

Tuesday, February 27, 2018, 6:00 pm
Tecumseh Town Hall
www.tecumseh.ca

Pages

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **DISCLOSURE OF PECUNIARY INTEREST**
4. **DELEGATIONS**
5. **COMMUNICATIONS**
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Re: 7th Concession Drain
 - b. 2nd Reconsidered Drainage Report 4
Re: Repair and Improvement to the 7th Concession Drain
 - c. Baird AE Reconsidered Drainage Report 56
Re: 7th Concession Drain
6. **REPORTS**
 - a. PWES-2018-05, Seventh Concession Drain Reconsider Engineer's Drainage Report 108
7. **ADJOURNMENT**

January 30, 2018

PLEASE TAKE NOTICE that on January 24, 2018, Halliday Pearson & Don Joudrey, P.Eng., of Baird AE Inc. filed with the Clerk's Office the 2nd Reconsidered Drainage Report and specifications of the 7th Concession Drain (Report) dated November 23, 2017 for the repair and improvement of the **7th Concession Drain**.

A copy of the Report is attached hereto, including plans, Profiles, Assessment Schedules and meeting minutes.

Council of the Town of Tecumseh will consider the Report at the following date, time and place:

Date: **Tuesday, February 27, 2018**
Time: **6:00 pm – 7:00 pm**
Place: **Town of Tecumseh, Council Chambers**
917 Lesperance Road
Tecumseh, Ontario

As a landowner affected by these drainage works, your attendance is encouraged and requested at the meeting.

Persons wishing to make comment at the meeting are asked to contact the Town of Tecumseh, Director Staff Services & Clerk, Laura Moy at 519-735-2184 [Ext 116].

For questions relating to the Drain and should you be unable to attend the meeting, a questionnaire is attached if you wish to provide any concerns regarding this project in writing.

Please complete and send the questionnaire to the attention of the Drainage Superintendent, Sam Paglia at the contact information provided on the questionnaire.

Laura Moy
Director Staff Services & Clerk

This document is available in alternate formats upon request.



QUESTIONNAIRE – 2nd Reconsideration - Repair and Improvement to the 7th Concession Drain

1. Please print your name _____.
2. Please provide your parcel address so that we may confirm you are affected by this drain.

_____.

3. Please provide us with a current contact phone number where you can be reached

_____.

4. Please provide us with a current contact email address where you can be reached

_____.

5. Please provide us with your question or concern regarding the Reconsidered Repair and Improvement to the 7th Concession Drain Report.

_____. (attach additional pages and photos if required).

For further information on Municipal Drainage and the Rights and Responsibilities of the landowner, please visit the Ontario Ministry of Agriculture, Food, & Rural Affairs website at www.omafra.gov.on.ca. You can also view a Drainage Presentation on Municipal Drains located on the Town's website at www.tecumseh.ca

Please mail or email this completed questionnaire to the information provided below.

Town of Tecumseh
Attention: Sam Paglia, P. Eng.
917 Lesperance Road
Tecumseh, ON N8N 1W9
Phone: 519-735-2184 Ext 105
Email: spaglia@tecumseh.ca

Information collected will be used in accordance with the Freedom of information and Protection of Privacy Act. Unless otherwise stated in the submission, any personal information such as name, address and telephone number and property location included in all submissions will become part of the public record files for this project and may be included in the final report.

This document is available in alternate formats upon request.





Repair and Improvement to the 7th Concession Drain

Town of Tecumseh

Report Date: November 23, 2017

PIC - September 14, 2016

Consideration Meeting - March 14, 2017

First Sitting of the Court of Revision - April 11, 2017

Re-Consideration Meeting - September 12, 2017

2nd Reconsideration Meeting - February 27, 2018

Project No. 14-105

February 7, 2017
 Reconsidered November 23, 2017

Mayor and Municipal Council
 The Corporation of the Town of Tecumseh
 917 Lesperance Road
 Tecumseh, Ontario
 N8N 1W9

Mayor McNamara and Councillors

Subject: Repair and Improvement
 To the 7th Concession Drain
 In the Town of Tecumseh
 Our File Reference 14-105

1.0 Reconsidered Report

At the Meeting to Consider the report on September 12, 2017 the owner of lands with Roll No. 550-07900 requested that Culvert No. 9 be removed from the report as it was no longer required. Subsequent to that meeting, the parcel was sold. Through correspondence with the new landowner, it was determined that the owner wished to have a concrete culvert at this location. The report and plans have been revised accordingly.

2.0 Authorization

Pursuant to Section 78 of The Drainage Act, 1990 (the Act), the Corporation of the Town of Tecumseh received a request for the repair and improvement of the 7th Concession Drain. The firm of Crozier Baird, now known as Baird AE, was subsequently appointed to prepare a report as provided for under the provisions of the Act.

As requested by Council, we have made an examination of the 7th Concession Drain located along the north side of North Talbot Road commencing approximately 14 metres east of Walker Road. The drainage area encompasses land between County Road 46 to the north and North Talbot Road to the south; Walker Road to the west and Ure Street to the east.

3.0 Drainage Act Process

The following is the general order of procedure that is followed to repair and improve a municipal drainage system pursuant to Section 78 of the Drainage Act:

- a) Council determines that repair and improvements are required.
- b) Council appoints an Engineer.
- c) Engineer conducts an onsite meeting.
- d) Engineer conducts a survey of the drain.
- e) Need for preparation of a Preliminary Report is decided.
- f) Engineer completes and provides a Preliminary Report, if required.
- g) Council considers Preliminary Report, if required, with affected landowners and decides on an option(s) with which to proceed.

- h) A Draft Report is provided to the Municipality.
- i) A Public Information Centre (PIC) is held with affected landowners to discuss the report prior presenting the final report to Council.
- j) Engineer prepares Final Drainage Report and provides copy to the Municipality.
- k) Meeting to Consider the report held in front of Council with affected landowners.
- l) At the Meeting to Consider, the Municipal Council may adopt the Drainage Report. If adopted, the Municipal Clerk prepares a provisional by-law for the recommended work and sends copies of the by-law to affected parties and arranges a second meeting of Council for the Court of Revision, within thirty days of adopting the provisional by-law.
- m) The Court of Revision is typically held within 30 days at a subsequent meeting with affected landowners to discuss any disputes regarding assessment of cost to lands and roads.
- n) Council passes by-law for construction of the work after statutory appeal period expires. Typically, the appeal period is a minimum of 40 days from the date of the provisional by-law.
- o) Tenders are received by the Municipality to perform the recommended work and construction is carried out. Inspection of the construction work may be provided by the Town Drainage Superintendent or by an inspector from the engineering office.
- p) Upon completion of construction, the Municipal Clerk will finalize all applicable costs and submit grant applications to the Ministry of Agriculture and Food, if applicable. The clerk will then send a final net assessment to the affected landowners. Only lands listed by the Municipal Property Assessment Corporation as having Farm Class Tax Rate are eligible for a 1/3 grant.

4.0 Current Drainage Report and Drain History

Work has been completed on the 7th Concession Drain under various Engineers' reports. Previous works and reports are as follows:

Report dated November 18, 2008 prepared by Tim Oliver, P.Eng. (Dillon Consulting): recommended repairs, realignment, deepening of the downstream section of the 7th Concession Drain from the 7th Street Drain Outlet Diversion southerly approximately 1,321 metres to the former railway. The drain was widened and deepened by approximately 1 metre. As part of this report, the first 444 metres were cleaned and the remainder was constructed to the design grades by MTO as part of the Highway 401 improvements. (It should be noted that MTO construction only went to Provincial Road (Station 1+138).)

Report dated July 8, 1991 prepared by Lou Zarlenga, P.Eng.: recommended repair and improvements entailed enclosing the open portion of the drain adjacent to and along the north side of North Talbot Road; removing accumulated brush and sediment from the open drain; deepening and widening and providing additional outlet to that portion of the drain situated north of Moynahan Street to just south of Highway No. 401.

Report dated June 9, 1978 prepared by Maurice Armstrong, P.Eng.: recommended that the extension of the 7th Concession Drain be established as a municipal drain. The extension commenced 14 metres east of Walker Road and continued easterly along the north side of North Talbot Road to the point where the drain turns north. The report further recommended that the 7th Concession Drain be cleaned from the north side of North Talbot Road to the drain's outlet. Repair and improvement of various culvert pipes was recommended as well.

A review of the current report indicates that the existing drainage area is approximately 57.83 ha (143.01 acres) in size.

5.0 Purpose of Report

The purpose of this report is to provide for the repair and improvement of the drain from Station 1+321 just north of the former railway to the upper end at Walker Road. Affected landowners have raised issue with the functioning of the drain particularly in the area near Del Duca Drive.

This report provides a description and estimated cost of the proposed work. In addition, the report provides a recommendation for distribution of the construction and incidental costs related to the work. This report further provides for the distribution of future maintenance costs. The assessments provided in this report are based upon the estimated cost of the work; these assessments would be pro-rated to the actual cost of the project upon completion of the works.

We would further recommend that this report incorporate the 7th Concession Drain Extension into the 7th Concession Drain and the entirety of the drain be known as the **7th Concession Drain**.

6.0 Site Meeting

On Wednesday, August 27, 2014 at 9:00am, a meeting was held on Del Duca Drive to discuss the project. The following people attended the site meeting:

Landowners Present	Affiliation
Greg Scott	Tregaskiss
Ray Little	Calframax
Joel Fillion	Morton Wholesale
Anna Godo, P.Eng.	City of Windsor
Sam Paglia, E.I.	Town of Tecumseh
Ryan Langlois, EI	Baird AE
Halliday Pearson, P.Eng.	Baird AE

A written record of this meeting is contained in Appendix A of this report.

A Public Information Centre (PIC) was held on September 14, 2016 at 5:00 pm at the Tecumseh Municipal office. This meeting was held to receive comments from property owners with respect to the draft report dated August 16, 2016.

Landowners Present	Affiliation
Loris Collavino	PSI
Ryan Lawson	Expressway Trucks
Gregg Strong	Expressway Trucks
Sam Paglia, P.Eng.	Town of Tecumseh
Cheryl Curran	Town of Tecumseh
Don Joudrey, P.Eng.	Baird AE
Halliday Pearson, P.Eng.	Baird AE

Mr. Collavino indicated his property being assessed to the 7th Concession Drain has no direct outlet to the 7th Concession Drain and most of the water drains onto neighbouring properties.

It was stated that the property was assessed to the 7th Concession Drain in the previous report. The property will be investigated further to determine where the water actually goes. If some of the property actually drains to the 7th Street Drain, the properties could be included in the other drain but would have to be done through another report. A survey would have to be done to confirm how much property is to be redirected. Alternatively, the parcel may remain in the 7th Concession Drain until such time as neighbours express concerns. A subsequent site visit showed that part of the

property does drain to the 7th Concession Drain by way of a swale across the adjacent property to the east.

Mr. Strong indicated he has water ponding in his property because of work to County Road 46. He wanted to know if he could redirect the water to the 7th Concession Drain. He was told he would have to submit a petition for drainage to the Town. Alternatively, the County would have to be contacted to repair the drainage.

Mr. Strong also indicated he had a second drain at the back of his property into the 7th Concession Drain that has not been identified. This will be added to the report.

No further comments were received.

7.0 Topographic Survey

We commenced our survey at the upstream end of the 7th Concession Drain Extension, being the enclosed portion of the drain at Walker Road. Our survey continued easterly for approximately 467 metres before turning north where the drain becomes an open drain. The open drain flows north for approximately 350 metres before crossing Moynahan Street where it continues easterly for approximately 217 metres. The open drain continues north for approximately 447 metres before crossing the former railway. The survey finished approximately 230 metres downstream of the former railway line.

8.0 Existing Conditions

We find that the 7th Concession Drain is in need of repair and requires cleaning pursuant to Section 78 of the Act.

As a result of the survey, we have found the following:

The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 ranges in size from 450mm diameter CSP to 825mm diameter CSP. The Tregaskiss representative present at the onsite meeting noted that their parking lot experiences flooding. It is the Engineer's opinion that the parking lot is designed to flood to act as the stormwater management system. Cleaning of the enclosed and open drain will most likely reduce the time that the parking lot experiences flooding but will not eliminate the flooding due to the stormwater management design.

Considerable sediment has accumulated in the bottom of the drain preventing the proper flow of water, particularly between Station 1+321 and 1+825 and between 1+920 and 2+200. Considerable vegetation is present along the length of the drain between Station 1+350 and Station 1+820. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

We further noted that additional work is required north of the railway to take advantage of the deepened downstream drain. This work shall be carried out separately by the Town as maintenance.

We further found that many of the culverts within the drain are out of vertical alignment but would not significantly impede flows, however most are undersized and will have to be replaced with larger culverts.

The stationing of the upper sections of the drain have been adjusted from previous reports to reflect the stationing laid out in the 2008-83 By-Law. We have continued with the stationing from the

Provincial Road Culvert (south end is located at Station 1+150). The upper end at Walker Road is now Station 2+848.8.

There is currently one road crossing on the 7th Concession Drain as described below:

Culvert No. 7– Moynahan Street, Town of Tecumseh

Station 2+054

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete pieces and rocks form the end of pipe protection at the downstream end of the crossing. End of pipe protection is absent from the upstream end of the crossing. This structure is currently identified as part of the 7th Concession Drain under the current by-law.

There are currently six culverts within the 7th Concession Drain as described below:

Culvert No. 1 and 2 – Detroit River Tunnel Company, Roll No. 590-01000

Station 1+379

There are currently two pipes under the former railway. The existing 15.55m 1200mm diameter ductile iron pipe (Culvert No. 2) is in good condition; however, the invert elevation of the pipe is approximately 150mm above the bottom of the existing drain. A 600mm diameter 18.30m welded steel casing pipe (Culvert No. 1) was installed under the 1991 Zarlenga report beside the existing 1200mm diameter pipe. The invert of this pipe matches the existing grade at this location. The limited capacity of the 600mm diameter pipe and the improper elevation of the 1200mm diameter pipe together prevent the proper flow of water within the drain. End of pipe protection was not found for either structure. These pipes are in place to allow the flow of water northerly under the former railroad tracks and are currently identified as part of the 7th Concession Drain under the current by-law.

It should be noted the railway is not currently in use and now ends at 8th Concession Road approximately 800 metres east of the existing railway culverts.

Culvert No. 3 – SGM Real Estate Holdings ULC, Roll No. 550-01500

Station 1+854

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate the pipe is undersized. Poured concrete headwalls are in good condition. This structure provides access to commercial lands and is identified as part of the 7th Concession Drain under the current by-law.

At the landowner's request, the length and location of the culvert has been modified to that described in Section 8.0 Recommendations and shown on the attached plans.

Culvert No. 4 – Adine Builders Ltd., Roll No. 550-01600

Station 1+909

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Poured concrete headwalls are in satisfactory condition although cracking was noted on the upstream headwall. The elevation of the culvert does not correspond to the design grade of the drain bottom. This structure provides access to commercial lands and is identified as part of 7th Concession Drain under the current by-law.

Culvert No. 5 – Gail and Pamela Rodzik, Roll No. 550-02000

Station 1+957

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in good condition. The elevation of the culvert does not correspond to the design grade of the drain bottom. This

structure provides access to industrial lands and is not identified as part of the 7th Concession Drain under the current by-law.

We would further recommend this culvert be incorporated into the 7th Concession Drain under this report.

Culvert No. 6 – Gail and Pamela Rodzik, Roll No. 550-02100

Station 2+034

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in poor condition. The top layers of the jute bag headwalls have collapsed. The elevation of the culvert does not correspond to the design grade of the drain bottom. This culvert provides access to industrial lands and is identified as part of the 7th Concession Drain under the current by-law.

Based on the existing conditions and a review of the theoretical drain profile provided in the 1991 Zarlenga report and the existing downstream drain elevations set out in the 2008 Dillon Report, we have determined that cleaning of the enclosed portion of the drain between Station 2+386.6 and 2+848.8; brushing, grubbing and excavating the open drain sections; cleaning existing road crossings and driveway culverts; deepening and widening the drain from Station 1+320 to Station 1+813 including the installation of a new 1800mm diameter aluminized CSP across the former railway to match the drain depths in the Dillon Report will improve drain function.

We have found that additional catch basins have been installed on lands near the intersection of Hennin Drive and North Talbot Road. These catch basins direct flow to a municipal drain on the south side of North Talbot Road thereby altering the watershed from that identified in the 1991 Zarlenga report.

In addition, it was discovered that at the time of the MTO works in 2008, the portion of the 7th Concession Drain draining the property with Roll No. 550-18800 was not properly graded towards the relocated portion of the drain. As such, it is causing drainage issues to the property. This section of drain must be lowered below the outlet of the drainage system for Expressway Trucks (905364 Ontario Ltd) and graded southerly to the 7th Concession Drain. We would recommend that this section of drain be incorporated into the 7th Concession Drain under this report.

Since this work on Roll No. 550-18800 has been identified as an issue well before the works in this report can be carried out, repairs will be initiated by the Town as maintenance work through the existing 2008 report.

9.0 Recommendations

We would recommend the following works be performed in order to overcome the above noted deficiencies:

- a) Excavation work shall be undertaken to remove accumulated sediment and vegetation within the drain:
 - i. Excavation to theoretical drain bottom shall be undertaken between Station 1+825 and Station 2+386.6;
 - ii. The section of drain between Station 1+321 and Station 1+825 shall be lowered by approximately 400 to 500 mm, to match the grades from the 2008 Dillon Report as shown on Sheet 3 of the drawings, to provide a deeper outlet for adjacent properties.
- b) New culverts and end of pipe protection shall be installed:
 - i. The existing 600mm diameter CSP welded steel casing pipe and 1200mm diameter

- ductile iron pipe at Station 1+379 (crossing the former railway line) shall be removed from the drain and disposed of offsite. Culvert No. 1 and 2 shall be replaced with 16.0m of new 1800mm aluminized corrugated steel pipe with sloped gabion stone end of pipe protection and be known as Culvert No. 8. The new culvert will be installed by open cut.
- ii. Culvert No. 9 at Station 1+544: A new culvert, at the end of Del Duca Drive, shall be constructed of 20.0m of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection.
- c) Existing culverts and end of pipe protection shall be removed and replaced:
- i. Culvert No. 3 at Station 1+854: The existing 24.69 metres 900mm pipe shall be removed and replaced with 22.0 metres of 1200mm diameter CSP with concrete block headwalls;
 - ii. Culvert No. 4 at Station 1+909: The existing 12.51 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iii. Culvert No. 5 at Station 1+957: The existing 11.79 metres of 900mm pipe shall be removed and replaced with 11.8 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iv. Culvert No. 6 at Station 2+034: The existing 12.21 metres of 900mm pipe shall be removed and replaced with 12.2 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - v. Culvert No. 7 at Station 2+054: The existing 12.47 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls;
- d) Existing enclosed pipe network to be cleaned:
- i. The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 shall be cleaned;
- e) Seeding and mulching shall be undertaken on all excavated portions of the drain side slopes to prevent erosion;

For the enclosed drain between Station 2+386.6 and Station 2+848.8, we would recommend that these pipes, manholes and catch basins remain in place, however, when the pipes and structures degrade to the point of replacement, we would recommend that the pipes be replaced under this by-law as an act of maintenance and assessed in accordance with proportions set out in the maintenance clauses of this report and any apportionment agreements in place at the time of replacement.

In a previous version of this report, we had recommended that Culvert No. 9 be constructed of corrugated steel pipe as this crossing was intended to be used privately. However, the parcel was recently sold and the new owner has requested that the culvert be constructed using concrete pipe as they are anticipating future development of the site.

The owner of lands with Roll No. 550-07900 and 550-07950 owned by Wannabe Radical Inc., has brought to our attention the desire to continue to utilize the 7th Concession Drain as an outlet for existing drainage on these properties. Should future development occur, we would recommend that it be subject to a storm water management report to ensure all Ministry of Environment requirements for stormwater management are satisfied. We would further recommend implantation of a water management plan to restrict the rate at which water is discharged from the property to pre-development flows. Pre-development flows were used when hydraulically calculating the diameter of Culvert No. 9. We would further recommend the supply and placement of gabion stone at the

outlet to prevent bank slope erosion.

10.0 Fisheries Issues

The 7th Concession Drain is a Type 'F' drain. A Type 'F' drain is considered to have intermittent or ephemeral flow. A drain with ephemeral flow is typically dry for more than two consecutive months.

The upper portion of the 7th Concession Drain, formerly the 7th Concession Drain Extension, between Station 2+386.6 and Station 2+848.8 is an enclosed drain that cannot support fish habitat.

We would recommend the following measures be utilized to mitigate damage to the drain during construction:

- No work shall be undertaken between March 15 and June 30
- All work shall be completed in the dry
- Culverts shall be installed with a minimum of 10.0% embedment
- All disturbed soils shall be stabilized upon completion of the work
- Silt fence sediment control shall be implemented during construction
- Contractor shall prevent entry of petroleum products, debris and deleterious substances into the water.

A review of the Sensitive Areas Maps for the Town of Tecumseh indicates that no endangered species, as listed under the Endangered Species Act, are expected to be encountered at the site of the proposed works.

A Fisheries and Oceans Canada (DFO) Self-Assessment was completed by Baird AE to determine if a DFO review was required for this project. Correspondence received from DFO states that Fisheries Act authorization is not required. Serious harm to fish can be avoided by following standard measures. A permit is not required under the Species at Risk Act as there are no Species at Risk at or near the site. The works described in this report are not considered to need an authorization under the Fisheries Act to proceed.

11.0 Drawings and Specifications

Attached to this report is Drawing No. 14-105 Sheets 1 to 7. The drawings illustrate the location of the proposed drainage works and the land affected by the work, together with the detail and cross sections of the recommended work. Specifications are included in this report showing the dimensions, grades, disposal of material, working areas for construction and future maintenance, and other particulars of the recommended work.

12.0 Working Area

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described as follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

13.0 Allowances for Lands Taken and Damages

In accordance with the provisions of the Act, monetary allowances are provided to those landowners from which land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to dispose of excavated material or for land required to obtain access to a Municipal Drainage System.

We find that no land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to obtain access to a Municipal Drainage System, therefore, we have not provided any allowance for lands taken in our estimate as is otherwise normally provided for under sub-section (a) of Section 29 of the Act.

We further find that each of the following owners is entitled to and should receive the following amounts as compensation for the damages to lands and crops, if any. We have used a rate of \$3,700 per hectare to determine the compensation paid, if any:

Owner	Roll No.	Lands Taken	Damages	Total
Detroit River Tunnel Company	590-01000	---	\$123	\$123
Wannabe Radical Inc.	550-07900	---	\$962	\$962
1147048 Ontario Ltd.	550-02300	---	\$481	\$481
Morbella Holdings Ltd.	550-02902	---	\$592	\$592
SGM Real Estate Holdings ULC	550-01500	---	\$444	\$444
				\$2,602

We have provided for this in our estimate as is provided for under sub-section (b) of Section 29 of the Act.

14.0 Estimate of Cost

Our estimate of the total cost of this work, including all incidental expenses and HST, is the sum of THREE HUNDRED AND TEN THOUSAND, SIX HUNDRED AND FIVE-----dollars (\$310,605.00), and made up as follows:

CONSTRUCTION

- | | | | |
|----|-------|--|---------------------|
| 1) | L.S. | Brushing and grubbing between Station 1+321 and Station 2+386.6 complete at \$ <u>10,000</u> Lump Sum. | \$ <u>10,000.00</u> |
| 2) | 462 | Metres of existing 450mm to 825mm diameter corrugated steel pipe to be cleaned between Station 2+386 and Station 2+848.8 including all inline manholes and catch basins at \$ <u>10.00</u> per metre | \$ <u>4,620.00</u> |
| 3) | 1,830 | Cubic metres of excavation to be undertaken along the length of the drain as described in the attached specifications and below: | |
| | | i) Spread and levelled adjacent to the drain to a maximum depth of 300mm. | |
| | 1,275 | - Station 1+321 to 1+750 at \$ <u>20.00</u> per cubic metre | \$ <u>25,500.00</u> |
| | 165 | - Station 2+054 to 2+386.6 at \$ <u>20.00</u> per cubic metre | \$ <u>3,300.00</u> |
| | | ii) Excavated and trucked to sites noted in i). Material to be spread and levelled to a maximum depth of 300mm. | |
| | 245 | - Station 1+750 to 1+825 at \$ <u>30.00</u> per cubic metre | \$ <u>7,350.00</u> |
| | 145 | - Station 1+825 to 2+054 at \$ <u>30.00</u> per cubic metre | \$ <u>4,350.00</u> |
| | | Total for Excavation | \$ <u>40,500.00</u> |
| 4) | | Proposed culvert at Station 1+379 for the Detroit River Tunnel Company (Culvert No. 8): | |
| | | i) Remove and dispose of existing 600mm welded steel casing pipe (Culvert 1) and 1200mm ductile iron pipe (Culvert 2) crossing under the former railway at station 1+359. To be open cut (rails not replaced) at \$ <u>3,000.00</u> Lump Sum | \$ <u>3,000.00</u> |
| | | ii) Supply and set approximately 16 metres of 1800 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25 mm corrugations complete at \$ <u>500.00</u> per metre | \$ <u>8,000.00</u> |
| | | iii) Supply, place and compact approximately 20 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to reconstruct railway bed to original cross-section at \$ <u>35.00</u> per tonne | \$ <u>700.00</u> |

iv) Supply, place and compact approximately 110 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,200.00</u>
v) Supply and place 70.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>4,550.00</u>
vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to install Culvert No. 8	\$ <u>18,750.00</u>

5) Proposed culvert at Station 1+544 at west end of Del Duca Drive for Wannabe Radical Inc. (Culvert No. 9):

i) Supply and set approximately 20 metres of 1500mm diameter class 65-D concrete pipe \$ <u>1,000.00</u> per metre	\$ <u>20,000.00</u>
ii) Supply, place and compact approximately 60 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material at \$ <u>35.00</u> per tonne	\$ <u>2,100.00</u>
vii) Supply, place and compact approximately 170 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>3,400.00</u>
iii) Supply and place 30.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>1,950.00</u>
iv) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to construct Culvert No. 9	\$ <u>27,750.00</u>

- 6) Existing culvert to be replaced at Station 1+854 for SGM Real Estate Holdings ULC. (Culvert No. 3):
- i) Remove 24.7 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,500.00 Lump Sum \$ 1,500.00
 - ii) Supply and set approximately 22.0 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 8,800.00
 - iii) Supply, place and compact approximately 50 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material and to construct driveway at \$ 35.00 per tonne \$ 1,750.00
 - viii) Supply, place and compact approximately 175 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 3,500.00
 - iv) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - v) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00
 - vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 3 \$ 26,650.00
- 7) Existing culvert to be replaced at Station 1+909 for Adine Builders Ltd. (Culvert No. 4):
- i) Remove 12.5 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 5,000.00

iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ <u>35.00</u> per tonne	\$ <u>1,400.00</u>
iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,000.00</u>
v) Supply, place and compact approximately 10 tonnes of asphalt at \$ <u>120.00</u> per tonne	\$ <u>1,200.00</u>
vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ <u>4,500.00</u> each.	\$ <u>9,000.00</u>
vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to replace Culvert No. 4	\$ <u>20,150.00</u>

8) Existing culvert to be replaced at Station 1+957 for Gail and Pamela Rodzik (Culvert No. 5):

i) Remove 11.80 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ <u>1,250.00</u> Lump Sum	\$ <u>1,250.00</u>
ii) Supply and set approximately 11.8 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ <u>400.00</u> per metre	\$ <u>4,720.00</u>
iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ <u>35.00</u> per tonne	\$ <u>1,400.00</u>
iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,000.00</u>
v) Supply, place and compact approximately 10 tonnes of asphalt at \$ <u>120.00</u> per tonne	\$ <u>1,200.00</u>

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 5 \$ 19,870.00

9) Existing culvert to be replaced at Station 2+034 for Gail and Pamela Rodzik (Culvert No. 6):

i) Remove 12.21 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00

ii) Supply and set approximately 12.2 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 4,880.00

iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00

iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00

v) Supply, place and compact approximately 10 tonnes of asphalt at \$ 120.00 per tonne \$ 1,200.00

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 6 \$ 20,030.00

- 10) Existing culvert to be replaced at Station 2+054 for Town of Tecumseh (Culvert No. 7):
- i) Remove 12.47 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1050 mm diameter class 65-D concrete pipe complete at \$ 600.00 per metre \$ 7,500.00
 - iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00
 - iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00
 - v) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - vi) Supply and place 12.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ 65.00 per square metre \$ 780.00
 - vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 7 \$ 15,030.00
- 11) L.S. Supply and spreading of good quality grass seed and mulch on all portions of excavated sideslopes complete at \$ 10,000.00 Lump Sum. \$ 10,000.00
- 12) L.S. The Contractor shall provide a traffic control plan to the Town of Tecumseh and the County of Essex for approval before construction commences. The Contractor shall supply, install and maintain the necessary signage during the construction period according to the latest revision of the Ontario Traffic Manual Book 7, Temporary Conditions, complete at \$ 5,000.00 Lump Sum. \$ 5,000.00

13) 65.0	Square metres of 100 – 230mm diameter gabion stone (300 mm thick) erosion protection laid on Terrafix 270R Filter Fabric to be placed as required to prevent bank slope erosion due to outlet tiles, drains or swales along length of drain complete at \$ <u>65.00</u> per square metre.	\$ <u>4,225.00</u>
14) L.S.	Previously completed excavation of 30 cubic metres between Station 0+000 and Station 0+028 for lands with Roll No. 550-18800 complete at \$ <u>600.00</u> Lump Sum. This was completed as maintenance and will not form part of the proposed construction.	\$ <u>600.00</u>
15) L.S.	Contingency Allowance to be used only upon approval of Drainage Superintendent and/ or Engineer	\$ <u>11,500.00</u>
SUB TOTAL FOR CONSTRUCTION		\$ <u>234,675.00</u>

INCIDENTALS

Attendance at site meeting, survey	\$ 5,000.00
Report, estimate and specifications	\$ 29,750.00
Assistants and expenses, drawing preparation	\$ 17,000.00
Attendance at Public Meetings and Council Meetings	\$ 6,000.00
Tender documents	\$ 1,200.00
ERCA Permit Application Fee	\$ 800.00
Construction Inspection and Final Inspection (15 days at \$550.00/day)	\$ 8,250.00
	=====
Sub Total for Incidentals	\$ 68,000.00
Sub Total for Construction (brought forward)	\$ 234,675.00
	=====
Sub Total for Construction and Incidentals	\$ 302,675.00
HST Payable (1.76% Non-Recoverable)	\$ 5,328.00
Total for Allowances (brought forward)	\$ 2,602.00
	=====
TOTAL ESTIMATE	\$ 310,605.00
	=====

15.0 Assessment

Assessments to lands are provided in the attached Schedule of Assessment in three separate columns being Special Benefit, Benefit and Outlet. Section 1 of the Act provides the following definitions:

“Special Benefit” means any additional work or feature included in the construction, repair or improvement of a drainage works that has no effect on the functioning of the drainage works. A breakdown of how the Special Benefits assessments were calculated is provided on Page 4 of 4 of the Schedule of Assessment.

“Benefit” means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a high market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures.

“Outlet Liability” means the part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet.

We would recommend that construction and incidental costs be assessed to the affected properties in accordance with the accompanying Schedule of Assessment.

We would recommend that the cost to remove and replace access culverts and crossings currently identified as part of the drain be shared between the owner and the upstream lands and roads in accordance with the clauses below and the percentages listed in Table 1. The percentages listed in Table 1 were derived based on the culvert’s approximate location within the drain.

Culvert No. 5 is not currently identified as part of the 7th Concession Drain. Therefore, 100% of the cost to construct the culvert shall be assessed to the lands with Roll No. 550-01500.

Culvert No. 9 is a new culvert. Therefore, 100% of the cost to construct the new culvert shall be assessed to the lands with Roll No. 550-07900.

Table 1. Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	100%	0%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	100%	0%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

Item No. 14 described in the Section 13.0 Estimate of Cost was completed prior to adoption of this report to alleviate flooding issues on the lands with Roll No. 550-18800; however, it was not assessed. We would recommend that 100% of the cost of Item No. 14 including incidental fees be assessed to the lands with Roll No. 550-18800 as Special Benefit.

Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail during cleaning, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

16.0 Maintenance

We would recommend that the areas described in Section 11.0 of this report, and as listed below, be used to access the drain during works of maintenance:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

We would recommend that future maintenance costs be assessed to the affected properties in accordance with the following provisions and accompanying Maintenance Schedule of Assessment.

The Maintenance Schedule of Assessment has been developed based on an assumed maintenance cost of \$10,000. This amount is arbitrary and does not represent the actual costs to be assessed. Actual costs for future maintenance works, including all engineering and incidental costs, shall be assessed against the affected lands and roads in the same proportions as those shown in the attached Maintenance Schedule of Assessment.

Should an existing access culvert require replacement, we would recommend that the cost to replace the culvert be assessed to the benefitting landowner and the upstream lands and roads in accordance with the percentages listed in Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain, below. The percentage to be shared with the upstream lands and roads shall be assessed as outlet against those lands.

Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	54%	46%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	69%	31%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

All future maintenance works between Station 0+000 and Station 0+028 shall be assessed 100% to the lands with Roll No. 550-18800.

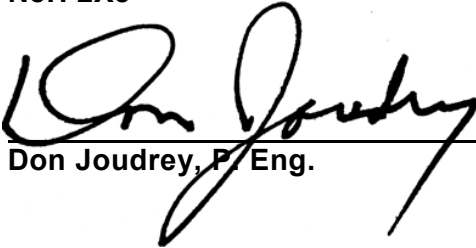
Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

17.0 Grant

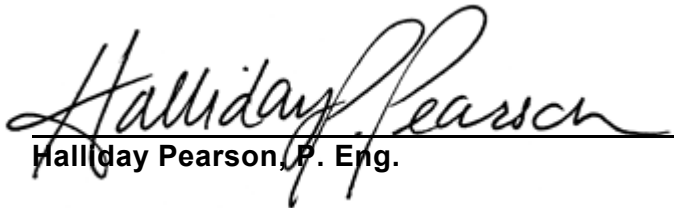
In accordance with the Agricultural Drainage Infrastructure Program (ADIP) and the provisions of Sections 85, 86 and 87 of the Act, a 33-1/3% grant is not available for the proposed works, as the Municipal Property Assessment Corporation identifies no assessed lands as having Farm Property Tax Class Rate.

All of which is respectfully submitted by:

BAIRD AE
27 PRINCESS STREET, UNIT 102
LEAMINGTON, ONTARIO
N8H 2X8


 Don Joudrey, P. Eng.




 Halliday Pearson, P. Eng.



APPENDIX A
RECORD OF SITE MEETING

7TH CONCESSION DRAIN AND EXTENSION
SUMMARY OF ENGINEERING ON-SITE MEETING

August 27, 2014 @ 9:00 am
 NORTH OF 3525 DEL DUCA DRIVE

ATTENDEES	Description
Greg Scott	Tregaskiss
Ray Little	Calframax Technologies Inc.
Joel Fillion	Morton's Wholesale
Sam Paglia, EI	Drainage Superintendent, Town of Tecumseh
Anna Godo, P.Eng.	Drainage Superintendent, City of Windsor
Halliday Pearson, P.Eng	Crozier Baird Engineers
Ryan Langlois, EI	Crozier Baird Engineers

Sam Paglia - Introduced Engineers and explained issues observed with the drain by Town employees and businesses within the area.

Halliday Pearson– Explained that drain would be surveyed from the upper end near Walker Road to the 401. Survey data will be used to analyze the function of the drain and to determine the works required to return the drain to its original design and to improve function. A draft report will be prepared describing the proposed works, cost estimate of those works and a schedule of assessment. The schedule of assessment will describe the estimated assessments to be levied against the lands that use the drain. A Pre-Consideration Meeting will be held at Tecumseh Town Hall so that affected landowners may ask questions of the Engineer and the Drainage Superintendent. All affected landowners are encouraged to attend. The report will be finalized based on comments received at the Pre-Consideration Meeting then sent to all affected landowners along with an invitation to attend the Consideration Meeting held before Council. Technical aspects of the report are discussed at the Consideration Meeting. Should Council provisionally adopt the report, a Court of Revision would be scheduled within 30 days. Concerns or questions regarding assessments will be addressed at this meeting. Upon final adoption of the by-law, the project will be tendered and construction undertaken. Construction will likely begin in early fall of 2015.

Halliday Pearson – Please describe any issues related to the drain that you have experience.

Ray Little – Our parking lot floods. A pond was filled in on the west side of the drain – would that have anything to do with our flooding?

Halliday Pearson – The pond may, however, it is not identified as part of the Municipal Drain. By cleaning the drain (excavating sediment, brushing and grubbing vegetation), the drain will better convey water from the site. The intent is to alleviate flooding issues by restoring the drain to its original design.

Anna Godo – A portion of the 7th Concession Drain at the 401 was lowered under a previous report. Will you take advantage of the lowering of the drain?

Halliday Pearson – As part of our survey and design, we will consider lowering the drain if that would be advantageous and provide improved drainage for the affected lands.

Sam Paglia – Landowners have brought to my attention drainage issues along County Road 46. It may be necessary to establish a branch of the 7th Concession Drain and Extension to solve their drainage issues. We can discuss this as the design proceeds.

Greg Scott – We have an issue with drainage in our parking lot along North Talbot Road. The catchbasins were recently cleaned of sediment.

Sam Paglia – This parking lot may have been designed to contain the water and direct it to onsite catchbasins as part of the stormwater management design. After cleaning of the drain, the water may still sit onsite but it will drain away faster – water may sit for one day instead of two.

Greg Scott – Will North Talbot Road be dug up again as part of these works?

Sam Paglia – The working area will be specified in the report. Typically, only dump trucks and an excavator are used for drainage works. Accesses may be obstructed temporarily but major delays are not expected.

Greg Scott – How are assessments determined?

Sam Paglia – Assessments are determined based on the volume and rate of flow entering the drain from each parcel. A parcel's location on the drain also affected their assessment.

Joel Fillion – Morton Wholesale's parcel does not experience flooding.

Sam Paglia – It was noted that the drain has been enclosed along North Talbot Road. Our records do not reflect this change – the current drainage report shows an open drain in this area. The Engineer will examine the pipe to determine if they have been sized appropriately and will incorporate this enclosure into the report.

The meeting was adjourned at 9:40am.

**CONSTRUCTION SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
Page 1 of 4

COUNTY LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ -	\$ 35.00	\$ 35.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ -	\$ -	\$ 35.00	\$ 35.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ -	\$ 945.00	\$ 1,545.00	\$ 2,490.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ -	\$ 1,230.00	\$ 1,230.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 19,805.00	\$ 1,485.00	\$ 1,335.00	\$ 22,625.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ -	\$ 435.00	\$ 435.00
DelDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ -	\$ 175.00	\$ 175.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ -	\$ 770.00	\$ 770.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ -	\$ 805.00	\$ 270.00	\$ 1,075.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ 19,805.00	\$ 3,235.00	\$ 5,760.00	\$ 28,800.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
Page 2 of 4

Roll No.	Con.	Description	Area Owned		Area Affected		Owner	Special	Benefit	Benefit	Outlet	Total
			(Acres)	(Ha.)	(Acres)	(Ha.)		Benefit				Assessment
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$	-	\$ 1,700.00	\$ 3,105.00	\$ 4,805.00
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$	-	\$ 3,400.00	\$ 4,225.00	\$ 7,625.00
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$	-	\$ 1,160.00	\$ 2,230.00	\$ 3,390.00
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$	-	\$ 2,170.00	\$ 3,800.00	\$ 5,970.00
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$	-	\$ 2,310.00	\$ 3,965.00	\$ 6,275.00
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$	-	\$ 530.00	\$ 925.00	\$ 1,455.00
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$	-	\$ 1,630.00	\$ 2,520.00	\$ 4,150.00
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$	-	\$ 410.00	\$ 630.00	\$ 1,040.00
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$	-	\$ 505.00	\$ 765.00	\$ 1,270.00
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corporation	\$	-	\$ 965.00	\$ 1,470.00	\$ 2,435.00
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$	-	\$ 970.00	\$ 1,470.00	\$ 2,440.00
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$	-	\$ 9,470.00	\$ 14,620.00	\$ 24,090.00
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$	18,740.00	\$ 1,360.00	\$ 2,030.00	\$ 22,130.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$	26,180.00	\$ 1,355.00	\$ 1,770.00	\$ 29,305.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$	17,790.00	\$ 1,020.00	\$ 1,210.00	\$ 20,020.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$	22,825.00	\$ 1,720.00	\$ 1,205.00	\$ 25,750.00
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$	-	\$ -	\$ 745.00	\$ 745.00
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$	-	\$ -	\$ 750.00	\$ 750.00
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$	-	\$ -	\$ 750.00	\$ 750.00
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$	-	\$ -	\$ 480.00	\$ 480.00
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$	-	\$ -	\$ 625.00	\$ 625.00
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$	-	\$ -	\$ 635.00	\$ 635.00
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$	-	\$ -	\$ 760.00	\$ 760.00
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$	-	\$ -	\$ 870.00	\$ 870.00
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$	-	\$ -	\$ 905.00	\$ 905.00
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$	-	\$ 2,935.00	\$ 1,640.00	\$ 4,575.00
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$	-	\$ -	\$ 560.00	\$ 560.00
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$	-	\$ 775.00	\$ 405.00	\$ 1,180.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$	39,620.00	\$ 22,770.00	\$ 11,900.00	\$ 74,290.00
550-07950	7	PT LT 13	15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$	-	\$ -	\$ 4,970.00	\$ 4,970.00
550-20025	7	PT LT 12	1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$	-	\$ 1,165.00	\$ 590.00	\$ 1,755.00
550-20023	7	PT LT 12	1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$	-	\$ -	\$ 380.00	\$ 380.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
550-20022	7	PT LT 12	1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ -	\$ 350.00	\$ 350.00
550-20021	7	PT LT 12	1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ -	\$ 350.00	\$ 350.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 775.00	\$ 1,720.00	\$ 570.00	\$ 3,065.00
550-18900	7	N PT LT 12	2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00309	7	PT LT 12	1.08	0.44	1.08	0.44	Filippo Liburdi	\$ -	\$ -	\$ 430.00	\$ 430.00
550-00308	7	PT LT 12	1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00307	7	PT LT 12	1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00306	7	PT LT 12	1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00305	7	PT LT 12	1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00304	7	PT LT 12	0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ -	\$ 395.00	\$ 395.00
550-07975	7	PT LT 12 & 13	2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ -	\$ 1,520.00	\$ 1,520.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ 3,590.00	\$ 1,505.00	\$ 16,955.00
Total on Privately Owned Non-Agricultural Lands-----								\$ 137,790.00	\$ 63,630.00	\$ 80,350.00	\$ 281,770.00
TOTAL ASSESSMENT -----								\$ 157,595.00	\$ 66,865.00	\$ 86,145.00	\$ 310,605.00
Total Area Assessed								143.01 acres			
								57.83 hectares			

**SPECIAL BENEFIT ASSESSMENTS
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017

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MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Road Crossings	Total Assessment
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ -	\$ 19,805.00	\$ 19,805.00
Total on Municipal Lands						\$ -	\$ 19,805.00	\$ 19,805.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

Roll No.	Con	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Excavation	Total Assessment
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 18,740.00	\$ -	\$ 18,740.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 26,180.00	\$ -	\$ 26,180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 17,790.00	\$ -	\$ 17,790.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 22,825.00	\$ -	\$ 22,825.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ -	\$ 775.00	\$ 775.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$ 39,620.00	\$ -	\$ 39,620.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ -	\$ 11,860.00
Total on Privately Owned Non-Agricultural Lands								\$ 137,015.00	\$ 775.00	\$ 137,790.00
TOTAL ASSESSMENT								\$ 137,015.00	\$ 20,580.00	\$ 157,595.00



**MAINTENANCE SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
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COUNTY LANDS:

Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ 5.00	\$ 5.00
Total on Municipal Lands						\$ -	\$ 5.00	\$ 5.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ 85.00	\$ 50.00	\$ 135.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ 40.00	\$ 40.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 140.00	\$ 60.00	\$ 200.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
DeIDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ 50.00	\$ 50.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ 70.00	\$ 25.00	\$ 95.00
Total on Municipal Lands						\$ 295.00	\$ 245.00	\$ 540.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
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Roll No.	Con.	Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$ 155.00	\$ 100.00	\$ 255.00
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$ 305.00	\$ 195.00	\$ 500.00
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$ 105.00	\$ 65.00	\$ 170.00
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$ 195.00	\$ 120.00	\$ 315.00
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$ 205.00	\$ 120.00	\$ 325.00
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$ 50.00	\$ 25.00	\$ 75.00
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$ 145.00	\$ 80.00	\$ 225.00
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$ 35.00	\$ 20.00	\$ 55.00
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$ 45.00	\$ 25.00	\$ 70.00
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corp	\$ 85.00	\$ 45.00	\$ 130.00
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$ 85.00	\$ 45.00	\$ 130.00
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$ 850.00	\$ 455.00	\$ 1,305.00
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 90.00	\$ 45.00	\$ 135.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 155.00	\$ 70.00	\$ 225.00
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$ -	\$ 35.00	\$ 35.00
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$ -	\$ 35.00	\$ 35.00
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$ -	\$ 35.00	\$ 35.00
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$ -	\$ 20.00	\$ 20.00
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$ -	\$ 30.00	\$ 30.00
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$ -	\$ 55.00	\$ 55.00
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$ -	\$ 60.00	\$ 60.00
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$ -	\$ 60.00	\$ 60.00
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$ 265.00	\$ 110.00	\$ 375.00
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$ -	\$ 40.00	\$ 40.00
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$ 70.00	\$ 25.00	\$ 95.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$2,045.00	\$ 775.00	\$ 2,820.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-07950	7 PT LT 13		15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$ -	\$ 310.00	\$ 310.00
550-20025	7 PT LT 12		1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$ 105.00	\$ 40.00	\$ 145.00
550-20023	7 PT LT 12		1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20022	7 PT LT 12		1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20021	7 PT LT 12		1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ 25.00	\$ 25.00
550-18800	7 S PT LT 13		2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 155.00	\$ 50.00	\$ 205.00
550-18900	7 N PT LT 12		2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ 40.00	\$ 40.00
550-00309	7 PT LT 12		1.08	0.44	1.08	0.44	Filippo Liburdi Construction	\$ -	\$ 30.00	\$ 30.00
550-00308	7 PT LT 12		1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00307	7 PT LT 12		1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ 30.00	\$ 30.00
550-00306	7 PT LT 12		1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00305	7 PT LT 12		1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ 30.00	\$ 30.00
550-00304	7 PT LT 12		0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ 25.00	\$ 25.00
550-07975	7 PT LT 12 & 13		2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ 110.00	\$ 110.00
590-01000	7 PT LT 10-12		---	---	5.16	2.09	Detroit River Tunnel Company	\$ 320.00	\$ 110.00	\$ 430.00
Total on Privately Owned Non-Agricultural Lands-----								\$5,705.00	\$ 3,750.00	\$ 9,455.00
TOTAL ASSESSMENT -----								\$6,000.00	\$ 4,000.00	\$ 10,000.00

Total Area Assessed 143.01 acres
 57.83 hectares



SPECIFICATIONS
REPLACEMENT ACCESS CULVERTS
OVER THE 7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 PIPE MATERIAL

The Contractor shall supply and install or clean the following:

Access Culverts and Crossings:

- a. Culvert No. 8 at Station 1+379: 16.0 metres of 1800mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25mm corrugations and sloped gabion stone end of pipe protection;
- b. Culvert No. 9 at Station 1+544: 20.0 metres of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection;
- c. Culvert No. 3 at Station 1+854: 22.0 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations and concrete block headwalls;
- d. Culvert No. 4 at Station 1+909: 12.5 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- e. Culvert No. 5 at Station 1+957: 11.8 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- f. Culvert No. 6 at Station 2+034: 12.2 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- g. Culvert No. 7 at Station 2+054: 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls.

Existing enclosed pipe network to be cleaned:

- a. Station 2+386.6 to Station 2+848.8: Clean existing 450mm to 825mm diameter corrugated steel pipes including all inline manholes and catch basins.

