum of 25m.

All work must be in an acceptable electronic format that the City of Port Colborne can use and all work must be completed using the verified geodetic benchmarks. The submission of the As-Constructed works will be in a common delimited format having the form as follows:

- Numeric key, Northing, Easting, Elevation, Coded identifier & optional description

For the coded identifiers, the City of Port Colborne will provide a table for reference. The City will certify the as-constructed files with respect to their completeness.

Failure to provide a certified as-built file will result in the delay of substantial completion and/or contract completion. In the event that the contractor asks the City to perform the AS CONSTRUCTED SURVEY, then payment for the lump sum item is negated.

B1 EARTH EXCAVATION

Work under this item shall include the supply of all labour, equipment and materials required for ditch excavation or any other type of excavation or earth work as outlined on the Contract Drawings. Ditch work involves clearing, excavation, leveling, and seeding as required. Specifications and information on the Contract Drawings shall take precedence over the standard specifications outlined below. The specifications below shall take precedence over the Niagara Peninsula Standard Contract Document Special Provisions B2.

B2 CONSTRUCTION

a) Vegetation Removal

All trees, brush, fallen timber and debris shall be moved from the ditch cross-section and to such a distance on each side to eliminate any interference with the spreading of the spoil. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. In wooded or heavily overgrown areas all cleared material may be pushed into piles or rows along the edge of the cleared path and away from leveled spoil. All dead trees along either side of the drain that may impede the performance of the drain if allowed to remain and fall into the ditch, shall be removed prior to excavation and put in piles, unless directed otherwise by the Engineer.

Any tree removed will be offered as wood to the property owner in the form of logs from the trunk where they lay and to be moved from the site by the owner at their expense. Tree tops shall be cut and limbs stacked as piles adjacent to the drain and within the work zone.

b) Excavation

The bottom width and the side slopes of the ditch shall be as shown on the profile(s) and/or cross-sections on the Contract Drawings. Side slopes are normally one and one-half metre horizontal to one metre vertical (1.5:1) unless otherwise noted on the Contract Drawings. If a bottom width is not specified then any excavation required shall be from the bottom of the ditch without disturbing the bank slopes subject to the clearing of brush required as described in a).

c) Profile

The profile(s) on the Contract Drawings show the depth and grade for the drain improvements. The description and elevation of benchmarks that were established during the survey are shown on the profile(s) in the location for each benchmark.

d) Line

The drain shall follow the course of the existing channel and/or shall be constructed in a straight line as outlined on the Contract Drawings. A uniform grade shall be maintained in accordance with the profile(s). A variation of one hundred millimeters (100mm) above the required grade will require the Contractor to remedy the grade to that given on the profile. The Contractor may be required to backfill any portion of the ditch that is excavated more than two hundred millimeters (200mm) below the required grade. All curves shall be made with a minimum radius of fifteen metres (15m).

e) Excavated Material

Excavated material (spoil) shall be deposited on either or both sides of the drain as directed on the Contract Drawings. Spoil upon excavation shall be placed a minimum one (1) metre back from the top of the bank, either existing or new. No excavated material shall be placed in tributary drains, depressions, or low areas, which direct or channel water into the ditch so that

no water will be trapped behind the spoil bank. The excavated material shall be placed and leveled to a maximum depth of three hundred millimeters (300mm); unless otherwise instructed. The edge of the spoil bank away from the ditch shall be feathered down to existing ground. The edge of the spoil bank nearest the ditch shall have a maximum slope of 2:1. The material shall be leveled such that it may be cultivated with ordinary equipment without causing undue hardship on farm machinery and farm personnel. Wherever clearing is necessary prior to leveling, the Contractor shall remove all stumps unless the Contract Drawings specify that stumps can be covered with the leveled spoil. No excavated material shall cover any logs, brush or rubbish of any kind. Large stones or boulders in the leveled spoil that are heavier than fifteen kilograms (15kg or approximately 300mm in size roughly referred to as man stone or the size of a stone that a single person can carry.) shall be moved to the edge of the leveled spoil nearest to the ditch but in general no closer than one metre (1) to the top of bank.

Where it is necessary to straighten any unnecessary bends or irregularities in the alignment of the ditch or to relocate any portion of an existing ditch, the excavation from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and old ditch, no extra compensation will be allowed for this work.

