

**DRAINAGE REPORT  
FOR THE**

**GILBOE RELIEF DRAIN**

**FORMER TOWNSHIP OF GOSFIELD NORTH  
TOWN OF KINGSVILLE**



FINAL REPORT  
8 NOVEMBER 2023  
TIM R. OLIVER, P. ENG.  
FILE No. 21-3142

File No. 21-3142

Members of Council  
Town of Kingsville  
2021 Division Road North  
Kingsville, Ontario  
N9Y 2Y9

**Drainage Report for the  
GILBOE RELIEF DRAIN  
Former Township of Gosfield North  
Now In the Town of Kingsville**

Mayor and Members of Council:

**Instructions**

The Municipality received a request on 10 July 2023 from the Ministry of Transportation Ontario, for the replacement of the King's Highway No. 3 bridge over the Gilboe Drain. The proposed drainage works are required to facilitate the King's Highway No. 3 widening. Council accepted the request under Section 78(1) of the Drainage Act and on 14 August, 2023 appointed Dillon Consulting Limited to prepare a report.

**Watershed Description**

The Gilboe Drain consists of an open drain commencing on the west side of Cameron Sideroad in the south corner of Lot 276, S.T.R. Concession. It flows westerly along the northerly limit of South Talbot Road for a distance of approximately 890 metres to its outlet into the Barlow Drain. An auxiliary outlet for the Gilboe Drain exists at its upstream end which crosses the King's Highway No. 3, discharging into the 9<sup>th</sup> Concession Road Drain. The surficial soils are predominately Brookston Clay which is defined as having poor natural drainage.

**Drain History**

The recent history of Engineers' reports for the Gilboe Drain follows:

- **12 July 2002 by Bruce D. Crozier, P.Eng.:** The report recommended the replacement of an existing access bridge for the landowners of property Roll No. 580-00100.
- **30 June 1970 by William J. Settington, P.Eng.:** The report recommended the regrading of the drain completely towards the Barlow Drain as well as replacement of an existing driveway access culvert. This serves as the current report for the Gilboe Drain and is governed under this by-law.
- **25 October 1949 by Calvin B. Allison, O.L.S.:** The report recommended the drain be deepened to provide sufficient outlet to the John Barta Award Drain as the Barlow Drain did have enough depth at the time of this report. The report recommended the Gilboe Drain have zero grade along its length adjacent to South Talbot Road and a



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300 mm diameter pipe be placed across the same road to facilitate the drain's secondary outlet into the 9<sup>th</sup> Concession Road Drain.

### **On-site Meeting**

An on-site meeting held on November 20, 2023 to discuss the proposed improvements to the Gilboe Relief Drain including the replacement of the culvert where it crosses the highway and lengthened to also encompass the additional lanes associated with the highway improvements. The work also includes incorporating the existing culvert under South Talbot Road and incorporating the open drain portion from its outlet into the 9<sup>th</sup> Concession Road Drain northerly across King's Highway No. 3 by-pass and South Talbot Road to the Gilboe Drain.

### **Survey**

Our survey and examination of the Gilboe Drain and existing drainage infrastructure was carried out in July 2023. The survey comprised the recording of topographic data and examining the channel for available depth necessary to provide sufficient drainage.

### **Design Considerations**

Following the original construction of the King's Highway No. 3 by-pass, the portion of the Gilboe Drain which provided outlet to the 9<sup>th</sup> Concession Road Drain report was removed and replaced with an open ditch, including road culverts in an alignment perpendicular to the King's Highway No. 3 and South Talbot Road. The former alignment of the Gilboe Drain's outlet to the 9<sup>th</sup> Concession Road Drain had crossed the highway corridor lands on a skew of approximately 45 degrees.

The modified alignment of the Gilboe Drain shall be redefined and referred to as the Gilboe Relief Drain. The drain shall continue to act as an auxiliary outlet to lands and roads north of the highway during major storm events. The Gilboe Relief Drain shall also provide a drainage outlet to Cameron Sideroad and Highway No. 3.

The MTO design criteria for rural arterial road bridges is to convey a 1 in 25 year event such that approximately 1 metre of freeboard is provided from the high water level to the edge of the travelled lane. This criterion was used to assess the affects the culvert extensions may have on the upstream high water level.

