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## SPECIFICATIONS

DIVISION A- General Conditions  
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## **ZETTLER MUNICIPAL DRAIN IMPROVEMENTS – 2022 MAIN DRAIN AND BRANCH ‘B’ MUNICIPALITY OF BROCKTON**

To the Mayor and Council  
of the Municipality of Brockton

Members of Council:

# **1. INTRODUCTION**

We are pleased to present our report on the Zettler Municipal Drain Improvements - 2022, serving parts of Lots 1 to 4, Concession 6, parts of Lots 1 to 3, Concession 7 and parts of Lots 13 and 14, Concession A, in the former Township of Greenock, in the Municipality of Brockton, County of Bruce.

Authority to prepare this report was obtained by a resolution of the Municipality of Brockton Council at its June 26<sup>th</sup>, 2017, meeting to appoint COBIDE Engineering Inc. to prepare an Engineer's Report.

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

The attached Plan and Profiles, Drawing Numbers 10602-C1 to 10602-C5 and 10602-DET1, Specifications and the Instructions to Tenderers form part of this report. They show and describe in detail the location and extent of the work to be done and the lands which are affected.

# **2. HISTORY**

The existing Zettler Municipal Drain was originally constructed under the authority of a report prepared by Gamsby and Mannerow Ltd., dated October 2nd, 1969 and revised July 8<sup>th</sup>, 1970 for the Township of Greenock.

This report provided for the construction of the main open and closed sections as well as five separate tile branches as summarized below:

- Main Drain (Open): 4,800 feet (1,463 metres)
- Main Drain (Closed): 400 feet (122 metres)
- Branch ‘B’ (Closed): 3,645 feet (1,111 metres)
- Branch ‘C’ (Closed): 3,458 feet (1,054 metres)
- Branch ‘D’ (Closed): 1,400 feet (427 metres)
- Branch ‘E’ (Closed): 2,000 feet (610 metres)
- Branch ‘F’ (Closed): 700 feet (213 metres)

The outlet of the drain is an unnamed natural watercourse located on part of Lot 4, Concession 6, Chepstow and District Lion's Club. This watercourse drains into the Allen's Creek Municipal Drain approximately 120 metres to the west.

## 3. MEETINGS

### 3.1 ON-SITE MEETING

In accordance with Section 9(1) of the Drainage Act, R.S.O. 1990, an on-site meeting was held on April 26<sup>th</sup>, 2019. The place of meeting was at the Chepstow Community Hall. Persons in attendance were:

Stephen Cobean, P. Eng.	Cobide Engineering Inc.	
Dave Rosner	Cobide Engineering Inc.	
John Strader	Municipality of Brockton	Roads Superintendent
Ray Holliday	Municipality of Brockton	Chief Building Official
Paul Elston,	Saugeen Valley Conservation Authority	Regulations Officer

#### Landowners:

Gerry Sluys	Kevin Sluys	Bill Lang
David Kritz	Glen Zettler	Howard Zettler
Robert Schlosser	Pat Kuntz	Carl Doerr

*\* Other people may have been in attendance but their names were not recorded on the sign in sheet*

Mr. Stephen Cobean informed the attendees that a request was received to improve the Main Drain and Branch 'B' sections of the Zettler Municipal Drain. The improvements were to enclose a portion of the open section of the Main Drain from the west side of Lot 3, Concession 6 to where it currently ends on Lot 2, Concession 6. It was also requested that the upstream sections of Branch 'C' and Branch 'B' be upgraded to handle at a minimum, a drainage coefficient of 38 mm of rainfall per 24 hours with 50 mm of rainfall per 24 hours being preferred.

Mr. Cobean indicated that the watershed boundaries as shown on the original plan drawings were established from previous drainage reports and asked that landowners examine the watershed lines and report any discrepancy they may have with what has been presented.

It was noted that no improvements are proposed to be made to existing Branch 'D', Branch E and Branch 'F' of the Zettler Municipal Drain.

## 4. FINDINGS

We have made an examination of the drainage area and have found the following:

#### **MAIN DRAIN / BRANCH 'C'**

1. The working corridor through part of Lot 4, Concession 6, Chepstow and District Lions, has not been maintained and is inaccessible to heavy equipment;
2. The open section of the Main Drain is currently classified as a Class F drain with intermittent flow throughout the year;
3. The open section of the Main Drain on Lots 2 and 3, Concession 6 is in a poor state of repair and has standing water for much of the year. Sediment and vegetation have built up in the bottom of the drain due to no maintenance occurring which is contributing to the poor drainage. Test pits

excavated along the open section indicate that the sediment is approximately 0.6 m to 0.9 m deep measured to the original bottom of the drain;

4. The landowner of Lot 2, W. Sluys and Lot 3, Concession 6, W. Lacey have requested that instead of cleaning out the open section of the drain on their respective properties, they would like to enclose the open section with a new closed drain;
5. The closed section of Branch 'C' located on Lot 2, Concession 7 is also in a poor state of repair due to minimal cover over existing tile drains. The landowner, G. Howard, requested that this section needs to be repaired due to the inadequate depth of the original tile drain system. He also requested that this section be upgraded as it is neither of sufficient capacity nor depth to drain the surrounding and upstream lands within this section of the watershed at today's standards of drainage.

#### **BRANCH 'B'**

1. The landowner of Lot 1, Concession 6, G. Sluys, requested Branch 'B' be upgraded as it is neither of sufficient capacity nor depth to drain the surrounding and upstream lands within the watershed at today's standards of drainage;
2. The landowner of part of Lot 1, Concession 7, H. Zettler, noted that he will be installing a tile drainage system on his property in the near future and has requested a connection to the drain. It was agreed that Branch 'B' be extended north across Chepstow Road and terminated at the south edge of his property so that he can connect the drainage system to the drain.