2.0 WORKING AREA

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

3.0 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall dispose of excavated material as described below:

The Contractor shall spread and level excavate adjacent to the drain to a maximum depth of 300mm between:

Station 1+321 and Station 1+750
Station 2+054 and Station 2+386.6

The Contractor shall load, haul, spread and level excavate on lands adjacent to Station 1+404 and Station 1+750 and Station 2+069 and Station 2+386.61 between:

Station 1+750 and Station 1+825
Station 1+825 and Station 2+054.

4.0 LOCATION AND ELEVATION OF CULVERT

The location and elevations of the new culvert shall be according to the drawings, 14-105 Sheet 1 to Sheet 7.

5.0 PLACEMENT OF CULVERT

- a) The Contractor shall excavate all vegetation, topsoil and existing granular material from the bank slopes and bottom of the existing drain complete along with hauling materials off site.

The required work includes:

- i. The supply and installation of new pipe as described in Section 1.0 Pipe Material;
- b) The Contractor shall perform the excavation, placement of the pipe and backfill in a dry condition and shall provide all required pumps and/or equipment to enable the work to proceed in the dry.
- c) Supply and place sloped gabion stone end of pipe protection or concrete block headwalls, as required.

6.0 PIPE BACKFILL

After the pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec 1010 according to the attached plan. The backfill material shall be carefully placed so damage to or movement of the culvert is avoided and backfill materials shall be placed in layers not exceeding 300 mm in thickness, loose measurement. Each layer shall be thoroughly compacted in place to a Standard Proctor Density of 98% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Commissioner in charge.

7.0 QUARRIED ROCK END PROTECTION

Where specified and after the corrugated plastic pipe has been set and backfilled the Contractor shall install quarried rock erosion protection at each end of the pipe.

The backfill over the ends of the corrugated plastic pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope and between both side slopes.

7.0 QUARRIED ROCK END PROTECTION - Continued

The top 300 mm in thickness of the backfill over the ends of the corrugated plastic pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric. The geotextile filter fabric and quarried rock shall be placed to the complete satisfaction of the Municipality's Drainage Superintendent.

7.0 CONCRETE BLOCK HEADWALLS

Where specified and after the Contractor has set in place the new culvert, he shall completely backfill the same and install new concrete block headwalls at the locations indicated on the drawing. The Contractor shall completely backfill in behind the new concrete block headwalls with granular material, Granular "A" and "B" per O.P.S.S. 1010 and as additionally specified under Special Provisions Item No. 11.0 and the granular material shall be compacted in place with a standard proctor density of 100%. The granular backfill shall be placed and compacted in lifts not to exceed 300 mm (12 inches) in thickness.

Upon completion of the concrete block headwall the Contractor shall cap the top row of concrete blocks with a prefabricated concrete cap. The Contractor shall fill all voids between the concrete blocks and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

8.0 ALIGNMENT

The alignment of the enclosure throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge.

9.0 LOCATION OF STRUCTURES, ETC.

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object that he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Town and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Town or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

Numerous catchbasins were noted in the front portion of numerous properties along the length of the drain. The Contractor shall take care to not damage any catchbasin or connection into the drain. Should a catchbasin or connection be damaged, it shall be replaced by the Contractor at his cost.

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD- Continued

have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

11.0 CONSTRUCTION SAFETY

The Contractor shall comply with all the requirements of the Occupational Health and Safety Act, 1990 and the regulations passed in connection therewith, as administered by the Ontario Ministry of Labour and all subsequent amendments of the said Act.

The Contractor shall exercise all possible precaution against injury to persons or property resulting from his work. The Contractor shall leave no trenches, pits, holes or excavations uncovered, without providing sufficient protection at all times. The Contractor shall install, erect and provide barricades, signs, traffic cones, flashers, lights, plates, warning and other devices, materials and personnel as may be required and at his own expense in order to provide for the safe passage and control of traffic and to ensure public safety. All traffic control shall be in accordance with the latest standards of the Ministry of Transportation.

12.0 CERTIFICATE OF CLEARANCE

The Contractor will be required to submit to the Municipality a Certificate of Good Standing from the Workplace Safety & Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Municipality, a Certificate of Clearance for the project from the Workplace Safety & Insurance Board before final payment is made to the Contractor.

13.0 PROGRESS ORDERS

Monthly progress orders for payment shall be furnished to the Contractor by the Commissioner in charge; said orders shall not be for more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 45 days after the final acceptance and completion of the work.

14.0 CLEANING UP

The Contractor shall leave the whole of the site of the work in a neat, thorough and workmanlike appearance to the full satisfaction of the Commissioner. He shall haul away any excess earth from the site. He shall haul to the site, sufficient earth to fill any depressions caused by his work at his own expense. The site shall be left as close as possible in the same condition as it was prior to the commencement of the work.

15.0 MEASUREMENT AND PAYMENT

Payment for the work shall be on a unit price basis unless otherwise indicated and shall include all the work shown on the accompanying drawings and specifications.

16.0 MAINTAINING FLOW

The Contractor shall maintain the flow of any drainage works encountered in the progress of the work and at no expense to the Owner. The Contractor shall obtain written approval from the Commissioner in charge to stop up any drain and if necessary provide pumping equipment, build necessary by-passes, etc. at no expense to the Owner.

17.0 COMMISSIONER

Where the work "Commissioner" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction, to superintend the work.

The Commissioner will be permitted to make minor variations in the work so long as these variations will result in a more satisfactory project or a more economical one. These variations, however, must not be such as to change the intent of the work performed nor are they to reduce the standard of quality.

18.0 NOTIFICATION OF WORK

Prior to commencing any work of installing the extension of the culvert or removing any existing structures, the Contractor shall inform the Municipality's Drainage Superintendent of his intent to commence work at least 48 hours prior to commencing any work. The Owner or Contractor shall endeavour to install and complete the new structure without delay once he has commenced the work. If for any reason the work does not proceed continuously then the Owner or Contractor shall notify the Drainage Superintendent in advance of any backfilling operation or headwall construction so that he may schedule inspection of same. The completed work must be done to the satisfaction of the Municipality's Drainage Superintendent and be approved by him.

19.0 MAINTENANCE

The Contractor shall repair and make good at his expense any damages or faults in the work that may appear within one year after its completion (as evidenced by the final inspection report), as the result of imperfect or defective work done or materials furnished. Nothing herein contained shall be construed as any way restricting or limiting the liability of the Contractor under the appropriate laws under which the work is being done.

20.0 PROPERTY BARS

The Contractor shall note the presence of numerous iron property bars along the course of the work. The Contractor shall make every effort to protect all property bars. The cost of replacing any property bar destroyed by the Contractor will be paid by the Contractor.

21.0 PROVISIONAL ITEMS

Items of work included in the Form of Tender noted as "Provisional" may be deleted from the Contract at any time at the discretion of the Owner. If any Provisional Item, or part thereof, is deleted from the requirements of the Contract, the Contractor will have no claim against the Owner for so doing and the Contractor must take this requirement into consideration when determining his unit prices and his Total Tender Price.

Provisional prices tendered shall be in effect until issuance of the final payment certificate.

SPECIFICATIONS
ENVIRONMENTAL PROTECTION SPECIAL PROVISIONS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 GENERAL

These Environmental Protection Special Provisions shall apply and form part of this Contract. All costs associated to conforming with these Special Provisions shall be included in the Tender prices bid.

2.0 FIRES

Fires and burning of rubbish on site will be permitted only with special approval from the Municipality.

3.0 DISPOSAL OF WASTES

The Contractor shall not bury rubbish and waste materials on site unless approved by the Engineer and all applicable approving authorities. The site shall be maintained free of accumulated waste and rubbish. All waste materials should be disposed of in a legal manner at a site approved by all local approving authorities and the Engineer.

The Contractor shall not allow deleterious substances, waste or volatile materials such as mineral spirits, or paint thinner, to enter into waterways, storm or sanitary sewers.

The disposal of dredge material where applicable shall be in accordance with the above.

4.0 POLLUTION CONTROL

The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed. The Contractor shall control emissions from equipment and plant to local authorities emission requirements. The Contractor shall not cause excessive turbidity when performing in-water work. The Contractor shall not allow any debris, fill or other foreign matter to enter into the waterway. The Contractor shall remove from the waterway, all extraneous materials resulting from in-water work.

The Contractor shall abide by local noise By-Laws for the duration of the Contract.

Spills of deleterious substances into waterways and on land shall be immediately contained by the Contractor and the Contractor shall cleanup in accordance with Provincial regulatory requirements. All spills shall be reported to the Ontario Spills Action Centre (1-800-268-6060), local authorities having jurisdiction and the Engineer. To reduce the risk of fuel entering the waterway, refuelling of machinery must take place a safe distance from the waterway. The Contractor shall note that the Engineer or the Owner takes no responsibility for spills, this shall be the sole responsibility of the Contractor.

5.0 WHMIS

The Contractor shall comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and regarding labelling and the provision of material safety data sheets acceptable to Labour Canada.

6.0 DRAINAGE

The Contractor shall not pump water containing suspended materials into waterways, sewers or drainage systems. The Contractor shall be solely responsible for the control, disposal or runoff of water containing suspended materials or other harmful substances in accordance with these specifications, and local authority requirements. The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and site free from water.

The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

7.0 PROTECTION OF VEGETATION

The Contractor shall exercise the utmost caution to ensure that existing trees and plants on-site and on adjacent properties are not damaged or disturbed unless noted otherwise in the Removals Special Provisions of this Contract. The Contractor shall restrict tree removal to areas indicated on the Contract Drawings and/or designated on-site. No trees or shrubs shall be removed without the approval of the Engineer and/or Drainage Superintendent. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

8.0 DUST CONTROL

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.

Water and calcium chloride shall be applied to areas on or adjacent to the site as authorized by the Engineer as being necessary and unavoidable for the prevention of dust nuisance or hazard to the public. No payment will be made for dust control unless otherwise specified in the Special Provisions.

9.0 RESTRICTIONS FOR IN-WATER WORKS

The Contractor shall only perform in-water works during times when conditions permit reasonable production rates to be achieved. The Contractor shall be required to adopt good housekeeping practices that minimize disturbance to the site and the adjacent waterway.

The Contractor shall note that this Project is subject to approval from the Essex Region Conservation Authority and as such, any possible turbidity caused by the construction of the shore protection works is of key importance.

The Contractor shall minimize the turbidity (sedimentation) produced by any in-water works construction or operations. The Contractor will be ordered to cease operations if, in the opinion of the Engineer or authorities having jurisdiction, the in-water work is producing unacceptable amounts of turbidity in the waterway. Based on this, the Contractor shall either adjust his operation(s) to produce lower turbidity levels, wait for more favourable conditions before

9.0 RESTRICTIONS FOR IN-WATER WORKS - Continued

operations will be allowed to continue, or undertake approved mitigating measures (e.g. sediment control, etc.). All costs associated with the above will be the sole responsibility of the Contractor, and no claims for extras or delays will be considered.

10.0 FISH HABITAT

No work shall be undertaken when there is likelihood of adverse effects on fish spawning or fish habitat in downstream waters.

GENERAL SPECIFICATIONS
FOR CONSTRUCTION OF OPEN DRAINS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Each tenderer must visit the site and review the plans and specifications before submitting his tender and must satisfy himself as to the extent of the work and local conditions to be met during the construction period. He is not to claim at any time after submission of his tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions. The quantities shown as indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking quantities for accuracy prior to submitting his tender.

2.0 SUPPLY OF MATERIALS

The Contractor shall supply all labour, equipment and materials necessary for the proper completion of the project.

3.0 PROFILE

The excavation of the drain must be at least to the depth intended by the grade line as shown on the profile, which grade line is governed by the bench marks. The profile shows, for the convenience of the Contractors and others, the approximate depth of cut from the surface of the ground at the points where the numbered stakes are set to the final invert of the channel and also the approximate depth of cut from the bottom of the existing channel to the final invert of the channel. Bench marks which have been established along the course of the drain, shall govern the final elevation of the drain. The location and elevation of the bench marks are shown on the profile.

4.0 ALIGNMENT

The alignment of the drain throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge. The bottom widths and side slopes of the various sections of the finished drain are to be true to line and grade as shown on the profile. When completed the drain shall have a uniform and even bottom and in no case shall such bottom project above the grade line as shown on the accompanying drawing, and as determined from the bench mark.

5.0 BRUSHING AND GRUBBING

Brush or rubbish shall be grubbed out and close cut on the bank of the working side of the drain including the strip of land between where the earth is to be cast and spread and the top of the drain. The brush or rubbish shall be loaded, hauled and disposed of offsite at a location determined by the Contractor and at his expense. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

5.0 BRUSHING AND GRUBBING - Continued

Existing select hardwood trees greater than 200 mm (8") in diameter situated in the drain bank within 1.0 metre from the top of the bank may be selectively left standing if the Drainage Superintendent considers the trees will not adversely affect the flow of water within the drain. Prior to removing any trees the Contractor shall meet at the site with the Drainage Superintendent to review if any vegetation or select trees are environmentally significant for preservation.

6.0 DISPOSAL OF MATERIAL

The Contractor shall dispose of excavated material as follows: All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense.

7.0 SPREADING EXCAVATED EARTH

All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense. No material shall be cast and spread on the adjacent industrial lands.

7.0 FENCING

Where it is necessary to take down any fence in order to proceed with the work, the same shall be done by the Contractor across or along that portion of the work where such fence is. The Contractor will be required to exercise extreme care in the removal of any fence so as to cause a minimum of damage to the same. The Contractor will be required to replace any fence that is taken down in order to proceed with the work and the fence shall be replaced in a neat and workmanlike manner. The Contractor will not be required to procure any new materials for rebuilding the fence provided he has used reasonable care in the removing and replacing of the same. Where any fence is removed by the Contractor and the Owner thereof deems it advisable and procures new material for replacing the fence so removed, the Contractor shall replace the fence using the new materials and the materials from the present fence shall remain the property of the Owner. The Contractor is not to leave any fences open when he is not at work in the immediate vicinity.

8.0 LOCATION OF STRUCTURES AND UTILITIES

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object which he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Municipality and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Municipality or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

9.0 ACCESS CULVERTS AND CROSSINGS

Culverts and crossings shall be cleaned or removed and replaced as described as follows:

Between Station 2+386.6 and Station 2+848.8: All pipes and structures shall be cleaned; all excess material shall be disposed of offsite at a location determined by the contractor at his expense.

Culvert No. 8 at Station 1+379: Culvert shall be removed and replaced as described in

9.0 ACCESS CULVERTS AND CROSSINGS - Continued

Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 9 at Station 1+544: Culvert shall be constructed as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 3 at Station 1+854: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 4 at Station 1+909: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 5 at Station 1+957: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 6 at Station 2+034: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 7 at Station 2+054: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

10.0 BACKFILL FOR CULVERTS

Where specified and after the corrugated plastic pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec. 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Drainage Superintendent or Engineer.

11.0 ROCK PROTECTION FOR CULVERTS

The backfill over the ends of the pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope and between both side slopes. The top 30 cm in thickness of the backfill over the ends of the pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric.

12.0 PLACING OF CULVERT PIPE

When specified the Contractor shall install all culvert bridges in the location directed by the Engineer. The excavation for placing the culvert, the type and class of bedding and backfill and culvert end treatment shall be carried out to the width, depth and alignment as specified herein. The surface on which the culvert is to be laid shall be true to grade and alignment and shaped to accept the materials to be placed. The pipe shall be laid to the alignment and grade shown in the report but may not be placed on a bed containing frozen materials. The Contractor shall carefully place the bedding and backfill material so damage to or movement of the pipe is avoided. Backfill and cover materials shall be placed in layers not exceeding 250 mm in thickness, loose measurement. Each layer shall be thoroughly compacted before the next layer is placed. Backfill on each side of the pipe shall be placed simultaneously and at no time shall the levels on each side of the pipe differ by more than 250 mm. Where native backfill is approved to be used the material shall not contain boulders larger than 150 mm or other deleterious material. The Contractor will be required to fully restore all paved driveways with materials of similar type and depths. The Contractor shall neatly saw cut all paved driveways at a distance of 300 mm beyond the edge of the excavated trench and this shall be done immediately prior to final restoration of the paved driveway.

When an access culvert or bridge does not have to be lowered or replaced, the Contractor shall clean it to its full cross sectional area using care to avoid causing damage to it in the process. Where a pipe culvert is to be reset to a new grade, the Contractor shall carefully remove it, clean it to its full cross sectional area and replace it in the drain as specified herein. Where a culvert is to be replaced, the Contractor shall carefully remove the existing pipe from the drain, clean it to its full cross sectional area and leave it on the drain bank unless otherwise specified. Should either the property owner or the Commissioner in charge not require the salvaged pipe then the Contractor shall dispose of the pipe at the Contractors expense.

The Contractor if using a batter board system for establishing the grade of the culvert pipe, shall utilize a minimum of three batter board stakes for each culvert. The Contractor shall ensure that the batter board stakes placed on the grade stakes shall line up, this being done prior to any excavation taking place for the proposed culvert.

Where pipes are scheduled to be moved or replaced the Contractor shall confirm the new location of the culvert pipe with the owner prior to installation. Where the Contractor has excavated a culvert pipe which has been scheduled to be cleaned and reinstalled and it is found that the condition of the existing culvert pipe is not satisfactory to be reused, the Contractor shall immediately notify the Commissioner in charge who will verify the condition of the existing pipe and may instruct the Contractor to supply a new length of corrugated plastic pipe.

Where pipes are scheduled to be cleaned and flushed only, the material which is removed from the culvert pipe is to be loaded and hauled away. Over digging of the drain at the downstream end of the culvert to accommodate material flushed from a culvert pipe will not be allowed.

13.0 CUTS

The cuts as shown on the accompanying drawing are to be taken from the ground beside the stakes to the bottom of the finished drain, unless otherwise noted on the drawing.

14.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

15.0 SEEDING AND MULCHING

The Contractor will be fully responsible for the restoration of all areas disturbed by his operations in the carrying out this work. The Contractor shall excavated and set aside sufficient topsoil from the trench excavation or supply additional topsoil so that he can place a minimum of 100mm in depth of topsoil over the backfilled trench as detailed on the drawings. Any depressions in any lawn caused by equipment or due to the movement of materials shall be backfilled with topsoil and satisfactorily levelled and raked in place on all lawn areas to be restored.

The Contractor shall fine grade the finished surfaces and shall apply hydroseeding and mulch. The seeding and mulching operation shall be carried out according to O.P.S.S. Spec. 572 or as amended herein and the operation shall include the supplying and placing of the following:

- | | | | |
|----|--------------|--|-------|
| A) | Seed Mixture | - Creeping Red Fescue | - 50% |
| | | - Red Top | - 20% |
| | | - Canada Blue Grass | - 15% |
| | | - Kentucky Blue Grass | - 15% |
| B) | Nurse Crop | - Oats if seeding and mulching is performed during May or June. | |
| | | - Annual Rye Grass if seeding and mulching is performed during Sept. or Oct. | |
| C) | Fertilizer | - 5-20-10 mixture | |
| D) | Mulch | - Wood Cellulose Fibre or Straw | |
| E) | Adhesive | - Asphalt Emulsion if straw mulch used | |
| | | - Liquid Polyvinyl Acetate if wood fibre mulch used | |

The application rates shall be as follows:

- A) Grass Seed Mixture - 90 lbs./acre
- B) Fertilizer - 350 lbs./acre
- C) Nurse Crop Seed - 55 lbs./acre
- D) Mulch - 1300 lbs./acre if wood fibre used
- 1" to 2" depth if straw used
- E) Adhesive - 200 imp.gal/acre for Asphalt Emulsion
- 205 lbs./acre for Liquid Polyvinyl Acetate

The seeding and mulching operation shall be only carried out as weather conditions permit during the months of May and June in the Spring, and September and October in the Fall. If the excavation work is carried out during the months of May and June, or September or October, the Contractor has the option of contacting the Drainage Superintendent and if the Contractor receives his written permission, the seed mixture as above specified, may be placed on the excavated side slopes by the Contractor by hand, daily, at the completion of his daily excavation operation. If the Contractor has been given written permission by the Drainage Superintendent

15.0 SEEDING AND MULCHING - Continued

to place the seeding mixture by hand daily, at the completion of his daily excavation operation, the Contractor shall be responsible to give the side slopes a rough, harrowed texture prior to placing the seed mixture.

16.0 QUARRIED ROCK

The Contractor shall place quarried rock protection at the areas indicated on the accompanying plans or as directed by the Engineer. The quarried rock shall be graded in size from a minimum size of 100 mm to a maximum size of 230 mm. The quarried rock shall be placed 300 mm in thickness on a layer of geotextile filter fabric placed on the bottom of the excavation. The filter fabric shall be "Terrafix 270-R" or equal. The Contractor shall excavate for the quarried rock so that the top of the completed quarried rock protection is level with the adjacent ground.

The Contractor shall remove all trees, brush and debris from the area on which the quarried rock is to be placed. The quarried rock shall be carefully placed by the Contractor at the locations and to the dimensions as shown on the accompanying specifications. The specified filter cloth shall be hand laid and have an overlap of 600 mm and all quarried rock that is to be placed over the filter cloth shall be carefully hand or machine placed so that it does not damage the filter cloth. The filter cloth shall extend up the sides of the trench excavated to accept the quarried rock and the quarried rock shall extend 300 mm above the top of the surface inlet pipe where applicable.

17.0 MAINTAINING FLOW AND EXISTING SEWERS

The Contractor shall support and maintain the flow and existing sewers and house connections and any other drainage works encountered in the progress of the work and at no expense to the owner. The Contractor shall obtain written approval from the engineer to stop up any drain, and if necessary, provide pumping equipment, build necessary by-passes, etc. at no expense to the owner.

18.0 SPECIAL PROVISIONS

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

19.0 REMOVAL OF TREES

The Contractor shall reference General Specification No. 5 prior to removing any vegetation near or within the drain. Whenever practical, existing trees not scheduled for removal will be preserved. The Contractor shall exercise the utmost caution to ensure that the trees are not damaged or disturbed. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

20.0 HIGH-PRESSURE GAS MAIN

Further to Section 8.0 Location of Structures and Utilities, a high-pressure gas main is aligned parallel to the south side of the former railway right-of-way. There is sufficient depth of cover; however, third party observation by a Union Gas representative will be required during construction when digging within 1.5 metres of the utility due to the size and pressure of the

20.0 HIGH-PRESSURE GAS MAIN - Continued

main. The Contractor shall provide notice three business days prior to the start of excavation at 1-855-228-6535.

Should abandoned infrastructure be found within the working area, the following shall be noted and performed:

- Assume any excavated pipe is live;
- If during the course of any project, a pipe is found that is not on the locate sheet and is in conflict with the work, the Contractor shall call the Union Gas emergency number (1-877-969-0999) to speak with a Union Gas representative to determine if the utility is live or dead;
- A Union Gas representative will respond to the live or dead call within 1-4 hours so the Contractor must plan accordingly.

ATTENTION:

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, REVISED STATUTES OF ONTARIO, 1990 CHAPTER 0.1 AS AMENDED, ONTARIO REGULATION 213/91, R.R.O. 1990 REG. 834 AS ADMINISTERED BY THE ONTARIO MINISTRY OF LABOUR AND ALL SUBSEQUENT AMENDMENTS OF SAID ACT.

CAUTION:

THE LOCATION OF THE UNDERGROUND UTILITIES AS SHOWN ON THE DRAWING ARE APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES DURING THE CONSTRUCTION OF THE PROJECT. THE CONTRACTOR AGREES TO INDEMNIFY THE OWNER AND CROZIER BAIRD ENGINEERS AGAINST ANY CLAIMS WHICH ARISE FROM HIS ACTIONS.

SHEET SET INDEX:

SHEET NO.	SHEET TITLE
1	TITLE PAGE
2	DRAINAGE AREA
3	PROFILE 1+146 TO 1+900
4	PROFILE 1+900 TO 2+656
5	PROFILE 2+656 TO 2+848
6	CROSS SECTIONS
7	CROSS SECTIONS

NOTE:

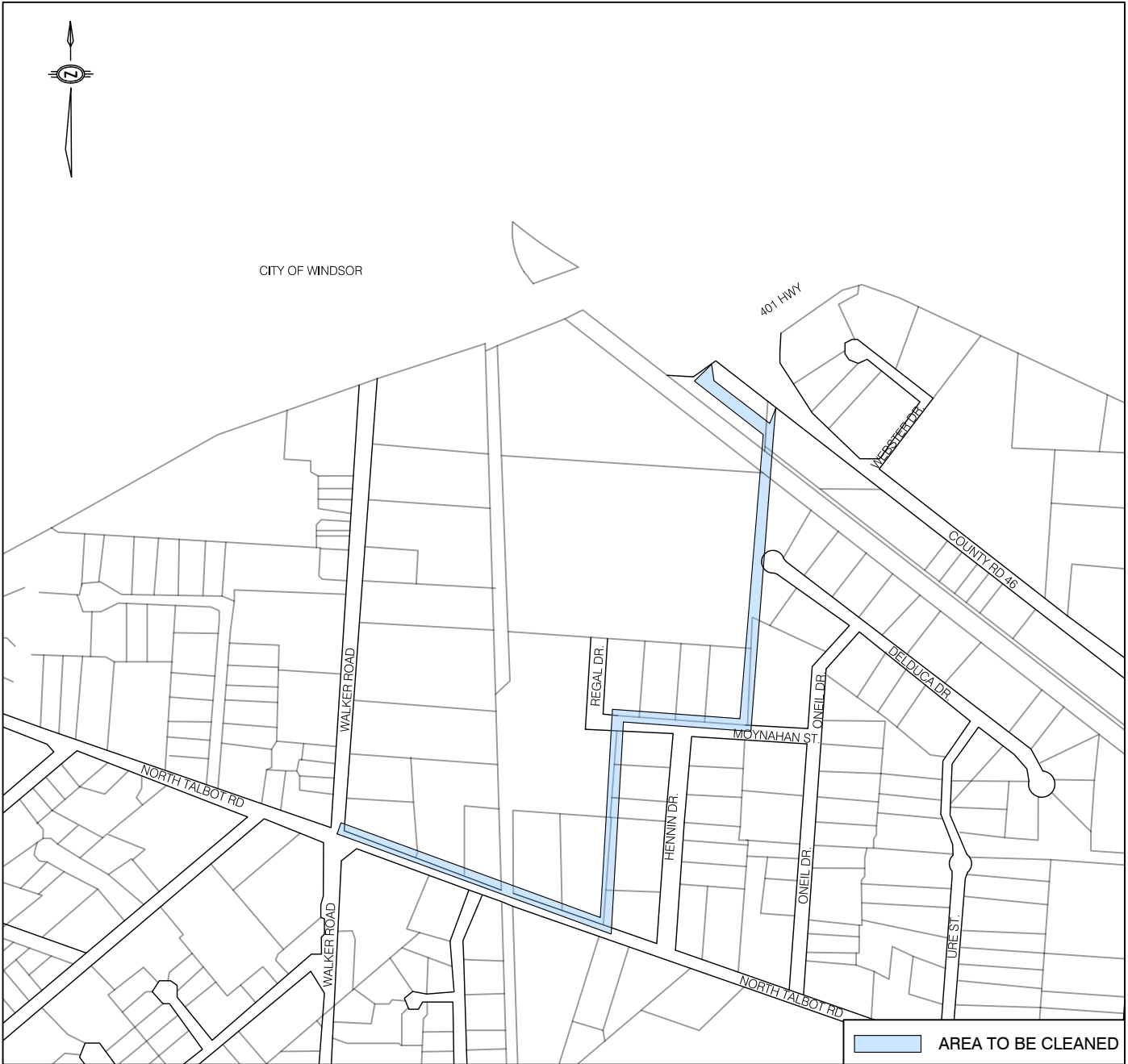
THE PROPERTY LINES AND DIMENSIONS SHOWN ARE BASED ON SURVEY BARS FOUND ON THE SITE AND ARE NOT BASED ON A SURVEY DRAWING PRODUCED BY AN ONTARIO LAND SURVEYOR. THE PROPERTY LINES SHOULD BE CONSIDERED AS APPROXIMATELY ONLY AND NOT A LEGAL PLAN OF SURVEY

NOTE:

CONFIRM PRESENCE OF BURIED PIPELINE PARALLEL TO NORTH RAIL BURIED 4-5' DEEP

BENCHMARK

- No. 1 STA: 2+714: TOP NUT OF FIRE HYDRANT EAST OF WALKER ROAD AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.665 METRES.
- No. 2 STA: 2+463: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.740 METRES.
- No. 3 STA: 2+485: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.967 METRES.
- No. 5 STA: 2+065: TOP NUT OF FIRE HYDRANT WEST OF MOYNAHAN ST. AND HENININ DR.
GPS ELEVATION 191.466 METRES.
- No. 6 STA: 1+563 TOP NUT OF FIRE HYDRANT NEAR THE WEST END OF DELDUCA DR.
GPS ELEVATION 191.117 METRES.



KEY PLAN
SCALE: N.T.S



27 PRINCESS STREET, SUITE #102
LEAMINGTON, ONTARIO
N8H 2X8

1000 - 267 PELISSIER STREET,
WINDSOR, ONTARIO
N9A 4K4.

PROJECT TITLE:


REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN

TOWN OF TECUMSEH

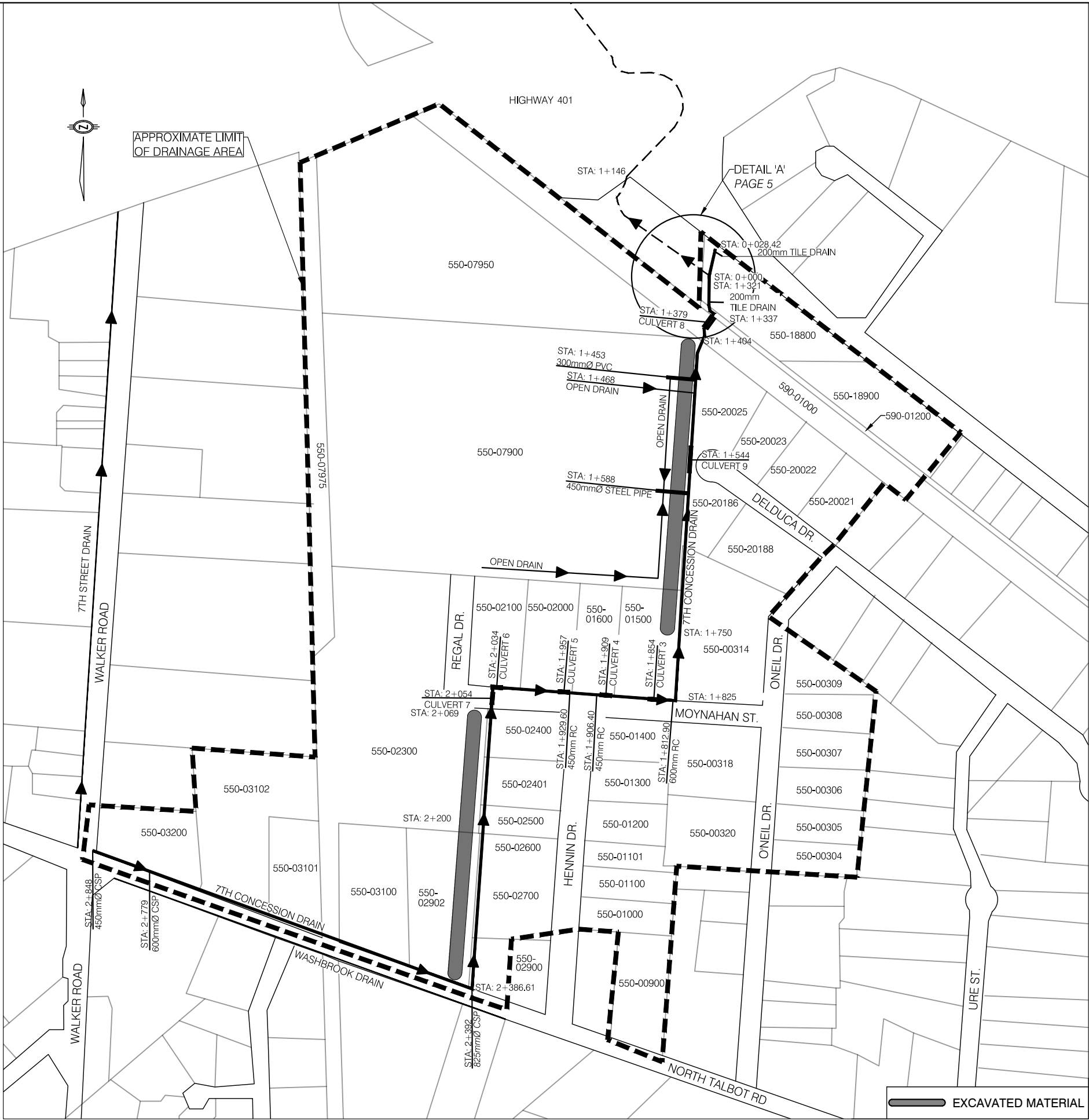
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TITLE PAGE




DON J. JOUDREY, P.ENG.

DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
CHKD BY: D.A.J./H.P.P.	SHEET No. : 1 OF 8	PROJECT No. : 14-105

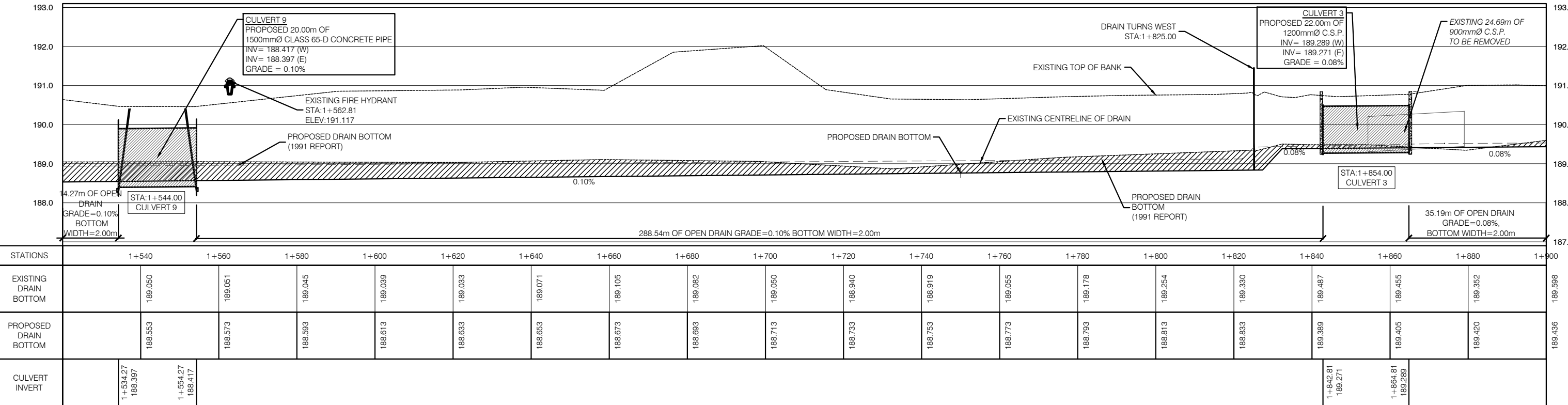


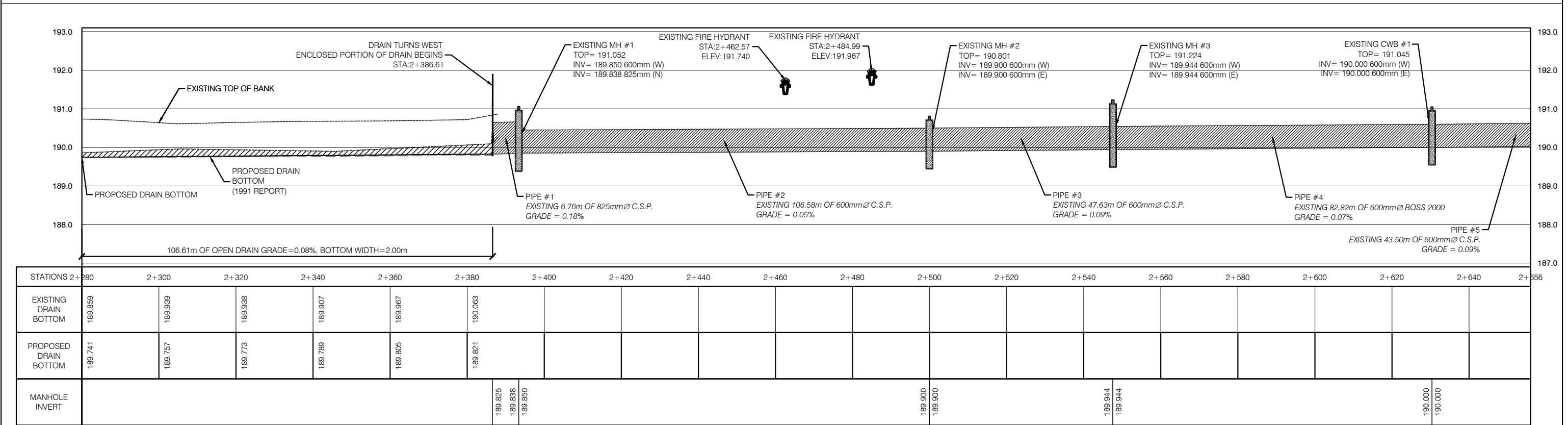
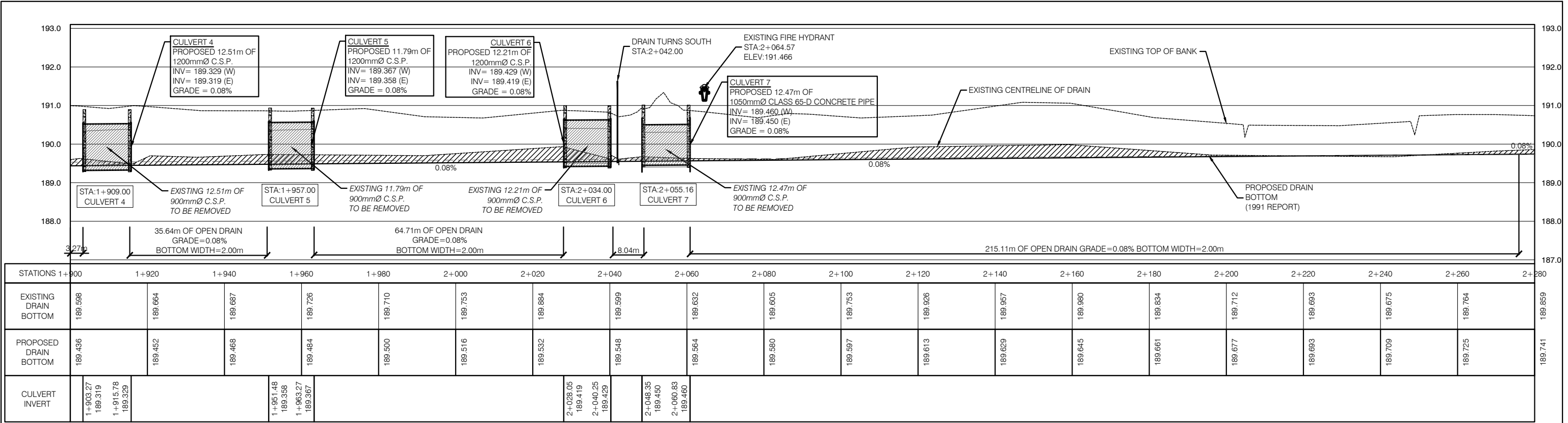
DRAINAGE AREA PLAN
SCALE: N.T.S.

Roll No.	Owner
550-00304	Greycliffe Consultants
550-00305	KBC Tools Inc.
550-00306	997103 Ontario Ltd.
550-00307	Linda Jahn and Cheryl Jahn
550-00308	KFJ Holdings Ltd.
550-00309	Filippo Liburdi
550-00314	Hero's Fountain Ltd.
550-00318	Linda Jahn and Cheryl Jahn
550-00320	Timothy Capital Corp.
550-00900	Generation Development Contractors Inc.
550-01000	Fraven Management Ltd.
550-01100	TJ Watson Land Development Inc.
550-01101	Peter Macera
550-01200	Sernacon Holdings Inc.
550-01300	1061175 Ontario Ltd.
550-01400	Electra-Tech Manufacturing Inc.
550-01500	SGM Real Estate Holdings ULC
550-01600	Adine Builders Ltd.
550-02000	Gail Rodzik and Pamela Rodzik
550-02100	Gail Rodzik and Pamela Rodzik
550-02300	1147048 Ontario Ltd.
550-02400	Grande Line Estates Ltd.
550-02401	T.C.T.T. Investment Group
550-02500	ARC Boiler Repair Ltd.
550-02600	Fraven Management Ltd.
550-02700	Fraven Management Ltd.
550-02900	Bolzano Tool and Die Company Ltd.
550-02902	Morbella Holdings Ltd.
550-03100	Daniela Calsavara
550-03101	Generation Development Contractors Inc.
550-03102	ITW Canada Management Company
550-03200	Morton Wholesale Ltd. (Corporation)
550-07900	Wannabe Radical Inc.
550-07950	Wannabe Radical Inc.
550-07975	1233831 Ontario Ltd.
550-18800	905364 Ontario Ltd.
550-18900	401 Mack Ltd.
550-20021	Calframax Holdings Inc.
550-20022	Paul Cesidio DiGiovanni
550-20023	Paul Cesidio DiGiovanni
550-20025	Paul Cesidio DiGiovanni
550-20186	2376238 Ontario Ltd.
550-20188	Hero's Fountain Ltd.
590-01000	Detroit River Tunnel Company
590-01200	Town of Tecumseh

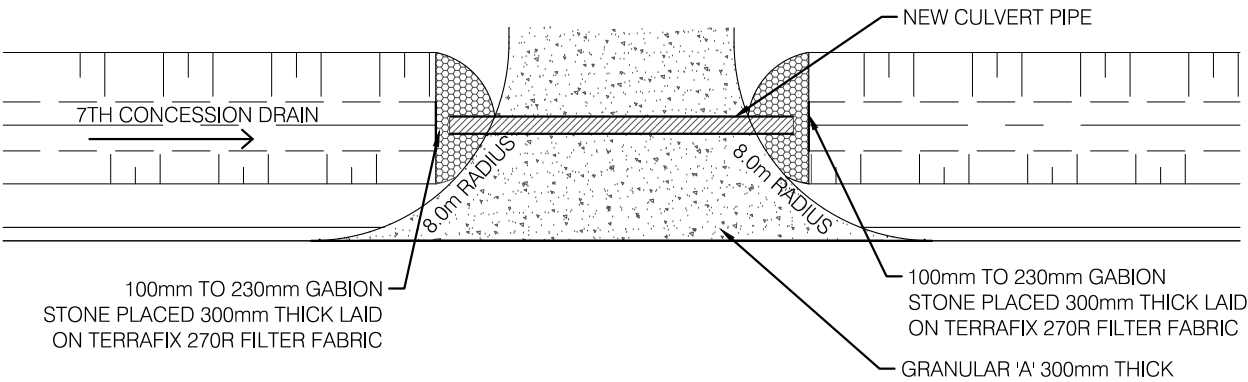
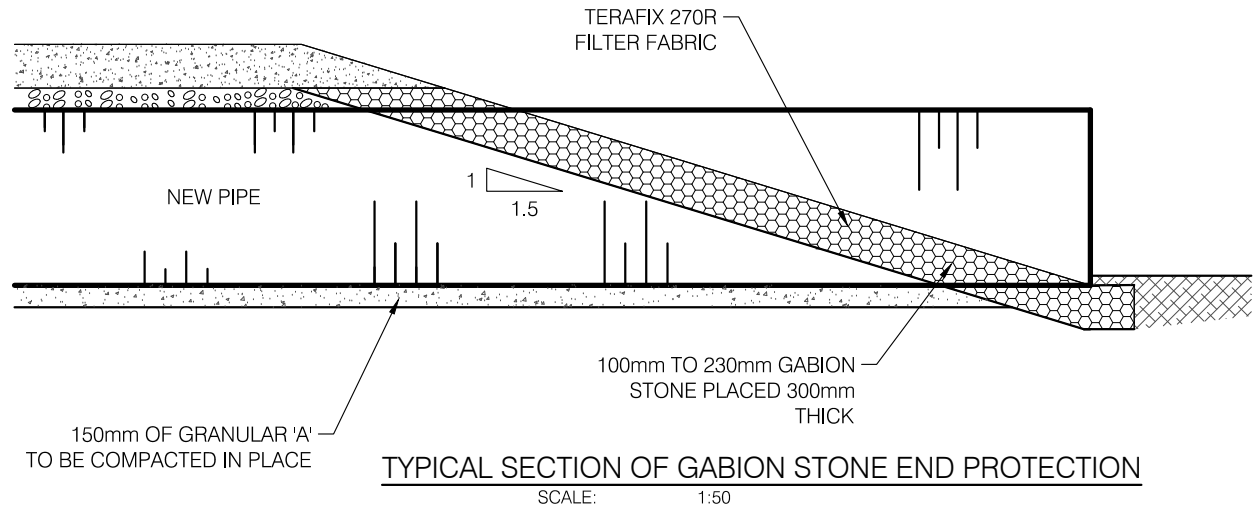
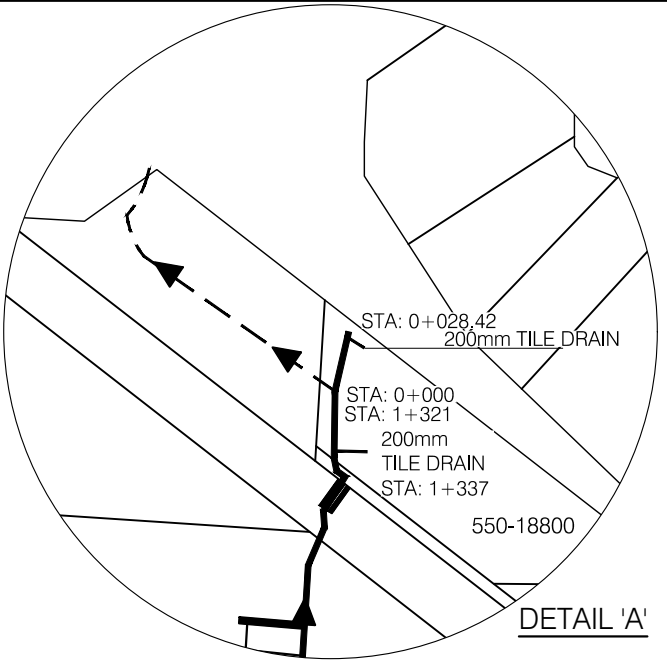
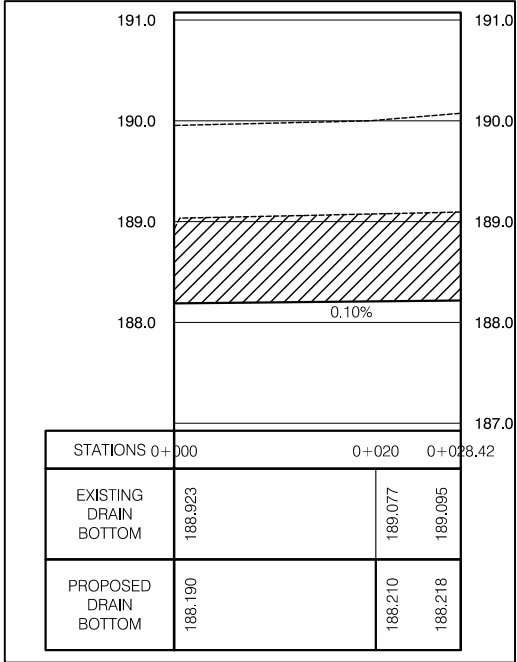
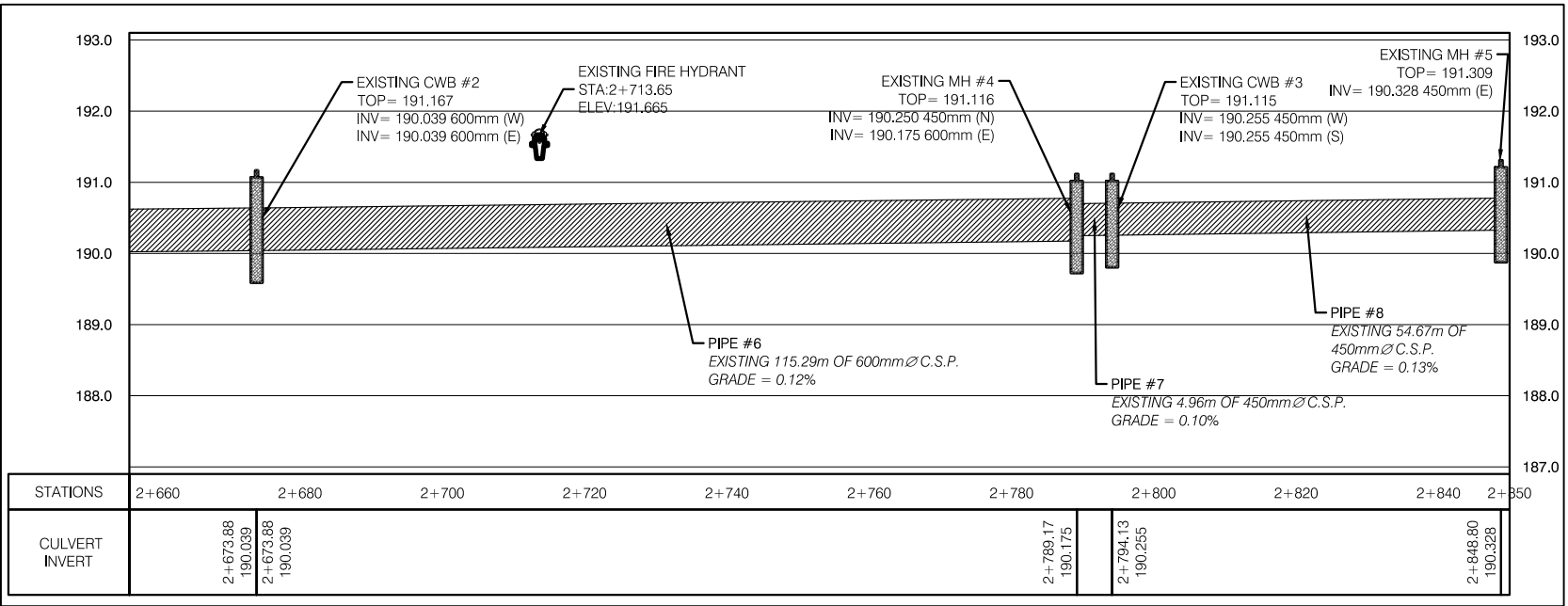
PARCEL INFORMATION