If the Contractor obtains written permission from an affected landowner stating that the owner does not wish the spoil to be leveled and such is approved by the Engineer, the Engineer may release the Contractor from the obligation to level the spoil. If spoil is not leveled that was to be leveled as part of the Contract, the Engineer shall determine the credit to be applied to the Contractor's payment. No additional compensation is provided to the owner if the spoil is not leveled.

If the affected landowner requests that the spoil be removed from the site instead of being spread adjacent to the drain within the work zone or that the grading requirement is to a higher standard than suitable for agricultural cultivation, then the Contractor shall provide trucking of the spoil including disposal at a suitable site or additional grading and shall provide the Drainage Superintendent with the specific costs for each landowner who requests such work. The Engineer shall assess the cost of the trucking of spoil to the landowner making such request.

The Engineer may require the Contractor to obtain written statements from any or all of the landowners affected by the leveling of the spoil. A written statement from the owners indicating their complete satisfaction with the leveling of the spoil is sufficient to comply with this specification. The final decision, with respect to leveling of the spoil, shall be made by the Engineer.

f) Excavation Through Woodlots

The Contractor shall minimize disturbance through woodlots by reducing the limit of excavation to the bottom width of the drain and a minimum side slopes. The drain shall be routed around existing trees at the direction of the Drainage Superintendent or where requested by the Engineer.

Prior to performing work through a woodlot, the Contractor in coordination with the Drainage Superintendent shall mark all trees for preservation or removal within the Drain or Workzone. This mark will consist of a physical identification that will be easily understood by the landowner and consist of either colour ribbons or specific paint markings (green to keep, red mark of an 'X' for removal).

g) Excavation at Bridge and Culvert Sites

The Contractor shall excavate or clean through all bridges and culverts to match the grade line and the downstream channel cross-section. Bridges that span from bank to bank may be carefully removed to permit excavation below the bridge and then replaced to original condition. Permanent bridges must be left intact. All necessary care and precautions shall be taken to protect the structure. The Contractor shall notify the Engineer before completing excavation in the area of a bridge or culvert if the excavation will expose the footings or otherwise cause bridge instability.

Where the invert of any pipe culvert is above the grade line, the Contractor will be required to remove the culvert, clean and relay it, so that the invert of the culvert is one hundred and fifty millimetres (150mm) below the grade for the ditch bottom at this location.

h) Obstructions

In all cases, the Contractor shall ensure that the finished drain is clear of obstructions to flow. The contractor will ensure that trunks are cut flush and that any debris or snags are removed as part of the bid price.

i) Fences and private furniture or equipment

The contractor will use the identified work zone for access and shall restore any fences to an equivalent or better condition than before construction. Where possible the Contractor shall preserve existing fences, private equipment and furniture in place but where it must be moved, the Contractor shall in all cases restore to a like or better condition than existed before construction.

j) Tile Outlets

The location of all existing tile outlets may not be shown on the profile for the drain. The Contractor shall contact each owner and ensure that all tile outlets are marked prior to commencing excavation on the owner's property. If a marked tile outlet is damaged during, or altered due to construction, the Contractor shall repair or replace the damaged or altered outlet as part of the Contract. If an existing outlet pipe does require replacement the Contractor shall confirm the replacement outlet pipe with the Engineer. All tile outlets identified are considered part of the bid work.

Additional payment will be allowed for the repair or replacement of any unmarked tile outlets encountered during excavation. Where stone or concrete riprap protection exists at any existing tile outlet such protection shall be removed and replaced as necessary to protect the outlet after reconstruction of the channel.

If any outlet becomes plugged as a result of construction, the Contractor shall be obligated to free such outlet of any impediments. Where any damage results to tile leading to and upstream of the outlet, as a consequence of such construction, the Engineer may direct the Contractor to repair such tile and shall determine a fair compensation to be paid to the Contractor for performing the work.

B3 INSTALLATION OF NEW CULVERT

Work under this item shall include the supply of all labour, equipment and materials required for supply and installation of culverts as outlined on the Contract Drawings. The Niagara Peninsula Standard Contract Document Special Provision B7 shall apply but the specifications and information on the Contract Drawings shall take precedence over Special Provision B7.

The size and material for any new ditch crossings shall be as specified on the Contract Drawings. Any crossings assembled on-site shall be assembled in accordance with the manufacturer's specifications for on-site assembly.