## **5. RECOMMENDATIONS**

It is our recommendation that following improvements be made to the Main Drain and Branch 'B' of the Zettler Municipal Drain:

#### **MAIN DRAIN (OPEN)**

- that 340 m of the open ditch be deepened to the proposed profile grade line shown on the attached drawings at accommodate the new closed section located at Sta. 2+345;
- that the north side and south sides of the open ditch be cleared and grubbed to provide adequate working space and to accommodate the deeper and wider ditch;
- that the open ditch section be extended approximately 60 m downstream and be incorporated into the Zettler Municipal Drain drainage scheme as shown on the drawings;
- that the existing farm crossing be replaced with a 1200 mm dia. corrugated steel pipe culvert complete with rip-rap protection on the upstream and downstream of the pipe;
- that permanent rock check dams be placed approximately every 75 m in the bottom of the open ditch to collect sediment;
- that the Municipality of Brockton's Drainage Superintendent inspect the drainage works and the right-of-way along the drain on a regular basis so as to prevent the significant build of sediment in the drain and excessive vegetative growth along the right-of-way.

#### MAIN DRAIN (CLOSED)

- that a new closed drain be installed from Stat 2+345 to Sta. 3+120 and replace the open ditch section of the Main Drain located to the south;
- that the new closed section be connected to the original close section called Branch 'C'. Branch 'C' will now form part of the Main Drain to the northerly terminus at Sta. 4+059;
- that the open section of the Main Drain from Sta. 2+345 to 3+120 be abandoned and filled in;
- The entire closed section be designed to handle a 50 mm (2") rainfall coefficient.

#### BRANCH 'B'

- that the entire section of Branch 'B' be replaced as it is currently undersized and not deep enough to connect a new tile drainage system to;
  - that Branch 'B' be designed to handle a 50 mm (2") rainfall coefficient;
  - that Branch 'B' be extended north across Chepstow Road to provide a sufficient outlet for part of Lot 1, Concession 7 as request by the landowner.
- 
- that the proposed drainage improvements shall be known as the **Zettler Municipal Drain Improvements - 2022**.

## 6. ENVIRONMENTAL CONSIDERATIONS

The work proposed under this report includes the construction of rip-rap lined outlet structure and plunge pool to control and limit erosion where the proposed drain enters the open section of the municipal drain.

In order to reduce the potential for sediment being deposited into the open ditch and downstream natural watercourse, the banks of the improved open ditch shall be covered with topsoil and hydroseeded with an approved bonded fibre matrix grass mixture. An erosion control blanket will also be installed after the banks have been seeded in order to prevent the erosion of the sides of the open ditch.

The Contractor shall construct and maintain approved sediment control measures during construction.

A vegetated buffer strip shall be established along both sides of the widened open ditch.

The Saugeen Valley Conservation Authority (SVCA) has indicated that because the improvements are located in their Regulated Area, a permit to enclose the existing open ditch and install the new closed drain will be required. An application for a permit will be submitted to the SVCA. The SVCA has also requested that an ecologist assess the impacts of the proposal on the ecological functions of the existing drain and downstream watercourse.

The Department of Fisheries and Oceans (DFO) species at risk maps indicate that there are not any aquatic species at risk in the vicinity of the proposed work.

The proposed works exclusively consist of the construction of a closed tile drainage system, an energy dissipating outlet structure and the construction of a new open ditch. There is no proposed work in the existing watercourse which will serve as the outlet for this new drainage system. Therefore, the proposed works do not cause death of fish, permanent alteration, or destruction of fish habitat. The involvement of the DFO is not required.

## 7. SUMMARY OF PROPOSED WORKS

The proposed work consists of the following:

### **MAIN DRAIN (OPEN)**

1. The deepening and widening of approximately 340 m of open ditch;
2. Clearing approximately 340 m along both sides of the open ditch for maintenance access;
3. Replacement of existing 1000 mm dia. private access culvert with a new 1200 mm dia. culvert.

### **MAIN DRAIN (CLOSED)**

1. The installation of 1,710 m of 300 mm to 825 mm diameter concrete field time and HDPE pipe;
2. The installation of 10 ditch inlet catchbasins and junction boxes;
3. The installation of a road crossing under Chepstow Road;
4. The installation of 30 m of 600 mm dia. HDPE surface culvert through Chepstow Road;
5. Construction of a plunge pool at the outlet;
6. The filling in of approximately 856 m of the original open Main Drain

### **BRANCH 'B' (CLOSED)**

1. The installation of 1,130 m of 450 mm to 600 mm diameter concrete field time and smooth wall steel casing;
2. The installation of 7 ditch inlet catchbasins and junction boxes;
3. The installation of a road crossing under Chepstow Road;

## **8. WORKING AREA**

Access to the working area has been designated in the attached drawing set. The access routes to the working area shall be an average width of 6 metres.

### **a) Open Work**

The working width for construction shall be 20 metres. This working corridor includes the top width of the improved open ditch.

The working corridor for future maintenance shall be a width of 10 metres on the north side of the improved open ditch.

### **b) Closed Work**

The working area for construction purposes on the Main Drain (Closed) and Branch 'B' (Closed) shall be an average width of 20 metres along the alignment of the tile drain. The working corridor for future maintenance shall be a width of 10 metres along the alignment of the drain.