PROJECT TITLE: REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN			
TOWN OF TECUMSEH			
SHEET TITLE: DRAINAGE AREA	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 2 OF 8	PROJECT No. : 14-105

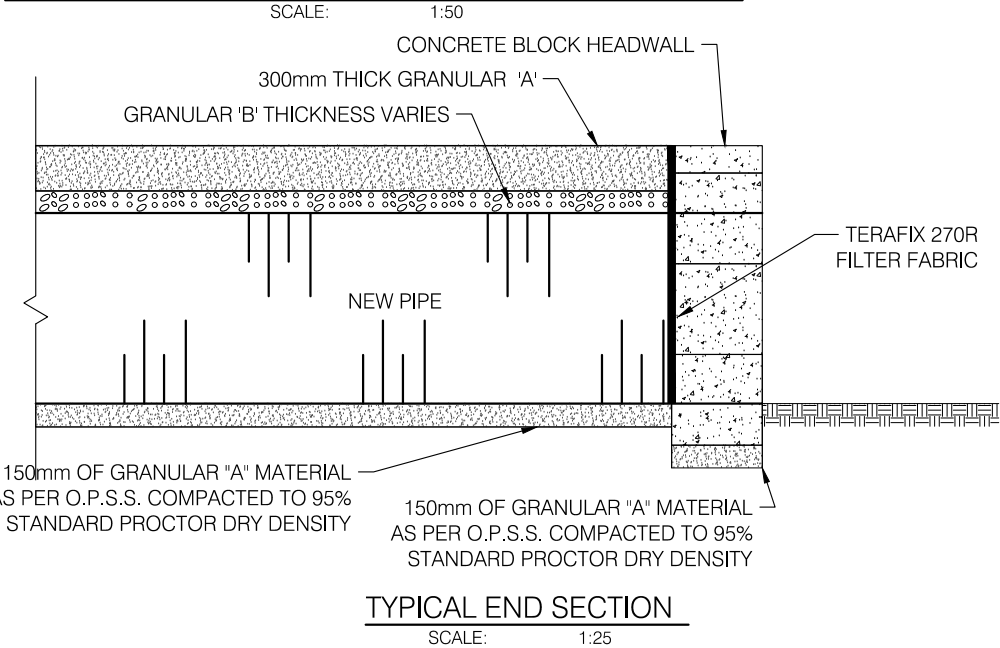




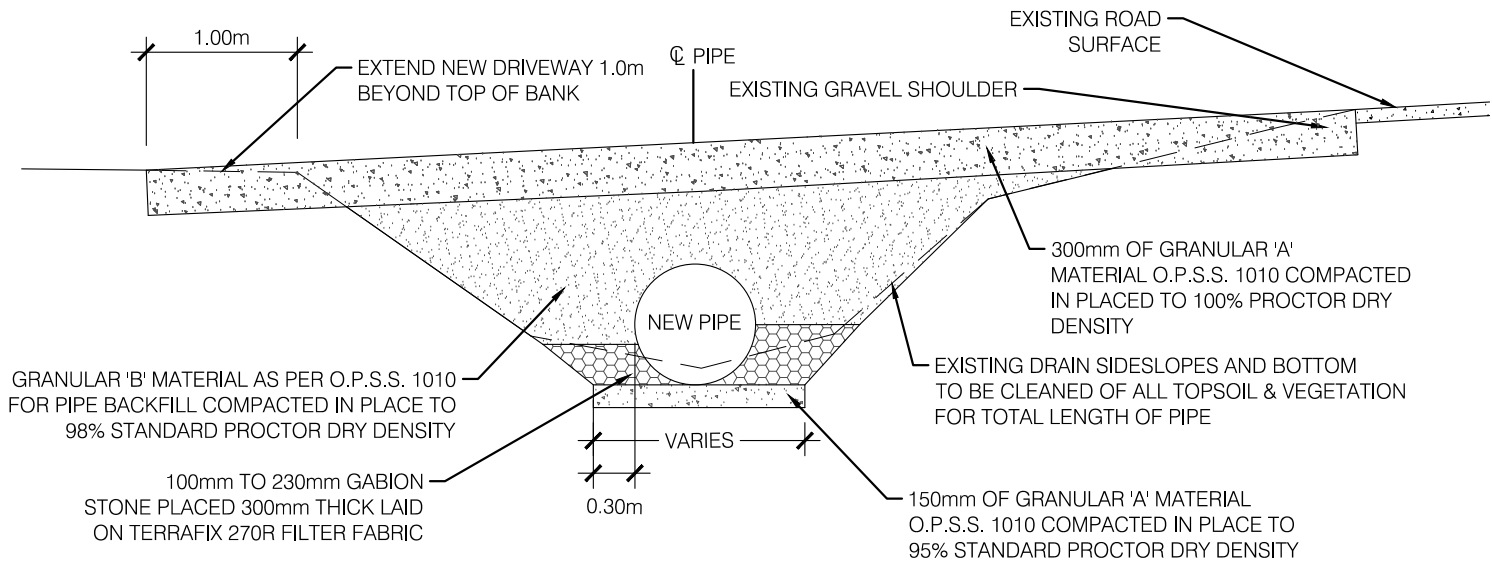
PROJECT TITLE: REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN			
TOWN OF TECUMSEH			
SHEET TITLE: PROFILE 1+900 TO 2+656	DRAWN BY: D.B.	SCALE: HOR: 1:1000 VER: 1:100	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 4 OF 7	PROJECT No. : 14-105



TYPICAL GABION STONE END PROTECTION PLAN VIEW

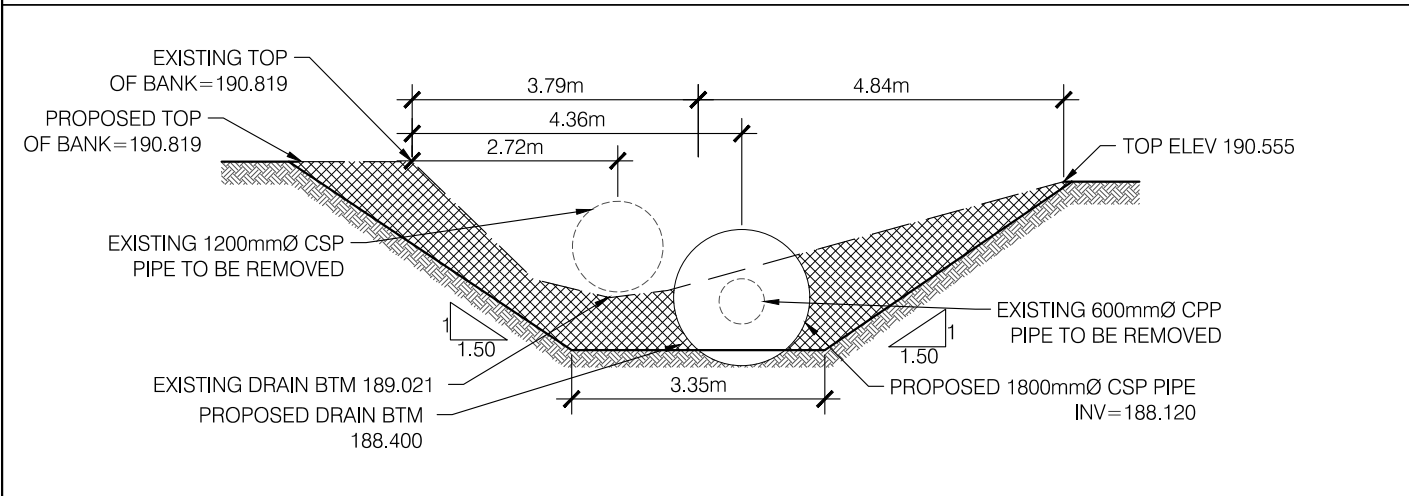


TYPICAL END SECTION

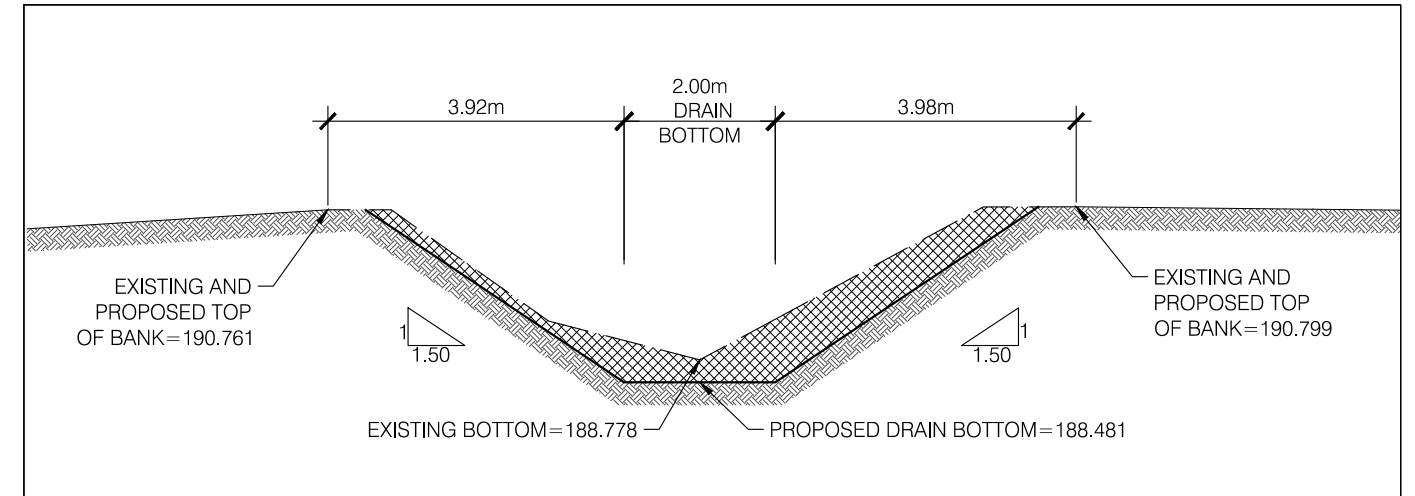


TYPICAL END OF CULVERT SECTION

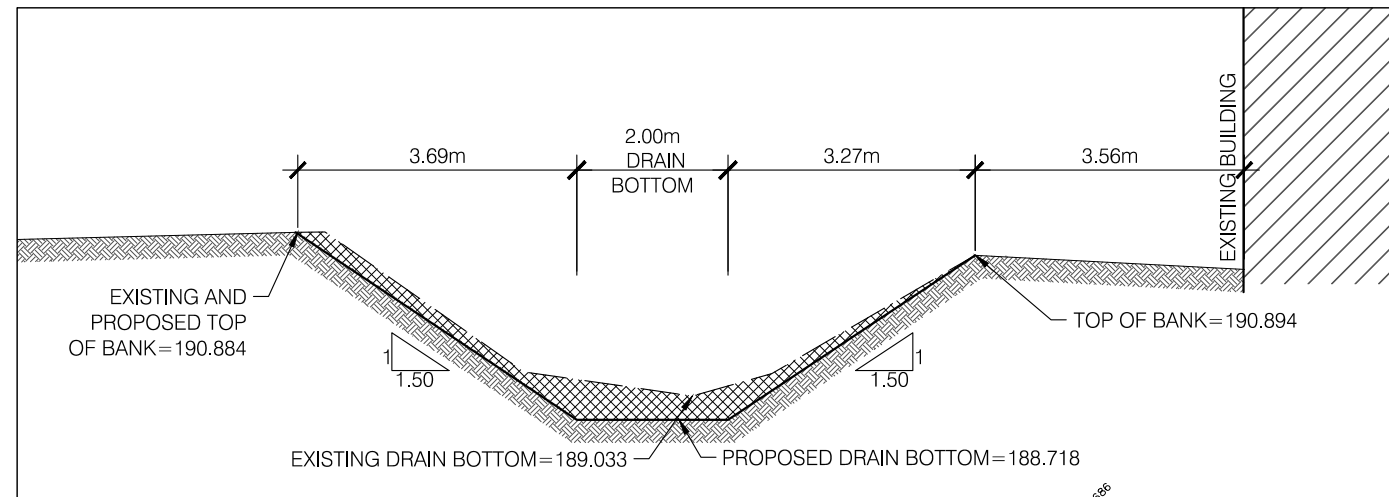
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TOWN OF TECUMSEH			
SHEET TITLE: PROFILE 2+656 TO 2+848 PROFILE 0+000 TO 0+028	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 5 OF 7	PROJECT No. : 14-105



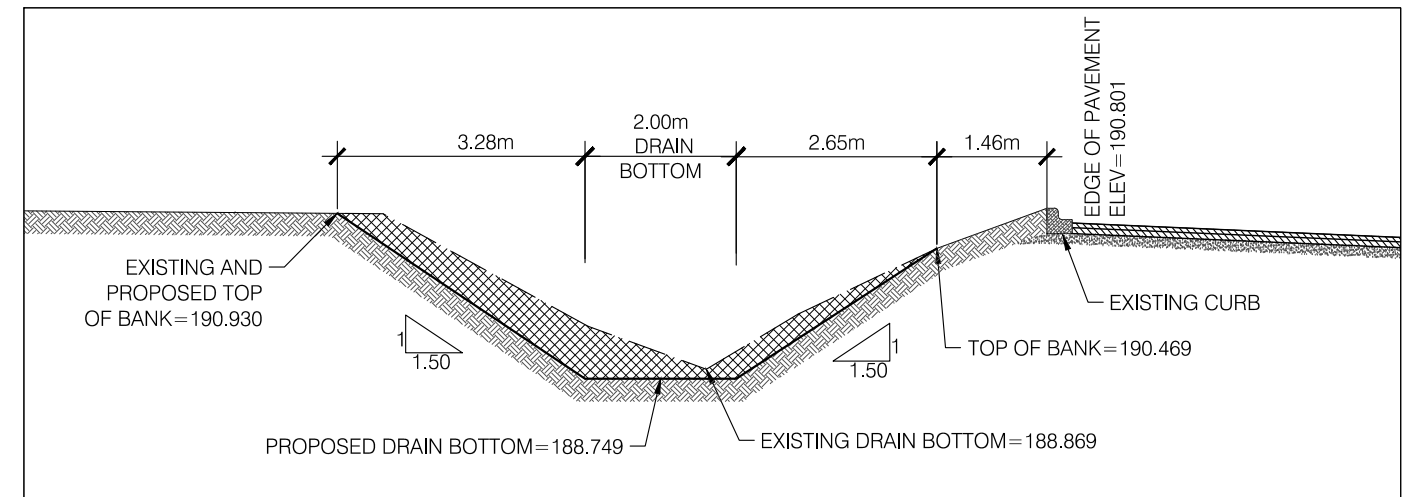
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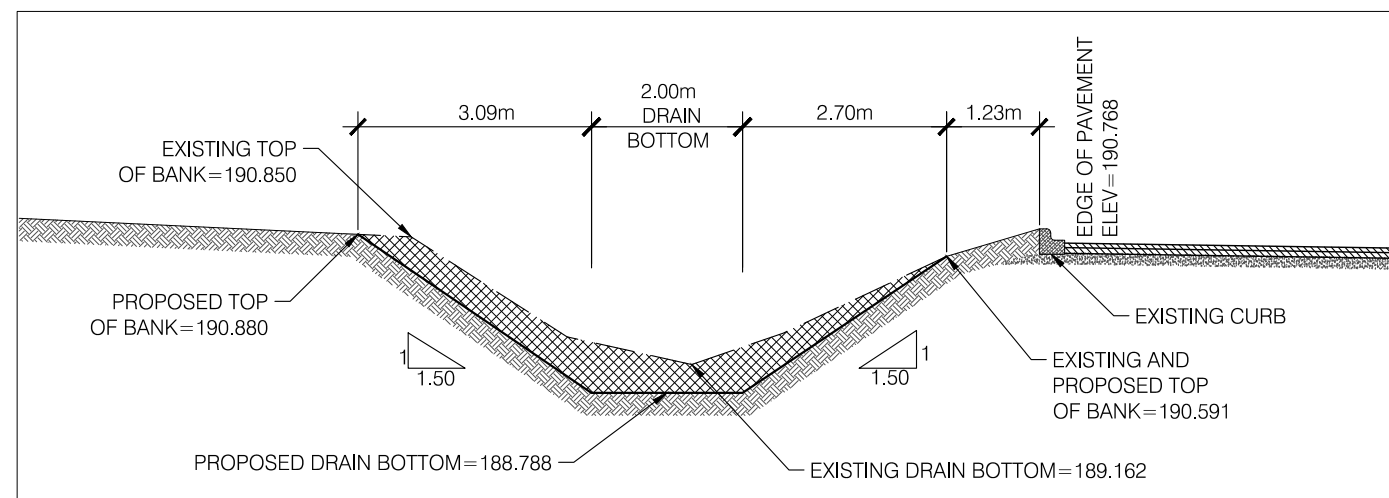
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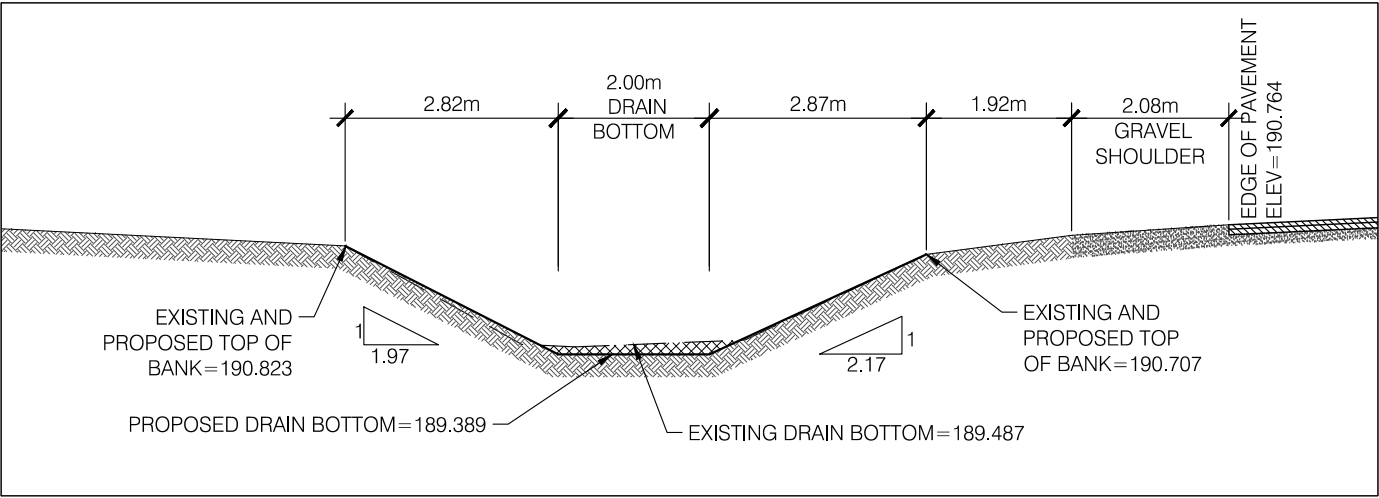


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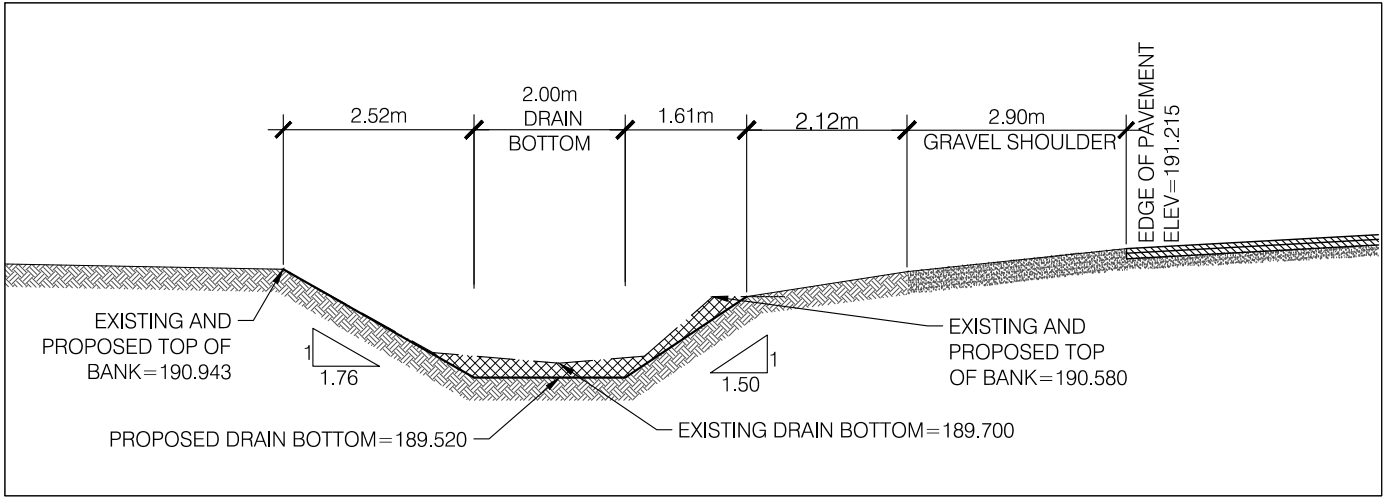


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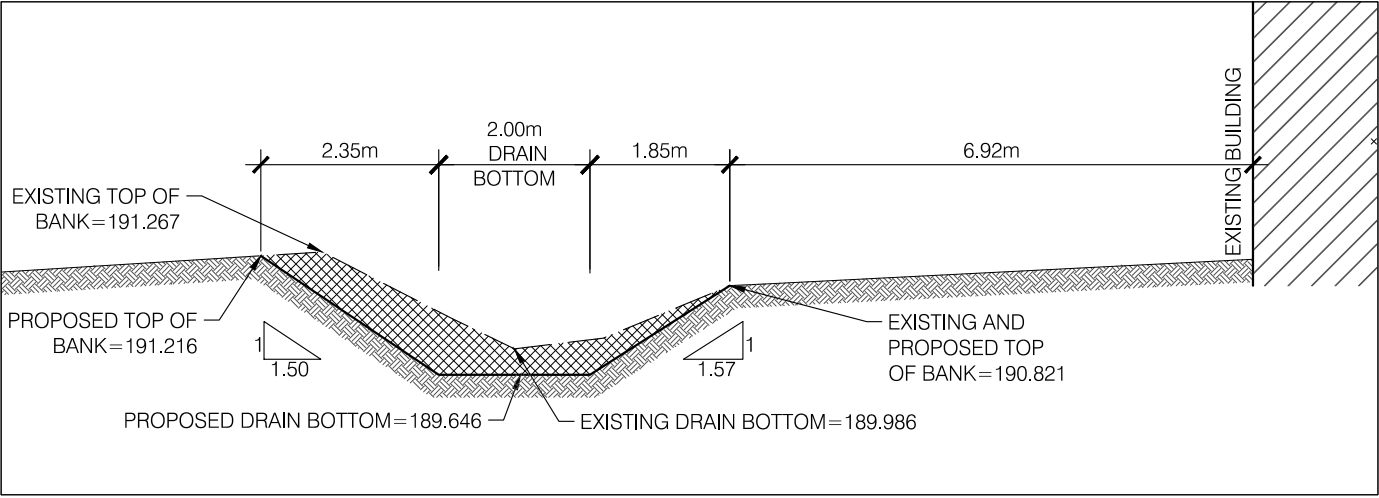
PROJECT TITLE: REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN			
TOWN OF TECUMSEH			
CROSS SECTIONS	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 6 OF 7	PROJECT No. : 14-105



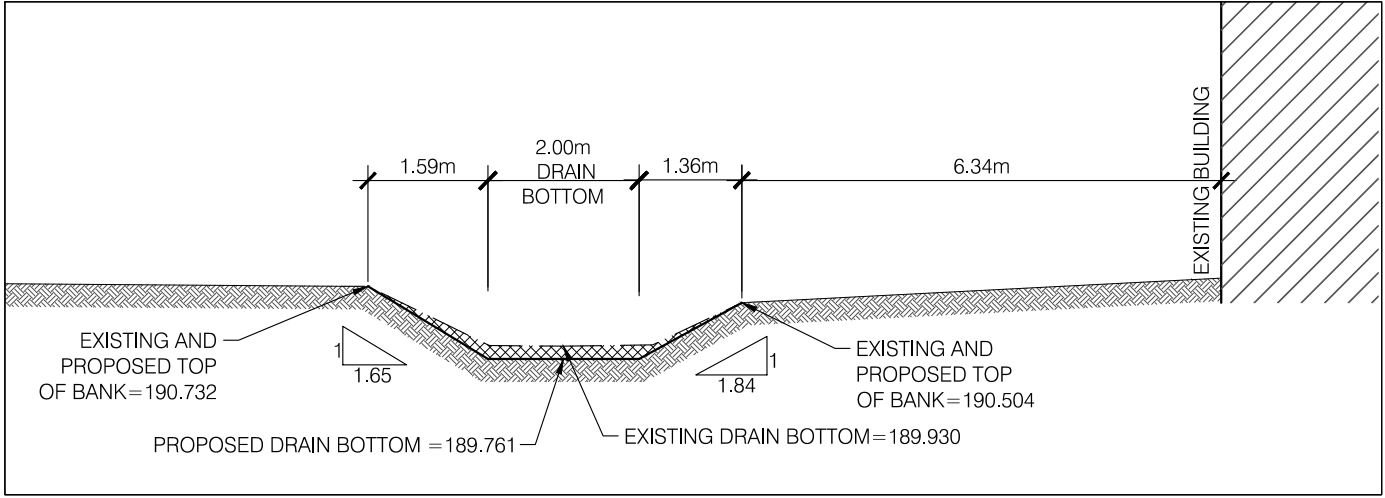
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STA 2+293.12
SCALE: 1:100

PROJECT TITLE: REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN			
TOWN OF TECUMSEH			
CROSS SECTIONS	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 7 OF 7	PROJECT No. : 14-105



Repair and Improvement to the 7th Concession Drain

Town of Tecumseh

February 7, 2017
November 23, 2017
(Reconsidered)

Project No. 14-105

February 7, 2017
 Reconsidered November 23, 2017

Mayor and Municipal Council
 The Corporation of the Town of Tecumseh
 917 Lesperance Road
 Tecumseh, Ontario
 N8N 1W9

Mayor McNamara and Councillors

Subject: Repair and Improvement
 To the 7th Concession Drain
 In the Town of Tecumseh
 Our File Reference 14-105

1.0 Reconsidered Report

At the Meeting to Consider the report on September 14, 2017 the owner of lands with Roll No. 550-07900 requested that Culvert No. 9 be removed from the report as it was no longer required. Subsequent to that meeting, the parcel was sold. Through correspondence with the new landowner, it was determined that the owner wished to have a concrete culvert at this location. The report and plans have been revised accordingly.

2.0 Authorization

Pursuant to Section 78 of The Drainage Act, 1990 (the Act), the Corporation of the Town of Tecumseh received a request for the repair and improvement of the 7th Concession Drain. The firm of Crozier Baird, now known as Baird AE, was subsequently appointed to prepare a report as provided for under the provisions of the Act.

As requested by Council, we have made an examination of the 7th Concession Drain located along the north side of North Talbot Road commencing approximately 14 metres east of Walker Road. The drainage area encompasses land between County Road 46 to the north and North Talbot Road to the south; Walker Road to the west and Ure Street to the east.

3.0 Drainage Act Process

The following is the general order of procedure that is followed to repair and improve a municipal drainage system pursuant to Section 78 of the Drainage Act:

- a) Council determines that repair and improvements are required.
- b) Council appoints an Engineer.
- c) Engineer conducts an onsite meeting.
- d) Engineer conducts a survey of the drain.
- e) Need for preparation of a Preliminary Report is decided.
- f) Engineer completes and provides a Preliminary Report, if required.
- g) Council considers Preliminary Report, if required, with affected landowners and decides on an option(s) with which to proceed.

- h) A Draft Report is provided to the Municipality.
- i) A Public Information Centre (PIC) is held with affected landowners to discuss the report prior presenting the final report to Council.
- j) Engineer prepares Final Drainage Report and provides copy to the Municipality.
- k) Meeting to Consider the report held in front of Council with affected landowners.
- l) At the Meeting to Consider, the Municipal Council may adopt the Drainage Report. If adopted, the Municipal Clerk prepares a provisional by-law for the recommended work and sends copies of the by-law to affected parties and arranges a second meeting of Council for the Court of Revision, within thirty days of adopting the provisional by-law.
- m) The Court of Revision is typically held within 30 days at a subsequent meeting with affected landowners to discuss any disputes regarding assessment of cost to lands and roads.
- n) Council passes by-law for construction of the work after statutory appeal period expires. Typically, the appeal period is a minimum of 40 days from the date of the provisional by-law.
- o) Tenders are received by the Municipality to perform the recommended work and construction is carried out. Inspection of the construction work may be provided by the Town Drainage Superintendent or by an inspector from the engineering office.
- p) Upon completion of construction, the Municipal Clerk will finalize all applicable costs and submit grant applications to the Ministry of Agriculture and Food, if applicable. The clerk will then send a final net assessment to the affected landowners. Only lands listed by the Municipal Property Assessment Corporation as having Farm Class Tax Rate are eligible for a 1/3 grant.

4.0 Current Drainage Report and Drain History

Work has been completed on the 7th Concession Drain under various Engineers' reports. Previous works and reports are as follows:

Report dated November 18, 2008 prepared by Tim Oliver, P.Eng. (Dillon Consulting): recommended repairs, realignment, deepening of the downstream section of the 7th Concession Drain from the 7th Street Drain Outlet Diversion southerly approximately 1,321 metres to the former railway. The drain was widened and deepened by approximately 1 metre. As part of this report, the first 444 metres were cleaned and the remainder was constructed to the design grades by MTO as part of the Highway 401 improvements. (It should be noted that MTO construction only went to Provincial Road (Station 1+138).)

Report dated July 8, 1991 prepared by Lou Zarlenga, P.Eng.: recommended repair and improvements entailed enclosing the open portion of the drain adjacent to and along the north side of North Talbot Road; removing accumulated brush and sediment from the open drain; deepening and widening and providing additional outlet to that portion of the drain situated north of Moynahan Street to just south of Highway No. 401.

Report dated June 9, 1978 prepared by Maurice Armstrong, P.Eng.: recommended that the extension of the 7th Concession Drain be established as a municipal drain. The extension commenced 14 metres east of Walker Road and continued easterly along the north side of North Talbot Road to the point where the drain turns north. The report further recommended that the 7th Concession Drain be cleaned from the north side of North Talbot Road to the drain's outlet. Repair and improvement of various culvert pipes was recommended as well.

A review of the current report indicates that the existing drainage area is approximately 57.83 ha (143.01 acres) in size.

5.0 Purpose of Report

The purpose of this report is to provide for the repair and improvement of the drain from Station 1+321 just north of the former railway to the upper end at Walker Road. Affected landowners have raised issue with the functioning of the drain particularly in the area near Del Duca Drive.

This report provides a description and estimated cost of the proposed work. In addition, the report provides a recommendation for distribution of the construction and incidental costs related to the work. This report further provides for the distribution of future maintenance costs. The assessments provided in this report are based upon the estimated cost of the work; these assessments would be pro-rated to the actual cost of the project upon completion of the works.

We would further recommend that this report incorporate the 7th Concession Drain Extension into the 7th Concession Drain and the entirety of the drain be known as the **7th Concession Drain**.

6.0 Site Meeting

On Wednesday, August 27, 2014 at 9:00am, a meeting was held on Del Duca Drive to discuss the project. The following people attended the site meeting:

Landowners Present	Affiliation
Greg Scott	Tregaskiss
Ray Little	Calframax
Joel Fillion	Morton Wholesale
Anna Godo, P.Eng.	City of Windsor
Sam Paglia, E.I.	Town of Tecumseh
Ryan Langlois, EI	Baird AE
Halliday Pearson, P.Eng.	Baird AE

A written record of this meeting is contained in Appendix A of this report.

A Public Information Centre (PIC) was held on September 14, 2016 at 5:00 pm at the Tecumseh Municipal office. This meeting was held to receive comments from property owners with respect to the draft report dated August 16, 2016.

Landowners Present	Affiliation
Loris Collavino	PSI
Ryan Lawson	Expressway Trucks
Gregg Strong	Expressway Trucks
Sam Paglia, P.Eng.	Town of Tecumseh
Cheryl Curran	Town of Tecumseh
Don Joudrey, P.Eng.	Baird AE
Halliday Pearson, P.Eng.	Baird AE

Mr. Collavino indicated his property being assessed to the 7th Concession Drain has no direct outlet to the 7th Concession Drain and most of the water drains onto neighbouring properties.

It was stated that the property was assessed to the 7th Concession Drain in the previous report. The property will be investigated further to determine where the water actually goes. If some of the property actually drains to the 7th Street Drain, the properties could be included in the other drain but would have to be done through another report. A survey would have to be done to confirm how much property is to be redirected. Alternatively, the parcel may remain in the 7th Concession Drain until such time as neighbours express concerns. A subsequent site visit showed that part of the

property does drain to the 7th Concession Drain by way of a swale across the adjacent property to the east.

Mr. Strong indicated he has water ponding in his property because of work to County Road 46. He wanted to know if he could redirect the water to the 7th Concession Drain. He was told he would have to submit a petition for drainage to the Town. Alternatively, the County would have to be contacted to repair the drainage.

Mr. Strong also indicated he had a second drain at the back of his property into the 7th Concession Drain that has not been identified. This will be added to the report.

No further comments were received.

7.0 Topographic Survey

We commenced our survey at the upstream end of the 7th Concession Drain Extension, being the enclosed portion of the drain at Walker Road. Our survey continued easterly for approximately 467 metres before turning north where the drain becomes an open drain. The open drain flows north for approximately 350 metres before crossing Moynahan Street where it continues easterly for approximately 217 metres. The open drain continues north for approximately 447 metres before crossing the former railway. The survey finished approximately 230 metres downstream of the former railway line.

8.0 Existing Conditions

We find that the 7th Concession Drain is in need of repair and requires cleaning pursuant to Section 78 of the Act.

As a result of the survey, we have found the following:

The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 ranges in size from 450mm diameter CSP to 825mm diameter CSP. The Tregaskiss representative present at the onsite meeting noted that their parking lot experiences flooding. It is the Engineer's opinion that the parking lot is designed to flood to act as the stormwater management system. Cleaning of the enclosed and open drain will most likely reduce the time that the parking lot experiences flooding but will not eliminate the flooding due to the stormwater management design.

Considerable sediment has accumulated in the bottom of the drain preventing the proper flow of water, particularly between Station 1+321 and 1+825 and between 1+920 and 2+200. Considerable vegetation is present along the length of the drain between Station 1+350 and Station 1+820. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

We further noted that additional work is required north of the railway to take advantage of the deepened downstream drain. This work shall be carried out separately by the Town as maintenance.

We further found that many of the culverts within the drain are out of vertical alignment but would not significantly impede flows, however most are undersized and will have to be replaced with larger culverts.

The stationing of the upper sections of the drain have been adjusted from previous reports to reflect the stationing laid out in the 2008-83 By-Law. We have continued with the stationing from the

Provincial Road Culvert (south end is located at Station 1+150). The upper end at Walker Road is now Station 2+848.8.

There is currently one road crossing on the 7th Concession Drain as described below:

Culvert No. 7– Moynahan Street, Town of Tecumseh

Station 2+054

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete pieces and rocks form the end of pipe protection at the downstream end of the crossing. End of pipe protection is absent from the upstream end of the crossing. This structure is currently identified as part of the 7th Concession Drain under the current by-law.

There are currently six culverts within the 7th Concession Drain as described below:

Culvert No. 1 and 2 – Detroit River Tunnel Company, Roll No. 590-01000

Station 1+379

There are currently two pipes under the former railway. The existing 15.55m 1200mm diameter ductile iron pipe (Culvert No. 2) is in good condition; however, the invert elevation of the pipe is approximately 150mm above the bottom of the existing drain. A 600mm diameter 18.30m welded steel casing pipe (Culvert No. 1) was installed under the 1991 Zarlenga report beside the existing 1200mm diameter pipe. The invert of this pipe matches the existing grade at this location. The limited capacity of the 600mm diameter pipe and the improper elevation of the 1200mm diameter pipe together prevent the proper flow of water within the drain. End of pipe protection was not found for either structure. These pipes are in place to allow the flow of water northerly under the former railroad tracks and are currently identified as part of the 7th Concession Drain under the current by-law.

It should be noted the railway is not currently in use and now ends at 8th Concession Road approximately 800 metres east of the existing railway culverts.

Culvert No. 3 – SGM Real Estate Holdings ULC, Roll No. 550-01500

Station 1+854

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate the pipe is undersized. Poured concrete headwalls are in good condition. This structure provides access to commercial lands and is identified as part of the 7th Concession Drain under the current by-law.

At the landowner's request, the length and location of the culvert has been modified to that described in Section 8.0 Recommendations and shown on the attached plans.

Culvert No. 4 – Adine Builders Ltd., Roll No. 550-01600

Station 1+909

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Poured concrete headwalls are in satisfactory condition although cracking was noted on the upstream headwall. The elevation of the culvert does not correspond to the design grade of the drain bottom. This structure provides access to commercial lands and is identified as part of 7th Concession Drain under the current by-law.

Culvert No. 5 – Gail and Pamela Rodzik, Roll No. 550-02000

Station 1+957

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in good condition. The elevation of the culvert does not correspond to the design grade of the drain bottom. This

structure provides access to industrial lands and is not identified as part of the 7th Concession Drain under the current by-law.

We would further recommend this culvert be incorporated into the 7th Concession Drain under this report.

Culvert No. 6 – Gail and Pamela Rodzik, Roll No. 550-02100

Station 2+034

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in poor condition. The top layers of the jute bag headwalls have collapsed. The elevation of the culvert does not correspond to the design grade of the drain bottom. This culvert provides access to industrial lands and is identified as part of the 7th Concession Drain under the current by-law.

Based on the existing conditions and a review of the theoretical drain profile provided in the 1991 Zarlenga report and the existing downstream drain elevations set out in the 2008 Dillon Report, we have determined that cleaning of the enclosed portion of the drain between Station 2+386.6 and 2+848.8; brushing, grubbing and excavating the open drain sections; cleaning existing road crossings and driveway culverts; deepening and widening the drain from Station 1+320 to Station 1+813 including the installation of a new 1800mm diameter aluminized CSP across the former railway to match the drain depths in the Dillon Report will improve drain function.

We have found that additional catch basins have been installed on lands near the intersection of Hennin Drive and North Talbot Road. These catch basins direct flow to a municipal drain on the south side of North Talbot Road thereby altering the watershed from that identified in the 1991 Zarlenga report.

In addition, it was discovered that at the time of the MTO works in 2008, the portion of the 7th Concession Drain draining the property with Roll No. 550-18800 was not properly graded towards the relocated portion of the drain. As such, it is causing drainage issues to the property. This section of drain must be lowered below the outlet of the drainage system for Expressway Trucks (905364 Ontario Ltd) and graded southerly to the 7th Concession Drain. We would recommend that this section of drain be incorporated into the 7th Concession Drain under this report.

Since this work on Roll No. 550-18800 has been identified as an issue well before the works in this report can be carried out, repairs will be initiated by the Town as maintenance work through the existing 2008 report.

9.0 Recommendations

We would recommend the following works be performed in order to overcome the above noted deficiencies:

- a) Excavation work shall be undertaken to remove accumulated sediment and vegetation within the drain:
 - i. Excavation to theoretical drain bottom shall be undertaken between Station 1+825 and Station 2+386.6;
 - ii. The section of drain between Station 1+321 and Station 1+825 shall be lowered by approximately 400 to 500 mm, to match the grades from the 2008 Dillon Report as shown on Sheet 3 of the drawings, to provide a deeper outlet for adjacent properties.
- b) New culverts and end of pipe protection shall be installed:
 - i. The existing 600mm diameter CSP welded steel casing pipe and 1200mm diameter

- ductile iron pipe at Station 1+379 (crossing the former railway line) shall be removed from the drain and disposed of offsite. Culvert No. 1 and 2 shall be replaced with 16.0m of new 1800mm aluminized corrugated steel pipe with sloped gabion stone end of pipe protection and be known as Culvert No. 8. The new culvert will be installed by open cut.
- ii. Culvert No. 9 at Station 1+544: A new culvert, at the end of Del Duca Drive, shall be constructed of 20.0m of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection.
- c) Existing culverts and end of pipe protection shall be removed and replaced:
- i. Culvert No. 3 at Station 1+854: The existing 24.69 metres 900mm pipe shall be removed and replaced with 22.0 metres of 1200mm diameter CSP with concrete block headwalls;
 - ii. Culvert No. 4 at Station 1+909: The existing 12.51 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iii. Culvert No. 5 at Station 1+957: The existing 11.79 metres of 900mm pipe shall be removed and replaced with 11.8 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iv. Culvert No. 6 at Station 2+034: The existing 12.21 metres of 900mm pipe shall be removed and replaced with 12.2 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - v. Culvert No. 7 at Station 2+054: The existing 12.47 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls;
- d) Existing enclosed pipe network to be cleaned:
- i. The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 shall be cleaned;
- e) Seeding and mulching shall be undertaken on all excavated portions of the drain side slopes to prevent erosion;

For the enclosed drain between Station 2+386.6 and Station 2+848.8, we would recommend that these pipes, manholes and catch basins remain in place, however, when the pipes and structures degrade to the point of replacement, we would recommend that the pipes be replaced under this by-law as an act of maintenance and assessed in accordance with proportions set out in the maintenance clauses of this report and any apportionment agreements in place at the time of replacement.

In a previous version of this report, we had recommended that Culvert No. 9 be constructed of corrugated steel pipe as this crossing was intended to be used privately. However, the parcel was recently sold and the new owner has requested that the culvert be constructed using concrete pipe as they are anticipating future development of the site.

The owner of lands with Roll No. 550-07900 and 550-07950 owned by Wannabe Radical Inc., has brought to our attention the desire to continue to utilize the 7th Concession Drain as an outlet for existing drainage on these properties. Should future development occur, we would recommend that it be subject to a storm water management report to ensure all Ministry of Environment requirements for stormwater management are satisfied. We would further recommend implantation of a water management plan to restrict the rate at which water is discharged from the property to pre-development flows. Pre-development flows were used when hydraulically calculating the diameter of Culvert No. 9. We would further recommend the supply and placement of gabion stone at the

outlet to prevent bank slope erosion.

10.0 Fisheries Issues

The 7th Concession Drain is a Type 'F' drain. A Type 'F' drain is considered to have intermittent or ephemeral flow. A drain with ephemeral flow is typically dry for more than two consecutive months.

The upper portion of the 7th Concession Drain, formerly the 7th Concession Drain Extension, between Station 2+386.6 and Station 2+848.8 is an enclosed drain that cannot support fish habitat.

We would recommend the following measures be utilized to mitigate damage to the drain during construction:

- No work shall be undertaken between March 15 and June 30
- All work shall be completed in the dry
- Culverts shall be installed with a minimum of 10.0% embedment
- All disturbed soils shall be stabilized upon completion of the work
- Silt fence sediment control shall be implemented during construction
- Contractor shall prevent entry of petroleum products, debris and deleterious substances into the water.

A review of the Sensitive Areas Maps for the Town of Tecumseh indicates that no endangered species, as listed under the Endangered Species Act, are expected to be encountered at the site of the proposed works.

A Fisheries and Oceans Canada (DFO) Self-Assessment was completed by Baird AE to determine if a DFO review was required for this project. Correspondence received from DFO states that Fisheries Act authorization is not required. Serious harm to fish can be avoided by following standard measures. A permit is not required under the Species at Risk Act as there are no Species at Risk at or near the site. The works described in this report are not considered to need an authorization under the Fisheries Act to proceed.

11.0 Drawings and Specifications

Attached to this report is Drawing No. 14-105 Sheets 1 to 7. The drawings illustrate the location of the proposed drainage works and the land affected by the work, together with the detail and cross sections of the recommended work. Specifications are included in this report showing the dimensions, grades, disposal of material, working areas for construction and future maintenance, and other particulars of the recommended work.

12.0 Working Area

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described as follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

13.0 Allowances for Lands Taken and Damages

In accordance with the provisions of the Act, monetary allowances are provided to those landowners from which land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to dispose of excavated material or for land required to obtain access to a Municipal Drainage System.

We find that no land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to obtain access to a Municipal Drainage System, therefore, we have not provided any allowance for lands taken in our estimate as is otherwise normally provided for under sub-section (a) of Section 29 of the Act.

We further find that each of the following owners is entitled to and should receive the following amounts as compensation for the damages to lands and crops, if any. We have used a rate of \$3,700 per hectare to determine the compensation paid, if any:

Owner	Roll No.	Lands Taken	Damages	Total
Detroit River Tunnel Company	590-01000	---	\$123	\$123
Wannabe Radical Inc.	550-07900	---	\$962	\$962
1147048 Ontario Ltd.	550-02300	---	\$481	\$481
Morbella Holdings Ltd.	550-02902	---	\$592	\$592
SGM Real Estate Holdings ULC	550-01500	---	\$444	\$444
				\$2,602

We have provided for this in our estimate as is provided for under sub-section (b) of Section 29 of the Act.