Where a new crossing replaces an existing crossing the following shall apply:

If directed on the drawings that the existing crossing is to be salvaged for the owner the Contractor shall carefully remove the existing crossing and leave along the ditch or haul to a location as specified on the Drawings.

If the existing crossing is not to be saved then the Contractor shall remove and dispose of the existing crossing. Disposal by burying on-site is not permitted.

All new pipe crossings shall be installed a minimum of 100mm below design grade (not as-constructed grade) or at the invert elevations as specified on the Drawings. If the ditch is over excavated greater than 200mm the Contractor shall confirm with the Engineer the elevations for installation of the new pipe crossing.

When an existing crossing is being replaced the contractor shall save all granular and riprap. New crossings can be backfilled with compacted on-site native material that is free of large rocks or stones. Contractor responsible for any damage to a culvert pipe as a result of rocks or stones in the backfill.

All new crossings shall have a minimum 6m laneway width and end slopes shall be at 1:1 slope or flatter. Finished crossing elevation shall provide a minimum of 300mm cover. Finished crossing surface shall be a minimum 150mm depth of Granular A for the minimum 6m width and extending from top of bank to top of bank using salvaged granular or imported granular as required.

Installation of private crossings during construction must be approved by the Engineer before the culvert is installed.

Where riprap protection is called for at either or both ends of a new culvert, such riprap shall be in accordance with Special Provision B4.

Payment will be based on plan quantity.

Riprap to be adequately keyed in along the bottom of the slope. Riprap to extend to top of pipe or as directed on the Drawings. No riprap is required in the ditch bottom on the upstream side of a crossing. If riprap is required in the ditch bottom on the downstream side of a crossing it shall be specified on the Drawings. Any new end face slope not protected by riprap shall be seeded as per specifications for ditch bank seeding.

B4 HAND LAND RIP RAP WITH FILTER CLOTH

Rip rap complete with filter fabric underlay (geotextile) shall be placed by the Contractor at the locations shown on the drawing or as requested by the Drainage Superintendent. Rip rap shall consist of 200 – 250 mm dia. stones (min.) and shall be placed at 300 mm minimum thickness. Along upstream edges, where surface water will enter the drain, the underlay shall extend a minimum of 300 mm upstream from the rip rap and be keyed into the soil a minimum of 300 mm. The finished elevation of the rip rap shall be at design elevation or flush with the ground.

Work under this item shall include the supply of all labour, equipment and materials required for placing riprap as outlined on the Contract Drawings. The Niagara Peninsula Standard Contract Document Special Provision B20 shall apply but the specifications and information on the Contract Drawings shall take precedence over Special Provision B20.

B5 TREE PLANTING

All trees supplied are to be Carolinian Forest or understory native species consistent with Niagara Region.

<https://www.ontario.ca/page/tree-atlas/ontario-southwest>

There will be a 1 year warranty on tree survivability.

B6 BANK RESTORATION

Bank restoration extent is to the identified location indicated on plans and by the Drain Superintendent. Offset stakes are required prior to the commencement of construction. Inspection of the offset stakes is required prior to any work commencing along with the submittal of required environmental approvals.

B6.1 'IN WATER WORK'

All in-water and near water works will be conducted in the dry with appropriate erosion and sediment controls.

The erosion and sediment control strategies outlined on the plans are not static and may need to be upgraded/amended as site conditions change to minimize sediment laden runoff from leaving the work areas. If the prescribed measures on the plans are not effective in preventing the release of deleterious substance, including sediment, then alternative measures must be implemented immediately to minimize potential ecological impacts. NPCA enforcement officer should be immediately contacted, additional ESC measures such as a tarp to be kept on site and used as necessary.

An environmental monitor will attend the site to inspect all new controls, as well as on a regular basis, or following rain/snowmelt event, to monitor site conditions.

All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicular refueling and maintenance will be conducted a minimum of 30 metres from the water.

All grades within the Regulatory Flood Plain will be maintained, matched or as specified.

The Proponent/Contractor shall monitor the weather several days in advance of the onset of the project to ensure that the works will be conducted during favourable weather conditions. Should an unexpected storm arise, The Contractor will remove all unfixed items from the 100 year storm flood plain that would have the potential to cause a spill or an obstruction to flow; e.g. fuel tanks, porta-potties, machinery, equipment, construction materials, etc.