Access to and from the working area for maintenance purposes shall be as outlined in the Maintenance section of this report.

## **9. EXISTING CONDITIONS**

### **9.1 WATERSHED CHARACTERISTICS**

The Drainage Area comprises approximately 126 hectares. This was confirmed from a review of the previous Engineers Report, field investigations, surveys and analysis of the Southwestern Ontario Orthophotographic Project (SWOOP) topographical information.

Land use within the watershed is predominantly agricultural.

### **9.2 SOIL CHARACTERISTICS**

The Ontario Ministry of Agriculture, Food and Rural Affairs Agricultural Information Atlas describes the soil types along the route of the drain as predominantly Harriston Loam with small section of Parkhill Loam at the north end of the watershed.

## 10. ALLOWANCES

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

### 10.1 SECTION 29 – RIGHT-OF-WAY

#### Open Drain

The allowances for Right-of-Way under Section 29 of the Drainage Act, R.S.O. 1990 for lands permanently taken out of production were calculated based on 100% of the local area land value. Lands considered to be permanently taken out of production include the average proposed top width of the new open ditch.

Allowances for Right-of-Way for lands adjacent to the open ditch (10 metre width) that will return to normal use after the drain has been constructed are calculated based on 25% of the local area land value.

Allowances provided for Right-of-Way under Section 29 of the Drainage Act, R.S.O. 1990 are provided for construction and future maintenance purposes.

#### Closed Drain

The allowances for Right-of-Way under Section 29 of the Drainage Act, R.S.O. 1990 for closed drains were calculated based on 25% of the local area land value for a 10 metre width, since after the drain is constructed the land will return to normal use.

The agricultural land value used for calculating allowances for Right-of-Way was \$45,000/ha. The woodlot land value used for calculating allowances for Right-of-Way was \$22,500/ha.

The allowances for Right-of-Way under Section 29 of the Drainage Act, R.S.O. 1990 were calculated based on 25% of the land value for a 10 metre Right-of-Way.

### 10.2 SECTION 30 – DAMAGE TO LANDS AND CROPS

Allowances for Damages to Lands and Crops under Section 30 of the Drainage Act, R.S.O. 1990 were provided to compensate landowners for potential damages to ornamental trees, lawns, fences, lands, crop loss etc. due to the construction of the drain, including access to and from the working corridor.

Damages have been calculated based on \$1,445/ha (\$585/acre) for Agricultural Lands and \$723/ha (\$293/acre) for Woodlots.

- Open ditch construction corridor 20 metre average width (working side of new open ditch)
- Tile drain construction corridor 20 metre average width
- Access to working corridor 6 metre average width

We determine the allowances payable to landowners entitled thereto as shown in Schedule A.

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

**Zettler Municipal Drain Improvements - 2022:**

**\$47,251**



## 11. ESTIMATED CONSTRUCTION COSTS

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

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

1) Total Estimated Construction Costs – Main Drain (Open)	\$68,350
2) Total Estimated Construction Costs – Main Drain (Closed)	\$352,961
3) Total Estimated Construction Costs – Branch ‘B’ (Open)	\$160,432
4) Total Estimated Construction Costs – Provisional Items	\$58,174
<b>Total Estimated Construction Costs</b>	<b>\$639,917</b>

## 12. SUMMARY OF ESTIMATED PROJECT COSTS

The total estimated project costs are as follow:

<b>Total Estimated Construction Costs</b>	<b>\$639,917</b>
<b>Allowances under Sections 29 and 30 of the Drainage Act, R.S.O. 1990</b>	<b>\$47,251</b>
<b>Preparation of Report</b>	<b>\$48,391</b>
Meetings, survey, design, preparation of preliminary cost estimates and reports, preparation of final drainage report, consideration of report and court of revision	
<b>Consultation with Environmental Agencies and Permitting Fees</b>	<b>\$600</b>
<b>Tendering and Construction Inspection</b>	<b>\$22,000</b>
<b>Administration and Financing</b>	<b>\$14,050</b>
Contingencies, Interest and Net HST	
<b>TOTAL ESTIMATED COSTS</b>	<b>\$772,209</b>
<b>ZETTLER MUNICIPAL DRAIN IMPROVEMENTS - 2022</b>	

Please note that the above summary contains cost estimates only and that these estimates do not include costs to defend the Drainage Report and procedures if appeals are filed with the Court of Revision, Drainage Tribunal and/or Drainage Referee. Unless otherwise directed, additional costs to defend the report are typically distributed on a pro-rata basis over the assessments contained in the Construction Assessment Schedule less any Special Assessments.

## 13. ASSESSMENT

We assess the cost of this work against the lands and roads liable for assessment for benefit and outlet as shown in the attached Schedule C – Assessment for Construction. We have determined that there is no injuring liability assessment involved.