14.0 Estimate of Cost

Our estimate of the total cost of this work, including all incidental expenses and HST, is the sum of THREE HUNDRED AND TEN THOUSAND, SIX HUNDRED AND FIVE-----dollars (\$310,605.00), and made up as follows:

CONSTRUCTION

- | | | | |
|----|-------|--|---------------------|
| 1) | L.S. | Brushing and grubbing between Station 1+321 and Station 2+386.6 complete at \$ <u>10,000</u> Lump Sum. | \$ <u>10,000.00</u> |
| 2) | 462 | Metres of existing 450mm to 825mm diameter corrugated steel pipe to be cleaned between Station 2+386 and Station 2+848.8 including all inline manholes and catch basins at \$ <u>10.00</u> per metre | \$ <u>4,620.00</u> |
| 3) | 1,830 | Cubic metres of excavation to be undertaken along the length of the drain as described in the attached specifications and below: | |
| | | i) Spread and levelled adjacent to the drain to a maximum depth of 300mm. | |
| | 1,275 | - Station 1+321 to 1+750 at \$ <u>20.00</u> per cubic metre | \$ <u>25,500.00</u> |
| | 165 | - Station 2+054 to 2+386.6 at \$ <u>20.00</u> per cubic metre | \$ <u>3,300.00</u> |
| | | ii) Excavated and trucked to sites noted in i). Material to be spread and levelled to a maximum depth of 300mm. | |
| | 245 | - Station 1+750 to 1+825 at \$ <u>30.00</u> per cubic metre | \$ <u>7,350.00</u> |
| | 145 | - Station 1+825 to 2+054 at \$ <u>30.00</u> per cubic metre | \$ <u>4,350.00</u> |
| | | Total for Excavation | \$ <u>40,500.00</u> |
| 4) | | Proposed culvert at Station 1+379 for the Detroit River Tunnel Company (Culvert No. 8): | |
| | | i) Remove and dispose of existing 600mm welded steel casing pipe (Culvert 1) and 1200mm ductile iron pipe (Culvert 2) crossing under the former railway at station 1+359. To be open cut (rails not replaced) at \$ <u>3,000.00</u> Lump Sum | \$ <u>3,000.00</u> |
| | | ii) Supply and set approximately 16 metres of 1800 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25 mm corrugations complete at \$ <u>500.00</u> per metre | \$ <u>8,000.00</u> |
| | | iii) Supply, place and compact approximately 20 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to reconstruct railway bed to original cross-section at \$ <u>35.00</u> per tonne | \$ <u>700.00</u> |

iv) Supply, place and compact approximately 110 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,200.00</u>
v) Supply and place 70.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>4,550.00</u>
vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to install Culvert No. 8	\$ <u>18,750.00</u>

5) Proposed culvert at Station 1+544 at west end of Del Duca Drive for Wannabe Radical Inc. (Culvert No. 9):

i) Supply and set approximately 20 metres of 1500mm diameter class 65-D concrete pipe \$ <u>1,000.00</u> per metre	\$ <u>20,000.00</u>
ii) Supply, place and compact approximately 60 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material at \$ <u>35.00</u> per tonne	\$ <u>2,100.00</u>
vii) Supply, place and compact approximately 170 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>3,400.00</u>
iii) Supply and place 30.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>1,950.00</u>
iv) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to construct Culvert No. 9	\$ <u>27,750.00</u>

- 6) Existing culvert to be replaced at Station 1+854 for SGM Real Estate Holdings ULC. (Culvert No. 3):
- i) Remove 24.7 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,500.00 Lump Sum \$ 1,500.00
 - ii) Supply and set approximately 22.0 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 8,800.00
 - iii) Supply, place and compact approximately 50 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material and to construct driveway at \$ 35.00 per tonne \$ 1,750.00
 - viii) Supply, place and compact approximately 175 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 3,500.00
 - iv) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - v) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00
 - vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 3 \$ 26,650.00
- 7) Existing culvert to be replaced at Station 1+909 for Adine Builders Ltd. (Culvert No. 4):
- i) Remove 12.5 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 5,000.00

- iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00
- iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00
- v) Supply, place and compact approximately 10 tonnes of asphalt at \$ 120.00 per tonne \$ 1,200.00
- vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500.00 each. \$ 9,000.00
- vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 4

\$ 20,150.00

8) Existing culvert to be replaced at Station 1+957 for Gail and Pamela Rodzik (Culvert No. 5):

- i) Remove 11.80 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
- ii) Supply and set approximately 11.8 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 4,720.00
- iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00
- iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00
- v) Supply, place and compact approximately 10 tonnes of asphalt at \$ 120.00 per tonne \$ 1,200.00

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 5 \$ 19,870.00

9) Existing culvert to be replaced at Station 2+034 for Gail and Pamela Rodzik (Culvert No. 6):

i) Remove 12.21 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00

ii) Supply and set approximately 12.2 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 4,880.00

iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00

iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00

v) Supply, place and compact approximately 10 tonnes of asphalt at \$ 120.00 per tonne \$ 1,200.00

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 6 \$ 20,030.00

- 10) Existing culvert to be replaced at Station 2+054 for Town of Tecumseh (Culvert No. 7):
- i) Remove 12.47 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1050 mm diameter class 65-D concrete pipe complete at \$ 600.00 per metre \$ 7,500.00
 - iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00
 - iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00
 - v) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - vi) Supply and place 12.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ 65.00 per square metre \$ 780.00
 - vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 7 \$ 15,030.00
- 11) L.S. Supply and spreading of good quality grass seed and mulch on all portions of excavated sideslopes complete at \$ 10,000.00 Lump Sum. \$ 10,000.00
- 12) L.S. The Contractor shall provide a traffic control plan to the Town of Tecumseh and the County of Essex for approval before construction commences. The Contractor shall supply, install and maintain the necessary signage during the construction period according to the latest revision of the Ontario Traffic Manual Book 7, Temporary Conditions, complete at \$ 5,000.00 Lump Sum. \$ 5,000.00

13) 65.0	Square metres of 100 – 230mm diameter gabion stone (300 mm thick) erosion protection laid on Terrafix 270R Filter Fabric to be placed as required to prevent bank slope erosion due to outlet tiles, drains or swales along length of drain complete at \$ <u>65.00</u> per square metre.	\$ <u>4,225.00</u>
14) L.S.	Previously completed excavation of 30 cubic metres between Station 0+000 and Station 0+028 for lands with Roll No. 550-18800 complete at \$ <u>600.00</u> Lump Sum. This was completed as maintenance and will not form part of the proposed construction.	\$ <u>600.00</u>
15) L.S.	Contingency Allowance to be used only upon approval of Drainage Superintendent and/ or Engineer	\$ <u>11,500.00</u>
SUB TOTAL FOR CONSTRUCTION		\$ <u>234,675.00</u>

INCIDENTALS

Attendance at site meeting, survey	\$ 5,000.00
Report, estimate and specifications	\$ 29,750.00
Assistants and expenses, drawing preparation	\$ 17,000.00
Attendance at Public Meetings and Council Meetings	\$ 6,000.00
Tender documents	\$ 1,200.00
ERCA Permit Application Fee	\$ 800.00
Construction Inspection and Final Inspection (15 days at \$550.00/day)	\$ 8,250.00
	=====
Sub Total for Incidentals	\$ 68,000.00
Sub Total for Construction (brought forward)	\$ 234,675.00
	=====
Sub Total for Construction and Incidentals	\$ 302,675.00
HST Payable (1.76% Non-Recoverable)	\$ 5,328.00
Total for Allowances (brought forward)	\$ 2,602.00
	=====
TOTAL ESTIMATE	\$ 310,605.00
	=====

15.0 Assessment

Assessments to lands are provided in the attached Schedule of Assessment in three separate columns being Special Benefit, Benefit and Outlet. Section 1 of the Act provides the following definitions:

“Special Benefit” means any additional work or feature included in the construction, repair or improvement of a drainage works that has no effect on the functioning of the drainage works. A breakdown of how the Special Benefits assessments were calculated is provided on Page 4 of 4 of the Schedule of Assessment.

“Benefit” means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a high market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures.

“Outlet Liability” means the part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet.

We would recommend that construction and incidental costs be assessed to the affected properties in accordance with the accompanying Schedule of Assessment.

We would recommend that the cost to remove and replace access culverts and crossings currently identified as part of the drain be shared between the owner and the upstream lands and roads in accordance with the clauses below and the percentages listed in Table 1. The percentages listed in Table 1 were derived based on the culvert’s approximate location within the drain.

Culvert No. 5 is not currently identified as part of the 7th Concession Drain. Therefore, 100% of the cost to construct the culvert shall be assessed to the lands with Roll No. 550-01500.

Culvert No. 9 is a new culvert. Therefore, 100% of the cost to construct the new culvert shall be assessed to the lands with Roll No. 550-07900.

Table 1. Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	100%	0%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	100%	0%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

Item No. 14 described in the Section 13.0 Estimate of Cost was completed prior to adoption of this report to alleviate flooding issues on the lands with Roll No. 550-18800; however, it was not assessed. We would recommend that 100% of the cost of Item No. 14 including incidental fees be assessed to the lands with Roll No. 550-18800 as Special Benefit.

Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail during cleaning, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

16.0 Maintenance

We would recommend that the areas described in Section 11.0 of this report, and as listed below, be used to access the drain during works of maintenance:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

We would recommend that future maintenance costs be assessed to the affected properties in accordance with the following provisions and accompanying Maintenance Schedule of Assessment.

The Maintenance Schedule of Assessment has been developed based on an assumed maintenance cost of \$10,000. This amount is arbitrary and does not represent the actual costs to be assessed. Actual costs for future maintenance works, including all engineering and incidental costs, shall be assessed against the affected lands and roads in the same proportions as those shown in the attached Maintenance Schedule of Assessment.

Should an existing access culvert require replacement, we would recommend that the cost to replace the culvert be assessed to the benefitting landowner and the upstream lands and roads in accordance with the percentages listed in Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain, below. The percentage to be shared with the upstream lands and roads shall be assessed as outlet against those lands.

Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	54%	46%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	69%	31%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

All future maintenance works between Station 0+000 and Station 0+028 shall be assessed 100% to the lands with Roll No. 550-18800.

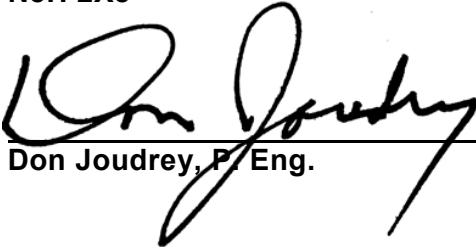
Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

17.0 Grant

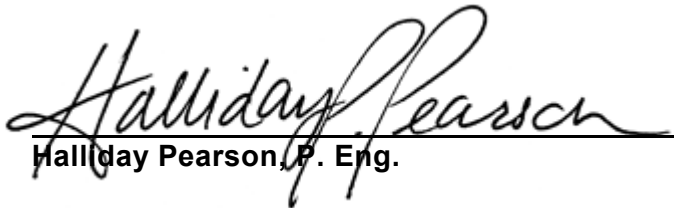
In accordance with the Agricultural Drainage Infrastructure Program (ADIP) and the provisions of Sections 85, 86 and 87 of the Act, a 33-1/3% grant is not available for the proposed works, as the Municipal Property Assessment Corporation identifies no assessed lands as having Farm Property Tax Class Rate.

All of which is respectfully submitted by:

BAIRD AE
27 PRINCESS STREET, UNIT 102
LEAMINGTON, ONTARIO
N8H 2X8


 Don Joudrey, P. Eng.




 Halliday Pearson, P. Eng.



APPENDIX A
RECORD OF SITE MEETING

7TH CONCESSION DRAIN AND EXTENSION
SUMMARY OF ENGINEERING ON-SITE MEETING

August 27, 2014 @ 9:00 am
 NORTH OF 3525 DEL DUCA DRIVE

ATTENDEES	Description
Greg Scott	Tregaskiss
Ray Little	Calframax Technologies Inc.
Joel Fillion	Morton's Wholesale
Sam Paglia, EI	Drainage Superintendent, Town of Tecumseh
Anna Godo, P.Eng.	Drainage Superintendent, City of Windsor
Halliday Pearson, P.Eng	Crozier Baird Engineers
Ryan Langlois, EI	Crozier Baird Engineers

Sam Paglia - Introduced Engineers and explained issues observed with the drain by Town employees and businesses within the area.

Halliday Pearson– Explained that drain would be surveyed from the upper end near Walker Road to the 401. Survey data will be used to analyze the function of the drain and to determine the works required to return the drain to its original design and to improve function. A draft report will be prepared describing the proposed works, cost estimate of those works and a schedule of assessment. The schedule of assessment will describe the estimated assessments to be levied against the lands that use the drain. A Pre-Consideration Meeting will be held at Tecumseh Town Hall so that affected landowners may ask questions of the Engineer and the Drainage Superintendent. All affected landowners are encouraged to attend. The report will be finalized based on comments received at the Pre-Consideration Meeting then sent to all affected landowners along with an invitation to attend the Consideration Meeting held before Council. Technical aspects of the report are discussed at the Consideration Meeting. Should Council provisionally adopt the report, a Court of Revision would be scheduled within 30 days. Concerns or questions regarding assessments will be addressed at this meeting. Upon final adoption of the by-law, the project will be tendered and construction undertaken. Construction will likely begin in early fall of 2015.

Halliday Pearson – Please describe any issues related to the drain that you have experience.

Ray Little – Our parking lot floods. A pond was filled in on the west side of the drain – would that have anything to do with our flooding?

Halliday Pearson – The pond may, however, it is not identified as part of the Municipal Drain. By cleaning the drain (excavating sediment, brushing and grubbing vegetation), the drain will better convey water from the site. The intent is to alleviate flooding issues by restoring the drain to its original design.

Anna Godo – A portion of the 7th Concession Drain at the 401 was lowered under a previous report. Will you take advantage of the lowering of the drain?

Halliday Pearson – As part of our survey and design, we will consider lowering the drain if that would be advantageous and provide improved drainage for the affected lands.

Sam Paglia – Landowners have brought to my attention drainage issues along County Road 46. It may be necessary to establish a branch of the 7th Concession Drain and Extension to solve their drainage issues. We can discuss this as the design proceeds.

Greg Scott – We have an issue with drainage in our parking lot along North Talbot Road. The catchbasins were recently cleaned of sediment.

Sam Paglia – This parking lot may have been designed to contain the water and direct it to onsite catchbasins as part of the stormwater management design. After cleaning of the drain, the water may still sit onsite but it will drain away faster – water may sit for one day instead of two.

Greg Scott – Will North Talbot Road be dug up again as part of these works?

Sam Paglia – The working area will be specified in the report. Typically, only dump trucks and an excavator are used for drainage works. Accesses may be obstructed temporarily but major delays are not expected.

Greg Scott – How are assessments determined?

Sam Paglia – Assessments are determined based on the volume and rate of flow entering the drain from each parcel. A parcel's location on the drain also affected their assessment.

Joel Fillion – Morton Wholesale's parcel does not experience flooding.

Sam Paglia – It was noted that the drain has been enclosed along North Talbot Road. Our records do not reflect this change – the current drainage report shows an open drain in this area. The Engineer will examine the pipe to determine if they have been sized appropriately and will incorporate this enclosure into the report.

The meeting was adjourned at 9:40am.

**CONSTRUCTION SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
Page 1 of 4

COUNTY LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ -	\$ 35.00	\$ 35.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ -	\$ -	\$ 35.00	\$ 35.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ -	\$ 945.00	\$ 1,545.00	\$ 2,490.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ -	\$ 1,230.00	\$ 1,230.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 19,805.00	\$ 1,485.00	\$ 1,335.00	\$ 22,625.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ -	\$ 435.00	\$ 435.00
DelDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ -	\$ 175.00	\$ 175.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ -	\$ 770.00	\$ 770.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ -	\$ 805.00	\$ 270.00	\$ 1,075.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ 19,805.00	\$ 3,235.00	\$ 5,760.00	\$ 28,800.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
Page 2 of 4

Roll No.	Con.	Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$ -	\$ 1,700.00	\$ 3,105.00	\$ 4,805.00
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$ -	\$ 3,400.00	\$ 4,225.00	\$ 7,625.00
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$ -	\$ 1,160.00	\$ 2,230.00	\$ 3,390.00
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$ -	\$ 2,170.00	\$ 3,800.00	\$ 5,970.00
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$ -	\$ 2,310.00	\$ 3,965.00	\$ 6,275.00
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$ -	\$ 530.00	\$ 925.00	\$ 1,455.00
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$ -	\$ 1,630.00	\$ 2,520.00	\$ 4,150.00
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$ -	\$ 410.00	\$ 630.00	\$ 1,040.00
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$ -	\$ 505.00	\$ 765.00	\$ 1,270.00
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corporation	\$ -	\$ 965.00	\$ 1,470.00	\$ 2,435.00
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$ -	\$ 970.00	\$ 1,470.00	\$ 2,440.00
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$ -	\$ 9,470.00	\$ 14,620.00	\$ 24,090.00
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 18,740.00	\$ 1,360.00	\$ 2,030.00	\$ 22,130.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 26,180.00	\$ 1,355.00	\$ 1,770.00	\$ 29,305.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 17,790.00	\$ 1,020.00	\$ 1,210.00	\$ 20,020.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 22,825.00	\$ 1,720.00	\$ 1,205.00	\$ 25,750.00
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$ -	\$ -	\$ 745.00	\$ 745.00
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$ -	\$ -	\$ 750.00	\$ 750.00
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$ -	\$ -	\$ 750.00	\$ 750.00
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$ -	\$ -	\$ 480.00	\$ 480.00
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$ -	\$ -	\$ 625.00	\$ 625.00
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$ -	\$ -	\$ 635.00	\$ 635.00
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$ -	\$ -	\$ 760.00	\$ 760.00
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$ -	\$ -	\$ 870.00	\$ 870.00
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$ -	\$ -	\$ 905.00	\$ 905.00
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$ -	\$ 2,935.00	\$ 1,640.00	\$ 4,575.00
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$ -	\$ -	\$ 560.00	\$ 560.00
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$ -	\$ 775.00	\$ 405.00	\$ 1,180.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$ 39,620.00	\$ 22,770.00	\$ 11,900.00	\$ 74,290.00
550-07950	7	PT LT 13	15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$ -	\$ -	\$ 4,970.00	\$ 4,970.00
550-20025	7	PT LT 12	1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$ -	\$ 1,165.00	\$ 590.00	\$ 1,755.00
550-20023	7	PT LT 12	1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$ -	\$ -	\$ 380.00	\$ 380.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
550-20022	7	PT LT 12	1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ -	\$ 350.00	\$ 350.00
550-20021	7	PT LT 12	1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ -	\$ 350.00	\$ 350.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 775.00	\$ 1,720.00	\$ 570.00	\$ 3,065.00
550-18900	7	N PT LT 12	2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00309	7	PT LT 12	1.08	0.44	1.08	0.44	Filippo Liburdi	\$ -	\$ -	\$ 430.00	\$ 430.00
550-00308	7	PT LT 12	1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00307	7	PT LT 12	1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00306	7	PT LT 12	1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00305	7	PT LT 12	1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00304	7	PT LT 12	0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ -	\$ 395.00	\$ 395.00
550-07975	7	PT LT 12 & 13	2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ -	\$ 1,520.00	\$ 1,520.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ 3,590.00	\$ 1,505.00	\$ 16,955.00
Total on Privately Owned Non-Agricultural Lands-----								\$ 137,790.00	\$ 63,630.00	\$ 80,350.00	\$ 281,770.00
TOTAL ASSESSMENT -----								\$ 157,595.00	\$ 66,865.00	\$ 86,145.00	\$ 310,605.00
Total Area Assessed								143.01 acres			
								57.83 hectares			

**SPECIAL BENEFIT ASSESSMENTS
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017

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MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Road Crossings	Total Assessment
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ -	\$ 19,805.00	\$ 19,805.00
Total on Municipal Lands						\$ -	\$ 19,805.00	\$ 19,805.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

Roll No.	Con	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Excavation	Total Assessment
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 18,740.00	\$ -	\$ 18,740.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 26,180.00	\$ -	\$ 26,180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 17,790.00	\$ -	\$ 17,790.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 22,825.00	\$ -	\$ 22,825.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ -	\$ 775.00	\$ 775.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$ 39,620.00	\$ -	\$ 39,620.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ -	\$ 11,860.00
Total on Privately Owned Non-Agricultural Lands								\$ 137,015.00	\$ 775.00	\$ 137,790.00
TOTAL ASSESSMENT								\$ 137,015.00	\$ 20,580.00	\$ 157,595.00



**MAINTENANCE SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
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COUNTY LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ 5.00	\$ 5.00
						=====	=====	=====
Total on Municipal Lands	-----					\$ -	\$ 5.00	\$ 5.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ 85.00	\$ 50.00	\$ 135.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ 40.00	\$ 40.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 140.00	\$ 60.00	\$ 200.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
DeIDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ 50.00	\$ 50.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ 70.00	\$ 25.00	\$ 95.00
						=====	=====	=====
Total on Municipal Lands	-----					\$ 295.00	\$ 245.00	\$ 540.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
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Roll No.	Con.	Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$ 155.00	\$ 100.00	\$ 255.00
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$ 305.00	\$ 195.00	\$ 500.00
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$ 105.00	\$ 65.00	\$ 170.00
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$ 195.00	\$ 120.00	\$ 315.00
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$ 205.00	\$ 120.00	\$ 325.00
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$ 50.00	\$ 25.00	\$ 75.00
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$ 145.00	\$ 80.00	\$ 225.00
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$ 35.00	\$ 20.00	\$ 55.00
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$ 45.00	\$ 25.00	\$ 70.00
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corp	\$ 85.00	\$ 45.00	\$ 130.00
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$ 85.00	\$ 45.00	\$ 130.00
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$ 850.00	\$ 455.00	\$ 1,305.00
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 90.00	\$ 45.00	\$ 135.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 155.00	\$ 70.00	\$ 225.00
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$ -	\$ 35.00	\$ 35.00
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$ -	\$ 35.00	\$ 35.00
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$ -	\$ 35.00	\$ 35.00
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$ -	\$ 20.00	\$ 20.00
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$ -	\$ 30.00	\$ 30.00
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$ -	\$ 55.00	\$ 55.00
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$ -	\$ 60.00	\$ 60.00
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$ -	\$ 60.00	\$ 60.00
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$ 265.00	\$ 110.00	\$ 375.00
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$ -	\$ 40.00	\$ 40.00
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$ 70.00	\$ 25.00	\$ 95.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$2,045.00	\$ 775.00	\$ 2,820.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-07950	7	PT LT 13	15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$ -	\$ 310.00	\$ 310.00
550-20025	7	PT LT 12	1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$ 105.00	\$ 40.00	\$ 145.00
550-20023	7	PT LT 12	1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20022	7	PT LT 12	1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20021	7	PT LT 12	1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ 25.00	\$ 25.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 155.00	\$ 50.00	\$ 205.00
550-18900	7	N PT LT 12	2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ 40.00	\$ 40.00
550-00309	7	PT LT 12	1.08	0.44	1.08	0.44	Filippo Liburdi Construction	\$ -	\$ 30.00	\$ 30.00
550-00308	7	PT LT 12	1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00307	7	PT LT 12	1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ 30.00	\$ 30.00
550-00306	7	PT LT 12	1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00305	7	PT LT 12	1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ 30.00	\$ 30.00
550-00304	7	PT LT 12	0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ 25.00	\$ 25.00
550-07975	7	PT LT 12 & 13	2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ 110.00	\$ 110.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 320.00	\$ 110.00	\$ 430.00
Total on Privately Owned Non-Agricultural Lands-----								\$5,705.00	\$ 3,750.00	\$ 9,455.00
TOTAL ASSESSMENT -----								\$6,000.00	\$ 4,000.00	\$ 10,000.00

Total Area Assessed 143.01 acres
 57.83 hectares



SPECIFICATIONS
REPLACEMENT ACCESS CULVERTS
OVER THE 7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 PIPE MATERIAL

The Contractor shall supply and install or clean the following:

Access Culverts and Crossings:

- a. Culvert No. 8 at Station 1+379: 16.0 metres of 1800mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25mm corrugations and sloped gabion stone end of pipe protection;
- b. Culvert No. 9 at Station 1+544: 20.0 metres of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection;
- c. Culvert No. 3 at Station 1+854: 22.0 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations and concrete block headwalls;
- d. Culvert No. 4 at Station 1+909: 12.5 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- e. Culvert No. 5 at Station 1+957: 11.8 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- f. Culvert No. 6 at Station 2+034: 12.2 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- g. Culvert No. 7 at Station 2+054: 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls.

Existing enclosed pipe network to be cleaned:

- a. Station 2+386.6 to Station 2+848.8: Clean existing 450mm to 825mm diameter corrugated steel pipes including all inline manholes and catch basins.

2.0 WORKING AREA

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

3.0 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall dispose of excavated material as described below:

The Contractor shall spread and level excavate adjacent to the drain to a maximum depth of 300mm between:

Station 1+321 and Station 1+750
Station 2+054 and Station 2+386.6

The Contractor shall load, haul, spread and level excavate on lands adjacent to Station 1+404 and Station 1+750 and Station 2+069 and Station 2+386.61 between:

Station 1+750 and Station 1+825
Station 1+825 and Station 2+054.

4.0 LOCATION AND ELEVATION OF CULVERT

The location and elevations of the new culvert shall be according to the drawings, 14-105 Sheet 1 to Sheet 7.

5.0 PLACEMENT OF CULVERT

- a) The Contractor shall excavate all vegetation, topsoil and existing granular material from the bank slopes and bottom of the existing drain complete along with hauling materials off site.

The required work includes:

- i. The supply and installation of new pipe as described in Section 1.0 Pipe Material;
- b) The Contractor shall perform the excavation, placement of the pipe and backfill in a dry condition and shall provide all required pumps and/or equipment to enable the work to proceed in the dry.
- c) Supply and place sloped gabion stone end of pipe protection or concrete block headwalls, as required.

6.0 PIPE BACKFILL

After the pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec 1010 according to the attached plan. The backfill material shall be carefully placed so damage to or movement of the culvert is avoided and backfill materials shall be placed in layers not exceeding 300 mm in thickness, loose measurement. Each layer shall be thoroughly compacted in place to a Standard Proctor Density of 98% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Commissioner in charge.

7.0 QUARRIED ROCK END PROTECTION

Where specified and after the corrugated plastic pipe has been set and backfilled the Contractor shall install quarried rock erosion protection at each end of the pipe.

The backfill over the ends of the corrugated plastic pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope and between both side slopes.

7.0 QUARRIED ROCK END PROTECTION - Continued

The top 300 mm in thickness of the backfill over the ends of the corrugated plastic pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric. The geotextile filter fabric and quarried rock shall be placed to the complete satisfaction of the Municipality's Drainage Superintendent.

7.0 CONCRETE BLOCK HEADWALLS

Where specified and after the Contractor has set in place the new culvert, he shall completely backfill the same and install new concrete block headwalls at the locations indicated on the drawing. The Contractor shall completely backfill in behind the new concrete block headwalls with granular material, Granular "A" and "B" per O.P.S.S. 1010 and as additionally specified under Special Provisions Item No. 11.0 and the granular material shall be compacted in place with a standard proctor density of 100%. The granular backfill shall be placed and compacted in lifts not to exceed 300 mm (12 inches) in thickness.

Upon completion of the concrete block headwall the Contractor shall cap the top row of concrete blocks with a prefabricated concrete cap. The Contractor shall fill all voids between the concrete blocks and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

8.0 ALIGNMENT

The alignment of the enclosure throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge.

9.0 LOCATION OF STRUCTURES, ETC.

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object that he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Town and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Town or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

Numerous catchbasins were noted in the front portion of numerous properties along the length of the drain. The Contractor shall take care to not damage any catchbasin or connection into the drain. Should a catchbasin or connection be damaged, it shall be replaced by the Contractor at his cost.

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD- Continued

have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

11.0 CONSTRUCTION SAFETY

The Contractor shall comply with all the requirements of the Occupational Health and Safety Act, 1990 and the regulations passed in connection therewith, as administered by the Ontario Ministry of Labour and all subsequent amendments of the said Act.

The Contractor shall exercise all possible precaution against injury to persons or property resulting from his work. The Contractor shall leave no trenches, pits, holes or excavations uncovered, without providing sufficient protection at all times. The Contractor shall install, erect and provide barricades, signs, traffic cones, flashers, lights, plates, warning and other devices, materials and personnel as may be required and at his own expense in order to provide for the safe passage and control of traffic and to ensure public safety. All traffic control shall be in accordance with the latest standards of the Ministry of Transportation.

12.0 CERTIFICATE OF CLEARANCE

The Contractor will be required to submit to the Municipality a Certificate of Good Standing from the Workplace Safety & Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Municipality, a Certificate of Clearance for the project from the Workplace Safety & Insurance Board before final payment is made to the Contractor.

13.0 PROGRESS ORDERS

Monthly progress orders for payment shall be furnished to the Contractor by the Commissioner in charge; said orders shall not be for more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 45 days after the final acceptance and completion of the work.

14.0 CLEANING UP

The Contractor shall leave the whole of the site of the work in a neat, thorough and workmanlike appearance to the full satisfaction of the Commissioner. He shall haul away any excess earth from the site. He shall haul to the site, sufficient earth to fill any depressions caused by his work at his own expense. The site shall be left as close as possible in the same condition as it was prior to the commencement of the work.

15.0 MEASUREMENT AND PAYMENT

Payment for the work shall be on a unit price basis unless otherwise indicated and shall include all the work shown on the accompanying drawings and specifications.

16.0 MAINTAINING FLOW

The Contractor shall maintain the flow of any drainage works encountered in the progress of the work and at no expense to the Owner. The Contractor shall obtain written approval from the Commissioner in charge to stop up any drain and if necessary provide pumping equipment, build necessary by-passes, etc. at no expense to the Owner.

17.0 COMMISSIONER

Where the work "Commissioner" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction, to superintend the work.

The Commissioner will be permitted to make minor variations in the work so long as these variations will result in a more satisfactory project or a more economical one. These variations, however, must not be such as to change the intent of the work performed nor are they to reduce the standard of quality.

18.0 NOTIFICATION OF WORK

Prior to commencing any work of installing the extension of the culvert or removing any existing structures, the Contractor shall inform the Municipality's Drainage Superintendent of his intent to commence work at least 48 hours prior to commencing any work. The Owner or Contractor shall endeavour to install and complete the new structure without delay once he has commenced the work. If for any reason the work does not proceed continuously then the Owner or Contractor shall notify the Drainage Superintendent in advance of any backfilling operation or headwall construction so that he may schedule inspection of same. The completed work must be done to the satisfaction of the Municipality's Drainage Superintendent and be approved by him.

19.0 MAINTENANCE

The Contractor shall repair and make good at his expense any damages or faults in the work that may appear within one year after its completion (as evidenced by the final inspection report), as the result of imperfect or defective work done or materials furnished. Nothing herein contained shall be construed as any way restricting or limiting the liability of the Contractor under the appropriate laws under which the work is being done.

20.0 PROPERTY BARS

The Contractor shall note the presence of numerous iron property bars along the course of the work. The Contractor shall make every effort to protect all property bars. The cost of replacing any property bar destroyed by the Contractor will be paid by the Contractor.

21.0 PROVISIONAL ITEMS

Items of work included in the Form of Tender noted as "Provisional" may be deleted from the Contract at any time at the discretion of the Owner. If any Provisional Item, or part thereof, is deleted from the requirements of the Contract, the Contractor will have no claim against the Owner for so doing and the Contractor must take this requirement into consideration when determining his unit prices and his Total Tender Price.

Provisional prices tendered shall be in effect until issuance of the final payment certificate.

SPECIFICATIONS
ENVIRONMENTAL PROTECTION SPECIAL PROVISIONS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 GENERAL

These Environmental Protection Special Provisions shall apply and form part of this Contract. All costs associated to conforming with these Special Provisions shall be included in the Tender prices bid.

2.0 FIRES

Fires and burning of rubbish on site will be permitted only with special approval from the Municipality.

3.0 DISPOSAL OF WASTES

The Contractor shall not bury rubbish and waste materials on site unless approved by the Engineer and all applicable approving authorities. The site shall be maintained free of accumulated waste and rubbish. All waste materials should be disposed of in a legal manner at a site approved by all local approving authorities and the Engineer.

The Contractor shall not allow deleterious substances, waste or volatile materials such as mineral spirits, or paint thinner, to enter into waterways, storm or sanitary sewers.

The disposal of dredge material where applicable shall be in accordance with the above.

4.0 POLLUTION CONTROL

The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed. The Contractor shall control emissions from equipment and plant to local authorities emission requirements. The Contractor shall not cause excessive turbidity when performing in-water work. The Contractor shall not allow any debris, fill or other foreign matter to enter into the waterway. The Contractor shall remove from the waterway, all extraneous materials resulting from in-water work.

The Contractor shall abide by local noise By-Laws for the duration of the Contract.

Spills of deleterious substances into waterways and on land shall be immediately contained by the Contractor and the Contractor shall cleanup in accordance with Provincial regulatory requirements. All spills shall be reported to the Ontario Spills Action Centre (1-800-268-6060), local authorities having jurisdiction and the Engineer. To reduce the risk of fuel entering the waterway, refuelling of machinery must take place a safe distance from the waterway. The Contractor shall note that the Engineer or the Owner takes no responsibility for spills, this shall be the sole responsibility of the Contractor.

5.0 WHMIS

The Contractor shall comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and regarding labelling and the provision of material safety data sheets acceptable to Labour Canada.

6.0 DRAINAGE

The Contractor shall not pump water containing suspended materials into waterways, sewers or drainage systems. The Contractor shall be solely responsible for the control, disposal or runoff of water containing suspended materials or other harmful substances in accordance with these specifications, and local authority requirements. The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and site free from water.

The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

7.0 PROTECTION OF VEGETATION

The Contractor shall exercise the utmost caution to ensure that existing trees and plants on-site and on adjacent properties are not damaged or disturbed unless noted otherwise in the Removals Special Provisions of this Contract. The Contractor shall restrict tree removal to areas indicated on the Contract Drawings and/or designated on-site. No trees or shrubs shall be removed without the approval of the Engineer and/or Drainage Superintendent. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

8.0 DUST CONTROL

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.

Water and calcium chloride shall be applied to areas on or adjacent to the site as authorized by the Engineer as being necessary and unavoidable for the prevention of dust nuisance or hazard to the public. No payment will be made for dust control unless otherwise specified in the Special Provisions.

9.0 RESTRICTIONS FOR IN-WATER WORKS

The Contractor shall only perform in-water works during times when conditions permit reasonable production rates to be achieved. The Contractor shall be required to adopt good housekeeping practices that minimize disturbance to the site and the adjacent waterway.

The Contractor shall note that this Project is subject to approval from the Essex Region Conservation Authority and as such, any possible turbidity caused by the construction of the shore protection works is of key importance.

The Contractor shall minimize the turbidity (sedimentation) produced by any in-water works construction or operations. The Contractor will be ordered to cease operations if, in the opinion of the Engineer or authorities having jurisdiction, the in-water work is producing unacceptable amounts of turbidity in the waterway. Based on this, the Contractor shall either adjust his operation(s) to produce lower turbidity levels, wait for more favourable conditions before

9.0 RESTRICTIONS FOR IN-WATER WORKS - Continued

operations will be allowed to continue, or undertake approved mitigating measures (e.g. sediment control, etc.). All costs associated with the above will be the sole responsibility of the Contractor, and no claims for extras or delays will be considered.

10.0 FISH HABITAT

No work shall be undertaken when there is likelihood of adverse effects on fish spawning or fish habitat in downstream waters.

GENERAL SPECIFICATIONS
FOR CONSTRUCTION OF OPEN DRAINS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Each tenderer must visit the site and review the plans and specifications before submitting his tender and must satisfy himself as to the extent of the work and local conditions to be met during the construction period. He is not to claim at any time after submission of his tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions. The quantities shown as indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking quantities for accuracy prior to submitting his tender.

2.0 SUPPLY OF MATERIALS

The Contractor shall supply all labour, equipment and materials necessary for the proper completion of the project.

3.0 PROFILE

The excavation of the drain must be at least to the depth intended by the grade line as shown on the profile, which grade line is governed by the bench marks. The profile shows, for the convenience of the Contractors and others, the approximate depth of cut from the surface of the ground at the points where the numbered stakes are set to the final invert of the channel and also the approximate depth of cut from the bottom of the existing channel to the final invert of the channel. Bench marks which have been established along the course of the drain, shall govern the final elevation of the drain. The location and elevation of the bench marks are shown on the profile.

4.0 ALIGNMENT

The alignment of the drain throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge. The bottom widths and side slopes of the various sections of the finished drain are to be true to line and grade as shown on the profile. When completed the drain shall have a uniform and even bottom and in no case shall such bottom project above the grade line as shown on the accompanying drawing, and as determined from the bench mark.

5.0 BRUSHING AND GRUBBING

Brush or rubbish shall be grubbed out and close cut on the bank of the working side of the drain including the strip of land between where the earth is to be cast and spread and the top of the drain. The brush or rubbish shall be loaded, hauled and disposed of offsite at a location determined by the Contractor and at his expense. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

5.0 BRUSHING AND GRUBBING - Continued

Existing select hardwood trees greater than 200 mm (8") in diameter situated in the drain bank within 1.0 metre from the top of the bank may be selectively left standing if the Drainage Superintendent considers the trees will not adversely affect the flow of water within the drain. Prior to removing any trees the Contractor shall meet at the site with the Drainage Superintendent to review if any vegetation or select trees are environmentally significant for preservation.

6.0 DISPOSAL OF MATERIAL

The Contractor shall dispose of excavated material as follows: All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense.

7.0 SPREADING EXCAVATED EARTH

All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense. No material shall be cast and spread on the adjacent industrial lands.

7.0 FENCING

Where it is necessary to take down any fence in order to proceed with the work, the same shall be done by the Contractor across or along that portion of the work where such fence is. The Contractor will be required to exercise extreme care in the removal of any fence so as to cause a minimum of damage to the same. The Contractor will be required to replace any fence that is taken down in order to proceed with the work and the fence shall be replaced in a neat and workmanlike manner. The Contractor will not be required to procure any new materials for rebuilding the fence provided he has used reasonable care in the removing and replacing of the same. Where any fence is removed by the Contractor and the Owner thereof deems it advisable and procures new material for replacing the fence so removed, the Contractor shall replace the fence using the new materials and the materials from the present fence shall remain the property of the Owner. The Contractor is not to leave any fences open when he is not at work in the immediate vicinity.

8.0 LOCATION OF STRUCTURES AND UTILITIES

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object which he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Municipality and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Municipality or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

9.0 ACCESS CULVERTS AND CROSSINGS

Culverts and crossings shall be cleaned or removed and replaced as described as follows:

Between Station 2+386.6 and Station 2+848.8: All pipes and structures shall be cleaned; all excess material shall be disposed of offsite at a location determined by the contractor at his expense.

Culvert No. 8 at Station 1+379: Culvert shall be removed and replaced as described in

9.0 ACCESS CULVERTS AND CROSSINGS - Continued

Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 9 at Station 1+544: Culvert shall be constructed as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 3 at Station 1+854: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 4 at Station 1+909: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 5 at Station 1+957: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 6 at Station 2+034: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 7 at Station 2+054: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

10.0 BACKFILL FOR CULVERTS

Where specified and after the corrugated plastic pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec. 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Drainage Superintendent or Engineer.

11.0 ROCK PROTECTION FOR CULVERTS

The backfill over the ends of the pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope and between both side slopes. The top 30 cm in thickness of the backfill over the ends of the pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric.

12.0 PLACING OF CULVERT PIPE

When specified the Contractor shall install all culvert bridges in the location directed by the Engineer. The excavation for placing the culvert, the type and class of bedding and backfill and culvert end treatment shall be carried out to the width, depth and alignment as specified herein. The surface on which the culvert is to be laid shall be true to grade and alignment and shaped to accept the materials to be placed. The pipe shall be laid to the alignment and grade shown in the report but may not be placed on a bed containing frozen materials. The Contractor shall carefully place the bedding and backfill material so damage to or movement of the pipe is avoided. Backfill and cover materials shall be placed in layers not exceeding 250 mm in thickness, loose measurement. Each layer shall be thoroughly compacted before the next layer is placed. Backfill on each side of the pipe shall be placed simultaneously and at no time shall the levels on each side of the pipe differ by more than 250 mm. Where native backfill is approved to be used the material shall not contain boulders larger than 150 mm or other deleterious material. The Contractor will be required to fully restore all paved driveways with materials of similar type and depths. The Contractor shall neatly saw cut all paved driveways at a distance of 300 mm beyond the edge of the excavated trench and this shall be done immediately prior to final restoration of the paved driveway.

When an access culvert or bridge does not have to be lowered or replaced, the Contractor shall clean it to its full cross sectional area using care to avoid causing damage to it in the process. Where a pipe culvert is to be reset to a new grade, the Contractor shall carefully remove it, clean it to its full cross sectional area and replace it in the drain as specified herein. Where a culvert is to be replaced, the Contractor shall carefully remove the existing pipe from the drain, clean it to its full cross sectional area and leave it on the drain bank unless otherwise specified. Should either the property owner or the Commissioner in charge not require the salvaged pipe then the Contractor shall dispose of the pipe at the Contractors expense.

The Contractor if using a batter board system for establishing the grade of the culvert pipe, shall utilize a minimum of three batter board stakes for each culvert. The Contractor shall ensure that the batter board stakes placed on the grade stakes shall line up, this being done prior to any excavation taking place for the proposed culvert.

Where pipes are scheduled to be moved or replaced the Contractor shall confirm the new location of the culvert pipe with the owner prior to installation. Where the Contractor has excavated a culvert pipe which has been scheduled to be cleaned and reinstalled and it is found that the condition of the existing culvert pipe is not satisfactory to be reused, the Contractor shall immediately notify the Commissioner in charge who will verify the condition of the existing pipe and may instruct the Contractor to supply a new length of corrugated plastic pipe.

Where pipes are scheduled to be cleaned and flushed only, the material which is removed from the culvert pipe is to be loaded and hauled away. Over digging of the drain at the downstream end of the culvert to accommodate material flushed from a culvert pipe will not be allowed.

13.0 CUTS

The cuts as shown on the accompanying drawing are to be taken from the ground beside the stakes to the bottom of the finished drain, unless otherwise noted on the drawing.

14.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

15.0 SEEDING AND MULCHING

The Contractor will be fully responsible for the restoration of all areas disturbed by his operations in the carrying out this work. The Contractor shall excavated and set aside sufficient topsoil from the trench excavation or supply additional topsoil so that he can place a minimum of 100mm in depth of topsoil over the backfilled trench as detailed on the drawings. Any depressions in any lawn caused by equipment or due to the movement of materials shall be backfilled with topsoil and satisfactorily levelled and raked in place on all lawn areas to be restored.

The Contractor shall fine grade the finished surfaces and shall apply hydroseeding and mulch. The seeding and mulching operation shall be carried out according to O.P.S.S. Spec. 572 or as amended herein and the operation shall include the supplying and placing of the following:

- | | | | |
|----|--------------|--|-------|
| A) | Seed Mixture | - Creeping Red Fescue | - 50% |
| | | - Red Top | - 20% |
| | | - Canada Blue Grass | - 15% |
| | | - Kentucky Blue Grass | - 15% |
| B) | Nurse Crop | - Oats if seeding and mulching is performed during May or June. | |
| | | - Annual Rye Grass if seeding and mulching is performed during Sept. or Oct. | |
| C) | Fertilizer | - 5-20-10 mixture | |
| D) | Mulch | - Wood Cellulose Fibre or Straw | |
| E) | Adhesive | - Asphalt Emulsion if straw mulch used | |
| | | - Liquid Polyvinyl Acetate if wood fibre mulch used | |

The application rates shall be as follows:

- A) Grass Seed Mixture - 90 lbs./acre
- B) Fertilizer - 350 lbs./acre
- C) Nurse Crop Seed - 55 lbs./acre
- D) Mulch - 1300 lbs./acre if wood fibre used
- 1" to 2" depth if straw used
- E) Adhesive - 200 imp.gal/acre for Asphalt Emulsion
- 205 lbs./acre for Liquid Polyvinyl Acetate

The seeding and mulching operation shall be only carried out as weather conditions permit during the months of May and June in the Spring, and September and October in the Fall. If the excavation work is carried out during the months of May and June, or September or October, the Contractor has the option of contacting the Drainage Superintendent and if the Contractor receives his written permission, the seed mixture as above specified, may be placed on the excavated side slopes by the Contractor by hand, daily, at the completion of his daily excavation operation. If the Contractor has been given written permission by the Drainage Superintendent

15.0 SEEDING AND MULCHING - Continued

to place the seeding mixture by hand daily, at the completion of his daily excavation operation, the Contractor shall be responsible to give the side slopes a rough, harrowed texture prior to placing the seed mixture.

16.0 QUARRIED ROCK

The Contractor shall place quarried rock protection at the areas indicated on the accompanying plans or as directed by the Engineer. The quarried rock shall be graded in size from a minimum size of 100 mm to a maximum size of 230 mm. The quarried rock shall be placed 300 mm in thickness on a layer of geotextile filter fabric placed on the bottom of the excavation. The filter fabric shall be "Terrafix 270-R" or equal. The Contractor shall excavate for the quarried rock so that the top of the completed quarried rock protection is level with the adjacent ground.

The Contractor shall remove all trees, brush and debris from the area on which the quarried rock is to be placed. The quarried rock shall be carefully placed by the Contractor at the locations and to the dimensions as shown on the accompanying specifications. The specified filter cloth shall be hand laid and have an overlap of 600 mm and all quarried rock that is to be placed over the filter cloth shall be carefully hand or machine placed so that it does not damage the filter cloth. The filter cloth shall extend up the sides of the trench excavated to accept the quarried rock and the quarried rock shall extend 300 mm above the top of the surface inlet pipe where applicable.

17.0 MAINTAINING FLOW AND EXISTING SEWERS

The Contractor shall support and maintain the flow and existing sewers and house connections and any other drainage works encountered in the progress of the work and at no expense to the owner. The Contractor shall obtain written approval from the engineer to stop up any drain, and if necessary, provide pumping equipment, build necessary by-passes, etc. at no expense to the owner.

18.0 SPECIAL PROVISIONS

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

19.0 REMOVAL OF TREES

The Contractor shall reference General Specification No. 5 prior to removing any vegetation near or within the drain. Whenever practical, existing trees not scheduled for removal will be preserved. The Contractor shall exercise the utmost caution to ensure that the trees are not damaged or disturbed. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

20.0 HIGH-PRESSURE GAS MAIN

Further to Section 8.0 Location of Structures and Utilities, a high-pressure gas main is aligned parallel to the south side of the former railway right-of-way. There is sufficient depth of cover; however, third party observation by a Union Gas representative will be required during construction when digging within 1.5 metres of the utility due to the size and pressure of the

20.0 HIGH-PRESSURE GAS MAIN - Continued

main. The Contractor shall provide notice three business days prior to the start of excavation at 1-855-228-6535.

Should abandoned infrastructure be found within the working area, the following shall be noted and performed:

- Assume any excavated pipe is live;
- If during the course of any project, a pipe is found that is not on the locate sheet and is in conflict with the work, the Contractor shall call the Union Gas emergency number (1-877-969-0999) to speak with a Union Gas representative to determine if the utility is live or dead;
- A Union Gas representative will respond to the live or dead call within 1-4 hours so the Contractor must plan accordingly.

ATTENTION:

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, REVISED STATUTES OF ONTARIO, 1990 CHAPTER 0.1 AS AMENDED, ONTARIO REGULATION 213/91, R.R.O. 1990 REG. 834 AS ADMINISTERED BY THE ONTARIO MINISTRY OF LABOUR AND ALL SUBSEQUENT AMENDMENTS OF SAID ACT.

CAUTION:

THE LOCATION OF THE UNDERGROUND UTILITIES AS SHOWN ON THE DRAWING ARE APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES DURING THE CONSTRUCTION OF THE PROJECT. THE CONTRACTOR AGREES TO INDEMNIFY THE OWNER AND CROZIER BAIRD ENGINEERS AGAINST ANY CLAIMS WHICH ARISE FROM HIS ACTIONS.