A Drainage, Hydrology/Hydraulics and Stormwater Management Report was completed by Dillon Consulting Limited (October 2023) to document the expected high water levels in the drain upstream in both an existing and proposed condition. The report identified that the existing culvert currently does not meet the MTO freeboard design criteria and that a greater pipe size is required.

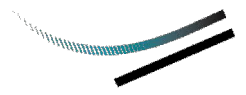
### **Existing Conditions & Recommendations**

The existing culverts within the Gilboe Relief Drain alignment have been numbered for ease of reference and are described below:

#### **Culvert No. 1: Station 0+046 Ministry of Transportation Ontario (King's Highway No. 3)**

A 35.0 m long 600 mm diameter polyethylene pipe with sloping stone end walls constitutes the King's Highway No. 3 crossing. This culvert is to be replaced as part of the highway improvement works and is referred to as Culvert C2 within the highway contract drawings.

To facilitate the construction of the new eastbound lanes, the existing culvert is recommended to be replaced with a 1050 mm diameter high density polyethylene pipe, 58.1 m in length, complete with gabion basket headwalls. We recommend this culvert be incorporated as part of the drainage works.



Culvert No. 2: Station 0+105 Town of Kingsville Road Authority (South Talbot Road)

A 16.5 m long 900 mm diameter corrugated steel pipe with sloping stone end walls constitutes the South Talbot Road crossing. No work is proposed for this culvert in this report, however we recommend Culvert No. 2 also be incorporated as part of the drainage works.

We further recommend the open ditch portion along the alignment of the Gilboe Relief Drain be incorporated as part of the drainage works.

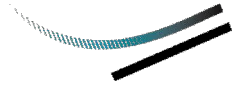
**Allowances**

In accordance with Sections 29 and 30 of the Drainage Act, we do not anticipate any agricultural lands being damaged or used as a result of the proposed drainage works. Any damage to the roadway or existing grassed areas shall be restored to original conditions as part of the work. Therefore, 'Schedule B' for Allowances has not been included in this report.

**Cost Estimate**

Based on our review of the history, the information obtained from our examination and analysis of the survey data, we recommend that the Gilboe Relief Drain be constructed as described below:

<b>Item</b>	<b>Description</b>	<b>Amount</b>
	<b><u>OPEN DRAIN WORKS</u></b>	
1.	Realignment/reshaping of the existing ditch from Station 0+000 to Station 0+018 according to the Highway Contract Drawings.	\$3,000.00
2.	Excavation and trucking of excavated materials works, as follows:	
	a) Excavation of the existing ditch bottom including trucking of excavated materials from Station 0+075 to Station 0+097 totalling approximately 22 lineal metres of drain and approximately 25 m <sup>3</sup> of material. Excavated material shall remain within the King's Highway No. 3 corridor and be trucked to a designated area for excess soils temporary storage.	\$500.00
3.	Hydraulic seeding as follows:	
	a) Hydraulic seeding of new and disturbed drain banks from excavation between Station 0+000 to Station 0+097 (approximately 120 m <sup>2</sup> ).	\$1,000.00
	<b><u>CULVERT WORKS</u></b>	
4.	Road Culvert Replacement Work, as follows:	



Item	Description	Amount
	a) <u>Culvert No. 1 (King's Highway No. 3)</u> – Removal of existing 35.0 m long, 600 mm diameter HDPE pipe and existing sloping rip rap end walls, including disposal off-site. Supply and installation of a new 58.1 m long, 1050 mm diameter high density polyethylene (HDPE) pipe dual wall smooth interior pipe, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade. Gabion Stone basket headwalls treatment and R-50 riprap within the drain channel beyond fully lined for a minimum 5 m distance and minimum 350 mm thickness. Work includes installation of riprap lining of entire channel to the drain outlet as shown on the Drawings. Work to include fine grading, seeding and restoration of all disturbed areas.	\$133,000.00
5.	Temporary silt control measures during construction.	\$500.00
	<b>SUB-TOTAL</b>	<b>\$138,000.00</b>
6.	Report, Assessments and Final Inspection.	\$11,000.00
7.	Expenses and Incidentals.	\$1,000.00
	<b>TOTAL ESTIMATE – GILBOE RELIEF DRAIN (excluding Net HST)</b>	<b>\$150,000.00</b>

The estimate provided in this report was prepared according to current materials and installation prices as of the date of this report. In the event of delays from the time of filing of the report by the Engineer to the time of tendering the work, it is understood that the estimate of cost is subject to inflation. The rate of inflation shall be calculated using the Consumer Price Index applied to the cost of construction from the date of the report to the date of tendering.