All dewatering/unwatering shall be treated and released to the environment at least 30 metres from a watercourse or wetland and allowed to drain through a well vegetated area. No dewatering effluent shall be sent directly to any watercourse, wetland or forest or allowed to drain onto disturbed soils within the work area. These control measures shall be monitored for effectiveness and maintained or revised to meet the objectives of preventing the release of sediment laden water.

All access to the work site shall be from either side of the watercourse. No equipment or vehicles are permitted to cross through the watercourse unless approved by the NPCA.

Fish and wildlife stranded within the work area shall be captured and released in a live suitable habitat upstream of the work area under the supervision of a qualified aquatic biologist. A permit from the Ministry of Environment (MOECP) may be required. The contractor is responsible for organizing any wildlife removal, if required.

Please notify NPCA enforcement officer and an NPCA project Manager 48 hours prior to commencing construction.

An environmental monitor will be on site, and provide advice, to ensure that activities that could have a negative impact to the natural environment are effectively mitigated as construction proceeds. The

environmental monitor shall notify the NPCA enforcement officer and the project manager if an issue arises.

Additional ESC measures or devices may be deemed necessary as site conditions change and shall be installed as directed by the Site Engineer, Contract Administrator or NPCA.

B6.2 LIVE STAKES AND NATIVE PLANT MATERIALS

Contractor to make good any and all damages outside of the work area that may occur as a result of construction at no extra cost.

Tree removals are to occur outside of the active period for bats (April 1st to August 31st) to avoid impacts to species at risk, including bats, birds, and Fowlers Toad. Contractor shall ensure the site complies with The Endangered Species Act.

Construction to occur during the warm water construction timing window of July 15 – March 15. No in water works to occur between March 15 and July 15. Construction timing windows are subject to DFO conditions for approval.

Quantity to be determined based on area of disturbance to be restored.

Live stakes should be from a minimum 2-year-old stock. Live stakes are to be installed at a density of 3 stakes per metre. Live stakes should be pre-soaked (submerged in water) for at least 24 hours after harvesting and immediately before installation.

Live stakes should not be stored for a period longer than 2 days, unless they are being soaked. The contractor shall protect plant materials from drying from the time of harvest until installed.

Live stakes are to be a minimum of 25mm in diameter and cut to a length of 1000mm. Cut angle at the bottom of the stake and flat on top. Trim all side branches while taking care not to damage the bark.

Install live stakes with the buds pointing upwards and thicker stem in the ground.

Live stakes should be installed using a large rubber mallet. 80% of the stake is to be below the surface. Tamp the live stake into the ground at right angle to the surface.

In compact soil a pilot hole should be used to limit damage to the stakes. If using a pilot hole, repack the soil around the live stake. Live stakes should stand firm in the soil following installation.

All stakes not planted to the specifications above will be replaced at the contractor's expense.

B6.3 EROSION CONTROL BLANKET

A Biodegradable erosion control blanket (ECB) shall be installed on all disturbed natural surface following the placement of topsoil and application of the native seed mix.

The ECB must be constructed of 100% woven coconut fibre (eg coir) or straw mat within a geo jute netting (top and bottom) with biodegradable thread. Non - biodegradable material including polypropylene or plastic with a biodegradable rating are not acceptable. The minimum weight of the ECB must be 400g/m² (12 oz/yd²).

To install, the ECB must be unrolled downslope or in the direction of the water flow. Adjacent ECBs should overlap a minimum of 150mm along the edges. at the end of each roll, fold back 100mm to 200mm of the ECB. Overlap this 100mm to 200mm over the start of the next roll. Secure the two layers to the ground securely.

Biodegradable or tapered wooden stakes shall be used to secure the blanket. Stakes shall be installed at the spacing recommended by the ECB manufacturer to prevent surface runoff from eroding the underlying soil.

B.11 OMC DRAIN MECHANICAL ADDITIONS

The following are items of equipment to be added to the OMC Outlet Structure.

In all cases the Contractor is required to confirm all dimensions and fit for all equipment prior to commencing work or ordering parts and equipment to be supplied on the project.

B11.1 WINCH REPLACEMENT

The mounting requirements are dependent on the specific winch selected. The contractor is required to make a shop drawing submission based on using the existing concrete pad (formerly used for stairs) as the mounting platform.