SHEET SET INDEX:

SHEET NO.	SHEET TITLE
1	TITLE PAGE
2	DRAINAGE AREA
3	PROFILE 1+146 TO 1+900
4	PROFILE 1+900 TO 2+656
5	PROFILE 2+656 TO 2+848
6	CROSS SECTIONS
7	CROSS SECTIONS

NOTE:

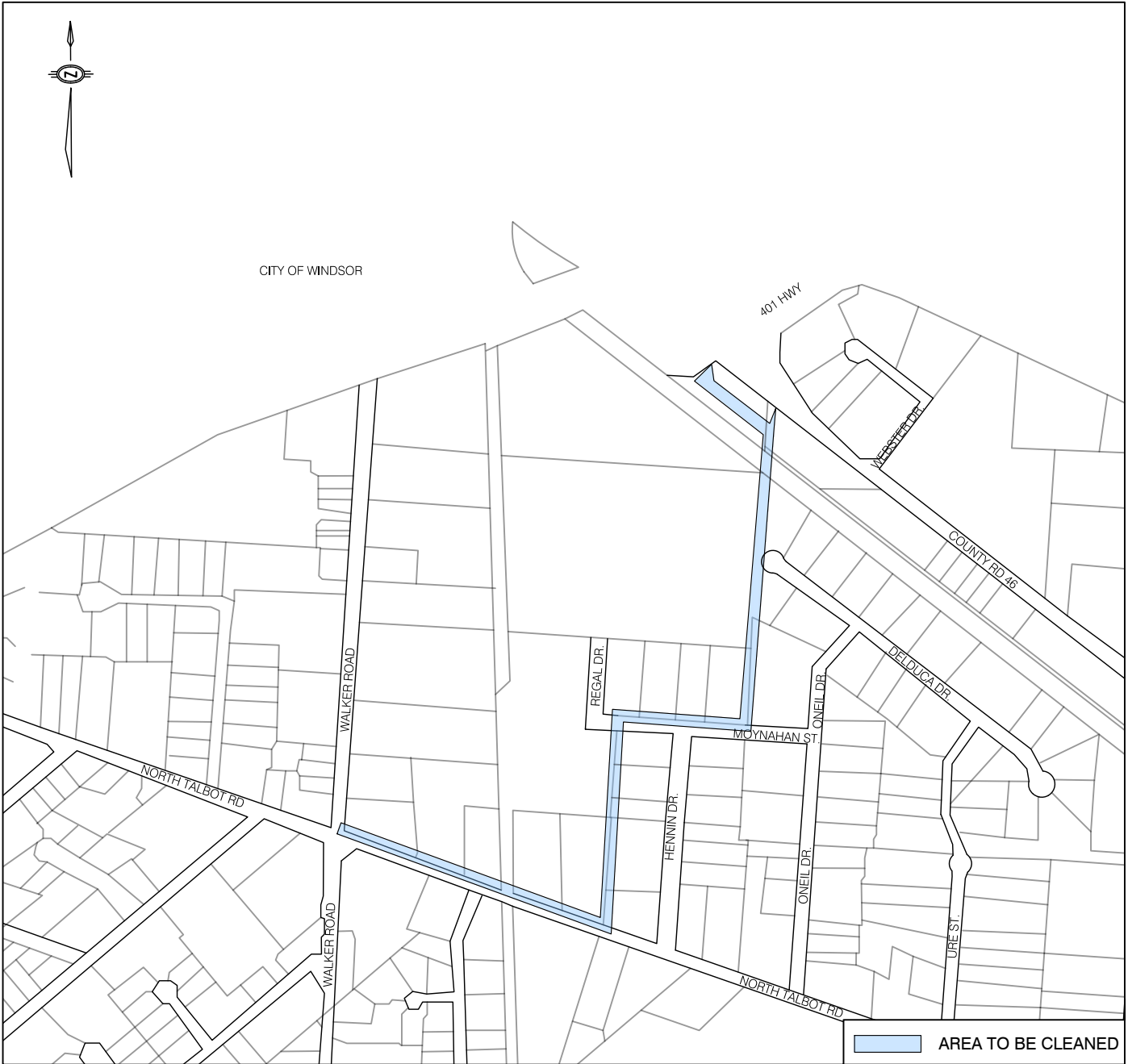
THE PROPERTY LINES AND DIMENSIONS SHOWN ARE BASED ON SURVEY BARS FOUND ON THE SITE AND ARE NOT BASED ON A SURVEY DRAWING PRODUCED BY AN ONTARIO LAND SURVEYOR. THE PROPERTY LINES SHOULD BE CONSIDERED AS APPROXIMATELY ONLY AND NOT A LEGAL PLAN OF SURVEY

NOTE:

CONFIRM PRESENCE OF BURIED PIPELINE PARALLEL TO NORTH RAIL BURIED 4-5' DEEP

BENCHMARK

- No. 1 STA: 2+714: TOP NUT OF FIRE HYDRANT EAST OF WALKER ROAD AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.665 METRES.
- No. 2 STA: 2+463: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.740 METRES.
- No. 3 STA: 2+485: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.967 METRES.
- No. 5 STA: 2+065: TOP NUT OF FIRE HYDRANT WEST OF MOYNAHAN ST. AND HENININ DR.
GPS ELEVATION 191.466 METRES.
- No. 6 STA: 1+563 TOP NUT OF FIRE HYDRANT NEAR THE WEST END OF DELDUCA DR.
GPS ELEVATION 191.117 METRES.



KEY PLAN
SCALE: N.T.S



27 PRINCESS STREET, SUITE #102
LEAMINGTON, ONTARIO
N8H 2X8

1000 - 267 PELISSIER STREET,
WINDSOR, ONTARIO
N9A 4K4.

PROJECT TITLE:


REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN

TOWN OF TECUMSEH

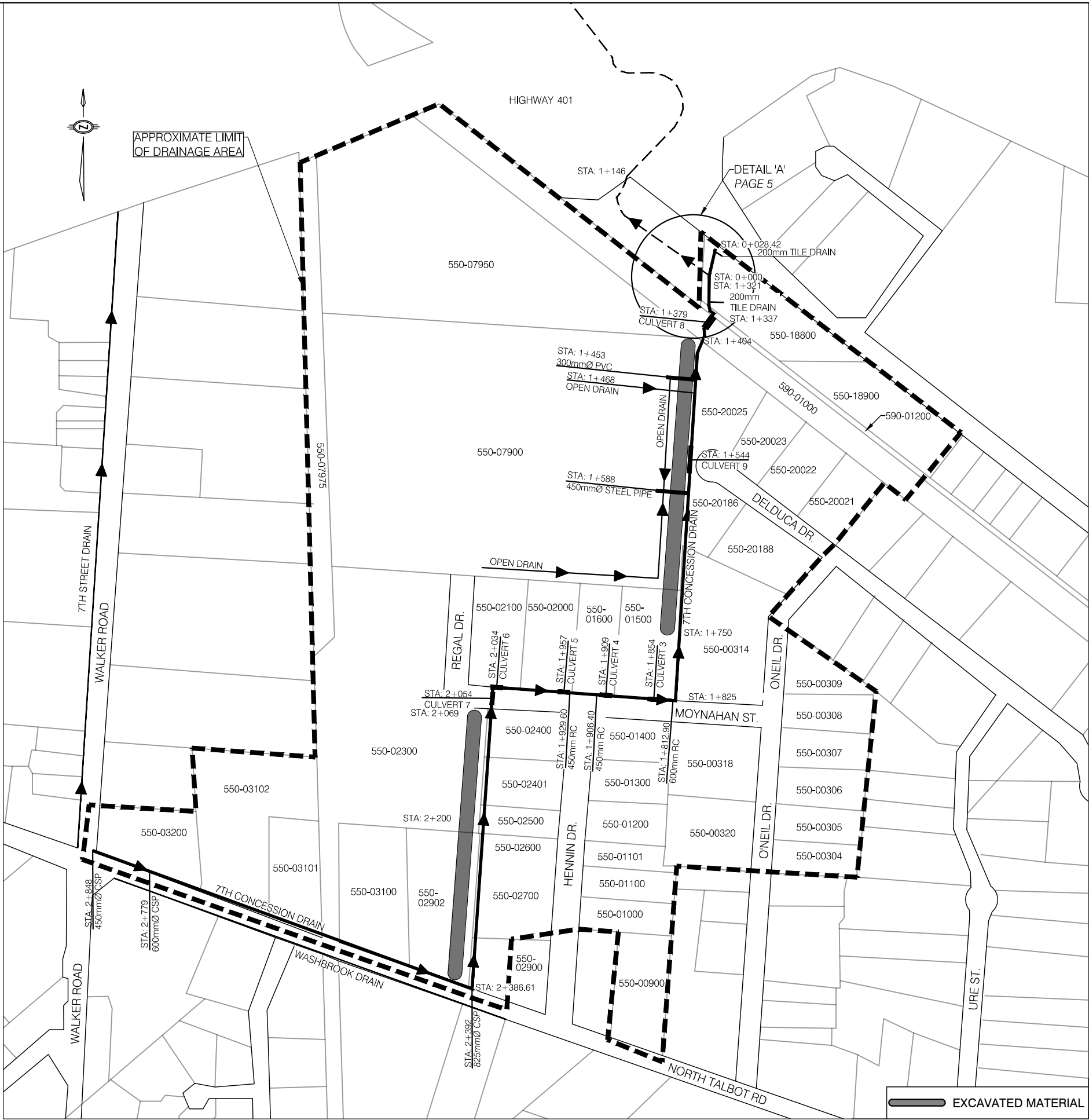
PAGE TITLE:

TITLE PAGE




DON J. JOUDREY, P.ENG.

DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
CHKD BY: D.A.J./H.P.P.	SHEET No. : 1 OF 8	PROJECT No. : 14-105

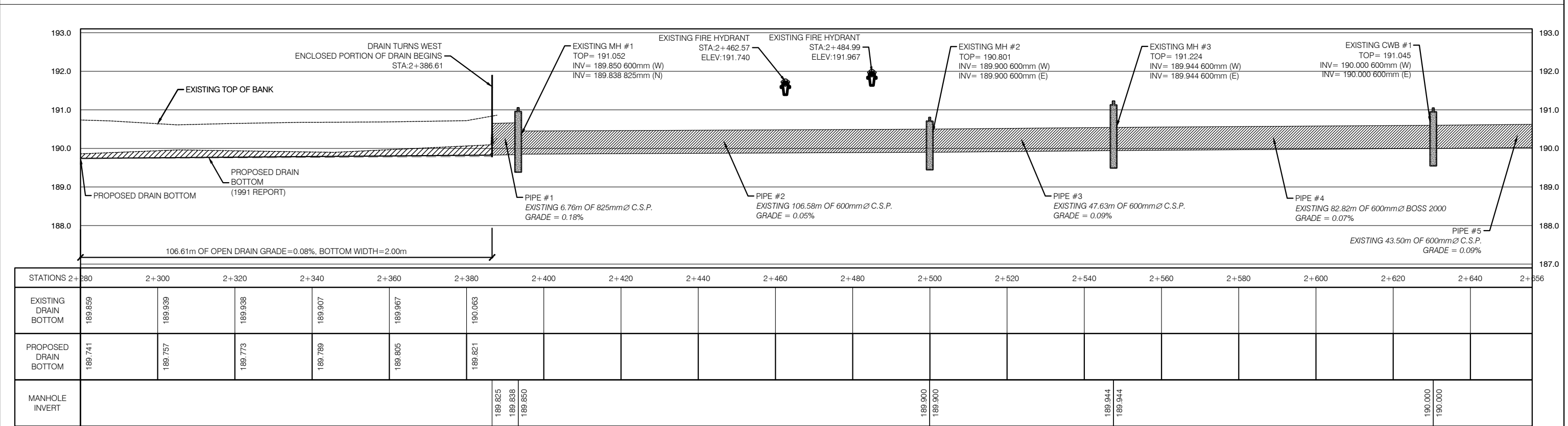
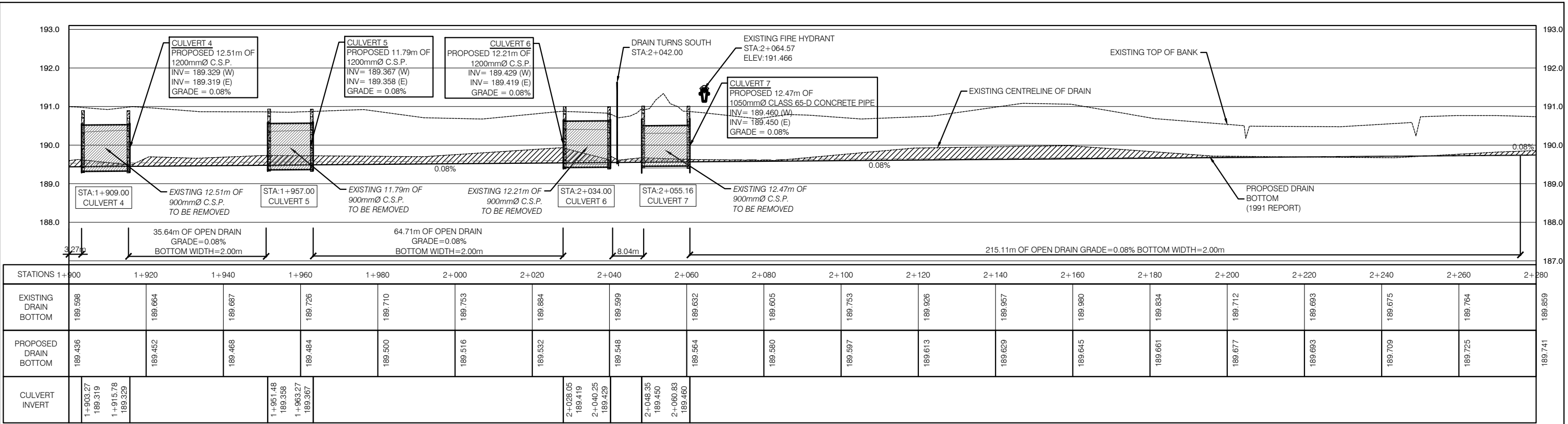


DRAINAGE AREA PLAN
SCALE: N.T.S.

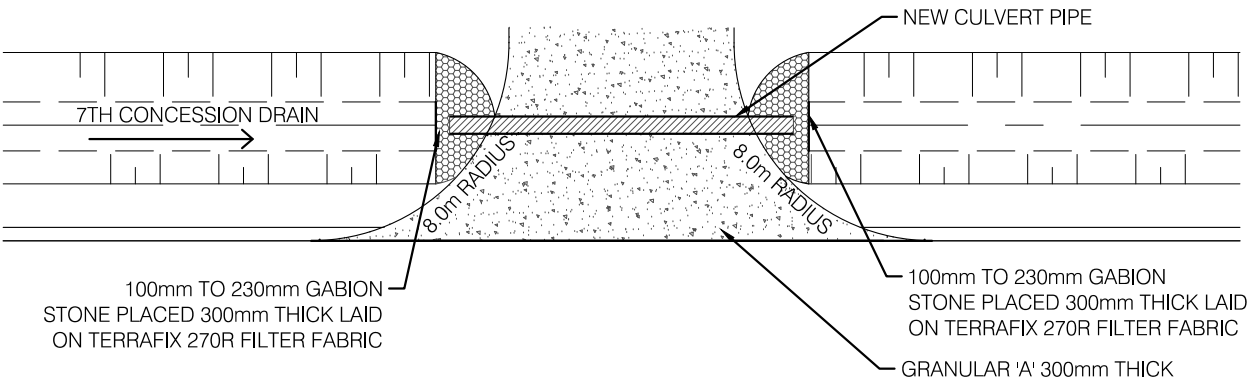
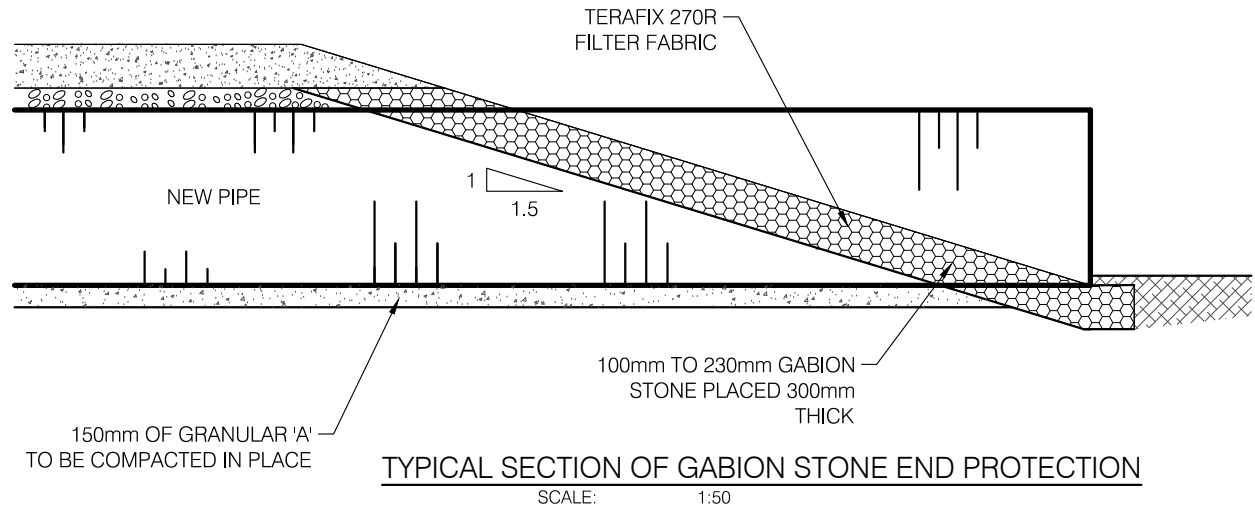
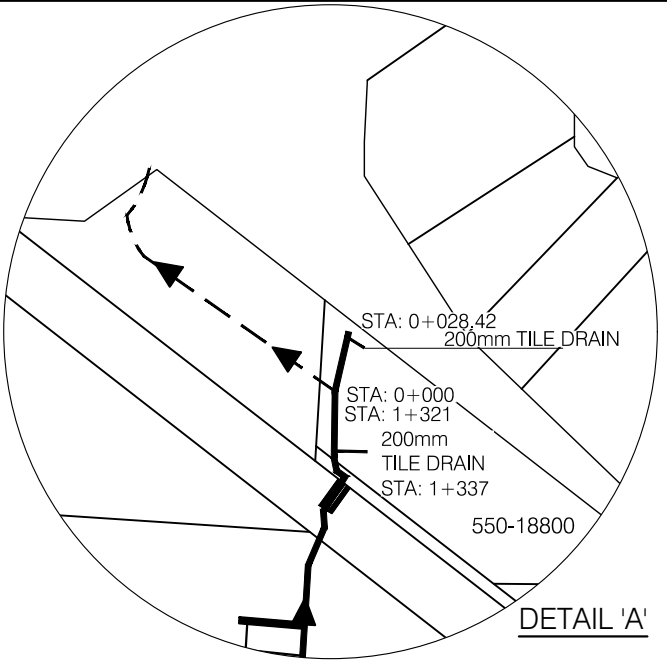
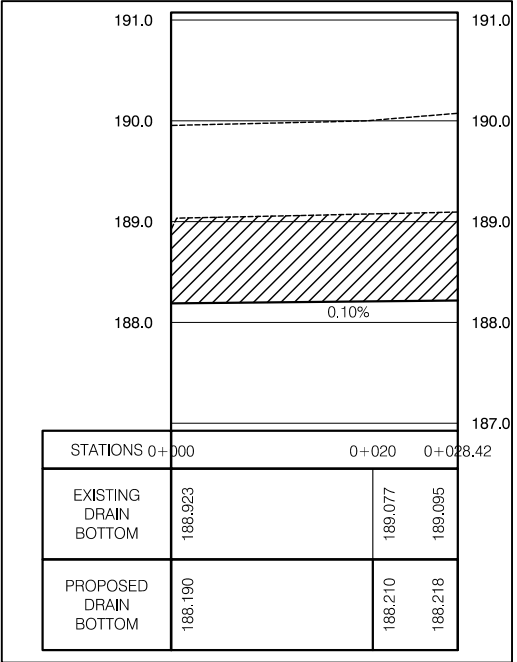
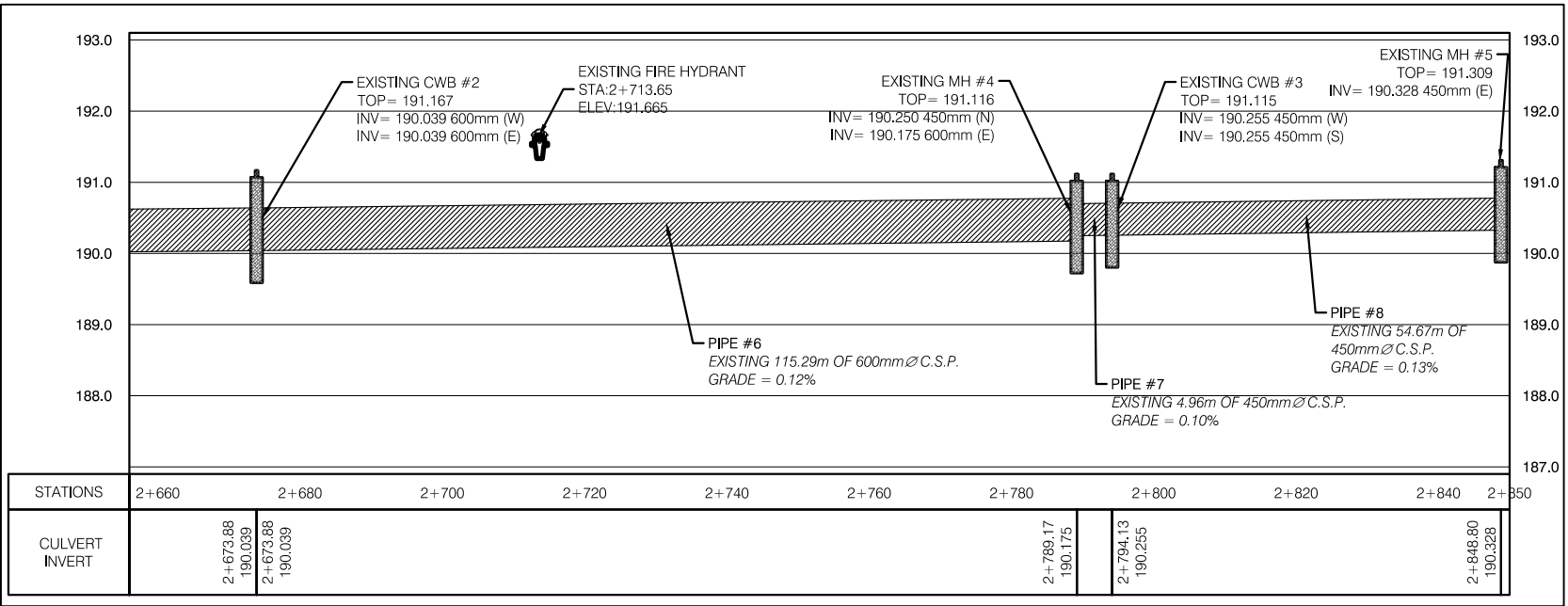
Roll No.	Owner
550-00304	Greycliffe Consultants
550-00305	KBC Tools Inc.
550-00306	997103 Ontario Ltd.
550-00307	Linda Jahn and Cheryl Jahn
550-00308	KFJ Holdings Ltd.
550-00309	Filippo Liburdi
550-00314	Hero's Fountain Ltd.
550-00318	Linda Jahn and Cheryl Jahn
550-00320	Timothy Capital Corp.
550-00900	Generation Development Contractors Inc.
550-01000	Fraven Management Ltd.
550-01100	TJ Watson Land Development Inc.
550-01101	Peter Macera
550-01200	Sernacon Holdings Inc.
550-01300	1061175 Ontario Ltd.
550-01400	Electra-Tech Manufacturing Inc.
550-01500	SGM Real Estate Holdings ULC
550-01600	Adine Builders Ltd.
550-02000	Gail Rodzik and Pamela Rodzik
550-02100	Gail Rodzik and Pamela Rodzik
550-02300	1147048 Ontario Ltd.
550-02400	Grande Line Estates Ltd.
550-02401	T.C.T.T. Investment Group
550-02500	ARC Boiler Repair Ltd.
550-02600	Fraven Management Ltd.
550-02700	Fraven Management Ltd.
550-02900	Bolzano Tool and Die Company Ltd.
550-02902	Morbella Holdings Ltd.
550-03100	Daniela Calsavara
550-03101	Generation Development Contractors Inc.
550-03102	ITW Canada Management Company
550-03200	Morton Wholesale Ltd. (Corporation)
550-07900	Wannabe Radical Inc.
550-07950	Wannabe Radical Inc.
550-07975	1233831 Ontario Ltd.
550-18800	905364 Ontario Ltd.
550-18900	401 Mack Ltd.
550-20021	Calframax Holdings Inc.
550-20022	Paul Cesidio DiGiovanni
550-20023	Paul Cesidio DiGiovanni
550-20025	Paul Cesidio DiGiovanni
550-20186	2376238 Ontario Ltd.
550-20188	Hero's Fountain Ltd.
590-01000	Detroit River Tunnel Company
590-01200	Town of Tecumseh

PARCEL INFORMATION

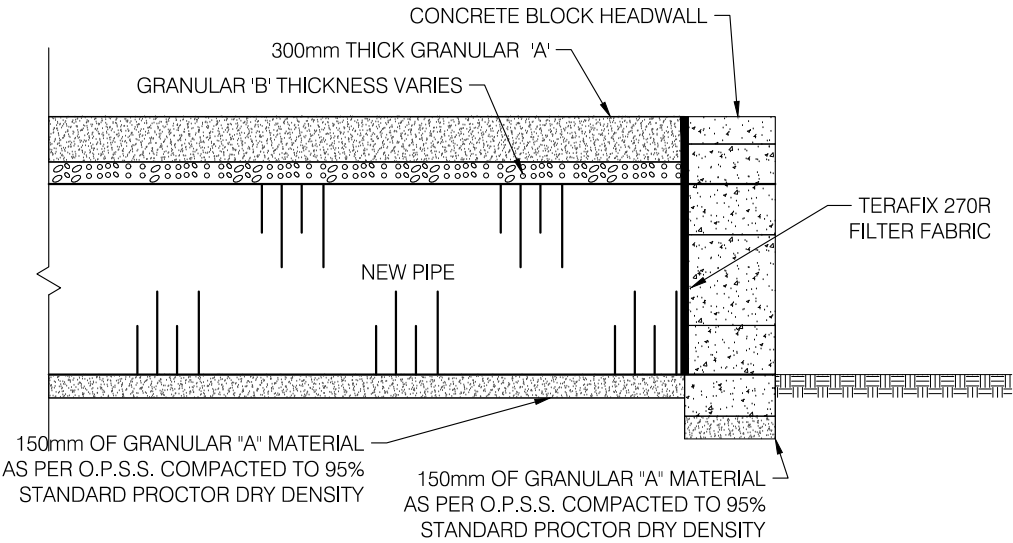
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TOWN OF TECUMSEH			
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 2 OF 8	PROJECT No. : 14-105



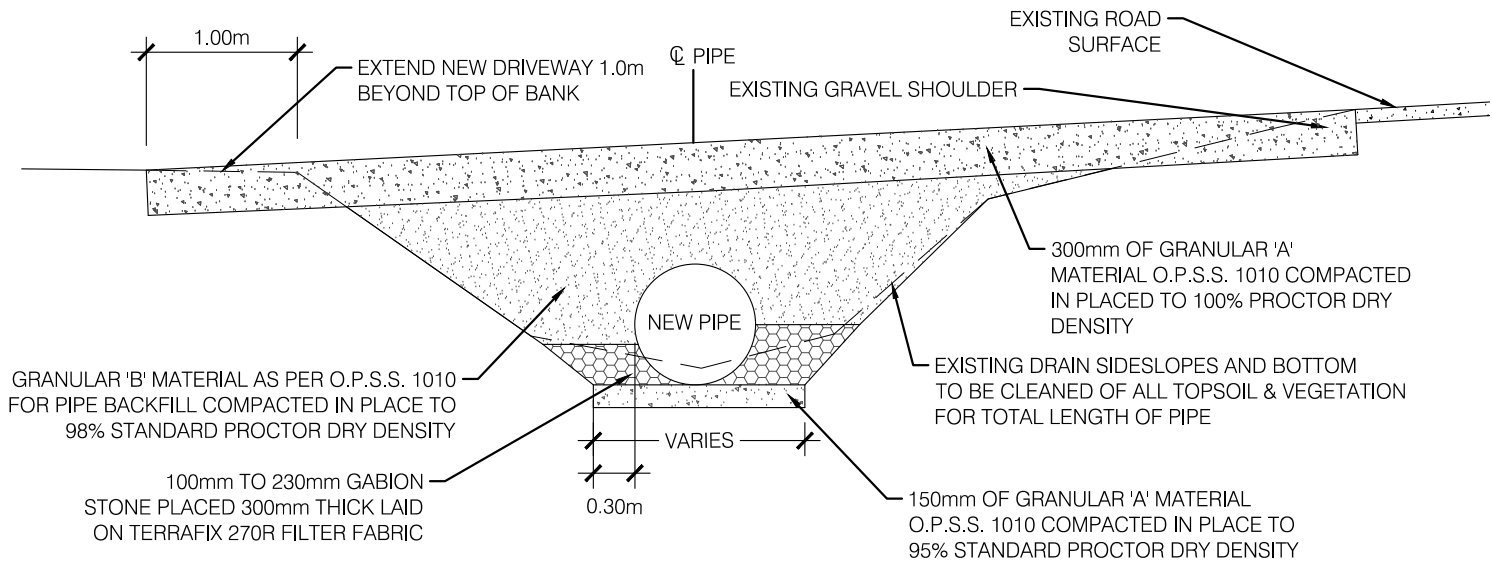
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 4 OF 7	PROJECT No. : 14-105



TYPICAL GABION STONE END PROTECTION PLAN VIEW
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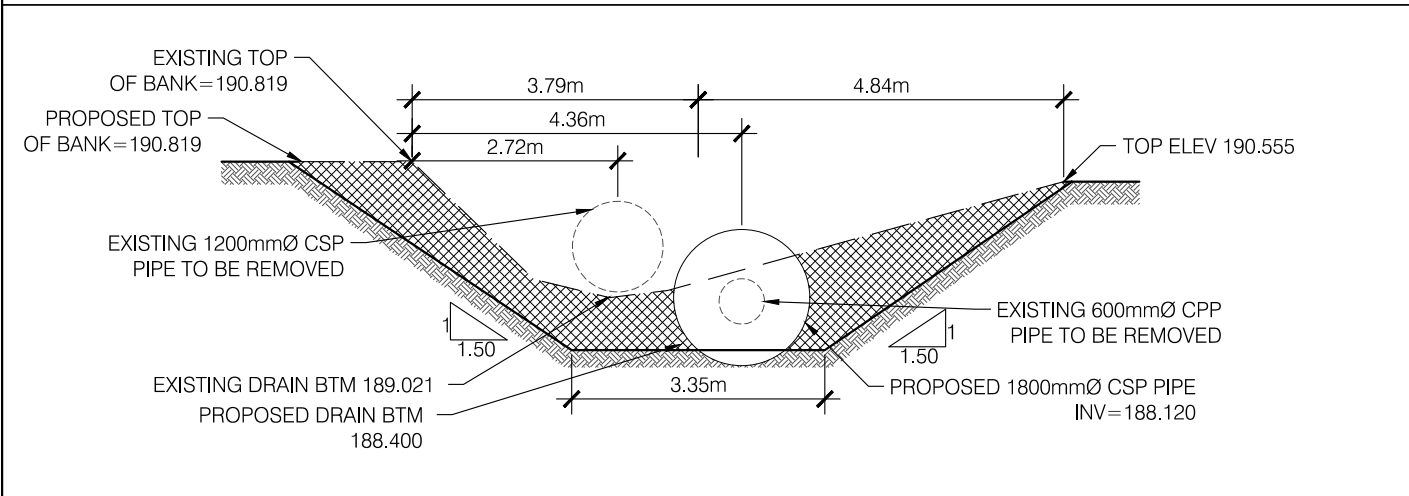


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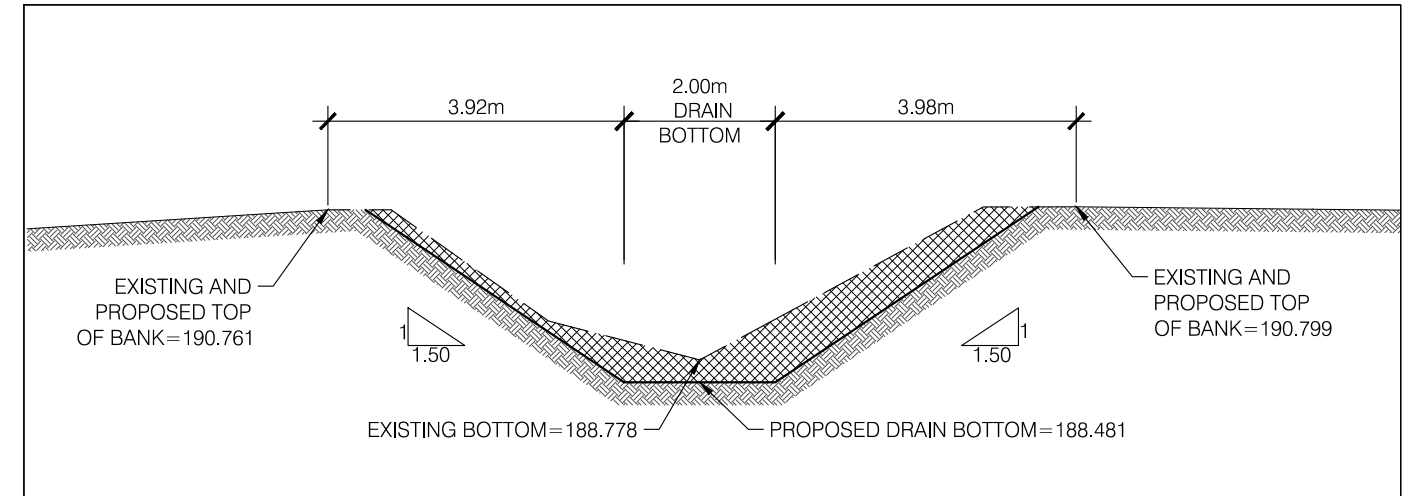


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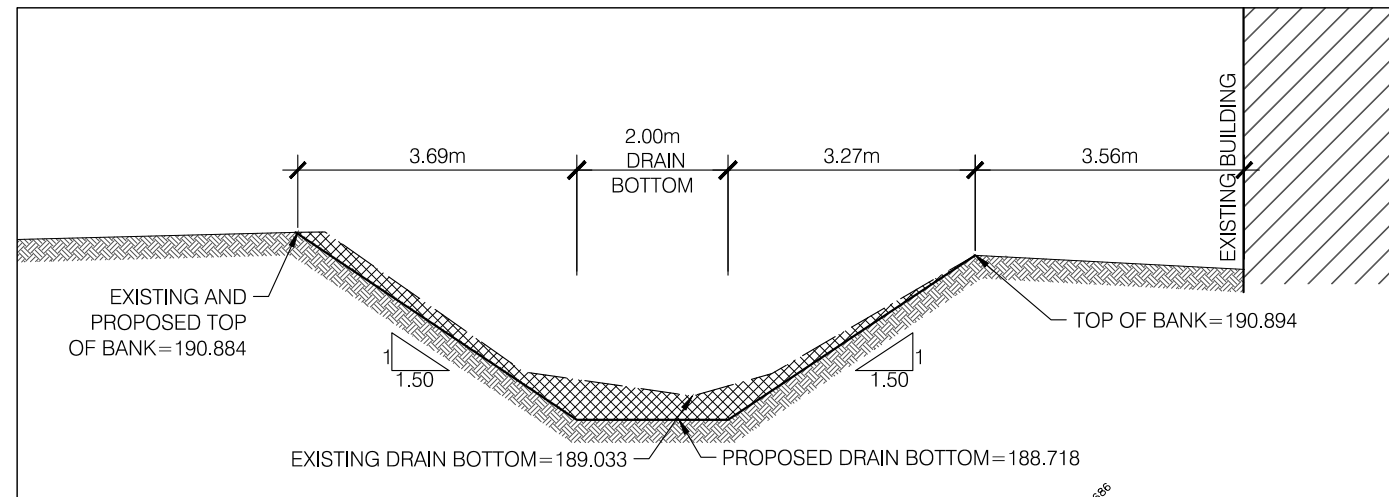
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TOWN OF TECUMSEH			
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 5 OF 7	PROJECT No. : 14-105



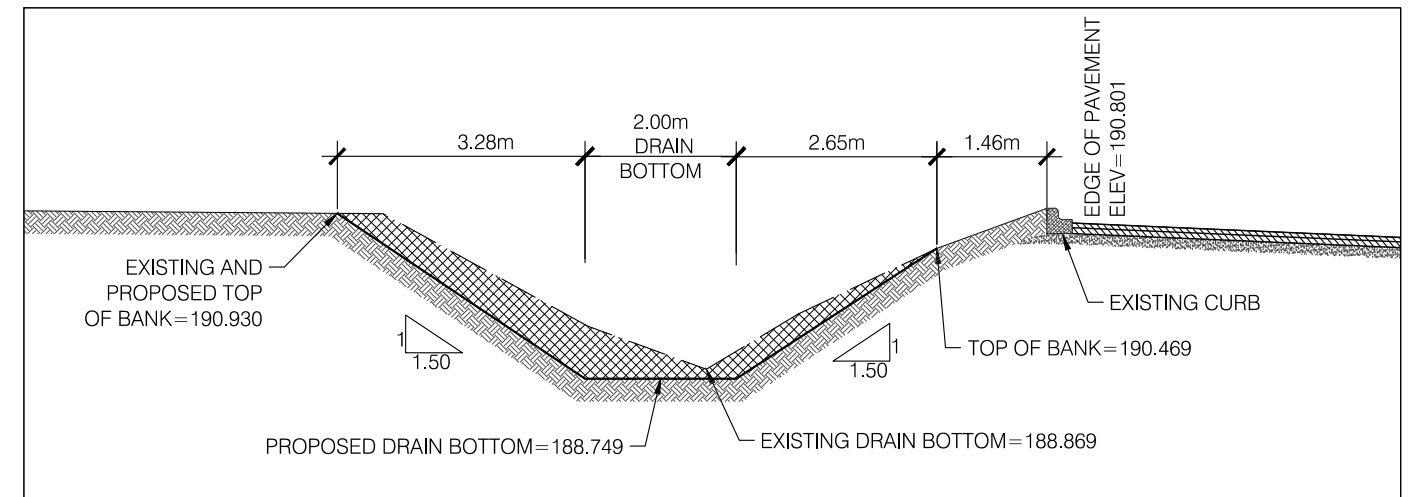
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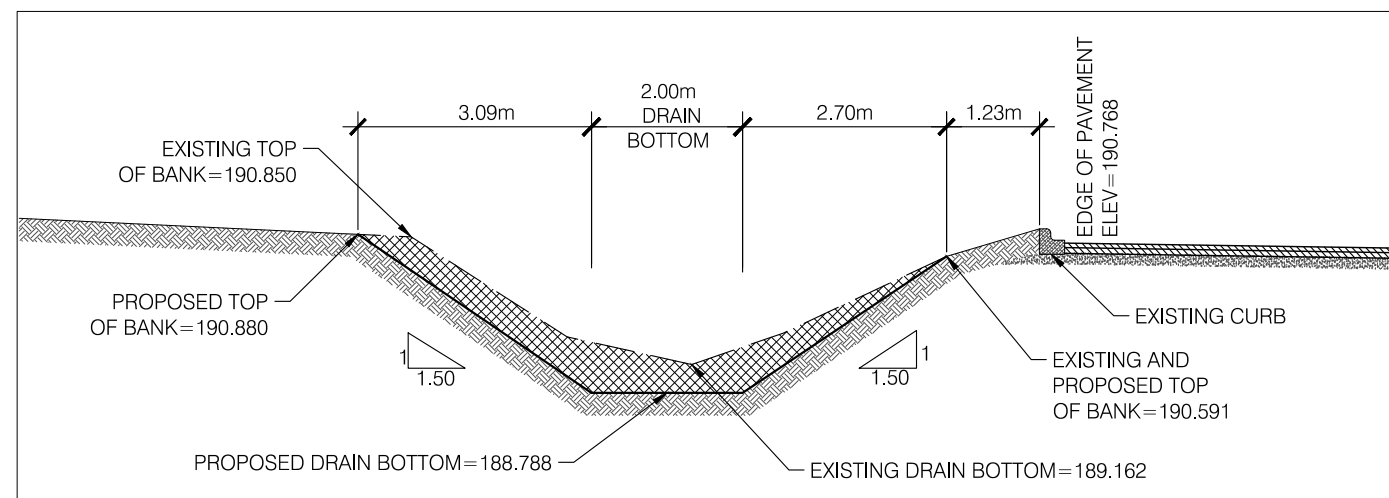
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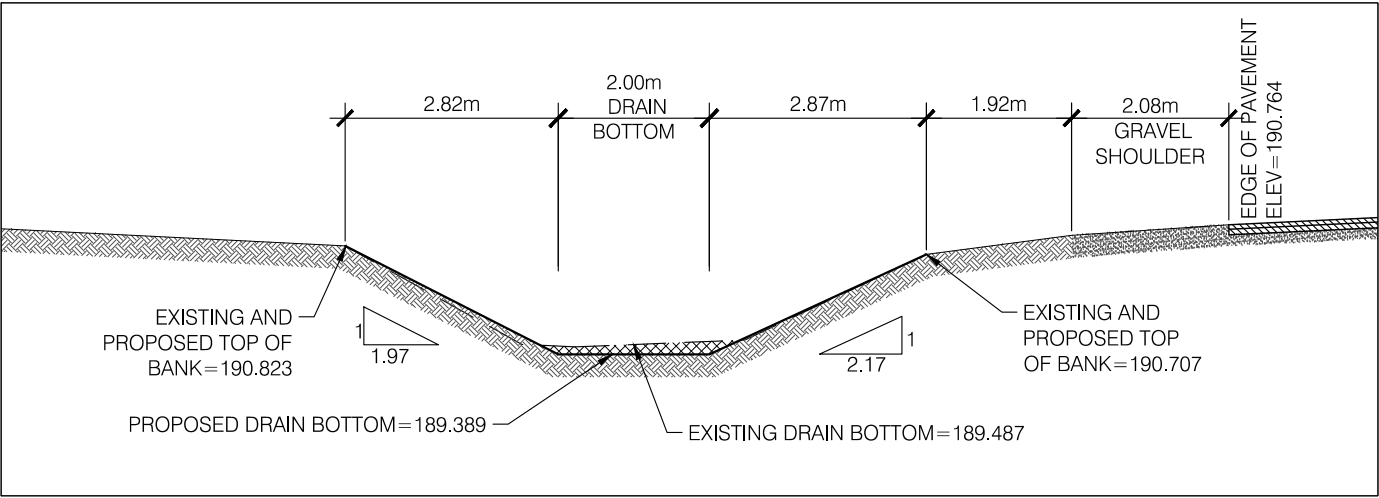


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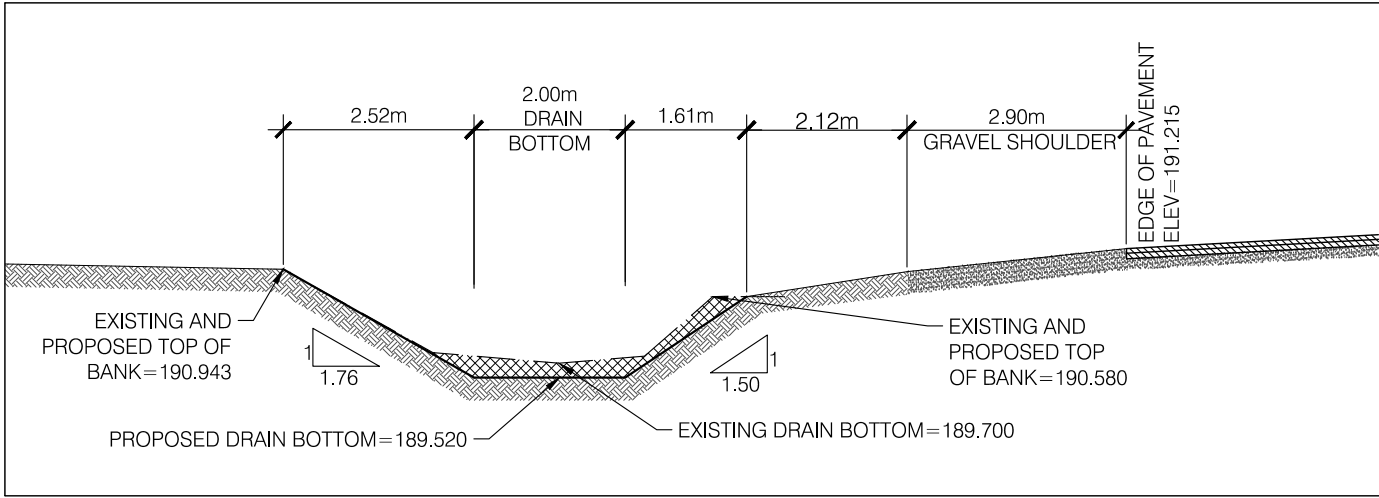


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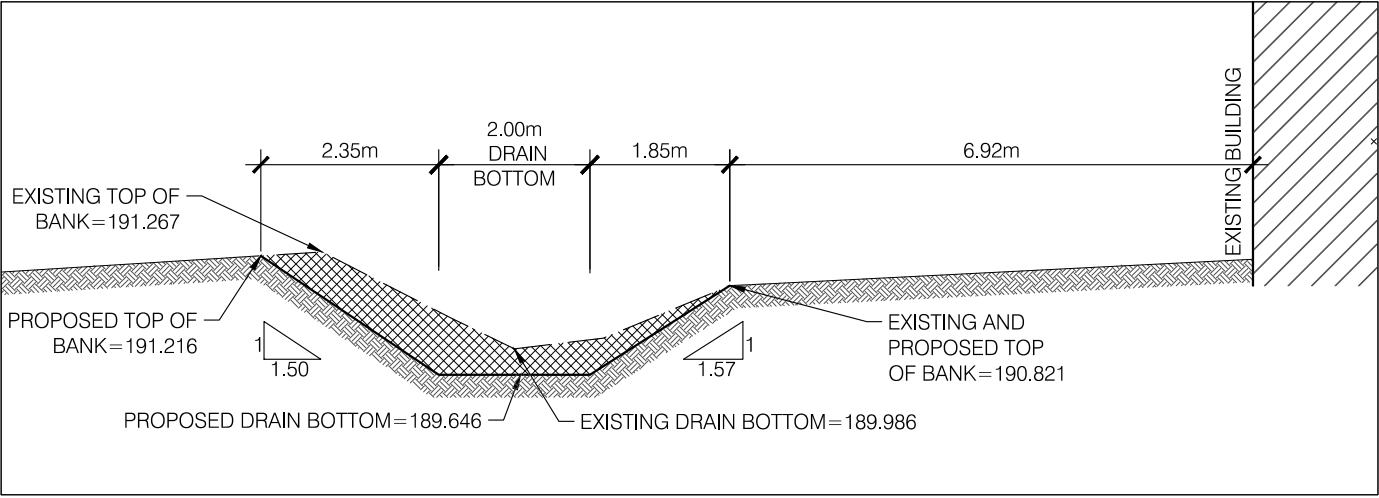
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TOWN OF TECUMSEH			
CROSS SECTIONS	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 6 OF 7	PROJECT No. : 14-105



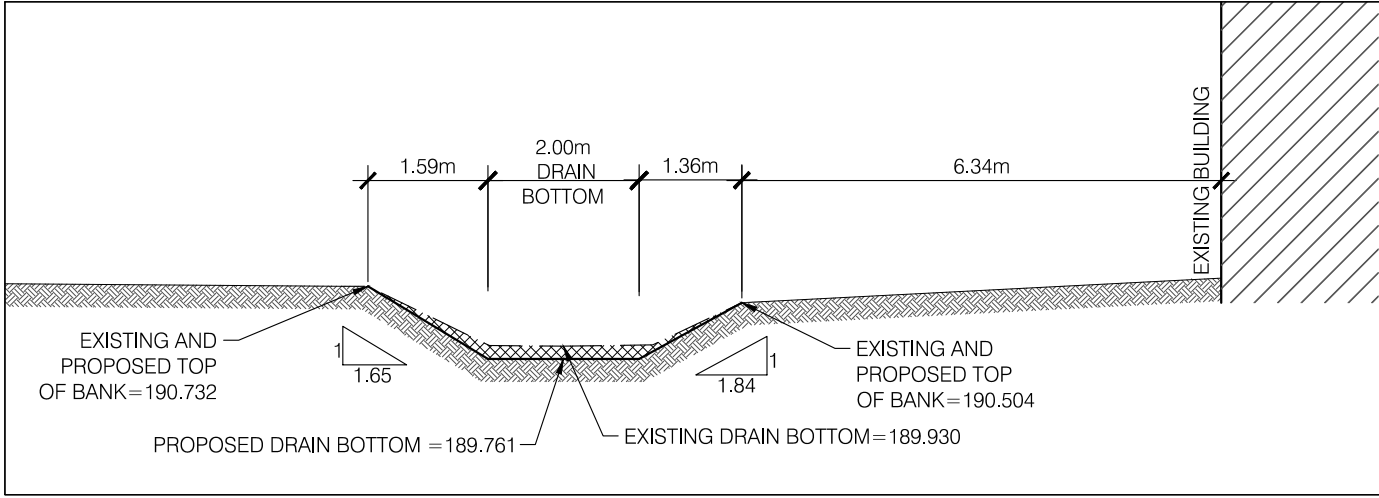
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STA 2+159
SCALE: 1:100



STA 2+293.12
SCALE: 1:100

PROJECT TITLE: REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN			
TOWN OF TECUMSEH			
CROSS SECTIONS	DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 7 OF 7	PROJECT No. : 14-105



The Corporation of the Town of Tecumseh

Public Works & Environmental Services

To: Mayor and Members of Council

From: Sam Paglia, Drainage Superintendent/Engineering Technologist

Date to Council: February 27, 2018

Report Number: PWES-2018-05

Subject: 7th Concession Drain – Reconsider Engineer’s Drainage Report

Recommendations

It is recommended that:

1. The 2nd Reconsidered Drainage Report and specifications for the 7th Concession Drain (Drain) as prepared by Baird AE, dated November 23, 2017 (Drainage Report) **be received**; and that
2. Consideration **be given** to first and second readings of a new provisional by-law to adopt the Drainage Report and repeal provisional By-law No. 2017-15; and further that
3. Notice **be given** to all affected landowners of the Court of Revision to be held on March 27, 2018, at 6:00 pm in accordance with Section 46(1) of the *Drainage Act* subject to adoption of the provisional by-law.