### 13.1 SPECIAL ASSESSMENT (SECTION 26)

Pursuant to Section 26 of the Drainage Act, the following Special Assessments are made:

#### 1. Main Drain (Closed) – Chepstow Road (Municipality of Brockton)

The Special Assessment for this portion of the work is the increased cost to the Municipal Drain due to the presence and operation of the road and is calculated as follows:

Construction Costs	-	Equivalent Drain	+	Engineering/ Administration	+	Net HST	=	Special Assessment
35 m of 525 mm dia. HDPE pipe incl. two 900 x 1200 mm ditch inlet catchbasins and 600 mm dia. HDPE surface culvert		35 mm of 525 mm conc. tile and one 900 x 1200 mm ditch inlet catchbasin		Design, construction layout and inspection				
<b>\$42,000</b>	-	<b>\$7,475</b>	+	<b>\$5,000</b>	+	<b>\$695</b>	=	<b>\$40,220</b>

#### 2. Branch 'B' (Closed) – Chepstow Road (Municipality of Brockton)

The Special Assessment for this portion of the work is the increased cost to the Municipal Drain due to the presence and operation of the road and is calculated as follows:

Construction Costs	-	Equivalent Drain	+	Engineering/ Administration	+	Net HST	=	Special Assessment
Directional Bore 35 m of 600 mm dia. smooth walled steel pipe incl. two 900 x 1200 mm catchbasin ditch inlets		35 mm of 450 mm conc. tile and one 600 x 600 mm ditch inlet catchbasin		Design, construction layout and inspection				
<b>\$40,500</b>	-	<b>\$5,250</b>	+	<b>\$5,000</b>	+	<b>\$708</b>	=	<b>\$40,958</b>

Whether or not the Municipality of Brockton elects to do the work on their property from Sta. 3+465 to 3+500 and Sta. 6+104 to 6+130 on Chepstow Road, they shall be assessed the actual increased costs to the drainage works due to the construction and operation of the road as a Special Assessment in addition to any benefit and outlet assessments. The Special Assessment shall be made up of the actual construction costs plus an allowance for administration costs.

## 14. MAINTENANCE

After completion, the Zettler Municipal Drain Improvements – 2022 shall be maintained by the Municipality of Brockton at the expense of all the lands and roads assessed in the attached Schedule D - Assessment for maintenance and in the same relative proportions until such time as the assessment is changed under the Drainage Act, except for those components of the drain constructed within the Chepstow Road road allowance. Those portions of the drain shall be maintained at the expense of the road authority having jurisdiction over said road.

While the Municipality of Brockton will be responsible for the maintenance of the drain after construction, the sections of the Drainage Act dealing with obstruction of, damage and injury to a municipal drain, namely Sections 80 and 82 respectively, are brought to the attention of the landowners. Both the landowners and Municipality have the responsibilities to ensure that a municipal drain is properly maintained and kept in good working condition.

Respectfully submitted,

**Cobide Engineering Inc.**

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Stephen J. Cobean, P. Eng.

SCHEDULE A - ALLOWANCES						
Lot or Part	Conc.	Landowner	Roll No.	Right-of-way (Section 29)	Damages to Lands and Crops (Section 30)	Total Allowances
<b>Main Drain (Open)</b>						
Pt. 4	6	Chepstow and District Lion's Club	2-072	\$4,832	\$697	\$5,529
<b>Total Allowances, Main Drain (Open)</b>				<b>\$4,832</b>	<b>\$697</b>	<b>\$5,529</b>
<b>Main Drain (Closed)</b>						
Lot 2	6	W. Sluys	2-069	\$7,707	\$2,480	\$10,187
Pt. 3	6	W. Lacy	2-071	\$5,175	\$1,829	\$7,004
Lot 2	7	G. Zettler	2-150	\$6,300	\$2,119	\$8,419
<b>Total Allowances, Main Drain (Closed)</b>				<b>\$19,182</b>	<b>\$6,428</b>	<b>\$25,610</b>
<b>Branch 'B' (Closed)</b>						
Lot 1	6	G. Sluys	2-068	\$7,313	\$2,379	\$9,692
Lot 2	6	W. Sluys	2-069	\$5,108	\$1,312	\$6,420
<b>Total Allowances, Branch 'B' (Closed)</b>				<b>\$12,421</b>	<b>\$3,691</b>	<b>\$16,112</b>
<b>TOTAL ALLOWANCES ZETTLER MUNICIPAL DRAIN IMPROVEMENTS - 2022</b>				<b>\$36,435</b>	<b>\$10,816</b>	<b>\$47,251</b>

## SCHEDULE B – ESTIMATED CONSTRUCTION COST

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

Description	Quantities	\$/Unit	Total
<u>A) Main Drain (Open)</u>			
1) Clearing, Grubbing and Mulching (Sta. 2+005 to Sta 2+345)	340 m	\$30.00	\$10,200.00
2) Deepen and Widen Existing Channel (Sta. 2+005 to Sta. 2+345)	340 m	\$20.00	\$6,800.00
3) Topsoil, Seed, & Mulch disturbed side slopes of ditch	6,100 m <sup>2</sup>	\$3.50	\$21,350.00
4) Supply and Install Erosion Control Blanket (North American Green S150 or equivalent)	4,600 m <sup>2</sup>	\$4.00	\$18,400.00
5) Rock Check Dams	4 ea.	\$275.00	\$1,100.00
6) Remove and dispose of existing 1000mm CSP culvert	L.S.	100%	\$2,000.00
7) Supply 1200mm diameter, 2.8mm thickness, corrugated steel pipe culvert (Aluminized Type 2, 125mmx25mm corrugations)	10 m	\$500.00	\$5,000.00
8) Restorate existing laneway with compacted 200mm Granular 'A'	L.S.	100%	\$500.00
9) Supply and Install Rip-rap c/w filter cloth at both ends of 1200mm diameter CSP	30 m <sup>2</sup>	\$100.00	\$3,000.00
<b>Total Estimated Construction Cost Main Drain (Open)</b>			<b>\$68,350.00</b>