Hand Operated Winch

THERN SERIES MODEL 4WM2 MANUAL WORM GEAR WINCH.

Electrical Operated Power Winch

SHERPA ATV 4,500 LB SATVW4512VT OR APPROVED EQUIVALENT.

ALTERNATE POWER WINCH: THERN SERIES 4WP2D HIGH SPEED WORM GEAR PORTABLE POWER WINCH

B11.2 WINCH COVER BOX

The requirements for the cover box are based on the winch selected. A hand operated winch only requires that the box be capable of resisting shove ice and operating in winter conditions.

Supply a Lockable Steel Equipment Box Rated NEMA 6P (IP68) to existing Concrete pad with Stainless Steel Concrete anchor bolts. Size of the box is determined by the selected winch.

Electrical connections through the box to be water tight sealed connections.

B11.3 ELECTRICAL SUPPLY

The existing gate is to be extended to match the height of gates 1 and 2 using the same materials as the existing gate. Contractor to weld extension to ensure that no gaps permit water to flow through the extension. Existing threaded rod connection to remain as is.

Contractor shall supply a welding diagram prior to commencement of the work.

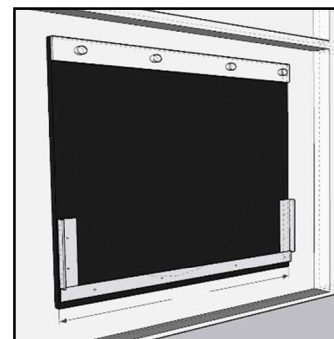
B11.4 RECTANGULAR FLEX FLAP GATE

GENERAL SPECIFICATION Steel cutout: Circular: ID 300mm nominal, contractor to confirm.

Flex Flap gate: Rectangular size to fit within existing rib structure of steel flap gate. Carbon Black content of the raw material used must be not less than 2% in weight. The requirement of the carbon black is to give UV protection from sunlight. Vulcanized Rubber Wall Mounted Flap Gate (Rectangular Type) is to be flexible such that it opens and closes easily.

Installation

Bolt Flex Flap gate to the existing steel frame flap gate. Ensure that the stainless-steel ribs of the PE flap gate extend past the edges of the circular hole cut into the steel.



C1 COMPLETION

At the time of final inspection, all work in the contract shall have the full dimensions and cross-sections specified.

Payment is for all work complete on the basis of a measured linear distance inclusion of all items identified above. Where a culvert is removed and reinstalled, compensation shall be in the form of a per each payment. Where a tile is discovered and constructed as an outlet, compensation will be in the form of a per each payment for tile outlets repaired.

C2 AS-CONSTRUCTED DOCUMENTATION

For the 'as-constructed' works, the Contractor must provide the City of Port Colborne with an electronic version of the final drainage works as surveyed post construction, to be imported into AutoCAD or GIS. This copy must confirm that the design grade and cross-section details for all drainage work and the invert elevations and lengths for all culverts complies with the Engineer's Report. Survey spacing shall be to a minimum of 25m.

All work must be in an acceptable electronic format that the City of Port Colborne can use and all work must be completed using the verified geodetic benchmarks. The submission of the As-Constructed works will be in a common delimited format having the form as follows:

Numeric key, Northing, Easting, Elevation, Coded identifier & optional description