Background

The Town received a Request for Repair and Improvement of a Municipal Drain on June 16, 2014, in accordance with Section 78 of the *Drainage Act* (Act).

On July 22, 2014, Council accepted the recommendation by the Drainage Superintendent under Public Works & Environmental Services Report No. 59/14 dated July 7, 2014 and passed resolution RCM-316/14 as follows:

THAT Cozier Baird Engineers be appointed Drainage Engineer to:

a) Make an examination of the drainage area; and

- b) To prepare a Drainage Report (Report) for the Seventh (7th) Concession & Extension Drain (Drain) in accordance with Section 78 of the Drainage Act (Act) as submitted by the Town of Tecumseh Road Authority in the Request for Repair and Improvements (Request) form dated June 16, 2014;*

The firm of Crozier Baird is now known as Baird AE.

An onsite meeting was held with the affected landowners on August 27, 2014 to discuss the proposed drainage work. A record of the meeting is provided in the Drainage Report.

The Town received a draft Engineer’s report dated August 16, 2016 for discussion at a public meeting and invitations were sent to landowners for a Public Information Centre (PIC) held on September 14, 2016 in Council Chambers.

On March 14, 2017, a Public Council Meeting was held to consider the Drainage Report dated February 7, 2017. Affected landowners were invited to said meeting to communicate any concerns with the engineering content of the Drainage Report.

At the March 14, 2017 Public Council Meeting the owner of Roll No. 550-02000 had concerns respecting:

1. The cost of replacing Culvert No. 5
2. The filling in of the neighbouring pond located at Roll No. 550-07900

The Drainage Engineer provided the following information respecting the above-noted concerns:

1. Culvert No. 5 was installed without authorization under the Act and the property owner is therefore responsible for 100% of the costs for replacing said culvert.
2. The filling in of the pond located on the neighbouring lands at Roll No. 550-07900 will not affect the Drain as the pond and the Drain are mutually exclusive. The Drain was designed in the late 1890s under by-law, without a pond and indicates that the Drain is appropriately sized.

Council received the Drainage Report on March 14, 2017 (Motion: PCM-05/17) and the owner of Roll No. 550-0200 was requested to bring forward any concerns regarding the assessment schedule at the Court of Revision. Council adopted By-law No. 2017-15 at their Regular Meeting held on March 14, 2017, provisionally adopting the February 7, 2017 Drainage Report.

At the Court of Revision held April 11, 2017, owner of Roll No. 550-07900 requested removal of proposed Culvert No. 9. In light of this request, the Drainage Report was referred back to the Engineer to be revised.

Prior to the Court of Revision, Administration had a telephone conversation with the owner of Roll No. 550-0200 respecting the 100% assessment (Special Benefit) for the replacement of Culvert No. 5. The owner was advised that it was likely the Drainage Report would be referred back to the engineer based on the request surrounding Culvert No. 9, and at that point the owner indicated that he would not be attending the Court of Revision. At the Court of Revision, Administration updated the Court on the telephone conversation and explained that a culvert

installed without authorization under the Act is 100% assessed to the property owner. The Future Maintenance Cost Sharing [in the Drainage Report] identified 69% cost to the owner and 31% cost to the upstream lands. The landowner requested the Town financially contribute towards the cost of this private access culvert. Administration advised the Court of the owner’s request to have the Town financially contribute to the replacement of his culvert, and that the Act is specific on how Engineers are to prepare their reports and assess costs. Therefore, any deviation from the Act would be subject to appeals from all the affected landowners within the watershed and could be overturned at a Tribunal Hearing.

At the Public Council Meeting held on September 12, 2017, the Reconsidered Drainage Report (dated August 8, 2017) was presented to Council for consideration. The owner of lands with Roll No. 550-07900 requested (again) that Culvert No. 9 be removed from the Drainage Report as it was no longer required. The property owner was advised by Administration that the cost of this change to the Engineering Report may be assessed to the lands making the request. He was further advised that, should he, the owner of the requesting lands, request to install a culvert at a later date, it would be in his best financial interest to have the culvert in the Drainage Report. The property owner declined having Culvert No. 9 in the Drainage Report.

Property owner of Roll No. 550-0200 was contacted again with respect to his assessment for Culvert No. 5.

Subsequent to the above-noted, and discussions with other affected property owners respecting their assessments and Special Benefit assessments, Council, at the September 12, 2017 Public Meeting, referred the Drainage Report back to the Engineer for further reconsideration (Motion: PCM-27/17).

Comments

Following the Council Meeting to Reconsider the Report on September 12, 2017, the lands with Roll No. 550-07900 changed ownership. Through correspondence between the Engineer and new landowner, it was determined that the new owner wished to have a concrete culvert at this location to remain in the Drainage Report. The report has currently been revised by the Engineer accordingly to include Culvert No. 9.

On January 11, 2018 the Town received the (second) updated Reconsidered Report dated November 23, 2017 for distribution to landowners. The Engineer reviewed and modified the Estimate of Costs; revised the works to be completed; prepared revised Construction and Maintenance Schedules of Assessment; and addressed landowner concerns expressed at the Meeting to Consider and Meetings to Reconsider. The proposed works are described within the body of the attached report which is provided to Council for consideration.

Section 41 Notice of Drainage Works

(1) Upon the filing the Engineer’s Drainage Report with the Clerk, and within 30 days of the filing, a copy of the Drainage Report was sent together with a notice of the date of the Council meeting at which the Drainage Report will be considered, to:

1. Affected property owners, within the initiating municipality, according to the last revised assessment roll to be the owners of lands and roads assessed for the drainage works or for which compensation or other allowances have been provided in the report;

2. The Clerk of every other municipality in which any land or road is assessed for drainage works or compensation, or other allowances provided in the Report;
3. The Secretary-Treasurer of the Essex Region Conservation Authority (ERCA);
4. Any railway, public utility or road authority affected by the report; and
5. The Minister of Agriculture, Food and Rural Affairs.
6. The Director appointed for the purposes of the Drainage Act.

Consideration by Council

Subject to the discretion of Council, the Drainage Report may be:

- a. Referred back to the Drainage Engineer for reconsideration if it appears that there are, or may be, errors in the report or for any other reason the report should be reconsidered ; or
- b. Provisionally approved by giving first and second readings to a Provisional By-law.

Following provisional adoption of the By-law, a meeting of the Court of Revision shall be scheduled to allow any affected owner of land assessed for the drainage works to appeal their assessed costs subject to the following:

- a. Any land or road has been assessed too high or too low; or
- b. Any land or road that should have been assessed has not been assessed; or
- c. Due consideration has not been given as to type of use of land.

Approvals

The Town has received comments from the Essex Regional Conservation Authority (ERCA) for the works [as recommended under the Drainage Report] under Section 28 of the *Conservation Authorities Act* on June 26, 2016 and most recently on February 5, 2018.

Baird AE conducted a self-assessment in respect to the Federal requirements of the Department of Fisheries and Oceans (DFO) at <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>. It has been determined that this project does not require a formal review by DFO because the Drain is considered a Class F drain. This does not eliminate the requirements under the *Fisheries Act* (R.S.C., 1985, c. F-14) to avoid causing serious harm to fish by following best practices such as minimizing the duration of in-water work and respecting the timing windows to protect fish.

Based on the comments above, it is recommended that:

1. The 2nd Reconsidered Drainage Report and specifications for the 7th Concession Drain (Drain) as prepared by Baird AE, dated November 23, 2017 (Drainage Report) **be received**; and that
2. Consideration **be given** to first and second readings of a new provisional by-law to adopt the Drainage Report and repeal provisional By-law No. 2017-15; and further that
3. Notice **be given** to all affected landowners of the Court of Revision to be held on March 27, 2018, at 6:00 pm in accordance with Section 46(1) of the *Drainage Act* subject to adoption of the provisional by-law.

Consultations

Financial Services
Corporate Services & Clerk
Baird AE

Financial Implications

Engineer's Estimates for the Seventh Concession Drain	
<u>Description</u>	<u>Estimate</u>
Construction	\$ 234,631
Incidentals	\$ 67,200
Allowances/Compensation	\$ 2,602
ERCA	\$ 800
HST (1.76%)	\$ 5,372
Total	\$ 310,605
<u>Assessment Summary</u>	
County of Essex - Roads	\$ 35
Town of Tecumseh - Lands & Roads	\$ 28,800
Non-Agricultural lands	\$ 281,770
Total	\$ 310,605

The Town of Tecumseh is a landowner on this project and has been assessed for Special Benefit, Benefit Liability and Outlet Liability in the Drainage Report. The Town has six roads that use the 7th Concession Drain for stormwater conveyance and one land parcel. The total Town owned land area is assessed for \$19,805 Special Benefit, \$3,235 for Benefit and \$5,760 for Outlet Liability, for a total assessment based on the Engineer’s estimate for the Repair and Improvement works of \$28,800.

The Town’s Municipal Drain Lifecycle Reserve is affected by this drainage project. Please see the table below.

Municipal Drain Lifecycle Reserve - January 2018					
		2017	2018	2019	2020
Reserve Balance Start of Year (est.)		\$171,462	\$51,902	\$121,902	\$191,902
Allocation		\$70,000	\$70,000	\$70,000	\$70,000
Road LC re 10th Conc. Windsor (5055)		\$226,000			
Funds Available		\$467,462	\$121,902	\$191,902	\$261,902
Committed					
South McPhee Drain (5014)		\$27,928			
West Branch Delisle (5036)		\$15,414			
O'Keefe (5044)		\$20,719			
South Talbot/Holden Branch (5027)		\$23,020			
McPherson East (5028)		\$39,260			
South Malden (Lower) & Graham (5033)		\$12,443			
10th Concession - Windsor (5055)		\$247,000			
7th Conc & Extension (5047)		\$28,800			
Webster Drain (Bridge - Pearce)		\$976			
Balance Committed		\$415,560	\$0	\$0	\$0
Balance Uncommitted		\$51,902	\$121,902	\$191,902	\$261,902
Proposed					

Link to Strategic Priorities

Applicable	2017-18 Strategic Priorities
<input type="checkbox"/>	Make the Town of Tecumseh an even better place to live, work and invest through a shared vision for our residents and newcomers.
<input checked="" type="checkbox"/>	Ensure that the Town of Tecumseh’s current and future growth is built upon the principles of sustainability and strategic decision-making.
<input type="checkbox"/>	Integrate the principles of health and wellness into all of the Town of Tecumseh’s plans and priorities.
<input checked="" type="checkbox"/>	Steward the Town’s “continuous improvement” approach to municipal service delivery to residents and businesses.
<input type="checkbox"/>	Demonstrate the Town’s leadership role in the community by promoting good governance and community engagement, by bringing together organizations serving the Town and the region to pursue common goals.

Communications

Not applicable ☒

Website ☐

Social Media ☐

News Release ☐

Local Newspaper ☐

This report has been reviewed by Senior Administration as indicated below and recommended for submission by the Chief Administrative Officer.

Prepared by:

Cheryl Curran, BES
Clerk I Administrative Clerk

Reviewed by:

Dan Piescic, P.Eng.
Director Public Works & Environmental Services

Reviewed by:

Laura Moy, Dipl. M.M., CMMIII HR Professional
Director Corporate Services & Clerk

Reviewed by:

Luc Gagnon, CPA, CA, BMath
Director Financial Services & Treasurer

Recommended by:

Tony Haddad, MSA, CMO, CPFA
Chief Administrative Officer

**Attachment
Number**

**Attachment
Name**

1	Repair and Improvement to the 7 th Concession Drain, Report Date: November 23, 2017
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Repair and Improvement to the 7th Concession Drain

Town of Tecumseh

Report Date: November 23, 2017

PIC - September 14, 2016

Consideration Meeting - March 14, 2017

First Sitting of the Court of Revision - April 11, 2017

Re-Consideration Meeting - September 12, 2017

2nd Reconsideration Meeting - February 27, 2018

Project No. 14-105

February 7, 2017
 Reconsidered November 23, 2017

Mayor and Municipal Council
 The Corporation of the Town of Tecumseh
 917 Lesperance Road
 Tecumseh, Ontario
 N8N 1W9

Mayor McNamara and Councillors

Subject: Repair and Improvement
 To the 7th Concession Drain
 In the Town of Tecumseh
 Our File Reference 14-105

1.0 Reconsidered Report

At the Meeting to Consider the report on September 12, 2017 the owner of lands with Roll No. 550-07900 requested that Culvert No. 9 be removed from the report as it was no longer required. Subsequent to that meeting, the parcel was sold. Through correspondence with the new landowner, it was determined that the owner wished to have a concrete culvert at this location. The report and plans have been revised accordingly.

2.0 Authorization

Pursuant to Section 78 of The Drainage Act, 1990 (the Act), the Corporation of the Town of Tecumseh received a request for the repair and improvement of the 7th Concession Drain. The firm of Crozier Baird, now known as Baird AE, was subsequently appointed to prepare a report as provided for under the provisions of the Act.

As requested by Council, we have made an examination of the 7th Concession Drain located along the north side of North Talbot Road commencing approximately 14 metres east of Walker Road. The drainage area encompasses land between County Road 46 to the north and North Talbot Road to the south; Walker Road to the west and Ure Street to the east.

3.0 Drainage Act Process

The following is the general order of procedure that is followed to repair and improve a municipal drainage system pursuant to Section 78 of the Drainage Act:

- a) Council determines that repair and improvements are required.
- b) Council appoints an Engineer.
- c) Engineer conducts an onsite meeting.
- d) Engineer conducts a survey of the drain.
- e) Need for preparation of a Preliminary Report is decided.
- f) Engineer completes and provides a Preliminary Report, if required.
- g) Council considers Preliminary Report, if required, with affected landowners and decides on an option(s) with which to proceed.

- h) A Draft Report is provided to the Municipality.
- i) A Public Information Centre (PIC) is held with affected landowners to discuss the report prior presenting the final report to Council.
- j) Engineer prepares Final Drainage Report and provides copy to the Municipality.
- k) Meeting to Consider the report held in front of Council with affected landowners.
- l) At the Meeting to Consider, the Municipal Council may adopt the Drainage Report. If adopted, the Municipal Clerk prepares a provisional by-law for the recommended work and sends copies of the by-law to affected parties and arranges a second meeting of Council for the Court of Revision, within thirty days of adopting the provisional by-law.
- m) The Court of Revision is typically held within 30 days at a subsequent meeting with affected landowners to discuss any disputes regarding assessment of cost to lands and roads.
- n) Council passes by-law for construction of the work after statutory appeal period expires. Typically, the appeal period is a minimum of 40 days from the date of the provisional by-law.
- o) Tenders are received by the Municipality to perform the recommended work and construction is carried out. Inspection of the construction work may be provided by the Town Drainage Superintendent or by an inspector from the engineering office.
- p) Upon completion of construction, the Municipal Clerk will finalize all applicable costs and submit grant applications to the Ministry of Agriculture and Food, if applicable. The clerk will then send a final net assessment to the affected landowners. Only lands listed by the Municipal Property Assessment Corporation as having Farm Class Tax Rate are eligible for a 1/3 grant.

4.0 Current Drainage Report and Drain History

Work has been completed on the 7th Concession Drain under various Engineers' reports. Previous works and reports are as follows:

Report dated November 18, 2008 prepared by Tim Oliver, P.Eng. (Dillon Consulting): recommended repairs, realignment, deepening of the downstream section of the 7th Concession Drain from the 7th Street Drain Outlet Diversion southerly approximately 1,321 metres to the former railway. The drain was widened and deepened by approximately 1 metre. As part of this report, the first 444 metres were cleaned and the remainder was constructed to the design grades by MTO as part of the Highway 401 improvements. (It should be noted that MTO construction only went to Provincial Road (Station 1+138).)

Report dated July 8, 1991 prepared by Lou Zarlenga, P.Eng.: recommended repair and improvements entailed enclosing the open portion of the drain adjacent to and along the north side of North Talbot Road; removing accumulated brush and sediment from the open drain; deepening and widening and providing additional outlet to that portion of the drain situated north of Moynahan Street to just south of Highway No. 401.

Report dated June 9, 1978 prepared by Maurice Armstrong, P.Eng.: recommended that the extension of the 7th Concession Drain be established as a municipal drain. The extension commenced 14 metres east of Walker Road and continued easterly along the north side of North Talbot Road to the point where the drain turns north. The report further recommended that the 7th Concession Drain be cleaned from the north side of North Talbot Road to the drain's outlet. Repair and improvement of various culvert pipes was recommended as well.

A review of the current report indicates that the existing drainage area is approximately 57.83 ha (143.01 acres) in size.

5.0 Purpose of Report

The purpose of this report is to provide for the repair and improvement of the drain from Station 1+321 just north of the former railway to the upper end at Walker Road. Affected landowners have raised issue with the functioning of the drain particularly in the area near Del Duca Drive.

This report provides a description and estimated cost of the proposed work. In addition, the report provides a recommendation for distribution of the construction and incidental costs related to the work. This report further provides for the distribution of future maintenance costs. The assessments provided in this report are based upon the estimated cost of the work; these assessments would be pro-rated to the actual cost of the project upon completion of the works.

We would further recommend that this report incorporate the 7th Concession Drain Extension into the 7th Concession Drain and the entirety of the drain be known as the **7th Concession Drain**.

6.0 Site Meeting

On Wednesday, August 27, 2014 at 9:00am, a meeting was held on Del Duca Drive to discuss the project. The following people attended the site meeting:

Landowners Present	Affiliation
Greg Scott	Tregaskiss
Ray Little	Calframax
Joel Fillion	Morton Wholesale
Anna Godo, P.Eng.	City of Windsor
Sam Paglia, E.I.	Town of Tecumseh
Ryan Langlois, EI	Baird AE
Halliday Pearson, P.Eng.	Baird AE

A written record of this meeting is contained in Appendix A of this report.

A Public Information Centre (PIC) was held on September 14, 2016 at 5:00 pm at the Tecumseh Municipal office. This meeting was held to receive comments from property owners with respect to the draft report dated August 16, 2016.

Landowners Present	Affiliation
Loris Collavino	PSI
Ryan Lawson	Expressway Trucks
Gregg Strong	Expressway Trucks
Sam Paglia, P.Eng.	Town of Tecumseh
Cheryl Curran	Town of Tecumseh
Don Joudrey, P.Eng.	Baird AE
Halliday Pearson, P.Eng.	Baird AE

Mr. Collavino indicated his property being assessed to the 7th Concession Drain has no direct outlet to the 7th Concession Drain and most of the water drains onto neighbouring properties.

It was stated that the property was assessed to the 7th Concession Drain in the previous report. The property will be investigated further to determine where the water actually goes. If some of the property actually drains to the 7th Street Drain, the properties could be included in the other drain but would have to be done through another report. A survey would have to be done to confirm how much property is to be redirected. Alternatively, the parcel may remain in the 7th Concession Drain until such time as neighbours express concerns. A subsequent site visit showed that part of the

property does drain to the 7th Concession Drain by way of a swale across the adjacent property to the east.

Mr. Strong indicated he has water ponding in his property because of work to County Road 46. He wanted to know if he could redirect the water to the 7th Concession Drain. He was told he would have to submit a petition for drainage to the Town. Alternatively, the County would have to be contacted to repair the drainage.

Mr. Strong also indicated he had a second drain at the back of his property into the 7th Concession Drain that has not been identified. This will be added to the report.

No further comments were received.

7.0 Topographic Survey

We commenced our survey at the upstream end of the 7th Concession Drain Extension, being the enclosed portion of the drain at Walker Road. Our survey continued easterly for approximately 467 metres before turning north where the drain becomes an open drain. The open drain flows north for approximately 350 metres before crossing Moynahan Street where it continues easterly for approximately 217 metres. The open drain continues north for approximately 447 metres before crossing the former railway. The survey finished approximately 230 metres downstream of the former railway line.

8.0 Existing Conditions

We find that the 7th Concession Drain is in need of repair and requires cleaning pursuant to Section 78 of the Act.

As a result of the survey, we have found the following:

The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 ranges in size from 450mm diameter CSP to 825mm diameter CSP. The Tregaskiss representative present at the onsite meeting noted that their parking lot experiences flooding. It is the Engineer's opinion that the parking lot is designed to flood to act as the stormwater management system. Cleaning of the enclosed and open drain will most likely reduce the time that the parking lot experiences flooding but will not eliminate the flooding due to the stormwater management design.

Considerable sediment has accumulated in the bottom of the drain preventing the proper flow of water, particularly between Station 1+321 and 1+825 and between 1+920 and 2+200. Considerable vegetation is present along the length of the drain between Station 1+350 and Station 1+820. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

We further noted that additional work is required north of the railway to take advantage of the deepened downstream drain. This work shall be carried out separately by the Town as maintenance.

We further found that many of the culverts within the drain are out of vertical alignment but would not significantly impede flows, however most are undersized and will have to be replaced with larger culverts.

The stationing of the upper sections of the drain have been adjusted from previous reports to reflect the stationing laid out in the 2008-83 By-Law. We have continued with the stationing from the

Provincial Road Culvert (south end is located at Station 1+150). The upper end at Walker Road is now Station 2+848.8.

There is currently one road crossing on the 7th Concession Drain as described below:

Culvert No. 7– Moynahan Street, Town of Tecumseh

Station 2+054

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete pieces and rocks form the end of pipe protection at the downstream end of the crossing. End of pipe protection is absent from the upstream end of the crossing. This structure is currently identified as part of the 7th Concession Drain under the current by-law.

There are currently six culverts within the 7th Concession Drain as described below:

Culvert No. 1 and 2 – Detroit River Tunnel Company, Roll No. 590-01000

Station 1+379

There are currently two pipes under the former railway. The existing 15.55m 1200mm diameter ductile iron pipe (Culvert No. 2) is in good condition; however, the invert elevation of the pipe is approximately 150mm above the bottom of the existing drain. A 600mm diameter 18.30m welded steel casing pipe (Culvert No. 1) was installed under the 1991 Zarlenga report beside the existing 1200mm diameter pipe. The invert of this pipe matches the existing grade at this location. The limited capacity of the 600mm diameter pipe and the improper elevation of the 1200mm diameter pipe together prevent the proper flow of water within the drain. End of pipe protection was not found for either structure. These pipes are in place to allow the flow of water northerly under the former railroad tracks and are currently identified as part of the 7th Concession Drain under the current by-law.

It should be noted the railway is not currently in use and now ends at 8th Concession Road approximately 800 metres east of the existing railway culverts.

Culvert No. 3 – SGM Real Estate Holdings ULC, Roll No. 550-01500

Station 1+854

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate the pipe is undersized. Poured concrete headwalls are in good condition. This structure provides access to commercial lands and is identified as part of the 7th Concession Drain under the current by-law.

At the landowner's request, the length and location of the culvert has been modified to that described in Section 8.0 Recommendations and shown on the attached plans.

Culvert No. 4 – Adine Builders Ltd., Roll No. 550-01600

Station 1+909

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Poured concrete headwalls are in satisfactory condition although cracking was noted on the upstream headwall. The elevation of the culvert does not correspond to the design grade of the drain bottom. This structure provides access to commercial lands and is identified as part of 7th Concession Drain under the current by-law.

Culvert No. 5 – Gail and Pamela Rodzik, Roll No. 550-02000

Station 1+957

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in good condition. The elevation of the culvert does not correspond to the design grade of the drain bottom. This

structure provides access to industrial lands and is not identified as part of the 7th Concession Drain under the current by-law.

We would further recommend this culvert be incorporated into the 7th Concession Drain under this report.

Culvert No. 6 – Gail and Pamela Rodzik, Roll No. 550-02100

Station 2+034

The existing 900mm diameter corrugated steel pipe is in good condition; however, hydraulic calculations indicate that the pipe is undersized. Concrete jute bag headwalls are in poor condition. The top layers of the jute bag headwalls have collapsed. The elevation of the culvert does not correspond to the design grade of the drain bottom. This culvert provides access to industrial lands and is identified as part of the 7th Concession Drain under the current by-law.

Based on the existing conditions and a review of the theoretical drain profile provided in the 1991 Zarlenga report and the existing downstream drain elevations set out in the 2008 Dillon Report, we have determined that cleaning of the enclosed portion of the drain between Station 2+386.6 and 2+848.8; brushing, grubbing and excavating the open drain sections; cleaning existing road crossings and driveway culverts; deepening and widening the drain from Station 1+320 to Station 1+813 including the installation of a new 1800mm diameter aluminized CSP across the former railway to match the drain depths in the Dillon Report will improve drain function.

We have found that additional catch basins have been installed on lands near the intersection of Hennin Drive and North Talbot Road. These catch basins direct flow to a municipal drain on the south side of North Talbot Road thereby altering the watershed from that identified in the 1991 Zarlenga report.

In addition, it was discovered that at the time of the MTO works in 2008, the portion of the 7th Concession Drain draining the property with Roll No. 550-18800 was not properly graded towards the relocated portion of the drain. As such, it is causing drainage issues to the property. This section of drain must be lowered below the outlet of the drainage system for Expressway Trucks (905364 Ontario Ltd) and graded southerly to the 7th Concession Drain. We would recommend that this section of drain be incorporated into the 7th Concession Drain under this report.

Since this work on Roll No. 550-18800 has been identified as an issue well before the works in this report can be carried out, repairs will be initiated by the Town as maintenance work through the existing 2008 report.

9.0 Recommendations

We would recommend the following works be performed in order to overcome the above noted deficiencies:

- a) Excavation work shall be undertaken to remove accumulated sediment and vegetation within the drain:
 - i. Excavation to theoretical drain bottom shall be undertaken between Station 1+825 and Station 2+386.6;
 - ii. The section of drain between Station 1+321 and Station 1+825 shall be lowered by approximately 400 to 500 mm, to match the grades from the 2008 Dillon Report as shown on Sheet 3 of the drawings, to provide a deeper outlet for adjacent properties.
- b) New culverts and end of pipe protection shall be installed:
 - i. The existing 600mm diameter CSP welded steel casing pipe and 1200mm diameter

- ductile iron pipe at Station 1+379 (crossing the former railway line) shall be removed from the drain and disposed of offsite. Culvert No. 1 and 2 shall be replaced with 16.0m of new 1800mm aluminized corrugated steel pipe with sloped gabion stone end of pipe protection and be known as Culvert No. 8. The new culvert will be installed by open cut.
- ii. Culvert No. 9 at Station 1+544: A new culvert, at the end of Del Duca Drive, shall be constructed of 20.0m of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection.
- c) Existing culverts and end of pipe protection shall be removed and replaced:
- i. Culvert No. 3 at Station 1+854: The existing 24.69 metres 900mm pipe shall be removed and replaced with 22.0 metres of 1200mm diameter CSP with concrete block headwalls;
 - ii. Culvert No. 4 at Station 1+909: The existing 12.51 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iii. Culvert No. 5 at Station 1+957: The existing 11.79 metres of 900mm pipe shall be removed and replaced with 11.8 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - iv. Culvert No. 6 at Station 2+034: The existing 12.21 metres of 900mm pipe shall be removed and replaced with 12.2 metres of 1200mm diameter C.S.P. with concrete block headwalls;
 - v. Culvert No. 7 at Station 2+054: The existing 12.47 metres of 900mm pipe shall be removed and replaced with 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls;
- d) Existing enclosed pipe network to be cleaned:
- i. The existing enclosed portion of the drain between Station 2+386.6 and Station 2+848.8 shall be cleaned;
- e) Seeding and mulching shall be undertaken on all excavated portions of the drain side slopes to prevent erosion;

For the enclosed drain between Station 2+386.6 and Station 2+848.8, we would recommend that these pipes, manholes and catch basins remain in place, however, when the pipes and structures degrade to the point of replacement, we would recommend that the pipes be replaced under this by-law as an act of maintenance and assessed in accordance with proportions set out in the maintenance clauses of this report and any apportionment agreements in place at the time of replacement.

In a previous version of this report, we had recommended that Culvert No. 9 be constructed of corrugated steel pipe as this crossing was intended to be used privately. However, the parcel was recently sold and the new owner has requested that the culvert be constructed using concrete pipe as they are anticipating future development of the site.

The owner of lands with Roll No. 550-07900 and 550-07950 owned by Wannabe Radical Inc., has brought to our attention the desire to continue to utilize the 7th Concession Drain as an outlet for existing drainage on these properties. Should future development occur, we would recommend that it be subject to a storm water management report to ensure all Ministry of Environment requirements for stormwater management are satisfied. We would further recommend implantation of a water management plan to restrict the rate at which water is discharged from the property to pre-development flows. Pre-development flows were used when hydraulically calculating the diameter of Culvert No. 9. We would further recommend the supply and placement of gabion stone at the

outlet to prevent bank slope erosion.

10.0 Fisheries Issues

The 7th Concession Drain is a Type 'F' drain. A Type 'F' drain is considered to have intermittent or ephemeral flow. A drain with ephemeral flow is typically dry for more than two consecutive months.

The upper portion of the 7th Concession Drain, formerly the 7th Concession Drain Extension, between Station 2+386.6 and Station 2+848.8 is an enclosed drain that cannot support fish habitat.

We would recommend the following measures be utilized to mitigate damage to the drain during construction:

- No work shall be undertaken between March 15 and June 30
- All work shall be completed in the dry
- Culverts shall be installed with a minimum of 10.0% embedment
- All disturbed soils shall be stabilized upon completion of the work
- Silt fence sediment control shall be implemented during construction
- Contractor shall prevent entry of petroleum products, debris and deleterious substances into the water.

A review of the Sensitive Areas Maps for the Town of Tecumseh indicates that no endangered species, as listed under the Endangered Species Act, are expected to be encountered at the site of the proposed works.

A Fisheries and Oceans Canada (DFO) Self-Assessment was completed by Baird AE to determine if a DFO review was required for this project. Correspondence received from DFO states that Fisheries Act authorization is not required. Serious harm to fish can be avoided by following standard measures. A permit is not required under the Species at Risk Act as there are no Species at Risk at or near the site. The works described in this report are not considered to need an authorization under the Fisheries Act to proceed.

11.0 Drawings and Specifications

Attached to this report is Drawing No. 14-105 Sheets 1 to 7. The drawings illustrate the location of the proposed drainage works and the land affected by the work, together with the detail and cross sections of the recommended work. Specifications are included in this report showing the dimensions, grades, disposal of material, working areas for construction and future maintenance, and other particulars of the recommended work.

12.0 Working Area

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described as follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

13.0 Allowances for Lands Taken and Damages

In accordance with the provisions of the Act, monetary allowances are provided to those landowners from which land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to dispose of excavated material or for land required to obtain access to a Municipal Drainage System.

We find that no land is required to be used for the construction of a new drain or for the establishment of an easement for the construction and future maintenance of a drain or for land required to obtain access to a Municipal Drainage System, therefore, we have not provided any allowance for lands taken in our estimate as is otherwise normally provided for under sub-section (a) of Section 29 of the Act.

We further find that each of the following owners is entitled to and should receive the following amounts as compensation for the damages to lands and crops, if any. We have used a rate of \$3,700 per hectare to determine the compensation paid, if any:

Owner	Roll No.	Lands Taken	Damages	Total
Detroit River Tunnel Company	590-01000	---	\$123	\$123
Wannabe Radical Inc.	550-07900	---	\$962	\$962
1147048 Ontario Ltd.	550-02300	---	\$481	\$481
Morbella Holdings Ltd.	550-02902	---	\$592	\$592
SGM Real Estate Holdings ULC	550-01500	---	\$444	\$444
				\$2,602

We have provided for this in our estimate as is provided for under sub-section (b) of Section 29 of the Act.

14.0 Estimate of Cost

Our estimate of the total cost of this work, including all incidental expenses and HST, is the sum of THREE HUNDRED AND TEN THOUSAND, SIX HUNDRED AND FIVE-----dollars (\$310,605.00), and made up as follows:

CONSTRUCTION

- | | | | |
|-------|-------|--|---------------------|
| 1) | L.S. | Brushing and grubbing between Station 1+321 and Station 2+386.6 complete at \$ <u>10,000</u> Lump Sum. | \$ <u>10,000.00</u> |
| 2) | 462 | Metres of existing 450mm to 825mm diameter corrugated steel pipe to be cleaned between Station 2+386 and Station 2+848.8 including all inline manholes and catch basins at \$ <u>10.00</u> per metre | \$ <u>4,620.00</u> |
| 3) | 1,830 | Cubic metres of excavation to be undertaken along the length of the drain as described in the attached specifications and below: | |
| | | i) Spread and levelled adjacent to the drain to a maximum depth of 300mm. | |
| 1,275 | | - Station 1+321 to 1+750 at \$ <u>20.00</u> per cubic metre | \$ <u>25,500.00</u> |
| 165 | | - Station 2+054 to 2+386.6 at \$ <u>20.00</u> per cubic metre | \$ <u>3,300.00</u> |
| | | ii) Excavated and trucked to sites noted in i). Material to be spread and levelled to a maximum depth of 300mm. | |
| 245 | | - Station 1+750 to 1+825 at \$ <u>30.00</u> per cubic metre | \$ <u>7,350.00</u> |
| 145 | | - Station 1+825 to 2+054 at \$ <u>30.00</u> per cubic metre | \$ <u>4,350.00</u> |
| | | Total for Excavation | \$ <u>40,500.00</u> |
| 4) | | Proposed culvert at Station 1+379 for the Detroit River Tunnel Company (Culvert No. 8): | |
| | | i) Remove and dispose of existing 600mm welded steel casing pipe (Culvert 1) and 1200mm ductile iron pipe (Culvert 2) crossing under the former railway at station 1+359. To be open cut (rails not replaced) at \$ <u>3,000.00</u> Lump Sum | \$ <u>3,000.00</u> |
| | | ii) Supply and set approximately 16 metres of 1800 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25 mm corrugations complete at \$ <u>500.00</u> per metre | \$ <u>8,000.00</u> |
| | | iii) Supply, place and compact approximately 20 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to reconstruct railway bed to original cross-section at \$ <u>35.00</u> per tonne | \$ <u>700.00</u> |

iv) Supply, place and compact approximately 110 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,200.00</u>
v) Supply and place 70.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>4,550.00</u>
vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to install Culvert No. 8	\$ <u>18,750.00</u>

5) Proposed culvert at Station 1+544 at west end of Del Duca Drive for Wannabe Radical Inc. (Culvert No. 9):

i) Supply and set approximately 20 metres of 1500mm diameter class 65-D concrete pipe \$ <u>1,000.00</u> per metre	\$ <u>20,000.00</u>
ii) Supply, place and compact approximately 60 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material at \$ <u>35.00</u> per tonne	\$ <u>2,100.00</u>
vii) Supply, place and compact approximately 170 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>3,400.00</u>
iii) Supply and place 30.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ <u>65.00</u> per square metre	\$ <u>1,950.00</u>
iv) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to construct Culvert No. 9	\$ <u>27,750.00</u>

- 6) Existing culvert to be replaced at Station 1+854 for SGM Real Estate Holdings ULC. (Culvert No. 3):
- i) Remove 24.7 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,500.00 Lump Sum \$ 1,500.00
 - ii) Supply and set approximately 22.0 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 8,800.00
 - iii) Supply, place and compact approximately 50 tonnes of Granular 'A', as per OPSS 1010, as bedding and cover material and to construct driveway at \$ 35.00 per tonne \$ 1,750.00
 - viii) Supply, place and compact approximately 175 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 3,500.00
 - iv) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - v) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00
 - vi) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 3 \$ 26,650.00
- 7) Existing culvert to be replaced at Station 1+909 for Adine Builders Ltd. (Culvert No. 4):
- i) Remove 12.5 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 5,000.00

iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ <u>35.00</u> per tonne	\$ <u>1,400.00</u>
iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,000.00</u>
v) Supply, place and compact approximately 10 tonnes of asphalt at \$ <u>120.00</u> per tonne	\$ <u>1,200.00</u>
vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ <u>4,500.00</u> each.	\$ <u>9,000.00</u>
vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ <u>300.00</u> Lump Sum	\$ <u>300.00</u>
Total to replace Culvert No. 4	\$ <u>20,150.00</u>

8) Existing culvert to be replaced at Station 1+957 for Gail and Pamela Rodzik (Culvert No. 5):

i) Remove 11.80 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ <u>1,250.00</u> Lump Sum	\$ <u>1,250.00</u>
ii) Supply and set approximately 11.8 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ <u>400.00</u> per metre	\$ <u>4,720.00</u>
iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ <u>35.00</u> per tonne	\$ <u>1,400.00</u>
iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ <u>20.00</u> per tonne	\$ <u>2,000.00</u>
v) Supply, place and compact approximately 10 tonnes of asphalt at \$ <u>120.00</u> per tonne	\$ <u>1,200.00</u>

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 5 \$ 19,870.00

9) Existing culvert to be replaced at Station 2+034 for Gail and Pamela Rodzik (Culvert No. 6):

i) Remove 12.21 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00

ii) Supply and set approximately 12.2 metres of 1200 mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations complete at \$ 400.00 per metre \$ 4,880.00

iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00

iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00

v) Supply, place and compact approximately 10 tonnes of asphalt at \$ 120.00 per tonne \$ 1,200.00

vi) Supply and place 2 concrete block headwalls using plain concrete blocks complete as specified at \$ 4,500 each. \$ 9,000.00

vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00

Total to replace Culvert No. 6 \$ 20,030.00

- 10) Existing culvert to be replaced at Station 2+054 for Town of Tecumseh (Culvert No. 7):
- i) Remove 12.47 metres of existing 900 mm diameter corrugated steel pipe and granular material and dispose of offsite complete at \$ 1,250.00 Lump Sum \$ 1,250.00
 - ii) Supply and set approximately 12.5 metres of 1050 mm diameter class 65-D concrete pipe complete at \$ 600.00 per metre \$ 7,500.00
 - iii) Supply, place and compact approximately 40.0 tonnes of Granular 'A', as per OPSS 1010, as bedding material and to construct driveway at \$ 35.00 per tonne \$ 1,400.00
 - iv) Supply, place and compact approximately 100 tonnes of Granular 'B', as per OPSS 1010, as backfill material at \$ 20.00 per tonne \$ 2,000.00
 - v) Supply, place and compact approximately 15 tonnes of asphalt at \$ 120.00 per tonne \$ 1,800.00
 - vi) Supply and place 12.0 square metres of 100 – 230mm diameter gabion stone erosion protection (300mm thick) laid on Terrafix 270R Filter Fabric complete at \$ 65.00 per square metre \$ 780.00
 - vii) Supply, install and maintain silt fence erosion protection at downstream end of culvert complete at \$ 300.00 Lump Sum \$ 300.00
- Total to replace Culvert No. 7 \$ 15,030.00
- 11) L.S. Supply and spreading of good quality grass seed and mulch on all portions of excavated sideslopes complete at \$ 10,000.00 Lump Sum. \$ 10,000.00
- 12) L.S. The Contractor shall provide a traffic control plan to the Town of Tecumseh and the County of Essex for approval before construction commences. The Contractor shall supply, install and maintain the necessary signage during the construction period according to the latest revision of the Ontario Traffic Manual Book 7, Temporary Conditions, complete at \$ 5,000.00 Lump Sum. \$ 5,000.00

13) 65.0	Square metres of 100 – 230mm diameter gabion stone (300 mm thick) erosion protection laid on Terrafix 270R Filter Fabric to be placed as required to prevent bank slope erosion due to outlet tiles, drains or swales along length of drain complete at \$ <u>65.00</u> per square metre.	\$ <u>4,225.00</u>
14) L.S.	Previously completed excavation of 30 cubic metres between Station 0+000 and Station 0+028 for lands with Roll No. 550-18800 complete at \$ <u>600.00</u> Lump Sum. This was completed as maintenance and will not form part of the proposed construction.	\$ <u>600.00</u>
15) L.S.	Contingency Allowance to be used only upon approval of Drainage Superintendent and/ or Engineer	\$ <u>11,500.00</u>
SUB TOTAL FOR CONSTRUCTION		\$ <u>234,675.00</u>

INCIDENTALS

Attendance at site meeting, survey	\$ 5,000.00
Report, estimate and specifications	\$ 29,750.00
Assistants and expenses, drawing preparation	\$ 17,000.00
Attendance at Public Meetings and Council Meetings	\$ 6,000.00
Tender documents	\$ 1,200.00
ERCA Permit Application Fee	\$ 800.00
Construction Inspection and Final Inspection (15 days at \$550.00/day)	\$ 8,250.00
	=====
Sub Total for Incidentals	\$ 68,000.00
Sub Total for Construction (brought forward)	\$ 234,675.00
	=====
Sub Total for Construction and Incidentals	\$ 302,675.00
HST Payable (1.76% Non-Recoverable)	\$ 5,328.00
Total for Allowances (brought forward)	\$ 2,602.00
	=====
TOTAL ESTIMATE	\$ 310,605.00
	=====

15.0 Assessment

Assessments to lands are provided in the attached Schedule of Assessment in three separate columns being Special Benefit, Benefit and Outlet. Section 1 of the Act provides the following definitions:

“Special Benefit” means any additional work or feature included in the construction, repair or improvement of a drainage works that has no effect on the functioning of the drainage works. A breakdown of how the Special Benefits assessments were calculated is provided on Page 4 of 4 of the Schedule of Assessment.

“Benefit” means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a high market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures.

“Outlet Liability” means the part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet.

We would recommend that construction and incidental costs be assessed to the affected properties in accordance with the accompanying Schedule of Assessment.

We would recommend that the cost to remove and replace access culverts and crossings currently identified as part of the drain be shared between the owner and the upstream lands and roads in accordance with the clauses below and the percentages listed in Table 1. The percentages listed in Table 1 were derived based on the culvert’s approximate location within the drain.

Culvert No. 5 is not currently identified as part of the 7th Concession Drain. Therefore, 100% of the cost to construct the culvert shall be assessed to the lands with Roll No. 550-01500.

Culvert No. 9 is a new culvert. Therefore, 100% of the cost to construct the new culvert shall be assessed to the lands with Roll No. 550-07900.

Table 1. Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	100%	0%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	100%	0%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

Item No. 14 described in the Section 13.0 Estimate of Cost was completed prior to adoption of this report to alleviate flooding issues on the lands with Roll No. 550-18800; however, it was not assessed. We would recommend that 100% of the cost of Item No. 14 including incidental fees be assessed to the lands with Roll No. 550-18800 as Special Benefit.

Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail during cleaning, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

16.0 Maintenance

We would recommend that the areas described in Section 11.0 of this report, and as listed below, be used to access the drain during works of maintenance:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

We would recommend that future maintenance costs be assessed to the affected properties in accordance with the following provisions and accompanying Maintenance Schedule of Assessment.

The Maintenance Schedule of Assessment has been developed based on an assumed maintenance cost of \$10,000. This amount is arbitrary and does not represent the actual costs to be assessed. Actual costs for future maintenance works, including all engineering and incidental costs, shall be assessed against the affected lands and roads in the same proportions as those shown in the attached Maintenance Schedule of Assessment.

Should an existing access culvert require replacement, we would recommend that the cost to replace the culvert be assessed to the benefitting landowner and the upstream lands and roads in accordance with the percentages listed in Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain, below. The percentage to be shared with the upstream lands and roads shall be assessed as outlet against those lands.

Table 2. Maintenance Cost Sharing for Access Culverts and Crossings over the 7th Concession Drain

Culvert No.	Station	Roll Number	Owner	% To Owner	% To Upstream Lands
8	1+379.45	590-01000	Detroit River Tunnel Company	48%	52%
9	1+544.07	550-07900	Wannabe Radical Inc.	54%	46%
3	1+854.00	550-01500	SGM Real Estate Holdings ULC	65%	35%
4	1+909.53	550-01600	Adine Builders Ltd.	67%	33%
5	1+957.37	550-02000	Gail Rodzik and Pamela Rodzik	69%	31%
6	2+034.01	550-02100	Gail Rodzik and Pamela Rodzik	71%	29%
7	2+054.59	---	Town of Tecumseh	100%	0%

The cost to supply and install gabion stone erosion protection to prevent drain bank erosion shall be assessed 100% as Special Benefit to the adjacent lands.

All future maintenance works between Station 0+000 and Station 0+028 shall be assessed 100% to the lands with Roll No. 550-18800.

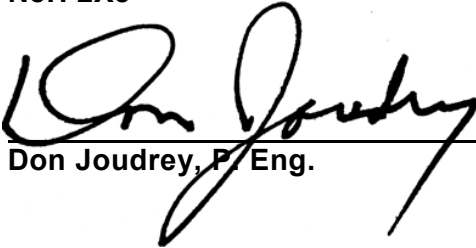
Should any portion of the enclosed drain between Station 2+386.6 and Station 2+848.8 fail, the cost to repair or replace the deficient section shall be assessed to the upstream lands and roads as Outlet.

17.0 Grant

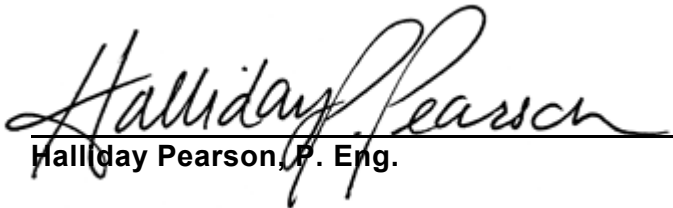
In accordance with the Agricultural Drainage Infrastructure Program (ADIP) and the provisions of Sections 85, 86 and 87 of the Act, a 33-1/3% grant is not available for the proposed works, as the Municipal Property Assessment Corporation identifies no assessed lands as having Farm Property Tax Class Rate.

All of which is respectfully submitted by:

BAIRD AE
27 PRINCESS STREET, UNIT 102
LEAMINGTON, ONTARIO
N8H 2X8


 Don Joudrey, P. Eng.




 Halliday Pearson, P. Eng.



APPENDIX A
RECORD OF SITE MEETING

7TH CONCESSION DRAIN AND EXTENSION
SUMMARY OF ENGINEERING ON-SITE MEETING

August 27, 2014 @ 9:00 am
 NORTH OF 3525 DEL DUCA DRIVE

ATTENDEES	Description
Greg Scott	Tregaskiss
Ray Little	Calframax Technologies Inc.
Joel Fillion	Morton's Wholesale
Sam Paglia, EI	Drainage Superintendent, Town of Tecumseh
Anna Godo, P.Eng.	Drainage Superintendent, City of Windsor
Halliday Pearson, P.Eng	Crozier Baird Engineers
Ryan Langlois, EI	Crozier Baird Engineers

Sam Paglia - Introduced Engineers and explained issues observed with the drain by Town employees and businesses within the area.