<u>B) Main Drain (Closed)</u>			
1) Clearing, Grubbing and Mulching	230 m	\$25.00	\$5,750.00
2) Stripping and stockpiling topsoil			
20 m width	874 m	\$5.50	\$4,807.00
15 m width	250 m	\$5.50	\$1,375.00
10 m width	560 m	\$5.50	\$3,080.00
3) Supply 900 mm diameter, solid HDPE outlet pipe complete with rodent grate (320 kPa, CSA B182.8, split coupler)	6 m	\$250.00	\$1,500.00
Installation (Sta. 2+350 to Sta. 2+356)	6 m	\$100.00	\$600.00
4) Supply 825 mm concrete field tile (2000D) by means of excavator on crushed stone bedding	604 m	\$90.00	\$54,360.00
Installation (Sta. 2+356 to Sta. 2+780)			
(Sta. 2+765 to Sta. 2+960)	604 m	\$60.00	\$36,240.00
5) Supply 675 mm concrete field tile (2000D) by means of excavator on crushed stone bedding	245 m	\$70.00	\$17,150.00
Installation (Sta. 2+960 to Sta. 3+215)	245 m	\$50.00	\$12,250.00
6) Supply and Install 675 mm 45 degree elbow	2 ea.	\$750.00	\$1,500.00
7) Supply 525 mm concrete field tile (2000D) by means of excavator on crushed stone bedding	250 m	\$55.00	\$13,750.00
Installation (Sta. 3+215 to Sta. 3+465)	250 m	\$40.00	\$10,000.00
8) Supply 450 mm concrete field tile (1500D) by means of excavator on crushed stone bedding	240 m	\$45.00	\$10,800.00
Installation (Sta. 3+500 to Sta. 3+730)	240 m	\$30.00	\$7,200.00
9) Supply 450 mm diameter HDPE pipe (320 kPa, CSA B182.8 Bell and Spigot joining system)	10 m	\$110.00	\$1,100.00
Installation (Sta. 3+730 to Sta. 3+740)	10 m	\$85.00	\$850.00
10) Supply 300 mm diameter HDPE pipe (320 kPa) with filter sock by means of excavator	320 m	\$45.00	\$14,400.00
Installation (Sta. 3+740 to Sta. 4+059)	320 m	\$25.00	\$8,000.00

11) Supply and Install 900x1500mm concrete catchbasin (Sta. 2+780)	1 ea.	\$5,000.00	\$5,000.00
12) Supply and Install 1200x1200mm concrete catchbasin (Sta. 2+960)	1 ea.	\$5,000.00	\$5,000.00
13) Supply and Install 900x1200mm concrete catchbasin	1 ea.	\$3,800.00	\$3,800.00
14) Supply and Install 900x1200mm concrete junction box	2 ea.	\$3,800.00	\$7,600.00
15) Supply and Install 600x600mm concrete junction box	3 ea.	\$2,800.00	\$8,400.00
16) Construct Plunge Pool at outlet (Sta. 2+350)	L.S.		\$5,000.00
17) Supply and Install Rip-rap c/w geotextile around end of pipe	20 m <sup>2</sup>	\$100.00	\$2,000.00
18) Remove existing 1000 mm dia. CSP culvert and dispose	L.S.		\$1,000.00
19) Expose and extend Branch 'D' with 200 mm dia. perforated pipe (320 kPa) with filter sock by means of excavator and connect to CB1	100 m	\$65.00	\$6,500.00
20) Restore farm laneway with compacted 200 mm Granular 'A'	L.S.		\$500.00
21) Levelling of stripped topsoil over backfilled trench with trim dozer	810 m	\$2.50	\$2,025.00
Open Ditch Enclosure (Approximately 5650m <sup>3</sup> )			
22) Open ditch cleanout prior to ditch enclosure to salvage and stockpile available topsoil	856 m	\$8.00	\$6,848.00
23) Loading and hauling of excess subsoil from tile drain installation to backfill existing open ditch	1,503 m <sup>3</sup>	\$2.50	\$3,757.50
24) Stripping topsoil from designated fill site and replacing and leveling back over fill site	10,000 m <sup>2</sup>	\$0.50	\$5,000.00
25) Loading and hauling of fill material from designated fill site to backfill existing open ditch	4,147 m <sup>3</sup>	\$5.50	\$22,808.50
26) Leveling and fine grading of topsoil over backfilled ditch and new tile drain with an approved bulldozer	L.S.		\$4,500.00

Work to be completed on Municipality of Brockton Road Allowance, Chepstow Road (Sta. 3+465 to Sta. 3+500)			
27) Supply 525 mm diameter HDPE pipe (320 kPa, CSA B182.8 Bell and Spigot joining system), by means of excavator	35 m	\$175.00	\$6,125.00
Installation (Sta. 3+465 to Sta. 3+500)	35 m	\$125.00	\$4,375.00
28) Supply and Install 900x1200mm inline concrete ditch inlet catchbasin (Sta. 3+465 to Sta. 3+500)	2 ea.	\$4,00.00	\$8,000.00
29) Supply 600 mm diameter HDPE surface culvert (320 kPa, CSA B182.8 Bell and Spigot joining system) by means of excavator	30 m	\$200.00	\$6,000.00
Installation (Sta. 3+467 to Sta. 3+497)	30 m	\$125.00	\$3,750.00
30) Asphalt removal and restoration (350 mm Granular B, 150 mm Granular A, 50 mm HL4, 40 mm HL3)	280 m <sup>2</sup>	\$65.00	\$18,200.00
31) Restoration of embankment (150 mm topsoil, seed and mulch, erosion control blanket)	528 m <sup>2</sup>	\$20.00	\$10,560.00
32) Rip-rap c/w geotextile filter cloth	15 m <sup>2</sup>	\$100.00	\$1,500.00
<b>Total Estimated Construction Cost Main Drain (Closed)</b>			<b>\$352,961.00</b>