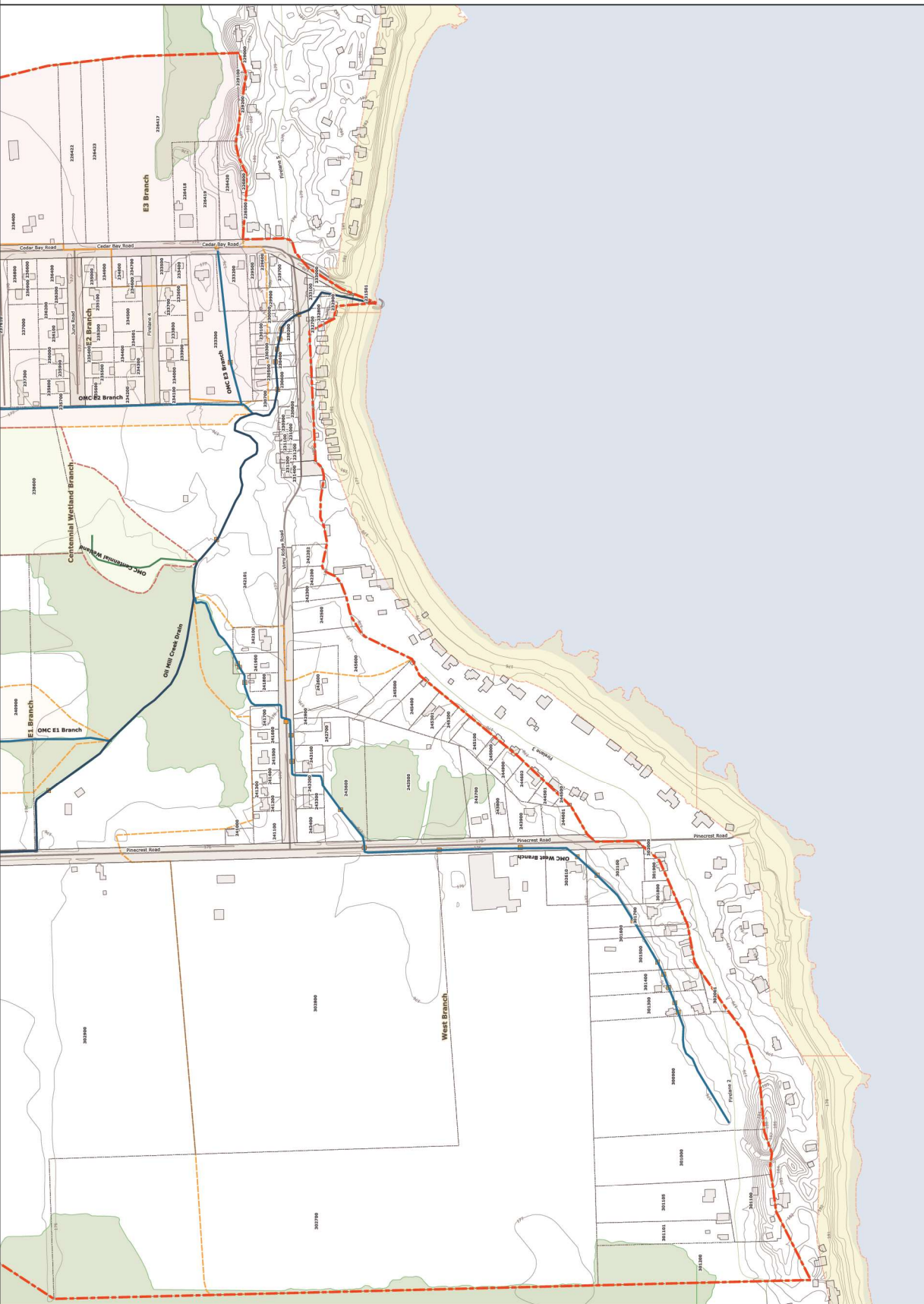
For the coded identifiers, the City of Port Colborne will provide a table for reference along with an example file from a past project for comparison. The City will certify the as-constructed files with respect to their completeness.

Failure to provide a certified as-built file will result in the delay of substantial completion and/or contract completion. In the event that the contractor asks the City to perform the AS CONSTRUCTED SURVEY, then payment for the lump sum item is negated.

A4 PAYMENT; Payment in full at the lump sum bid price for this item shall be made only upon completion and approval by the Contract Administrator.

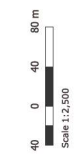
Appendix E:
Assessment Map Atlas

Oil Mill Creek Drain



OMC Drain Assessment Map Atlas

- MAP LEGEND**
- Oil Mill catchment
 - Oil Mill Creek Drain
 - OMC Central Wetland
 - OMC E1 Branch
 - OMC E2 Branch
 - OMC E3 Branch
 - OMC West Branch
 - OMC Assessment Tables
 - OMC-parcel0202307
 - ROW
 - OMC Assessment Schedules
 - OMC E1 Branch
 - OMC E2 Branch
 - OMC E3 Branch
 - West Branch
 - Central Wetland Branch
 - Drain crossings
 - Building footprints
 - NPCA Environment
 - Regulated Shoreline_Extent
 - GR_RegulatedWetlands_NPCA
 - Contours
 - Reservings
 - MAU
 - PRIV
 - LAKEL & Canal



A1

Oil Mill Creek Drain