Halliday Pearson– Explained that drain would be surveyed from the upper end near Walker Road to the 401. Survey data will be used to analyze the function of the drain and to determine the works required to return the drain to its original design and to improve function. A draft report will be prepared describing the proposed works, cost estimate of those works and a schedule of assessment. The schedule of assessment will describe the estimated assessments to be levied against the lands that use the drain. A Pre-Consideration Meeting will be held at Tecumseh Town Hall so that affected landowners may ask questions of the Engineer and the Drainage Superintendent. All affected landowners are encouraged to attend. The report will be finalized based on comments received at the Pre-Consideration Meeting then sent to all affected landowners along with an invitation to attend the Consideration Meeting held before Council. Technical aspects of the report are discussed at the Consideration Meeting. Should Council provisionally adopt the report, a Court of Revision would be scheduled within 30 days. Concerns or questions regarding assessments will be addressed at this meeting. Upon final adoption of the by-law, the project will be tendered and construction undertaken. Construction will likely begin in early fall of 2015.

Halliday Pearson – Please describe any issues related to the drain that you have experience.

Ray Little – Our parking lot floods. A pond was filled in on the west side of the drain – would that have anything to do with our flooding?

Halliday Pearson – The pond may, however, it is not identified as part of the Municipal Drain. By cleaning the drain (excavating sediment, brushing and grubbing vegetation), the drain will better convey water from the site. The intent is to alleviate flooding issues by restoring the drain to its original design.

Anna Godo – A portion of the 7th Concession Drain at the 401 was lowered under a previous report. Will you take advantage of the lowering of the drain?

Halliday Pearson – As part of our survey and design, we will consider lowering the drain if that would be advantageous and provide improved drainage for the affected lands.

Sam Paglia – Landowners have brought to my attention drainage issues along County Road 46. It may be necessary to establish a branch of the 7th Concession Drain and Extension to solve their drainage issues. We can discuss this as the design proceeds.

Greg Scott – We have an issue with drainage in our parking lot along North Talbot Road. The catchbasins were recently cleaned of sediment.

Sam Paglia – This parking lot may have been designed to contain the water and direct it to onsite catchbasins as part of the stormwater management design. After cleaning of the drain, the water may still sit onsite but it will drain away faster – water may sit for one day instead of two.

Greg Scott – Will North Talbot Road be dug up again as part of these works?

Sam Paglia – The working area will be specified in the report. Typically, only dump trucks and an excavator are used for drainage works. Accesses may be obstructed temporarily but major delays are not expected.

Greg Scott – How are assessments determined?

Sam Paglia – Assessments are determined based on the volume and rate of flow entering the drain from each parcel. A parcel's location on the drain also affected their assessment.

Joel Fillion – Morton Wholesale's parcel does not experience flooding.

Sam Paglia – It was noted that the drain has been enclosed along North Talbot Road. Our records do not reflect this change – the current drainage report shows an open drain in this area. The Engineer will examine the pipe to determine if they have been sized appropriately and will incorporate this enclosure into the report.

The meeting was adjourned at 9:40am.

**CONSTRUCTION SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
Page 1 of 4

COUNTY LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ -	\$ 35.00	\$ 35.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ -	\$ -	\$ 35.00	\$ 35.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ -	\$ 945.00	\$ 1,545.00	\$ 2,490.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ -	\$ 1,230.00	\$ 1,230.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 19,805.00	\$ 1,485.00	\$ 1,335.00	\$ 22,625.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ -	\$ 435.00	\$ 435.00
DelDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ -	\$ 175.00	\$ 175.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ -	\$ 770.00	\$ 770.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ -	\$ 805.00	\$ 270.00	\$ 1,075.00
Total on Municipal Lands						=====	=====	=====	=====
						\$ 19,805.00	\$ 3,235.00	\$ 5,760.00	\$ 28,800.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
Page 2 of 4

			Area Owned		Area Affected		Owner	Special	Total			
Roll No.	Con.	Description	(Acres)	(Ha.)	(Acres)	(Ha.)		Benefit	Benefit	Outlet	Assessment	
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$ -	\$ 1,700.00	\$ 3,105.00	\$ 4,805.00	
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$ -	\$ 3,400.00	\$ 4,225.00	\$ 7,625.00	
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$ -	\$ 1,160.00	\$ 2,230.00	\$ 3,390.00	
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$ -	\$ 2,170.00	\$ 3,800.00	\$ 5,970.00	
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$ -	\$ 2,310.00	\$ 3,965.00	\$ 6,275.00	
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$ -	\$ 530.00	\$ 925.00	\$ 1,455.00	
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$ -	\$ 1,630.00	\$ 2,520.00	\$ 4,150.00	
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$ -	\$ 410.00	\$ 630.00	\$ 1,040.00	
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$ -	\$ 505.00	\$ 765.00	\$ 1,270.00	
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corporation	\$ -	\$ 965.00	\$ 1,470.00	\$ 2,435.00	
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$ -	\$ 970.00	\$ 1,470.00	\$ 2,440.00	
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$ -	\$ 9,470.00	\$ 14,620.00	\$ 24,090.00	
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 18,740.00	\$ 1,360.00	\$ 2,030.00	\$ 22,130.00	
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 26,180.00	\$ 1,355.00	\$ 1,770.00	\$ 29,305.00	
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 17,790.00	\$ 1,020.00	\$ 1,210.00	\$ 20,020.00	
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 22,825.00	\$ 1,720.00	\$ 1,205.00	\$ 25,750.00	
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$ -	\$ -	\$ 745.00	\$ 745.00	
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$ -	\$ -	\$ 750.00	\$ 750.00	
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$ -	\$ -	\$ 750.00	\$ 750.00	
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$ -	\$ -	\$ 480.00	\$ 480.00	
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$ -	\$ -	\$ 625.00	\$ 625.00	
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$ -	\$ -	\$ 635.00	\$ 635.00	
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$ -	\$ -	\$ 760.00	\$ 760.00	
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$ -	\$ -	\$ 870.00	\$ 870.00	
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$ -	\$ -	\$ 905.00	\$ 905.00	
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$ -	\$ 2,935.00	\$ 1,640.00	\$ 4,575.00	
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$ -	\$ -	\$ 560.00	\$ 560.00	
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$ -	\$ 775.00	\$ 405.00	\$ 1,180.00	
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$ 39,620.00	\$ 22,770.00	\$ 11,900.00	\$ 74,290.00	
550-07950	7	PT LT 13	15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$ -	\$ -	\$ 4,970.00	\$ 4,970.00	
550-20025	7	PT LT 12	1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$ -	\$ 1,165.00	\$ 590.00	\$ 1,755.00	
550-20023	7	PT LT 12	1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$ -	\$ -	\$ 380.00	\$ 380.00	

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
550-20022	7	PT LT 12	1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ -	\$ 350.00	\$ 350.00
550-20021	7	PT LT 12	1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ -	\$ 350.00	\$ 350.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 775.00	\$ 1,720.00	\$ 570.00	\$ 3,065.00
550-18900	7	N PT LT 12	2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00309	7	PT LT 12	1.08	0.44	1.08	0.44	Filippo Liburdi	\$ -	\$ -	\$ 430.00	\$ 430.00
550-00308	7	PT LT 12	1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00307	7	PT LT 12	1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00306	7	PT LT 12	1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00305	7	PT LT 12	1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ -	\$ 465.00	\$ 465.00
550-00304	7	PT LT 12	0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ -	\$ 395.00	\$ 395.00
550-07975	7	PT LT 12 & 13	2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ -	\$ 1,520.00	\$ 1,520.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ 3,590.00	\$ 1,505.00	\$ 16,955.00
								=====	=====	=====	=====
Total on Privately Owned Non-Agricultural Lands-----								\$ 137,790.00	\$ 63,630.00	\$ 80,350.00	\$ 281,770.00
								=====	=====	=====	=====
TOTAL ASSESSMENT -----								\$ 157,595.00	\$ 66,865.00	\$ 86,145.00	\$ 310,605.00
								=====	=====	=====	=====
Total Area Assessed			143.01 acres								
			57.83 hectares								

**SPECIAL BENEFIT ASSESSMENTS
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017

Page 4 of 4

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Road Crossings	Total Assessment
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ -	\$ 19,805.00	\$ 19,805.00
Total on Municipal Lands						\$ -	\$ 19,805.00	\$ 19,805.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

Roll No.	Con	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Culverts	Excavation	Total Assessment
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 18,740.00	\$ -	\$ 18,740.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik & Pamela Rodzik	\$ 26,180.00	\$ -	\$ 26,180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 17,790.00	\$ -	\$ 17,790.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 22,825.00	\$ -	\$ 22,825.00
550-18800	7	S PT LT 13	2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ -	\$ 775.00	\$ 775.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$ 39,620.00	\$ -	\$ 39,620.00
590-01000	7	PT LT 10-12	---	---	5.16	2.09	Detroit River Tunnel Company	\$ 11,860.00	\$ -	\$ 11,860.00
Total on Privately Owned Non-Agricultural Lands								\$ 137,015.00	\$ 775.00	\$ 137,790.00
TOTAL ASSESSMENT								\$ 137,015.00	\$ 20,580.00	\$ 157,595.00



**MAINTENANCE SCHEDULE OF ASSESSMENT
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT REFERENCE 14-105**

February 7, 2017
Reconsidered November 23, 2017
Page 1 of 3

COUNTY LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
Walker Road	---	---	0.02	0.01	The County of Essex	\$ -	\$ 5.00	\$ 5.00
						=====	=====	=====
Total on Municipal Lands	-----					\$ -	\$ 5.00	\$ 5.00

MUNICIPAL LANDS:

Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
North Talbot Road	---	---	1.14	0.46	The Town of Tecumseh	\$ 85.00	\$ 50.00	\$ 135.00
Henin Street	---	---	1.25	0.51	The Town of Tecumseh	\$ -	\$ 40.00	\$ 40.00
Moynahan Street	---	---	1.78	0.72	The Town of Tecumseh	\$ 140.00	\$ 60.00	\$ 200.00
Regal Drive	---	---	0.35	0.14	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
DeIDuca Drive	---	---	0.40	0.16	The Town of Tecumseh	\$ -	\$ 10.00	\$ 10.00
O'Neil Drive	---	---	1.61	0.65	The Town of Tecumseh	\$ -	\$ 50.00	\$ 50.00
590-01200 7 N PT LT 12	3.56	1.44	1.16	0.47	Town of Tecumseh	\$ 70.00	\$ 25.00	\$ 95.00
						=====	=====	=====
Total on Municipal Lands	-----					\$ 295.00	\$ 245.00	\$ 540.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:
Page 2 of 3

Roll No.	Con.	Description	Area Owned (Acres)	Area Affected (Ha.)	Area Owned (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-03200	7	N PT LT 11	2.45	0.99	2.45	0.99	Morton Wholesale Ltd. (Corporation)	\$ 155.00	\$ 100.00	\$ 255.00
550-03102	7	PT LTS 11	4.89	1.98	4.89	1.98	ITW Canada Management Company	\$ 305.00	\$ 195.00	\$ 500.00
550-03101	7	PT LT 11	1.67	0.68	1.67	0.68	Generation Development Contractors Inc.	\$ 105.00	\$ 65.00	\$ 170.00
550-03100	7	GORE 11	3.12	1.26	3.12	1.26	Daniela Calsavara	\$ 195.00	\$ 120.00	\$ 315.00
550-02902	7	PT LT 11	3.32	1.35	3.32	1.35	Morbella Holdings Ltd.	\$ 205.00	\$ 120.00	\$ 325.00
550-02900	7	PT LT 11	0.77	0.31	0.77	0.31	Bolzano Tool & Die Company Ltd.	\$ 50.00	\$ 25.00	\$ 75.00
550-02700	7	W PT LT 11	2.35	0.95	2.35	0.95	Fraven Management Ltd.	\$ 145.00	\$ 80.00	\$ 225.00
550-02600	7	PT LT 11	0.59	0.24	0.59	0.24	Fraven Management Ltd.	\$ 35.00	\$ 20.00	\$ 55.00
550-02500	7	PT LT 12	0.73	0.30	0.73	0.30	ARC Boiler Repair (1983) Ltd.	\$ 45.00	\$ 25.00	\$ 70.00
550-02401	7	PT LT 12	1.39	0.56	1.39	0.56	T.C.T.T. Investment Corp	\$ 85.00	\$ 45.00	\$ 130.00
550-02400	7	PT LT 12	1.40	0.57	1.40	0.57	Grande Line Estates Ltd.	\$ 85.00	\$ 45.00	\$ 130.00
550-02300	7	PT LT 12	13.62	5.51	13.73	5.51	1147048 Ontario Ltd.	\$ 850.00	\$ 455.00	\$ 1,305.00
550-02100	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-02000	7	PT LT 12	1.95	0.79	1.95	0.79	Gail Rodzik and Pamela Rodzik	\$ 120.00	\$ 60.00	\$ 180.00
550-01600	7	PT LT 12	1.47	0.59	1.47	0.59	Adine Builders Ltd.	\$ 90.00	\$ 45.00	\$ 135.00
550-01500	7	PT LT 12	2.47	1.00	2.47	1.00	SGM Real Estate Holdings ULC	\$ 155.00	\$ 70.00	\$ 225.00
550-01400	7	PT LT 12	1.15	0.46	1.15	0.46	Electra-Tech Manufacturing Inc.	\$ -	\$ 35.00	\$ 35.00
550-01300	7	PT LT 12	1.15	0.47	1.15	0.47	1061175 Ontario Ltd.	\$ -	\$ 35.00	\$ 35.00
550-01200	7	PT LT 12	1.14	0.46	1.14	0.46	Sernacon Holdings Inc.	\$ -	\$ 35.00	\$ 35.00
550-01101	7	PT LT 11	0.74	0.30	0.74	0.30	Peter Macera	\$ -	\$ 20.00	\$ 20.00
550-01100	7	PT LT 11	0.96	0.39	0.96	0.39	TJ Watson Land Development Inc.	\$ -	\$ 30.00	\$ 30.00
550-01000	7	PT LT 11	0.97	0.39	0.97	0.39	Fraven Management Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00900	7	PT LT 11	1.90	0.77	1.90	0.77	Generation Development Contractors Inc.	\$ -	\$ 55.00	\$ 55.00
550-00320	7	PT LT 12	2.17	0.88	2.17	0.88	Timothy Capital Corp.	\$ -	\$ 60.00	\$ 60.00
550-00318	7	PT LT 12	2.26	0.91	2.26	0.91	Linda Jahn and Cheryl Jahn	\$ -	\$ 60.00	\$ 60.00
550-00314	7	PT LT 12	4.22	1.71	4.22	1.71	Hero's Fountain Ltd.	\$ 265.00	\$ 110.00	\$ 375.00
550-20188	7	PT LT 12	1.54	0.62	1.54	0.62	Hero's Fountain Ltd.	\$ -	\$ 40.00	\$ 40.00
550-20186	7	PT LT 4 & 5	1.11	0.45	1.11	0.45	2376238 Ontario Ltd.	\$ 70.00	\$ 25.00	\$ 95.00
550-07900	7	N PT LT 12	32.75	13.26	32.75	13.26	Wannabe Radical Inc.	\$2,045.00	\$ 775.00	\$ 2,820.00

PRIVATELY OWNED NON-AGRICULTURAL LANDS:

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Roll No.	Con.	Description	Area Owned (Acres)	Area Owned (Ha.)	Area Affected (Acres)	Area Affected (Ha.)	Owner	Benefit	Outlet	Total Assessment
550-07950	7 PT LT 13		15.05	6.09	15.05	6.09	Wannabe Radical Inc.	\$ -	\$ 310.00	\$ 310.00
550-20025	7 PT LT 12		1.67	0.68	1.67	0.68	Paul Cesidio DiGiovanni	\$ 105.00	\$ 40.00	\$ 145.00
550-20023	7 PT LT 12		1.09	0.44	1.09	0.44	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20022	7 PT LT 12		1.00	0.40	1.00	0.40	Paul Cesidio DiGiovanni	\$ -	\$ 25.00	\$ 25.00
550-20021	7 PT LT 12		1.00	0.40	1.00	0.40	Calframax Holdings Inc.	\$ -	\$ 25.00	\$ 25.00
550-18800	7 S PT LT 13		2.47	1.00	2.47	1.00	905364 Ontario Ltd.	\$ 155.00	\$ 50.00	\$ 205.00
550-18900	7 N PT LT 12		2.01	0.81	2.01	0.81	401 Mack Ltd.	\$ -	\$ 40.00	\$ 40.00
550-00309	7 PT LT 12		1.08	0.44	1.08	0.44	Filippo Liburdi Construction	\$ -	\$ 30.00	\$ 30.00
550-00308	7 PT LT 12		1.15	0.47	1.15	0.47	K.F.J. Holdings Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00307	7 PT LT 12		1.15	0.47	1.15	0.47	Linda Jahn and Cheryl Jahn	\$ -	\$ 30.00	\$ 30.00
550-00306	7 PT LT 12		1.15	0.47	1.15	0.47	997103 Ontario Ltd.	\$ -	\$ 30.00	\$ 30.00
550-00305	7 PT LT 12		1.15	0.47	1.15	0.47	KBC Tools Inc.	\$ -	\$ 30.00	\$ 30.00
550-00304	7 PT LT 12		0.98	0.40	0.98	0.40	Greycliffe Consultants	\$ -	\$ 25.00	\$ 25.00
550-07975	7 PT LT 12 & 13		2.87	1.16	2.87	1.16	1233831 Ontario Inc.	\$ -	\$ 110.00	\$ 110.00
590-01000	7 PT LT 10-12		---	---	5.16	2.09	Detroit River Tunnel Company	\$ 320.00	\$ 110.00	\$ 430.00
Total on Privately Owned Non-Agricultural Lands-----								\$5,705.00	\$ 3,750.00	\$ 9,455.00
TOTAL ASSESSMENT -----								\$6,000.00	\$ 4,000.00	\$ 10,000.00

Total Area Assessed 143.01 acres
 57.83 hectares



SPECIFICATIONS
REPLACEMENT ACCESS CULVERTS
OVER THE 7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 PIPE MATERIAL

The Contractor shall supply and install or clean the following:

Access Culverts and Crossings:

- a. Culvert No. 8 at Station 1+379: 16.0 metres of 1800mm diameter aluminized corrugated steel pipe, 2.8mm thick with 125 x 25mm corrugations and sloped gabion stone end of pipe protection;
- b. Culvert No. 9 at Station 1+544: 20.0 metres of new 1500mm diameter class 65-D concrete pipe with sloped gabion stone end of pipe protection;
- c. Culvert No. 3 at Station 1+854: 22.0 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations and concrete block headwalls;
- d. Culvert No. 4 at Station 1+909: 12.5 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- e. Culvert No. 5 at Station 1+957: 11.8 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- f. Culvert No. 6 at Station 2+034: 12.2 metres of new 1200mm diameter aluminized corrugated steel pipe, 2.8mm thick with 68 x 13mm corrugations with concrete block headwalls;
- g. Culvert No. 7 at Station 2+054: 12.5 metres of 1050mm diameter class 65-D concrete pipe with concrete block headwalls.

Existing enclosed pipe network to be cleaned:

- a. Station 2+386.6 to Station 2+848.8: Clean existing 450mm to 825mm diameter corrugated steel pipes including all inline manholes and catch basins.

2.0 WORKING AREA

The areas available to the Contractor to be used for the purpose of constructing the recommended works of this report and for construction and future maintenance as provided for under Section 63 of the Act are described follows:

Between Station 0+000 and Station 0+028: The Contractor shall utilize an area measuring approximately 9.0 metres wide along the west side of the drain.

Between Station 1+321 and Station 1+825: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 1+825 and Station 2+042: The Contractor shall utilize the Moynahan Street right-of-way.

Between Station 2+042 and Station 2+386.61: The Contractor shall utilize an area measuring 9.0 metres wide along the west side of the drain.

Between Station 2+386.61 and Station 2+848.8: The Contractor shall utilize the North Talbot Road right-of-way.

3.0 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall dispose of excavated material as described below:

The Contractor shall spread and level excavate adjacent to the drain to a maximum depth of 300mm between:

Station 1+321 and Station 1+750
Station 2+054 and Station 2+386.6

The Contractor shall load, haul, spread and level excavate on lands adjacent to Station 1+404 and Station 1+750 and Station 2+069 and Station 2+386.61 between:

Station 1+750 and Station 1+825
Station 1+825 and Station 2+054.

4.0 LOCATION AND ELEVATION OF CULVERT

The location and elevations of the new culvert shall be according to the drawings, 14-105 Sheet 1 to Sheet 7.

5.0 PLACEMENT OF CULVERT

- a) The Contractor shall excavate all vegetation, topsoil and existing granular material from the bank slopes and bottom of the existing drain complete along with hauling materials off site.

The required work includes:

- i. The supply and installation of new pipe as described in Section 1.0 Pipe Material;
- b) The Contractor shall perform the excavation, placement of the pipe and backfill in a dry condition and shall provide all required pumps and/or equipment to enable the work to proceed in the dry.
- c) Supply and place sloped gabion stone end of pipe protection or concrete block headwalls, as required.

6.0 PIPE BACKFILL

After the pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec 1010 according to the attached plan. The backfill material shall be carefully placed so damage to or movement of the culvert is avoided and backfill materials shall be placed in layers not exceeding 300 mm in thickness, loose measurement. Each layer shall be thoroughly compacted in place to a Standard Proctor Density of 98% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Commissioner in charge.

7.0 QUARRIED ROCK END PROTECTION

Where specified and after the corrugated plastic pipe has been set and backfilled the Contractor shall install quarried rock erosion protection at each end of the pipe.

The backfill over the ends of the corrugated plastic pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope and between both side slopes.

7.0 QUARRIED ROCK END PROTECTION - Continued

The top 300 mm in thickness of the backfill over the ends of the corrugated plastic pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated plastic pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric. The geotextile filter fabric and quarried rock shall be placed to the complete satisfaction of the Municipality's Drainage Superintendent.

7.0 CONCRETE BLOCK HEADWALLS

Where specified and after the Contractor has set in place the new culvert, he shall completely backfill the same and install new concrete block headwalls at the locations indicated on the drawing. The Contractor shall completely backfill in behind the new concrete block headwalls with granular material, Granular "A" and "B" per O.P.S.S. 1010 and as additionally specified under Special Provisions Item No. 11.0 and the granular material shall be compacted in place with a standard proctor density of 100%. The granular backfill shall be placed and compacted in lifts not to exceed 300 mm (12 inches) in thickness.

Upon completion of the concrete block headwall the Contractor shall cap the top row of concrete blocks with a prefabricated concrete cap. The Contractor shall fill all voids between the concrete blocks and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

8.0 ALIGNMENT

The alignment of the enclosure throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge.

9.0 LOCATION OF STRUCTURES, ETC.

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object that he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Town and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Town or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

Numerous catchbasins were noted in the front portion of numerous properties along the length of the drain. The Contractor shall take care to not damage any catchbasin or connection into the drain. Should a catchbasin or connection be damaged, it shall be replaced by the Contractor at his cost.

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall

10.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD- Continued

have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

11.0 CONSTRUCTION SAFETY

The Contractor shall comply with all the requirements of the Occupational Health and Safety Act, 1990 and the regulations passed in connection therewith, as administered by the Ontario Ministry of Labour and all subsequent amendments of the said Act.

The Contractor shall exercise all possible precaution against injury to persons or property resulting from his work. The Contractor shall leave no trenches, pits, holes or excavations uncovered, without providing sufficient protection at all times. The Contractor shall install, erect and provide barricades, signs, traffic cones, flashers, lights, plates, warning and other devices, materials and personnel as may be required and at his own expense in order to provide for the safe passage and control of traffic and to ensure public safety. All traffic control shall be in accordance with the latest standards of the Ministry of Transportation.

12.0 CERTIFICATE OF CLEARANCE

The Contractor will be required to submit to the Municipality a Certificate of Good Standing from the Workplace Safety & Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Municipality, a Certificate of Clearance for the project from the Workplace Safety & Insurance Board before final payment is made to the Contractor.

13.0 PROGRESS ORDERS

Monthly progress orders for payment shall be furnished to the Contractor by the Commissioner in charge; said orders shall not be for more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 45 days after the final acceptance and completion of the work.

14.0 CLEANING UP

The Contractor shall leave the whole of the site of the work in a neat, thorough and workmanlike appearance to the full satisfaction of the Commissioner. He shall haul away any excess earth from the site. He shall haul to the site, sufficient earth to fill any depressions caused by his work at his own expense. The site shall be left as close as possible in the same condition as it was prior to the commencement of the work.

15.0 MEASUREMENT AND PAYMENT

Payment for the work shall be on a unit price basis unless otherwise indicated and shall include all the work shown on the accompanying drawings and specifications.

16.0 MAINTAINING FLOW

The Contractor shall maintain the flow of any drainage works encountered in the progress of the work and at no expense to the Owner. The Contractor shall obtain written approval from the Commissioner in charge to stop up any drain and if necessary provide pumping equipment, build necessary by-passes, etc. at no expense to the Owner.

17.0 COMMISSIONER

Where the work "Commissioner" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction, to superintend the work.

The Commissioner will be permitted to make minor variations in the work so long as these variations will result in a more satisfactory project or a more economical one. These variations, however, must not be such as to change the intent of the work performed nor are they to reduce the standard of quality.

18.0 NOTIFICATION OF WORK

Prior to commencing any work of installing the extension of the culvert or removing any existing structures, the Contractor shall inform the Municipality's Drainage Superintendent of his intent to commence work at least 48 hours prior to commencing any work. The Owner or Contractor shall endeavour to install and complete the new structure without delay once he has commenced the work. If for any reason the work does not proceed continuously then the Owner or Contractor shall notify the Drainage Superintendent in advance of any backfilling operation or headwall construction so that he may schedule inspection of same. The completed work must be done to the satisfaction of the Municipality's Drainage Superintendent and be approved by him.

19.0 MAINTENANCE

The Contractor shall repair and make good at his expense any damages or faults in the work that may appear within one year after its completion (as evidenced by the final inspection report), as the result of imperfect or defective work done or materials furnished. Nothing herein contained shall be construed as any way restricting or limiting the liability of the Contractor under the appropriate laws under which the work is being done.

20.0 PROPERTY BARS

The Contractor shall note the presence of numerous iron property bars along the course of the work. The Contractor shall make every effort to protect all property bars. The cost of replacing any property bar destroyed by the Contractor will be paid by the Contractor.

21.0 PROVISIONAL ITEMS

Items of work included in the Form of Tender noted as "Provisional" may be deleted from the Contract at any time at the discretion of the Owner. If any Provisional Item, or part thereof, is deleted from the requirements of the Contract, the Contractor will have no claim against the Owner for so doing and the Contractor must take this requirement into consideration when determining his unit prices and his Total Tender Price.

Provisional prices tendered shall be in effect until issuance of the final payment certificate.

SPECIFICATIONS
ENVIRONMENTAL PROTECTION SPECIAL PROVISIONS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 GENERAL

These Environmental Protection Special Provisions shall apply and form part of this Contract. All costs associated to conforming with these Special Provisions shall be included in the Tender prices bid.

2.0 FIRES

Fires and burning of rubbish on site will be permitted only with special approval from the Municipality.

3.0 DISPOSAL OF WASTES

The Contractor shall not bury rubbish and waste materials on site unless approved by the Engineer and all applicable approving authorities. The site shall be maintained free of accumulated waste and rubbish. All waste materials should be disposed of in a legal manner at a site approved by all local approving authorities and the Engineer.

The Contractor shall not allow deleterious substances, waste or volatile materials such as mineral spirits, or paint thinner, to enter into waterways, storm or sanitary sewers.

The disposal of dredge material where applicable shall be in accordance with the above.

4.0 POLLUTION CONTROL

The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed. The Contractor shall control emissions from equipment and plant to local authorities emission requirements. The Contractor shall not cause excessive turbidity when performing in-water work. The Contractor shall not allow any debris, fill or other foreign matter to enter into the waterway. The Contractor shall remove from the waterway, all extraneous materials resulting from in-water work.

The Contractor shall abide by local noise By-Laws for the duration of the Contract.

Spills of deleterious substances into waterways and on land shall be immediately contained by the Contractor and the Contractor shall cleanup in accordance with Provincial regulatory requirements. All spills shall be reported to the Ontario Spills Action Centre (1-800-268-6060), local authorities having jurisdiction and the Engineer. To reduce the risk of fuel entering the waterway, refuelling of machinery must take place a safe distance from the waterway. The Contractor shall note that the Engineer or the Owner takes no responsibility for spills, this shall be the sole responsibility of the Contractor.

5.0 WHMIS

The Contractor shall comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and regarding labelling and the provision of material safety data sheets acceptable to Labour Canada.

6.0 DRAINAGE

The Contractor shall not pump water containing suspended materials into waterways, sewers or drainage systems. The Contractor shall be solely responsible for the control, disposal or runoff of water containing suspended materials or other harmful substances in accordance with these specifications, and local authority requirements. The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and site free from water.

The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

7.0 PROTECTION OF VEGETATION

The Contractor shall exercise the utmost caution to ensure that existing trees and plants on-site and on adjacent properties are not damaged or disturbed unless noted otherwise in the Removals Special Provisions of this Contract. The Contractor shall restrict tree removal to areas indicated on the Contract Drawings and/or designated on-site. No trees or shrubs shall be removed without the approval of the Engineer and/or Drainage Superintendent. Mature trees outside of the drain bank limit shall remain undisturbed except where necessary to facilitate the proposed works.

8.0 DUST CONTROL

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.

Water and calcium chloride shall be applied to areas on or adjacent to the site as authorized by the Engineer as being necessary and unavoidable for the prevention of dust nuisance or hazard to the public. No payment will be made for dust control unless otherwise specified in the Special Provisions.

9.0 RESTRICTIONS FOR IN-WATER WORKS

The Contractor shall only perform in-water works during times when conditions permit reasonable production rates to be achieved. The Contractor shall be required to adopt good housekeeping practices that minimize disturbance to the site and the adjacent waterway.

The Contractor shall note that this Project is subject to approval from the Essex Region Conservation Authority and as such, any possible turbidity caused by the construction of the shore protection works is of key importance.

The Contractor shall minimize the turbidity (sedimentation) produced by any in-water works construction or operations. The Contractor will be ordered to cease operations if, in the opinion of the Engineer or authorities having jurisdiction, the in-water work is producing unacceptable amounts of turbidity in the waterway. Based on this, the Contractor shall either adjust his operation(s) to produce lower turbidity levels, wait for more favourable conditions before

9.0 RESTRICTIONS FOR IN-WATER WORKS - Continued

operations will be allowed to continue, or undertake approved mitigating measures (e.g. sediment control, etc.). All costs associated with the above will be the sole responsibility of the Contractor, and no claims for extras or delays will be considered.

10.0 FISH HABITAT

No work shall be undertaken when there is likelihood of adverse effects on fish spawning or fish habitat in downstream waters.

GENERAL SPECIFICATIONS
FOR CONSTRUCTION OF OPEN DRAINS
FOR THE
7TH CONCESSION DRAIN
TOWN OF TECUMSEH
PROJECT NO. 14-105

1.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Each tenderer must visit the site and review the plans and specifications before submitting his tender and must satisfy himself as to the extent of the work and local conditions to be met during the construction period. He is not to claim at any time after submission of his tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions. The quantities shown as indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking quantities for accuracy prior to submitting his tender.

2.0 SUPPLY OF MATERIALS

The Contractor shall supply all labour, equipment and materials necessary for the proper completion of the project.

3.0 PROFILE

The excavation of the drain must be at least to the depth intended by the grade line as shown on the profile, which grade line is governed by the bench marks. The profile shows, for the convenience of the Contractors and others, the approximate depth of cut from the surface of the ground at the points where the numbered stakes are set to the final invert of the channel and also the approximate depth of cut from the bottom of the existing channel to the final invert of the channel. Bench marks which have been established along the course of the drain, shall govern the final elevation of the drain. The location and elevation of the bench marks are shown on the profile.

4.0 ALIGNMENT

The alignment of the drain throughout shall be to the full satisfaction of the Commissioner in charge. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Commissioner in charge. The bottom widths and side slopes of the various sections of the finished drain are to be true to line and grade as shown on the profile. When completed the drain shall have a uniform and even bottom and in no case shall such bottom project above the grade line as shown on the accompanying drawing, and as determined from the bench mark.

5.0 BRUSHING AND GRUBBING

Brush or rubbish shall be grubbed out and close cut on the bank of the working side of the drain including the strip of land between where the earth is to be cast and spread and the top of the drain. The brush or rubbish shall be loaded, hauled and disposed of offsite at a location determined by the Contractor and at his expense. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

5.0 BRUSHING AND GRUBBING - Continued

Existing select hardwood trees greater than 200 mm (8") in diameter situated in the drain bank within 1.0 metre from the top of the bank may be selectively left standing if the Drainage Superintendent considers the trees will not adversely affect the flow of water within the drain. Prior to removing any trees the Contractor shall meet at the site with the Drainage Superintendent to review if any vegetation or select trees are environmentally significant for preservation.

6.0 DISPOSAL OF MATERIAL

The Contractor shall dispose of excavated material as follows: All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense.

7.0 SPREADING EXCAVATED EARTH

All excavated material shall be loaded, hauled and disposed of offsite at a location to be determined by him and at his expense. No material shall be cast and spread on the adjacent industrial lands.

7.0 FENCING

Where it is necessary to take down any fence in order to proceed with the work, the same shall be done by the Contractor across or along that portion of the work where such fence is. The Contractor will be required to exercise extreme care in the removal of any fence so as to cause a minimum of damage to the same. The Contractor will be required to replace any fence that is taken down in order to proceed with the work and the fence shall be replaced in a neat and workmanlike manner. The Contractor will not be required to procure any new materials for rebuilding the fence provided he has used reasonable care in the removing and replacing of the same. Where any fence is removed by the Contractor and the Owner thereof deems it advisable and procures new material for replacing the fence so removed, the Contractor shall replace the fence using the new materials and the materials from the present fence shall remain the property of the Owner. The Contractor is not to leave any fences open when he is not at work in the immediate vicinity.

8.0 LOCATION OF STRUCTURES AND UTILITIES

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object which he may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Municipality and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Municipality or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

9.0 ACCESS CULVERTS AND CROSSINGS

Culverts and crossings shall be cleaned or removed and replaced as described as follows:

Between Station 2+386.6 and Station 2+848.8: All pipes and structures shall be cleaned; all excess material shall be disposed of offsite at a location determined by the contractor at his expense.

Culvert No. 8 at Station 1+379: Culvert shall be removed and replaced as described in

9.0 ACCESS CULVERTS AND CROSSINGS - Continued

Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 9 at Station 1+544: Culvert shall be constructed as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 3 at Station 1+854: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 4 at Station 1+909: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 5 at Station 1+957: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 6 at Station 2+034: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

Culvert No. 7 at Station 2+054: Culvert shall be removed and replaced as described in Section 1.0 Pipe Material of Specifications – Replacement Access Culverts over the 7th Concession Drain.

10.0 BACKFILL FOR CULVERTS

Where specified and after the corrugated plastic pipe has been set, the Contractor shall backfill the culvert with granular "B" material, O.P.S.S. Spec. 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. The equipment and method of compacting the backfill material shall be to the full satisfaction of the Drainage Superintendent or Engineer.

11.0 ROCK PROTECTION FOR CULVERTS

The backfill over the ends of the pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope and between both side slopes. The top 30 cm in thickness of the backfill over the ends of the pipe shall be quarried rock. The quarried rock shall be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the pipe to the top of each side slope of the drain and between both side slopes. The quarried rock shall have a minimum dimension of 100 mm and a maximum dimension of 225 mm. Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric.

12.0 PLACING OF CULVERT PIPE

When specified the Contractor shall install all culvert bridges in the location directed by the Engineer. The excavation for placing the culvert, the type and class of bedding and backfill and culvert end treatment shall be carried out to the width, depth and alignment as specified herein. The surface on which the culvert is to be laid shall be true to grade and alignment and shaped to accept the materials to be placed. The pipe shall be laid to the alignment and grade shown in the report but may not be placed on a bed containing frozen materials. The Contractor shall carefully place the bedding and backfill material so damage to or movement of the pipe is avoided. Backfill and cover materials shall be placed in layers not exceeding 250 mm in thickness, loose measurement. Each layer shall be thoroughly compacted before the next layer is placed. Backfill on each side of the pipe shall be placed simultaneously and at no time shall the levels on each side of the pipe differ by more than 250 mm. Where native backfill is approved to be used the material shall not contain boulders larger than 150 mm or other deleterious material. The Contractor will be required to fully restore all paved driveways with materials of similar type and depths. The Contractor shall neatly saw cut all paved driveways at a distance of 300 mm beyond the edge of the excavated trench and this shall be done immediately prior to final restoration of the paved driveway.

When an access culvert or bridge does not have to be lowered or replaced, the Contractor shall clean it to its full cross sectional area using care to avoid causing damage to it in the process. Where a pipe culvert is to be reset to a new grade, the Contractor shall carefully remove it, clean it to its full cross sectional area and replace it in the drain as specified herein. Where a culvert is to be replaced, the Contractor shall carefully remove the existing pipe from the drain, clean it to its full cross sectional area and leave it on the drain bank unless otherwise specified. Should either the property owner or the Commissioner in charge not require the salvaged pipe then the Contractor shall dispose of the pipe at the Contractors expense.

The Contractor if using a batter board system for establishing the grade of the culvert pipe, shall utilize a minimum of three batter board stakes for each culvert. The Contractor shall ensure that the batter board stakes placed on the grade stakes shall line up, this being done prior to any excavation taking place for the proposed culvert.

Where pipes are scheduled to be moved or replaced the Contractor shall confirm the new location of the culvert pipe with the owner prior to installation. Where the Contractor has excavated a culvert pipe which has been scheduled to be cleaned and reinstalled and it is found that the condition of the existing culvert pipe is not satisfactory to be reused, the Contractor shall immediately notify the Commissioner in charge who will verify the condition of the existing pipe and may instruct the Contractor to supply a new length of corrugated plastic pipe.

Where pipes are scheduled to be cleaned and flushed only, the material which is removed from the culvert pipe is to be loaded and hauled away. Over digging of the drain at the downstream end of the culvert to accommodate material flushed from a culvert pipe will not be allowed.

13.0 CUTS

The cuts as shown on the accompanying drawing are to be taken from the ground beside the stakes to the bottom of the finished drain, unless otherwise noted on the drawing.

14.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor will be responsible for any damage caused by him to any portion of the municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road is damaged by the Contractor, the Municipality shall have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality.

15.0 SEEDING AND MULCHING

The Contractor will be fully responsible for the restoration of all areas disturbed by his operations in the carrying out this work. The Contractor shall excavated and set aside sufficient topsoil from the trench excavation or supply additional topsoil so that he can place a minimum of 100mm in depth of topsoil over the backfilled trench as detailed on the drawings. Any depressions in any lawn caused by equipment or due to the movement of materials shall be backfilled with topsoil and satisfactorily levelled and raked in place on all lawn areas to be restored.

The Contractor shall fine grade the finished surfaces and shall apply hydroseeding and mulch. The seeding and mulching operation shall be carried out according to O.P.S.S. Spec. 572 or as amended herein and the operation shall include the supplying and placing of the following:

- | | | | |
|----|--------------|--|-------|
| A) | Seed Mixture | - Creeping Red Fescue | - 50% |
| | | - Red Top | - 20% |
| | | - Canada Blue Grass | - 15% |
| | | - Kentucky Blue Grass | - 15% |
| B) | Nurse Crop | - Oats if seeding and mulching is performed during May or June. | |
| | | - Annual Rye Grass if seeding and mulching is performed during Sept. or Oct. | |
| C) | Fertilizer | - 5-20-10 mixture | |
| D) | Mulch | - Wood Cellulose Fibre or Straw | |
| E) | Adhesive | - Asphalt Emulsion if straw mulch used | |
| | | - Liquid Polyvinyl Acetate if wood fibre mulch used | |

The application rates shall be as follows:

- A) Grass Seed Mixture - 90 lbs./acre
- B) Fertilizer - 350 lbs./acre
- C) Nurse Crop Seed - 55 lbs./acre
- D) Mulch - 1300 lbs./acre if wood fibre used
- 1" to 2" depth if straw used
- E) Adhesive - 200 imp.gal/acre for Asphalt Emulsion
- 205 lbs./acre for Liquid Polyvinyl Acetate

The seeding and mulching operation shall be only carried out as weather conditions permit during the months of May and June in the Spring, and September and October in the Fall. If the excavation work is carried out during the months of May and June, or September or October, the Contractor has the option of contacting the Drainage Superintendent and if the Contractor receives his written permission, the seed mixture as above specified, may be placed on the excavated side slopes by the Contractor by hand, daily, at the completion of his daily excavation operation. If the Contractor has been given written permission by the Drainage Superintendent

15.0 SEEDING AND MULCHING - Continued

to place the seeding mixture by hand daily, at the completion of his daily excavation operation, the Contractor shall be responsible to give the side slopes a rough, harrowed texture prior to placing the seed mixture.

16.0 QUARRIED ROCK

The Contractor shall place quarried rock protection at the areas indicated on the accompanying plans or as directed by the Engineer. The quarried rock shall be graded in size from a minimum size of 100 mm to a maximum size of 230 mm. The quarried rock shall be placed 300 mm in thickness on a layer of geotextile filter fabric placed on the bottom of the excavation. The filter fabric shall be "Terrafix 270-R" or equal. The Contractor shall excavate for the quarried rock so that the top of the completed quarried rock protection is level with the adjacent ground.

The Contractor shall remove all trees, brush and debris from the area on which the quarried rock is to be placed. The quarried rock shall be carefully placed by the Contractor at the locations and to the dimensions as shown on the accompanying specifications. The specified filter cloth shall be hand laid and have an overlap of 600 mm and all quarried rock that is to be placed over the filter cloth shall be carefully hand or machine placed so that it does not damage the filter cloth. The filter cloth shall extend up the sides of the trench excavated to accept the quarried rock and the quarried rock shall extend 300 mm above the top of the surface inlet pipe where applicable.

17.0 MAINTAINING FLOW AND EXISTING SEWERS

The Contractor shall support and maintain the flow and existing sewers and house connections and any other drainage works encountered in the progress of the work and at no expense to the owner. The Contractor shall obtain written approval from the engineer to stop up any drain, and if necessary, provide pumping equipment, build necessary by-passes, etc. at no expense to the owner.

18.0 SPECIAL PROVISIONS

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

19.0 REMOVAL OF TREES

The Contractor shall reference General Specification No. 5 prior to removing any vegetation near or within the drain. Whenever practical, existing trees not scheduled for removal will be preserved. The Contractor shall exercise the utmost caution to ensure that the trees are not damaged or disturbed. All mature trees along the top of the bank of the working side of the drain shall be selectively left standing.

20.0 HIGH-PRESSURE GAS MAIN

Further to Section 8.0 Location of Structures and Utilities, a high-pressure gas main is aligned parallel to the south side of the former railway right-of-way. There is sufficient depth of cover; however, third party observation by a Union Gas representative will be required during construction when digging within 1.5 metres of the utility due to the size and pressure of the

20.0 HIGH-PRESSURE GAS MAIN - Continued

main. The Contractor shall provide notice three business days prior to the start of excavation at 1-855-228-6535.

Should abandoned infrastructure be found within the working area, the following shall be noted and performed:

- Assume any excavated pipe is live;
- If during the course of any project, a pipe is found that is not on the locate sheet and is in conflict with the work, the Contractor shall call the Union Gas emergency number (1-877-969-0999) to speak with a Union Gas representative to determine if the utility is live or dead;
- A Union Gas representative will respond to the live or dead call within 1-4 hours so the Contractor must plan accordingly.

ATTENTION:

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, REVISED STATUTES OF ONTARIO, 1990 CHAPTER 0.1 AS AMENDED, ONTARIO REGULATION 213/91, R.R.O. 1990 REG. 834 AS ADMINISTERED BY THE ONTARIO MINISTRY OF LABOUR AND ALL SUBSEQUENT AMENDMENTS OF SAID ACT.

CAUTION:

THE LOCATION OF THE UNDERGROUND UTILITIES AS SHOWN ON THE DRAWING ARE APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES DURING THE CONSTRUCTION OF THE PROJECT. THE CONTRACTOR AGREES TO INDEMNIFY THE OWNER AND CROZIER BAIRD ENGINEERS AGAINST ANY CLAIMS WHICH ARISE FROM HIS ACTIONS.

SHEET SET INDEX:

SHEET NO.	SHEET TITLE
1	TITLE PAGE
2	DRAINAGE AREA
3	PROFILE 1+146 TO 1+900
4	PROFILE 1+900 TO 2+656
5	PROFILE 2+656 TO 2+848
6	CROSS SECTIONS
7	CROSS SECTIONS

NOTE:

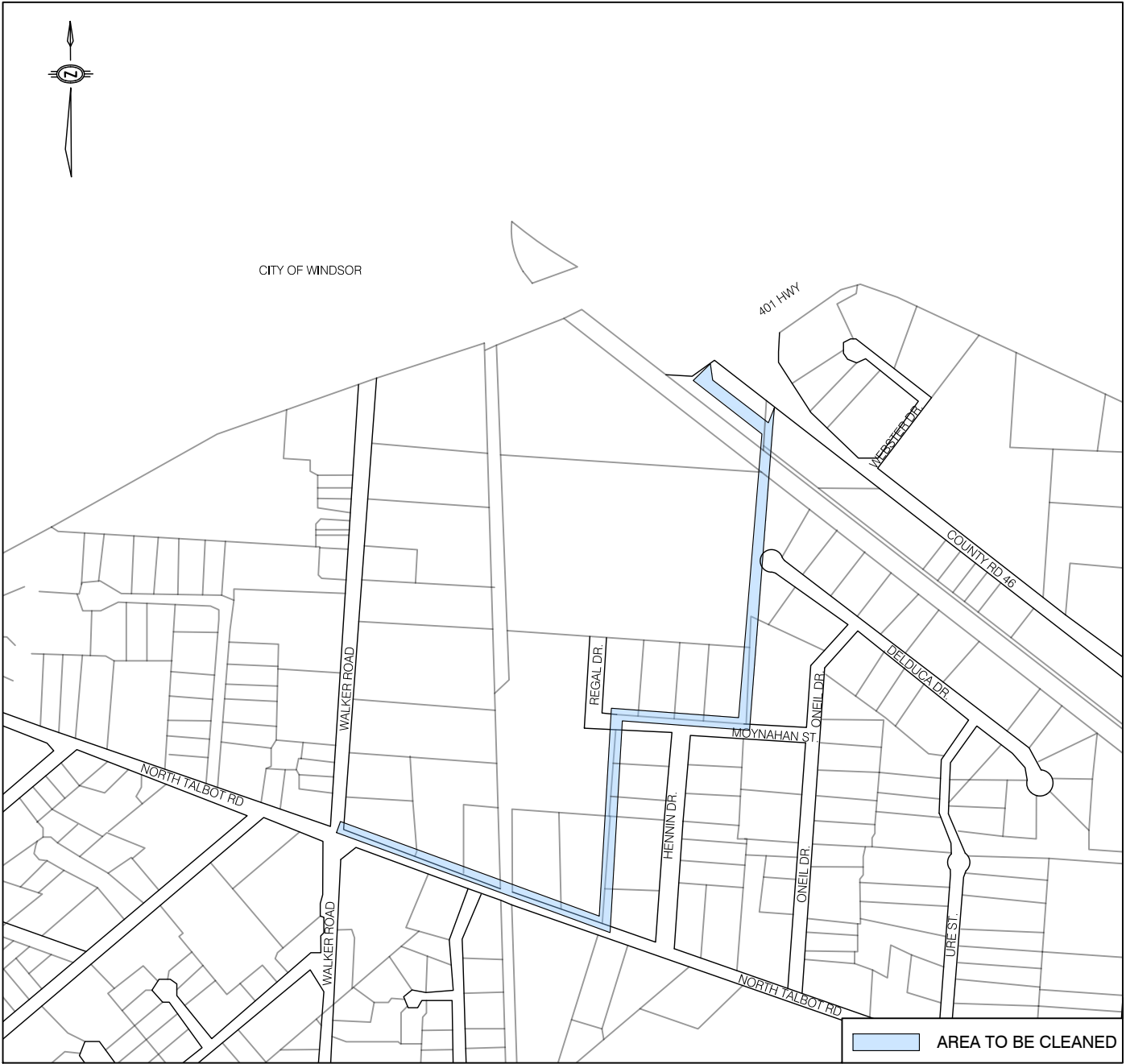
THE PROPERTY LINES AND DIMENSIONS SHOWN ARE BASED ON SURVEY BARS FOUND ON THE SITE AND ARE NOT BASED ON A SURVEY DRAWING PRODUCED BY AN ONTARIO LAND SURVEYOR. THE PROPERTY LINES SHOULD BE CONSIDERED AS APPROXIMATELY ONLY AND NOT A LEGAL PLAN OF SURVEY

NOTE:

CONFIRM PRESENCE OF BURIED PIPELINE PARALLEL TO NORTH RAIL BURIED 4-5' DEEP

BENCHMARK

- No. 1 STA: 2+714: TOP NUT OF FIRE HYDRANT EAST OF WALKER ROAD AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.665 METRES.
- No. 2 STA: 2+463: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.740 METRES.
- No. 3 STA: 2+485: TOP NUT OF FIRE HYDRANT EAST OF BRENDAN LINE AND NORTH TALBOT ROAD INTERSECTION
GPS ELEVATION 191.967 METRES.
- No. 5 STA: 2+065: TOP NUT OF FIRE HYDRANT WEST OF MOYNAHAN ST. AND HENININ DR.
GPS ELEVATION 191.466 METRES.
- No. 6 STA: 1+563 TOP NUT OF FIRE HYDRANT NEAR THE WEST END OF DELDUCA DR.
GPS ELEVATION 191.117 METRES.