<b>C) Branch B (Closed)</b>			
1) Stripping and stockpiling topsoil, 15 m width	1,104 m	\$5.50	\$6,072.00
2) Supply and Install 900x1200 mm concrete ditch inlet catchbasin	1 ea.	\$3,800.00	\$3,800.00
3) Supply and Install 900x1200 mm concrete junction box	1 ea.	\$3,800.00	\$3,800.00
4) Supply and Install 600x600 mm concrete junction box	3 ea.	\$2,800.00	\$8,400.00
5) Supply 600 mm diameter concrete field tile (2000D) by means of wheel trencher or excavator	495 m	\$65.00	\$32,175.00
Installation (Sta. 5+000 to Sta. 5+495)	495 m	\$40.00	\$19,800.00
6) Supply 450 mm diameter concrete field tile (1500D) by means of wheel trencher or excavator	609 m	\$45.00	\$27,405.00
Installation (Sta. 5+495 to Sta. 6+104)	609m	\$30.00	\$18,270.00
7) Leveling of stripped topsoil over backfilled trench with trim dozer	1,104 m	\$2.50	\$2,760.00
Work to be completed on Municipality of Brockton Road Allowance, Chepstow Road (Sta. 6+104 to 6+130)			
8) Supply 600mm OD smooth wall steel casing 9.53 mm thickness, by means of directional drilling	26 m	\$400.00	\$10,400.00
Installation (Sta. 6+104 to Sta. 6+130)	26 m	\$550.00	\$14,300.00
9) Supply and Install 900x1200 mm inline concrete ditch inlet catchbasin (Sta. 3+465 to Sta. 3+500)	2 ea.	\$4,000.00	\$8,000.00
10) Restoration with 150 mm topsoil, seed and mulch	500 m <sup>2</sup>	\$7.50	\$3,750.00
11) Rip-rap c/w geotextile filter cloth	15 m <sup>2</sup>	\$100.00	\$1,500.00
<b>Total Estimated Construction Cost Branch 'B' (Closed)</b>			<b>\$160,432.00</b>

**SCHEDULE C - TOTAL ASSESSMENT FOR CONSTRUCTION**  
**Zettler Municipal Drain 2022**

TOTAL ASSESSMENT										
CONC.	LOT	ROLL NO.	OWNER	BRANCH A (OPEN)	BRANCH A (CLOSED)	BRANCH B (CLOSED)	TOTAL ASSESSMENT	LESS 1/3 GOV'T GRANT	LESS ALLOWANCES	NET ASSESSMENT
<b>Municipality of Brockton</b>										
6	Lot 1	2-068	G. Sluys	\$17,206	\$6,651	\$92,184	\$116,041	\$38,680	\$9,692	\$67,669
6	Lot 2	2-069	W. Sluys	\$21,677	\$162,129	\$44,943	\$228,750	\$76,250	\$16,607	\$135,893
6	Pt. 3	2-071	W. Lacey	\$17,409	\$127,718		\$145,127	\$48,376	\$7,004	\$89,748
*6	Pt. 4	2-072	Chepstow and District Lions	\$7,516			\$7,516		\$5,529	\$1,987
*A	Pt. 13	2-324	Ministry of Transportation	\$271	\$52	\$699	\$1,022			\$1,022
A	Lot 14	2-325	P. Kuntz	\$1,016	\$195	\$2,739	\$3,950	\$1,317		\$2,634
*7	Pt. 1	2-148	J. McGarrity	\$948	\$182	\$2,557	\$3,687			\$3,687
7	Pt. 1	2-149	H. Zettler	\$8,738	\$6,934	\$23,443	\$39,116	\$13,039		\$26,077
7	Lot 2	2-150	G. Zettler	\$8,603	\$101,017		\$109,620	\$36,540	\$8,419	\$64,661
7	Lot 3	2-151	R. Schlosser	\$2,506			\$2,506	\$835		\$1,671
Total Assessment on Lands				\$85,890	\$404,878	\$166,565	\$657,334	\$215,036	\$47,251	\$395,047
Chepstow Road				\$3,861	\$60,409	\$46,959	\$111,229			\$111,229
Doerr Sideroad				\$948	\$182	\$2,517	\$3,647			\$3,647
Total Assessment on Roads				\$4,809	\$60,591	\$49,476	\$114,876			\$114,876
<b>Total Assessment on Lands and Roads</b>										
<b>Zettler Municipal Drain 2022</b>				<b>\$90,699</b>	<b>\$465,469</b>	<b>\$216,041</b>	<b>\$772,210</b>	<b>\$215,036</b>	<b>\$47,251</b>	<b>\$509,922</b>

NOTES:

1. \* Denotes lands not eligible for the ADIP grant.
2. The NET ASSESSMENT is the total estimated assessment less one-third (1/3) Provincial grant and allowances, if applicable.
3. The NET ASSESSMENT is provided for information purposes only.