### Assessment of Costs

The individual assessments are comprised of three (3) assessment components:

- i. Benefit (*advantages relating to the betterment of lands, roads, buildings, or other structures resulting from the improvement to the drain*).
- ii. Outlet Liability (*part of cost required to provide outlet for lands and roads*).
- iii. Special Benefit (*additional work or feature that may not affect function of the drain*).

We have assessed the estimated costs for the construction of the Gilboe Relief Drain against the affected roads as listed in Schedule 'C' under "Special Benefit." Details of the Special Benefit assessment listed are provided in the Assessment Rationale below.

### Assessment Rationale

Special Benefit assessment shown in Schedule 'C' was derived as follows:

1. As the culvert works are only required for the proposed highway widening, we have assessed 100% of the costs to the Ministry of Transportation Ontario in accordance

with Section 26 of the Drainage Act as a non-proratable assessment. Since there are no special benefit assessments to other landowners, Schedule 'D' for the purposes of Special Benefit details has been omitted from this report.



### **Future Maintenance**

After completion, Culvert No. 1 and the open portion of the Gilboe Relief Drain from Station 0+000 to Station 0+097 shall be maintained by the Ministry of Transportation Ontario for 100% of the costs in accordance with Section 26 of the Act. Culvert No. 2 shall be maintained by the Town of Kingsville Road Authority for 100% of the costs in accordance with Section 26 of the Act.

Since there is no assessment of costs to the other landowners on the drain, Schedule 'E' for the purposes of future maintenance has been omitted from this report.

These provisions for future maintenance are subject of course, to any variations that may be made under the authority of the Drainage Act.

### **Drawings and Specifications**

Attached to this report is Schedule 'F', which are Specifications setting out the details of the recommended works and Schedule 'G' which represent the drawings that are attached to this report.

**Page 1 of 3 – Overall Plan**

**Page 2 of 3 – Culvert No. 1 Detail Plan**

**Page 3 of 3 – Profile & Section**

### **Construction Drawings and Specifications**

The work included in this report will be performed under the provincial contract for the Widening of King's Highway No. 3 starting from 0.8 km west of Cameron Sideroad and continuing easterly to 1.8 km west of County Road No. 31. Bridge drawings have been prepared for the construction complete with associated specifications which shall adhere to the elevations, alignment, sizes, materials and location and generally in compliance with this report.

### **Approvals**

The construction and/or improvement to a drainage works, including repair and maintenance activities, and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced by the proposed works. Prior to any construction or maintenance works, the Municipality or proponent designated on the Municipality's behalf shall obtain all required approvals/permits and confirm any construction limitations including timing windows, mitigation/off-setting measures, standard practices or any other limitations related to in-stream works.

### **Agency Reviews**

The Essex Region Conservation Authority (ERCA) has been previously notified and provided the opportunity to review the proposed drainage works outlined within a draft report dated October 30, 2023. An application for permit and associated fee payment is not required for provincial undertakings. The Town of Kingsville will subsequently give notice to ERCA and other prescribed persons of an upcoming meeting of Council that will consider and adopt the final report, at which time this meeting is an opportunity to provide input.

In 2021, a Fish and Fish Habitat Impact assessment was undertaken to identify the impacts of the approved improvements to fish and fish habitat within the Highway 3 Study Area. The assessment was completed in accordance with the requirements of the Interim 2020 *MTO/DFO/NDMNRF Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings, Version 4* (Fisheries Protocol) and the guidance provided in MTO's (2020) *Interim Environmental Guide for Fish and Fish Habitat* (Fish Guide).

As per the direction received from Mr. Chris Evans, Environmental Planner MTO, all documentation (i.e., forms and templates) has been prepared so as to be in compliance with the Interim Fish Guide (April 2020). The *Fish and Fish Habitat Existing Conditions and Impact Assessment Report, Highway 3 Widening and Safety Enhancement Study* (GHD, July 2021) provides the impact analysis.

The Gilboe Relief Drain was identified to support indirect fish habitat and the culvert replacements and extensions are not likely to result in the death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat.