KEY PLAN
SCALE: N.T.S



27 PRINCESS STREET, SUITE #102
LEAMINGTON, ONTARIO
N8H 2X8

1000 - 267 PELISSIER STREET,
WINDSOR, ONTARIO
N9A 4K4.

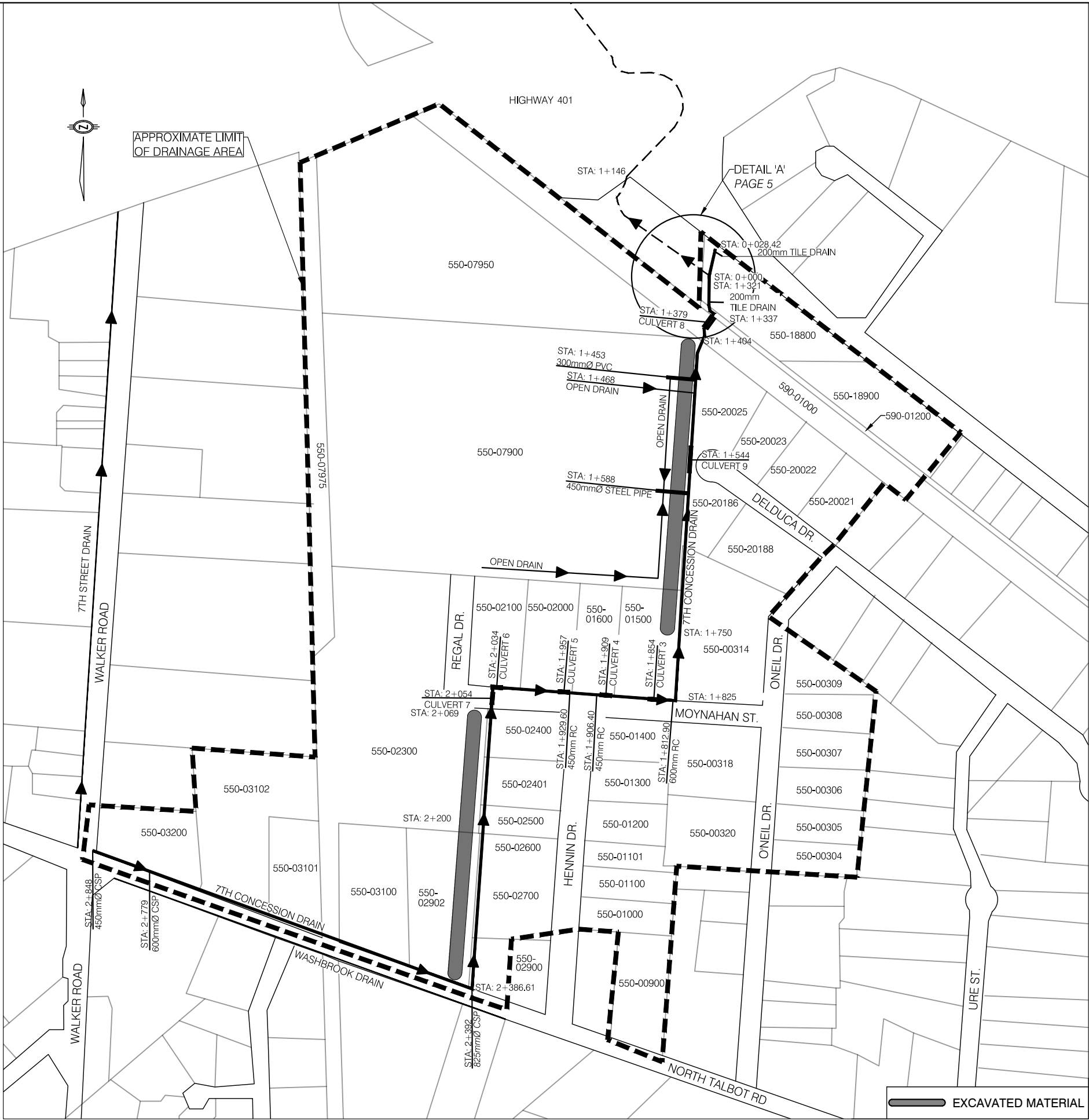
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REPAIR AND IMPROVEMENT TO THE 7TH CONCESSION DRAIN
TOWN OF TECUMSEH

PAGE TITLE:
TITLE PAGE



Don Joudrey
DON J. JOUDREY, P.ENG.

DRAWN BY: D.B.	SCALE: AS NOTED	DATE: FEB. 07, 2017 RECONSIDERED NOV. 23, 2017
CHKD BY: D.A.J./H.P.P.	SHEET No. : 1 OF 8	PROJECT No. : 14-105

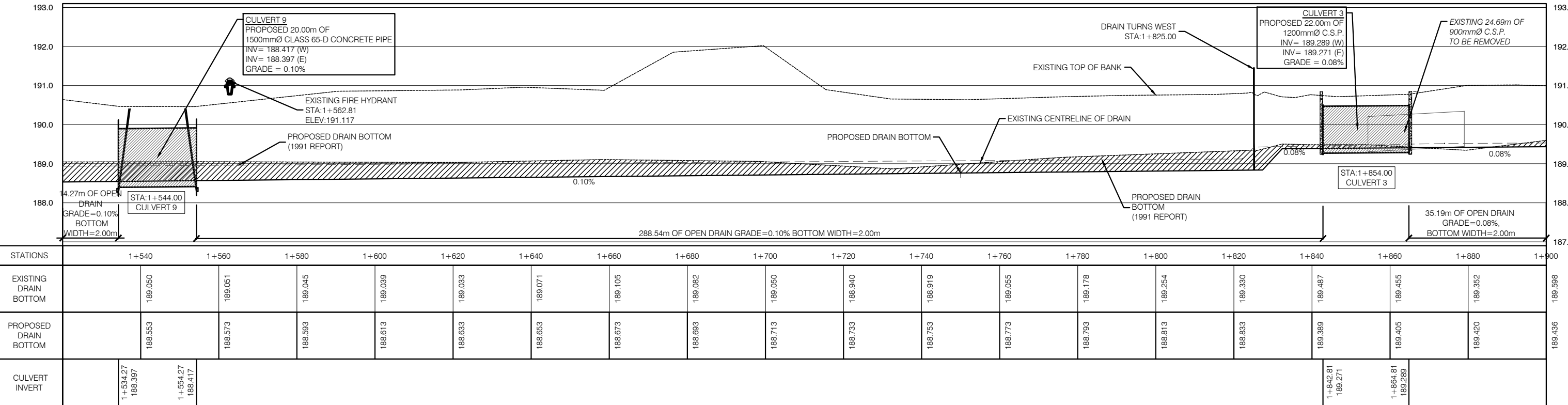


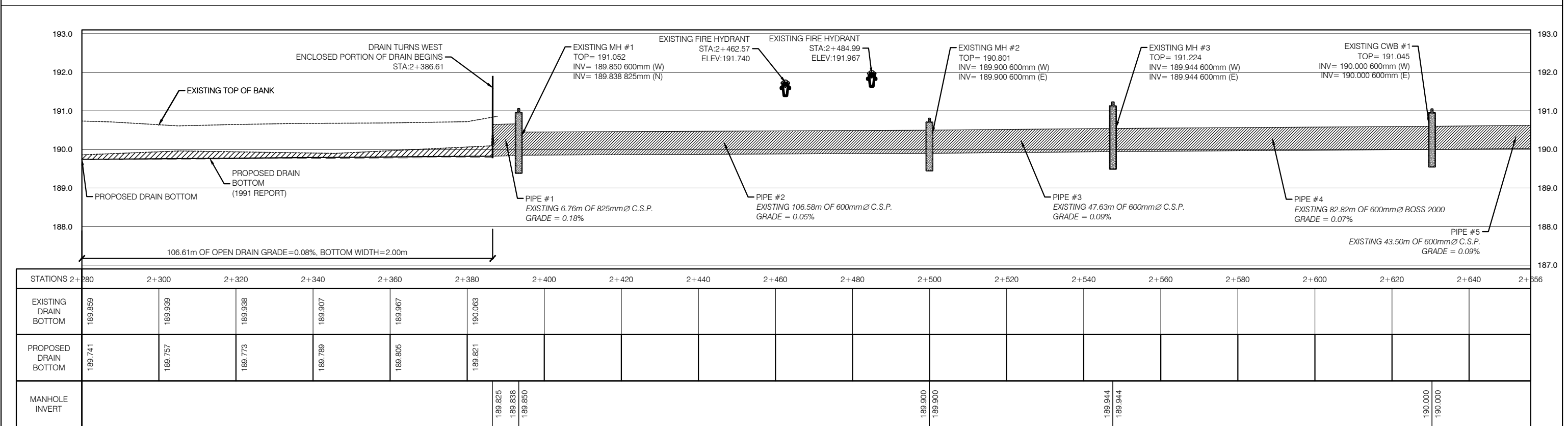
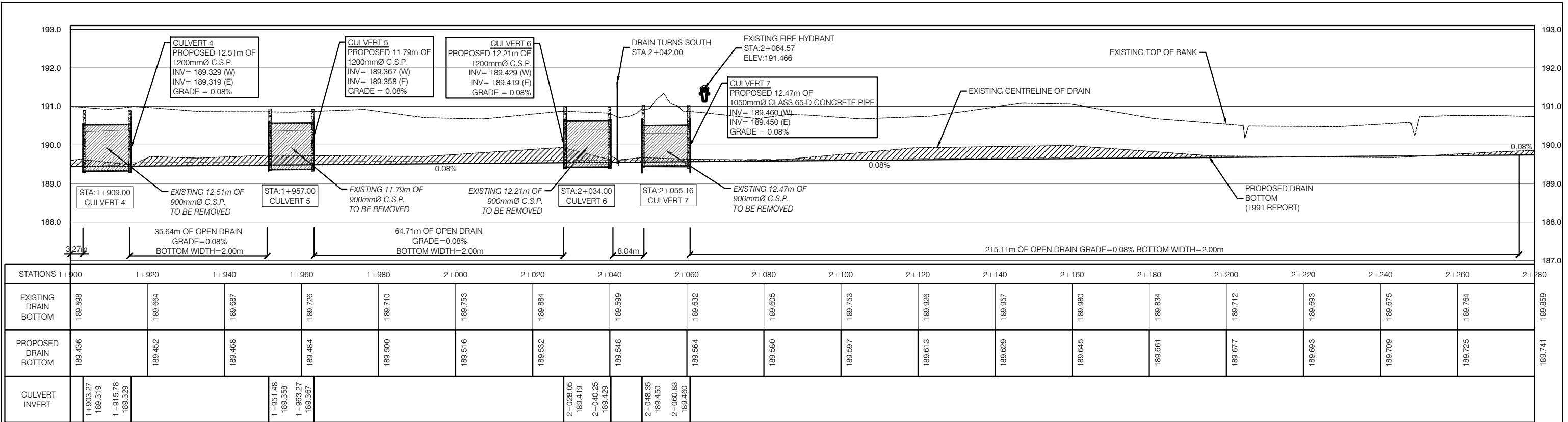
DRAINAGE AREA PLAN
SCALE: N.T.S.

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550-00304	Greycliffe Consultants
550-00305	KBC Tools Inc.
550-00306	997103 Ontario Ltd.
550-00307	Linda Jahn and Cheryl Jahn
550-00308	KFJ Holdings Ltd.
550-00309	Filippo Liburdi
550-00314	Hero's Fountain Ltd.
550-00318	Linda Jahn and Cheryl Jahn
550-00320	Timothy Capital Corp.
550-00900	Generation Development Contractors Inc.
550-01000	Fraven Management Ltd.
550-01100	TJ Watson Land Development Inc.
550-01101	Peter Macera
550-01200	Sernacon Holdings Inc.
550-01300	1061175 Ontario Ltd.
550-01400	Electra-Tech Manufacturing Inc.
550-01500	SGM Real Estate Holdings ULC
550-01600	Adine Builders Ltd.
550-02000	Gail Rodzik and Pamela Rodzik
550-02100	Gail Rodzik and Pamela Rodzik
550-02300	1147048 Ontario Ltd.
550-02400	Grande Line Estates Ltd.
550-02401	T.C.T.T. Investment Group
550-02500	ARC Boiler Repair Ltd.
550-02600	Fraven Management Ltd.
550-02700	Fraven Management Ltd.
550-02900	Bolzano Tool and Die Company Ltd.
550-02902	Morbella Holdings Ltd.
550-03100	Daniela Calsavara
550-03101	Generation Development Contractors Inc.
550-03102	ITW Canada Management Company
550-03200	Morton Wholesale Ltd. (Corporation)
550-07900	Wannabe Radical Inc.
550-07950	Wannabe Radical Inc.
550-07975	1233831 Ontario Ltd.
550-18800	905364 Ontario Ltd.
550-18900	401 Mack Ltd.
550-20021	Calframax Holdings Inc.
550-20022	Paul Cesidio DiGiovanni
550-20023	Paul Cesidio DiGiovanni
550-20025	Paul Cesidio DiGiovanni
550-20186	2376238 Ontario Ltd.
550-20188	Hero's Fountain Ltd.
590-01000	Detroit River Tunnel Company
590-01200	Town of Tecumseh

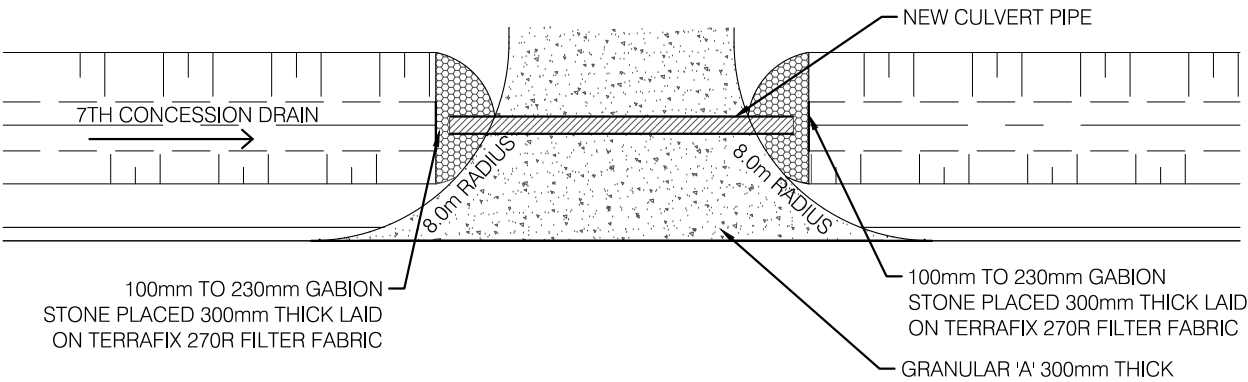
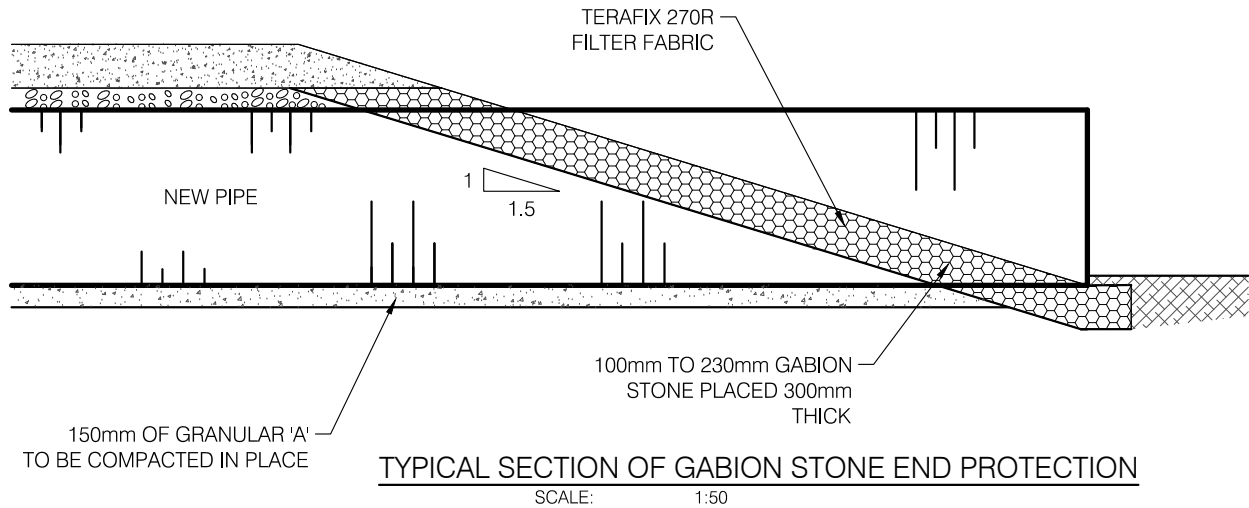
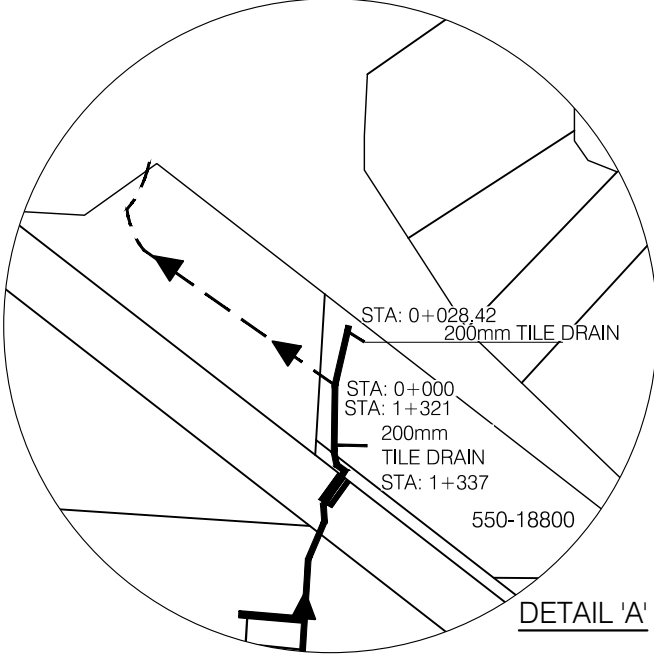
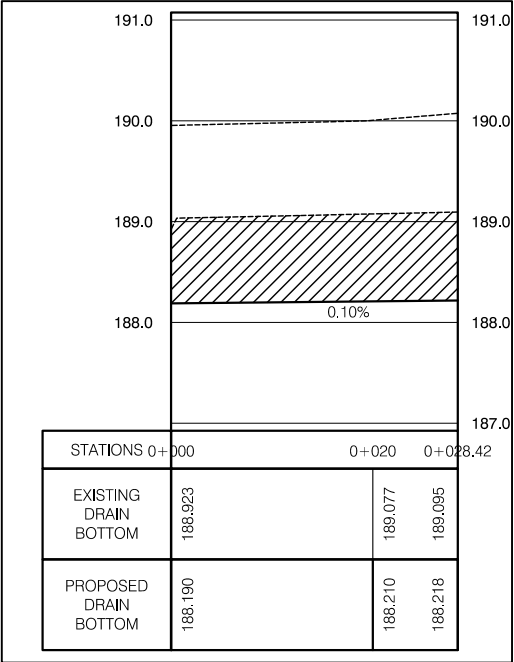
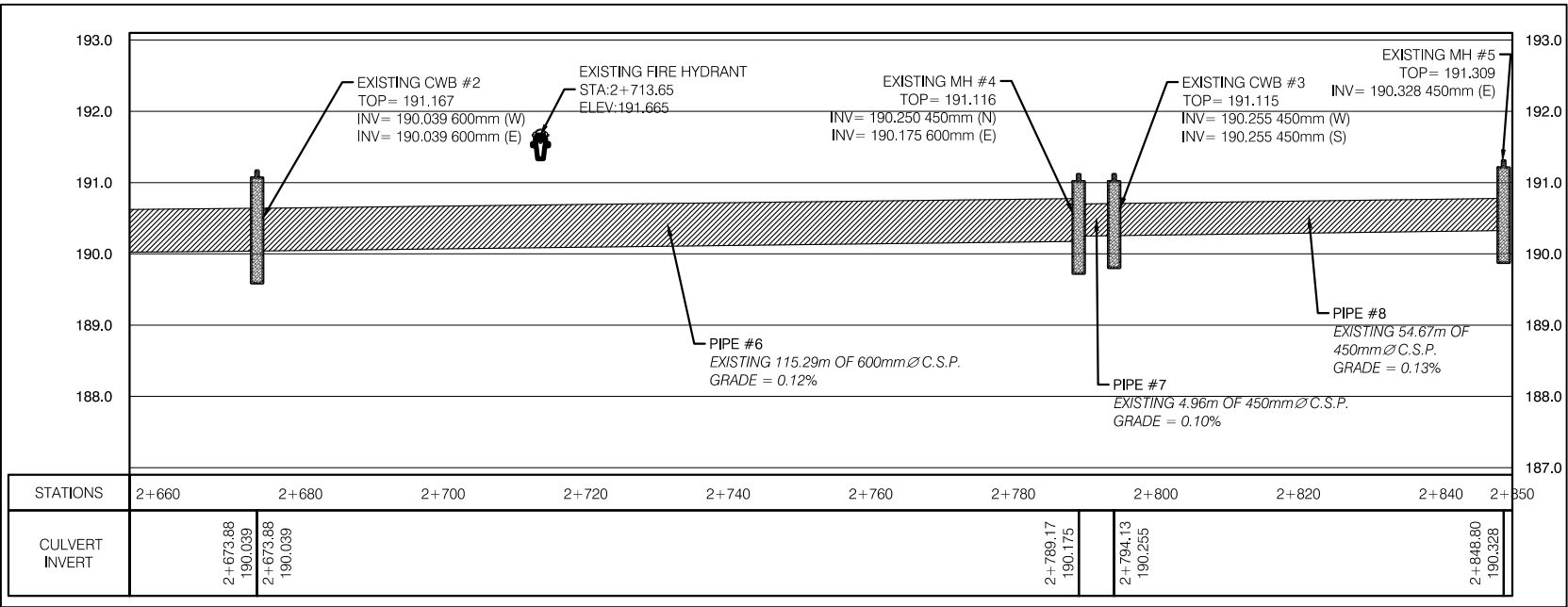
PARCEL INFORMATION

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TOWN OF TECUMSEH			
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 2 OF 8	PROJECT No. : 14-105

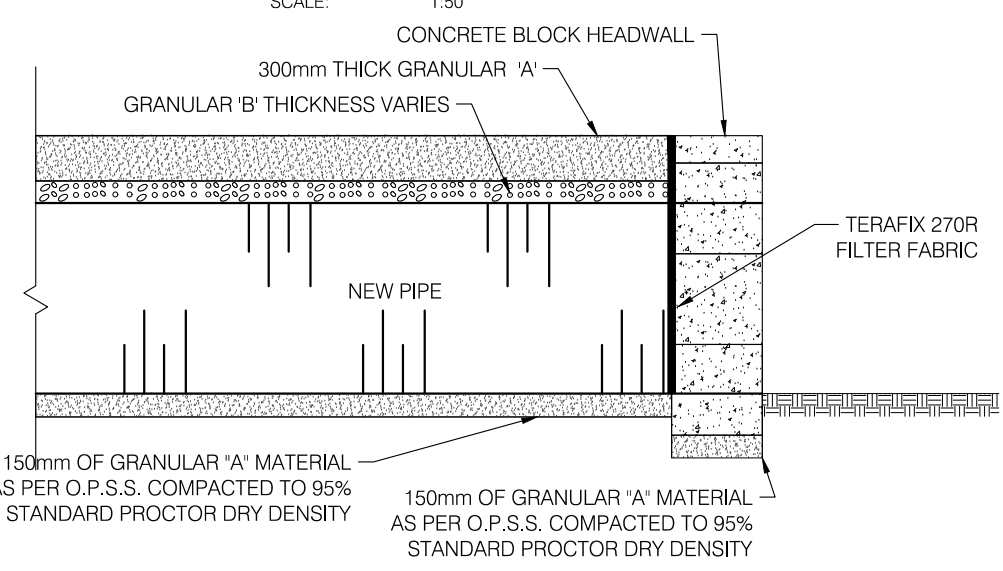




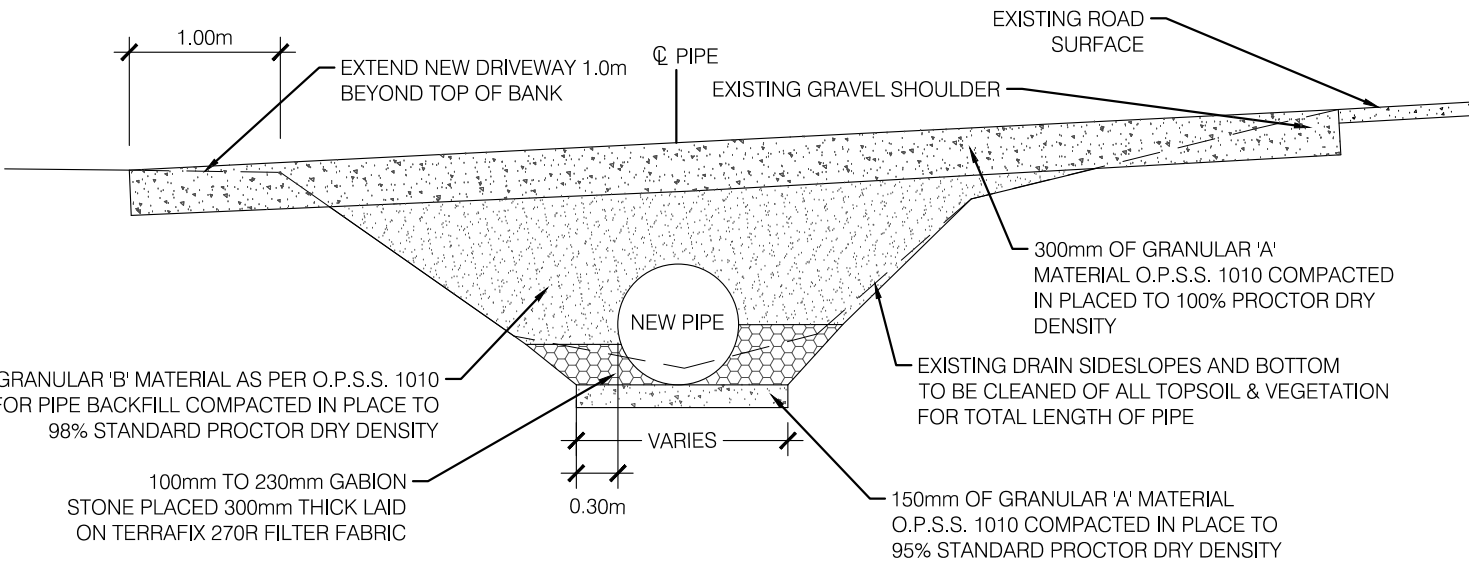
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TOWN OF TECUMSEH			
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 4 OF 7	PROJECT No. : 14-105



TYPICAL GABION STONE END PROTECTION PLAN VIEW

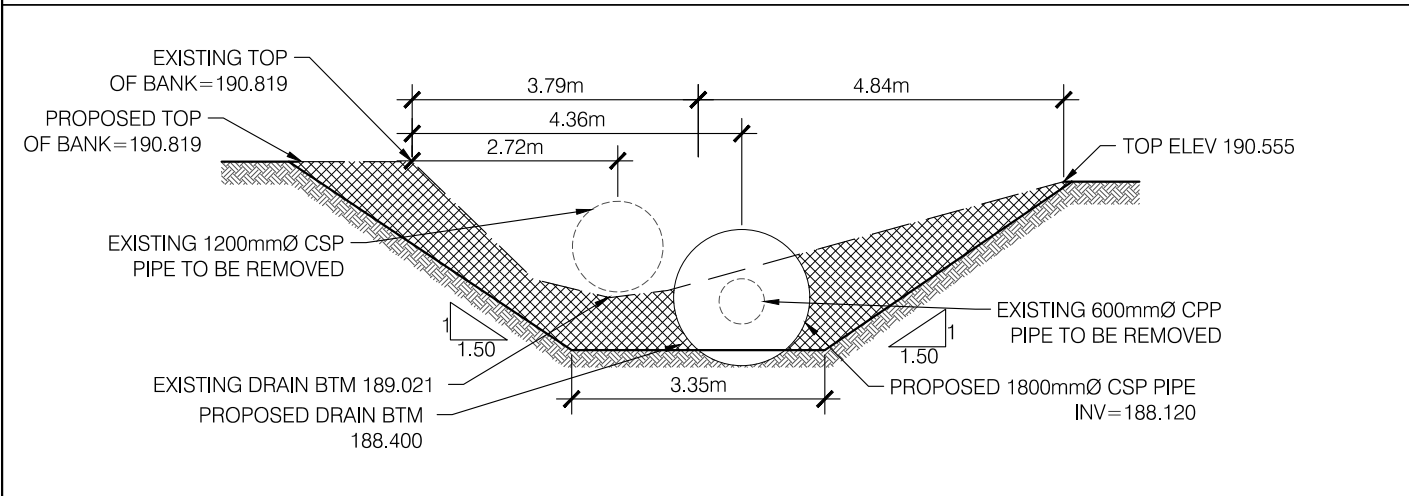


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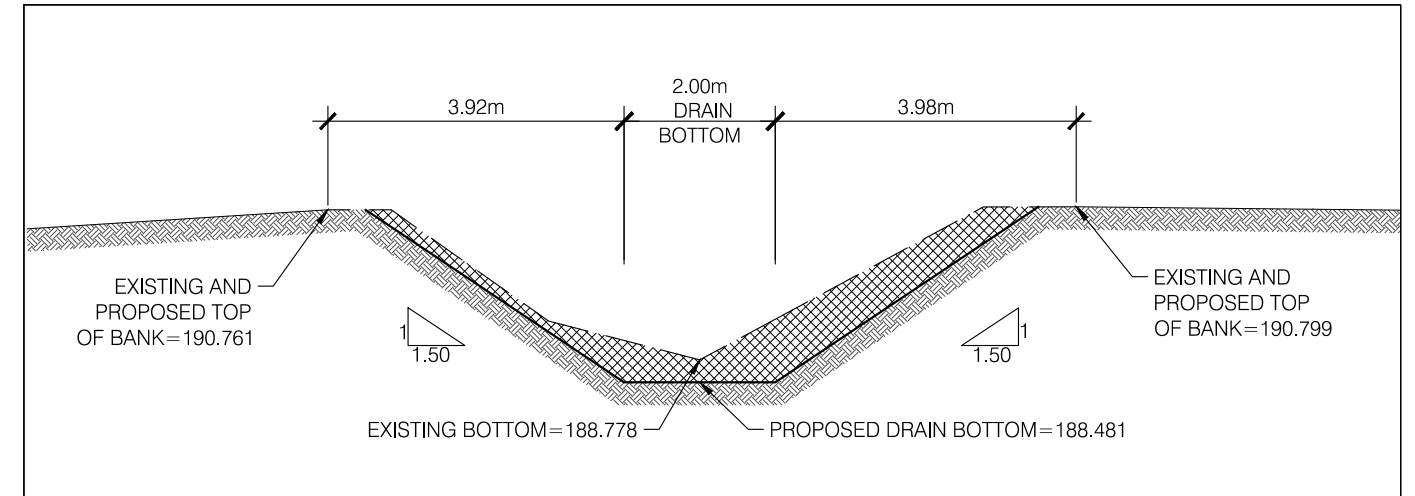


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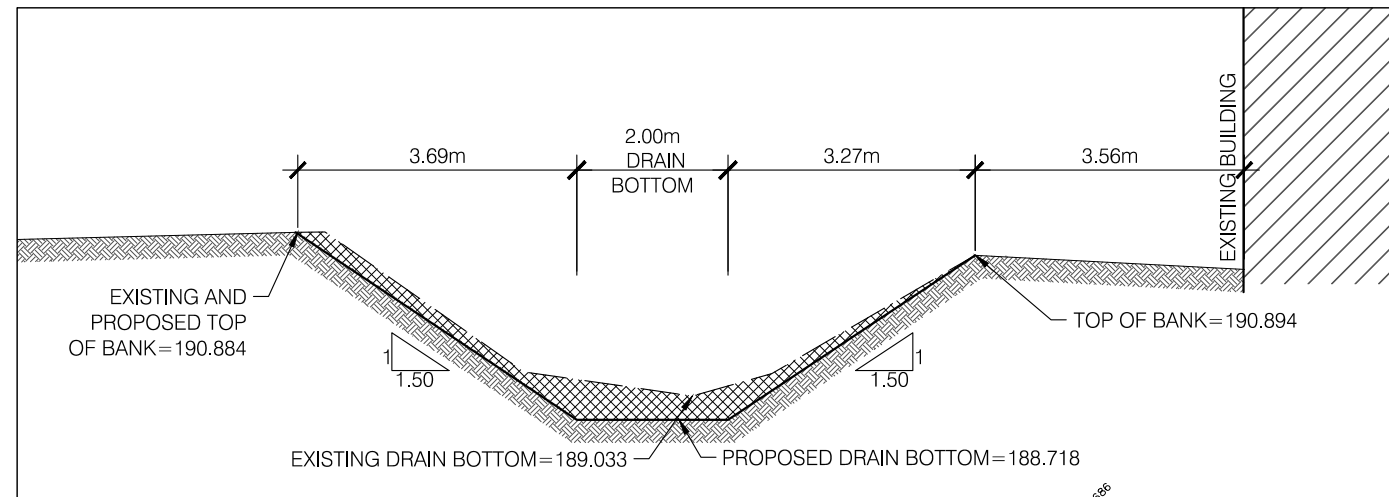
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	CHK'D BY: D.A.J./H.P.P.	SHEET No. : 5 OF 7	PROJECT No. : 14-105



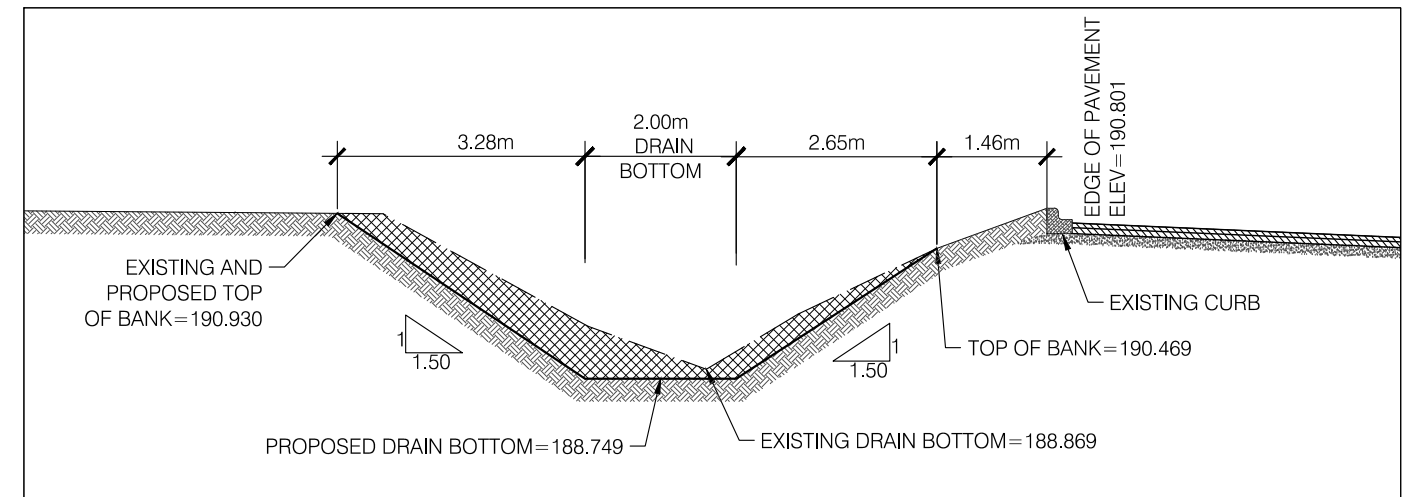
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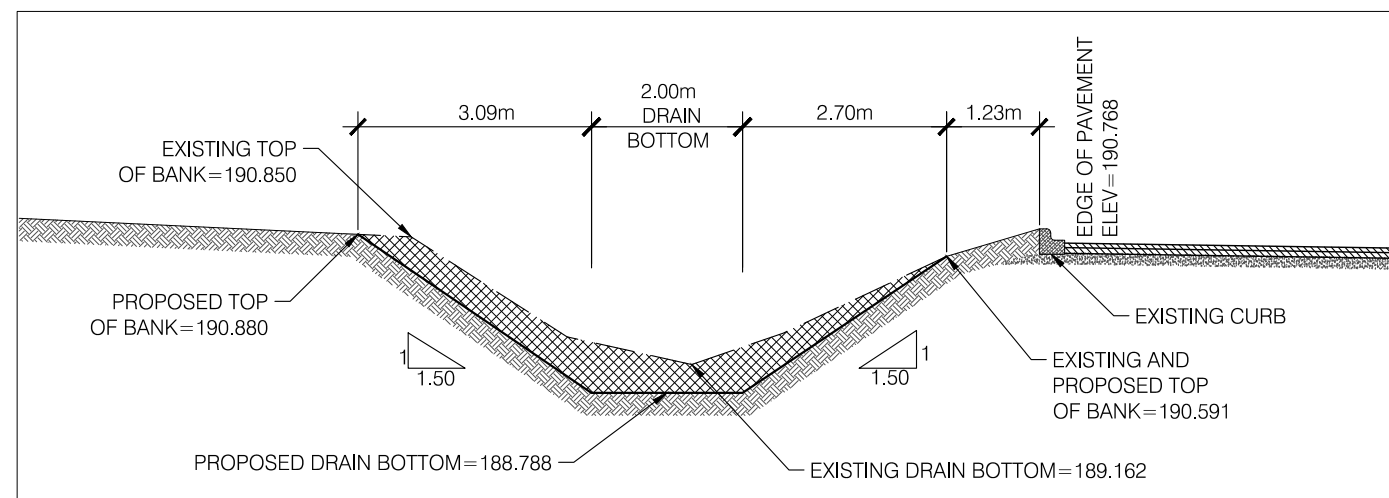
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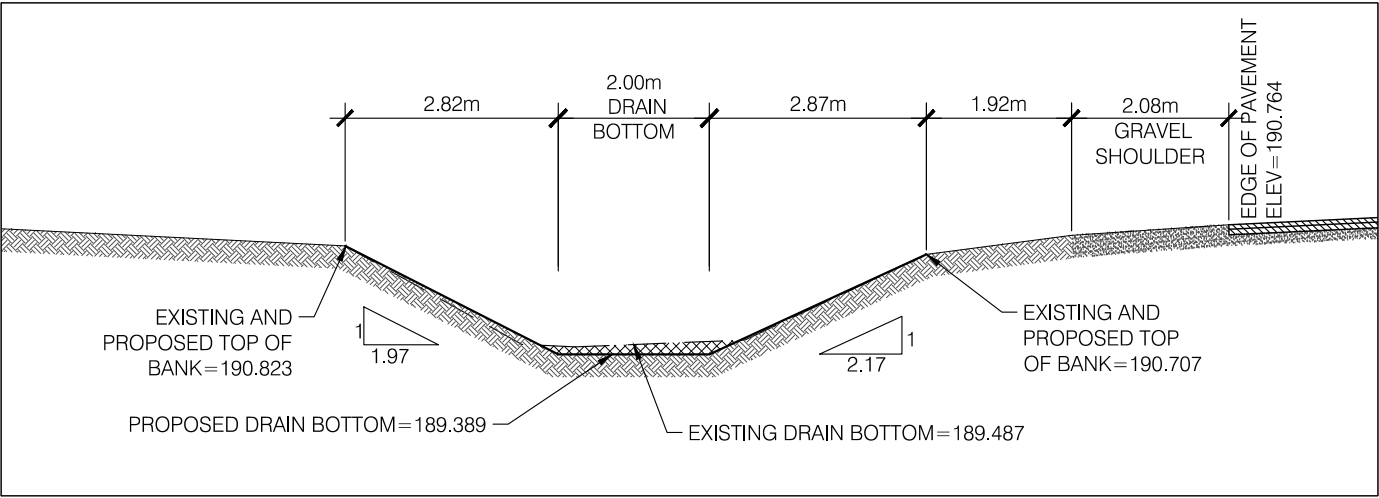


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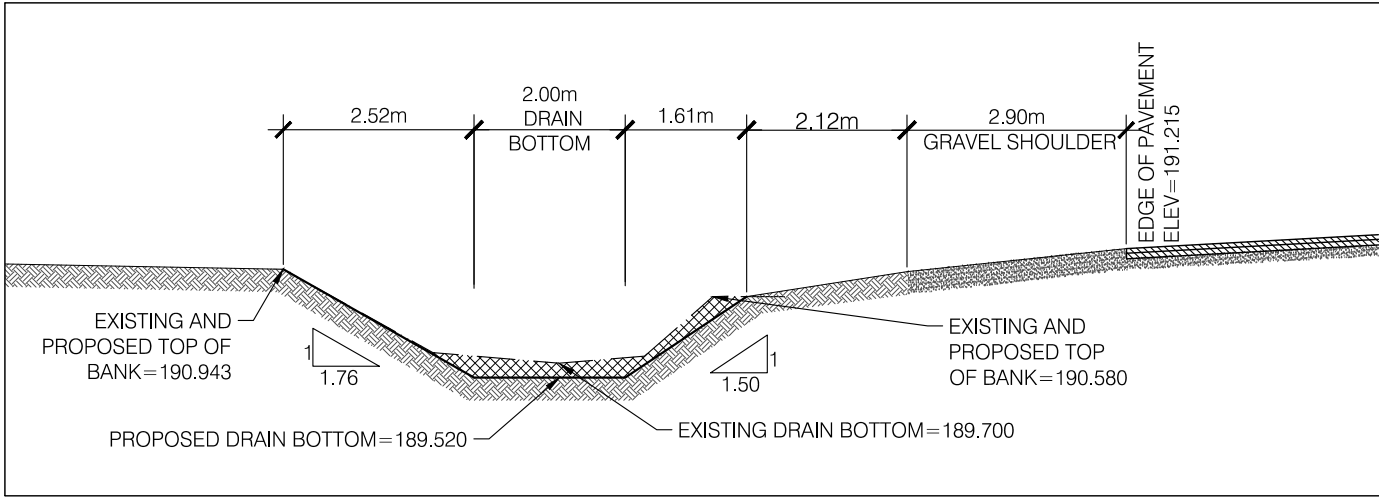


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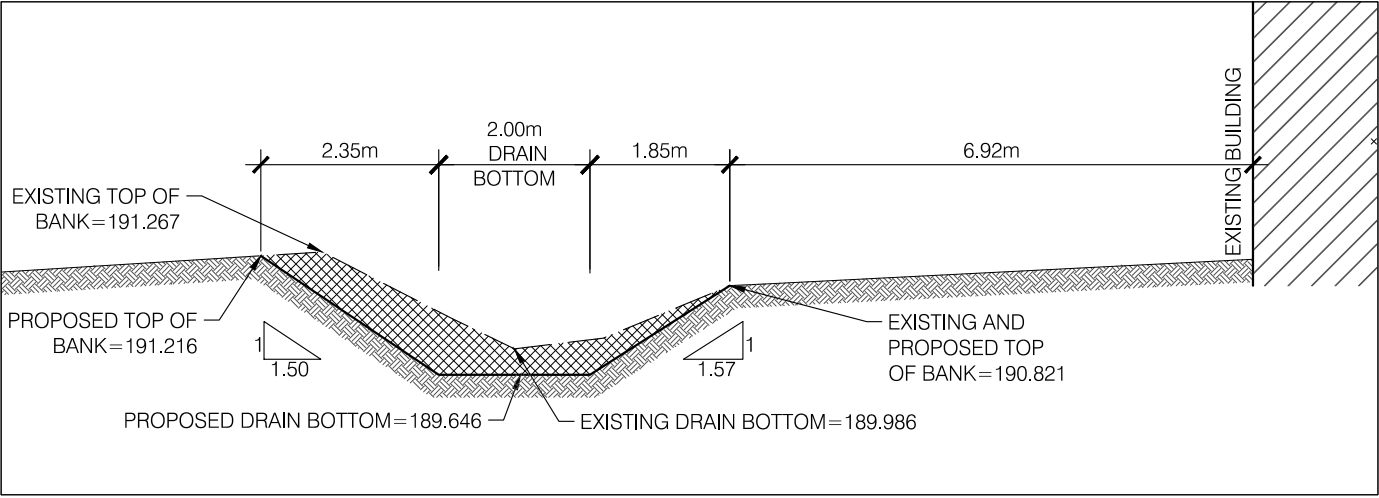
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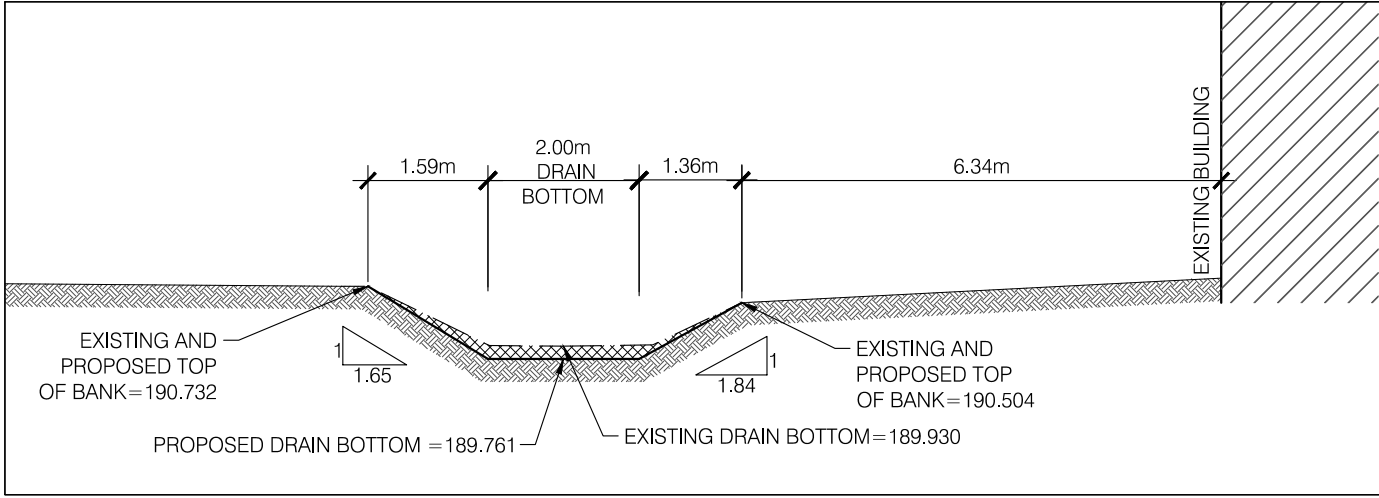
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