**SCHEDULE C - ASSESSMENT FOR CONSTRUCTION**  
**Zettler Municipal Drain 2022**

BRANCH A (OPEN)										
CONC.	LOT	ROLL NO.	OWNER	AFFECTED AREA (HA)	(SEC 22) BENEFIT	(SEC 23) OUTLET LIABILITY	TOTAL ASSESSMENT	LESS 1/3 GOV'T GRANT	LESS ALLOWANCES	NET ASSESSMENT
<b>BRANCH A (OPEN)</b>										
<b>Municipality of Brockton</b>										
6	Lot 1	2-068	G. Sluys	25.4		\$17,206	\$17,206	\$5,735		\$11,471
6	Lot 2	2-069	W. Sluys	32		\$21,677	\$21,677	\$7,226		\$14,451
6	Pt. 3	2-071	W. Lacey	25.7		\$17,409	\$17,409	\$5,803		\$11,606
*6	Pt. 4	2-072	Chepstow and District Lions	4.4	\$4,535	\$2,981	\$7,516		\$5,529	\$1,987
*A	Pt. 13	2-324	Ministry of Transportation	0.4		\$271	\$271			\$271
A	Lot 14	2-325	P. Kuntz	1.5		\$1,016	\$1,016	\$339		\$677
*7	Pt. 1	2-148	J. McGarrity	1.4		\$948	\$948			\$948
7	Pt. 1	2-149	H. Zettler	12.9		\$8,738	\$8,738	\$2,913		\$5,825
7	Lot 2	2-150	G. Zettler	12.7		\$8,603	\$8,603	\$2,868		\$5,735
7	Lot 3	2-151	R. Schlosser	3.7		\$2,506	\$2,506	\$835		\$1,671
Total Assessment on Lands					\$4,535	\$81,355	\$85,890	\$25,718	\$5,529	\$54,643
Chepstow Road				Municipality of Brockton	5.7	\$3,861	\$3,861			\$3,861
Doerr Sideroad				Municipality of Brockton	1.4	\$948	\$948			\$948
Total Assessment on Roads					\$0	\$4,809	\$4,809			\$4,809
<b>Total Assessment on Lands and Roads</b>										
<b>Zettler Municipal Drain 2022</b>										
<b>Branch A (Open)</b>					<b>\$4,535</b>	<b>\$86,164</b>	<b>\$90,699</b>	<b>\$25,718</b>	<b>\$5,529</b>	<b>\$59,452</b>

NOTES:

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**SCHEDULE C - ASSESSMENT FOR CONSTRUCTION**  
**Zettler Municipal Drain 2022**

BRANCH A (CLOSED)											
CONC.	LOT	ROLL NO.	OWNER	AFFECTED AREA (HA)	(SEC 22) BENEFIT	(SEC 23) OUTLET LIABILITY	(SEC 26) SPECIAL ASSESSMENT	TOTAL ASSESSMENT	LESS 1/3 GOV'T GRANT	LESS ALLOWANCES	NET ASSESSMENT
<b>BRANCH A (CLOSED)</b>											
<b>Municipality of Brockton</b>											
6	Lot 1	2-068	G. Sluys	25.4		\$6,651		\$6,651	\$2,217		\$4,434
6	Lot 2	2-069	W. Sluys	32	\$146,699	\$15,430		\$162,129	\$54,043	\$10,187	\$97,899
6	Pt. 3	2-071	W. Lacey	25.7	\$124,120	\$3,598		\$127,718	\$42,573	\$7,004	\$78,142
*A	Pt. 13	2-324	Ministry of Transportation	0.4		\$52		\$52			\$52
A	Lot 14	2-325	P. Kuntz	1.5		\$195		\$195	\$65		\$130
*7	Pt. 1	2-148	J. McGarrity	1.4		\$182		\$182			\$182
7	Pt. 1	2-149	H. Zettler	12.9		\$6,934		\$6,934	\$2,311		\$4,623
7	Lot 2	2-150	G. Zettler	12.7	\$60,048	\$40,969		\$101,017	\$33,672	\$8,419	\$58,925
Total Assessment on Lands					\$330,867	\$74,011		\$404,878	\$134,881	\$25,610	\$244,387
Chepstow Road				Municipality of Brockton	5.7	\$9,300	\$10,889	\$40,220			\$60,409
Doerr Sideroad				Municipality of Brockton	1.4		\$182	\$182			\$182
Total Assessment on Roads					\$9,300	\$11,071	\$40,220	\$60,591			\$60,591
<b>Total Assessment on Lands and Roads</b>											
<b>Zettler Municipal Drain 2022</b>											
<b>Branch A (Closed)</b>					<b>\$340,167</b>	<b>\$85,082</b>	<b>\$40,220</b>	<b>\$465,469</b>	<b>\$134,881</b>	<b>\$25,610</b>	<b>\$304,978</b>

NOTES:

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3. The NET ASSESSMENT is provided for information purposes only.