Respectfully submitted,

**DILLON CONSULTING LIMITED**



Tim R. Oliver, P.Eng.  
TRO:oem



**"SCHEDULE C"**  
**SCHEDULE OF ASSESSMENT**  
**GILBOE RELIEF DRAIN**  
**TOWN OF KINGSVILLE**

**SECTION 26 INCREASED COSTS - NON PRO-RATABLE**

Description	Owner	Special Benefit	Benefit	Outlet	Total Assessment
King's Highway No. 3	Ministry of Transportation Ontario	\$150,000.00	\$0.00	\$0.00	\$150,000.00
Total Section 26 Increased Costs (Non Pro-ratable).....		\$150,000.00	\$0.00	\$0.00	\$150,000.00
<b>TOTAL ASSESSMENT</b> .....		<b>\$150,000.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$150,000.00</b>



”SCHEDULE F”  
DRAINAGE REPORT FOR THE  
**GILBOE RELIEF DRAIN**  
TOWN OF KINGSVILLE

**SPECIAL PROVISIONS - GENERAL**

**1.0 GENERAL SPECIFICATIONS**

The General Specifications attached hereto is part of “Schedule F.” It also forms part of this specification and is to be read with it, but where there is a difference between the requirements of the General Specifications and those of the Special Provisions which follow, the Special Provisions will take precedence.

**2.0 DESCRIPTION OF WORK**

The work to be carried out under this Contract includes, but is not limited to, the supply of all **labour, equipment and materials** to complete the following items:

**OPEN DRAIN WORKS**

- Realignment/reshaping of the existing ditch from Station 0+000 to Station 0+018 according to the Highway Contract Drawings.
- Excavation and trucking of excavated materials works, as follows:
  - Excavation of the existing ditch bottom including trucking of excavated materials from Station 0+075 to Station 0+097 totalling approximately 22 lineal metres of drain and approximately 25 m<sup>3</sup> of material. Excavated material shall remain within the King’s Highway No. 3 corridor and be trucked to a designated area for excess soils temporary storage.
- Hydraulic seeding as follows:
  - Hydraulic seeding of new and disturbed drain banks from excavation between Station 0+000 to Station 0+097 (approximately 120 m<sup>2</sup>).

**CULVERT WORKS**

- Road Bridge Replacement Work, as follows:
  - Culvert No. 1 (King’s Highway No. 3) – Removal of existing 35.0 m long, 600 mm diameter HDPE pipe and existing sloping rip rap end walls, including disposal off-site. Supply and installation of a new 58.1 m long, 1050 mm diameter high density polyethylene (HDPE) pipe dual wall smooth interior pipe, compacted Granular ‘A’ bedding (min. 300 mm thickness), compacted full Granular ‘B’ Type II backfill up to road subgrade. Gabion Stone basket headwalls treatment and R-50 riprap within the drain channel beyond fully lined for a minimum 5 m distance and minimum 350 mm thickness. Work includes installation of riprap lining of entire channel to the drain outlet as shown on the Drawings. Work to include fine grading, seeding and restoration of all disturbed areas.
- Temporary silt control measures during construction.

### **3.0 ACCESS TO THE WORK**

Access to the drain shall be from the King's Highway No. 3 right-of-way. The Contractor shall make his/her own arrangements for any additional access for his/her convenience. All grass areas disturbed shall be restored to original conditions at the Contractor's expense.

### **4.0 WORKING AREA**

The working area for both construction and future maintenance purposes shall be restricted to the road right-of-way. **Any damages to lands and/or roads from the Contractor's work within the working areas for the new bridge site shall be rectified to pre-existing conditions at his/her expense.**

### **5.0 EXCAVATION AND TRUCKING OF EXCAVATED MATERIALS**

#### **5.1 Excavation of Existing Drain Channel**

In all cases, the Contractor shall use the benchmarks to establish the proposed grade. However, for convenience, the drawings provide the approximate depth from the surface of the ground and from the existing drain bottom to the proposed grades. **THE CONTRACTOR SHALL NOT EXCAVATE DEEPER THAN THE GRADELINES SHOWN ON THE DRAWINGS.** Should over-excavation of the drain bank occur, the Contractor will **not** be permitted to repair with native material packed into place by the excavator and reshaped. Should over-excavation occur, the Contractor will be required to have a bank repair detail engineered by a Professional Engineer (hired by the Contractor), to ensure long term stability of the bank is maintained. Such repairs shall be subject to approval by the Engineer and will be at no extra cost to the item.