**SCHEDULE C - ASSESSMENT FOR CONSTRUCTION**  
**Zettler Municipal Drain 2022**

BRANCH B (CLOSED)											
CONC.	LOT	ROLL NO.	OWNER	AFFECTED AREA (HA)	(SEC 22) BENEFIT	(SEC 23) OUTLET LIABILITY	(SEC 26) SPECIAL ASSESSMENT	TOTAL ASSESSMENT	LESS 1/3 GOV'T GRANT	LESS ALLOWANCES	NET ASSESSMENT
<b>BRANCH B (CLOSED)</b>											
<b>Municipality of Brockton</b>											
6	Lot 1	2-068	G. Sluys	20.6	\$56,196	\$35,988		\$92,184	\$30,728	\$9,692	\$51,764
6	Lot 2	2-069	W. Sluys	9.5	\$37,544	\$7,400		\$44,943	\$14,981	\$6,420	\$23,542
*A	Pt. 13	2-324	Ministry of Transportation	0.4		\$699		\$699			\$699
A	Lot 14	2-325	P. Kuntz	1.5		\$2,739		\$2,739	\$913		\$1,826
*7	Pt. 1	2-148	J. McGarrity	1.4		\$2,557		\$2,557			\$2,557
7	Pt. 1	2-149	H. Zettler	11.2	\$2,990	\$20,453		\$23,443	\$7,814		\$15,629
Total Assessment on Lands					\$96,730	\$69,836		\$166,565	\$54,437	\$16,112	\$96,017
Chepstow Road				Municipality of Brockton	2.2	\$2,078	\$3,923	\$40,958	\$46,959		\$46,959
Doerr Sideroad				Municipality of Brockton	1.4		\$2,517	\$2,517			\$2,517
Total Assessment on Roads					\$2,078	\$6,440	\$40,958	\$49,476			\$49,476
<b>Total Assessment on Lands and Roads</b>											
<b>Zettler Municipal Drain 2022</b>											
<b>Branch B (Closed)</b>					<b>\$98,808</b>	<b>\$76,276</b>	<b>\$40,958</b>	<b>\$216,041</b>	<b>\$54,437</b>	<b>\$16,112</b>	<b>\$145,492</b>

NOTES:

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3. The NET ASSESSMENT is provided for information purposes only.

**SCHEDULE D - ASSESSMENT FOR MAINTENANCE**  
**Zettler Municipal Drain 2022**

<b>BRANCH A (OPEN)</b>					
<b>CONC.</b>	<b>LOT</b>	<b>ROLL NO.</b>	<b>OWNER</b>	<b>AFFECTED AREA (HA)</b>	<b>PORTION OF MAINTENANCE COST</b>
<b><u>BRANCH A (OPEN)</u></b>					
<b>Municipality of Brockton</b>					
6	Lot 1	2-068	G. Sluys	25.4	23.9%
6	Lot 2	2-069	W. Sluys	32	18.0%
6	Pt. 3	2-071	W. Lacey	25.7	8.5%
*6	Pt. 4	2-072	Chepstow and District Lions	4.4	1.2%
*A	Pt. 13	2-324	Ministry of Transportation	0.4	0.4%
A	Lot 14	2-325	P. Kuntz	1.5	1.8%
*7	Pt. 1	2-148	J. McGarrity	1.4	1.8%
7	Pt. 1	2-149	H. Zettler	12.9	14.4%
7	Lot 2	2-150	G. Zettler	12.7	20.0%
7	Lot 3	2-151	R. Schlosser	3.7	1.0%
<b>Total Assessment on Lands</b>					<b>91.0%</b>
Chepstow Road			Municipality of Brockton	5.7	7.5%
Doerr Sideroad			Municipality of Brockton	1.4	1.5%
<b>Total Assessment on Roads</b>					<b>9.0%</b>
<b>Total Assessment on Lands and Roads</b>					
<b>Zettler Municipal Drain 2022 - Branch A (Open)</b>					<b>100.0%</b>

**NOTES:**

1. \* Denotes lands not eligible for the ADIP grant.

**SCHEDULE D - ASSESSMENT For MAINTENANCE**  
**Zettler Municipal Drain 2022**

BRANCH A (CLOSED)					
CONC.	LOT	ROLL NO.	OWNER	AFFECTED AREA (HA)	PORTION OF MAINTENANCE COST
<b>BRANCH A (CLOSED)</b>					
<b>Municipality of Brockton</b>					
6	Lot 1	2-068	G. Sluys	25.4	5.9%
6	Lot 2	2-069	W. Sluys	32.0	30.6%
6	Pt. 3	2-071	W. Lacey	25.7	13.3%
*A	Pt. 13	2-324	Ministry of Transportation	0.4	0.1%
A	Lot 14	2-325	P. Kuntz	1.5	0.2%
*7	Pt. 1	2-148	J. McGarrity	1.4	0.2%
7	Pt. 1	2-149	H. Zettler	12.9	5.0%
7	Lot 2	2-150	G. Zettler	12.7	37.7%
Total Assessment on Lands					93.0%
Chepstow Road			Municipality of Brockton	5.7	6.9%
Doerr Sideroad			Municipality of Brockton	1.4	0.1%
Total Assessment on Roads					7.0%
<b>Total Assessment on Lands and Roads</b>					
<b>Zettler Municipal Drain 2022 - Branch A (Closed)</b>					<b>100%</b>

NOTES:

1. \* Denotes lands not eligible for the ADIP grant.

**SCHEDULE D - ASSESSMENT FOR MAINTENANCE**  
**Zettler Municipal Drain 2022**

BRANCH B (CLOSED)					
CONC.	LOT	ROLL NO.	OWNER	AFFECTED AREA (HA)	PORTION OF MAINTENANCE COST
BRANCH B (CLOSED)					
Municipality of Brockton					
6	Lot 1	2-068	G. Sluys	25.4	50.4%
6	Lot 2	2-069	W. Sluys	32	20.6%
*A	Pt. 13	2-324	Ministry of Transportation	0.4	0.5%
A	Lot 14	2-325	P. Kuntz	1.5	2.6%
*7	Pt. 1	2-148	J. McGarrity	1.4	2.9%
7	Pt. 1	2-149	H. Zettler	12.9	17.3%
Total Assessment on Lands					94.3%
Chepstow Road			Municipality of Brockton	5.7	3.6%
Doerr Sideroad			Municipality of Brockton	1.4	2.1%
Total Assessment on Roads					5.7%
Total Assessment on Lands and Roads					
Zettler Municipal Drain 2022 - Branch B (Closed)					100.0%

NOTES:

1. \* Denotes lands not eligible for the ADIP grant.