All excavated material shall be handled as specified in Section 5.2. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

Hydroseeding of the disturbed drain banks shall be completed immediately following drain construction and as specified in Section 6.7.

All excavation work shall be done in such a manner as to not harm any vegetation or trees, not identified in this report or by the Drainage Superintendent for clearing. Any damages to trees or vegetation caused by the Contractors work shall be rectified to the satisfaction of the Drainage Superintendent. The Contractor shall exercise caution around existing tile inlets and shall confirm with the property owners that all tiles have been located and tile ends repaired as specified.

Where the existing guy anchors may be affected by the proposed work, the Contractor shall notify the utility in advance of the work to determine if the guy anchor requires relocation outside of open drain channel limits.

#### **5.2 Trucking of Excavated Materials**

The Contractor shall restore any such areas which are damaged by his operations, to original or better condition. The Contractor will be held liable for damages to roads, sodded areas and gardens, resulting from his non-compliance with these specifications. All excess material shall remain within the King's Highway No. 3 corridor for the use of the highway works.

### **6.0 ROAD CULVERT CONSTRUCTION**

#### **6.1 Location**

The culvert shall be located and installed as shown on the drawings attached hereto.

#### **6.2 Materials**

Materials shall be as follows:

<i>Culvert</i>	<i>New 58.1 m long, 1050 mm diameter high density polyethylene (H.D.P.E.) dual wall smooth interior pipe, 320 kPa stiffness.</i>
<i>Culvert Bedding up to springline</i>	<i>Granular 'A' conforming to OPSS Division 10.</i>
<i>Culvert Backfill up to road subgrade</i>	<i>Granular 'B' conforming to OPSS Division 10.</i>
<i>Erosion Stone</i>	<i>All stone to be used for erosion protection shall be R-50 clear quarried rock per OPSS 1004, minimum 350 mm thickness.</i>
<i>Filter Fabric</i>	<i>“Non-Woven” geotextile filter fabric with a minimum strength equal or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC, or approved equivalent.</i>

### **6.3 Culvert Installation**

Suitable dykes shall be constructed in the drain so that the installation of the culvert can be accomplished in the dry. The drain bottom shall be cleaned, prepared, shaped and compacted to suit the new culvert configuration, as shown on the drawings. Granular materials shall be compacted to 100% of their maximum dry density; imported clean native materials shall be supplied, placed and compacted to 95% of their maximum dry density.

### **6.4 Gabion Basket End Protection**

Gabion baskets shall be manufactured from galvanized steel wire mesh or PVC coated galvanized steel wire mesh as specified in the Contract Documents. When the type of mesh is not specified in the Contract Documents, the gabion baskets shall be manufactured from PVC coated galvanized steel wire mesh.

Gabion baskets shall be manufactured so that the sides, ends, lid, base, and diaphragms can be readily assembled into rectangular units.

Where the length of the gabion basket exceeds its horizontal width, the gabion basket shall be divided into equal cells by diaphragms. Cell length shall not exceed its horizontal width. Diaphragms shall be made of wire mesh and shall be secured in the proper position on the base section. Gabion baskets shall be manufactured with all components connected at the production facility with the exception of the gabion mat lid. Gabion baskets manufactured from galvanized wire mesh shall be assembled using either lacing wire or fasteners. Gabion baskets manufactured from PVC coated galvanized wire mesh shall be assembled using stainless steel ring fasteners. Fasteners shall be installed at a maximum spacing of 150 mm with at least one fastener per gabion mesh opening.

Gabion baskets shall be according to OPSS 1430.

Gabion stones shall be according to OPSS 1004 and as specified in the Contract Documents.

Excavation for gabions shall be according to OPSS 206.

Bedding and backfill shall be as specified in the Contract Documents.

Gabions shall be installed at the locations and to the line, grade, and dimensions specified in the Contract Documents.

Gabions shall be assembled according to the manufacturer's instructions and as specified in the Contract Documents.

Gabions shall be assembled so that wire ends do not project outside the units on any exposed surface.

Gabion stones shall be placed in a manner as not to damage the wire mesh or the PVC coating on the wire or cause deformation of the gabion. Gabion stones shall be placed to minimize the voids between the stones. When specified in the Contract Documents, the front face of exposed wall surfaces shall be hand placed gabion stone to ensure a uniform appearance.

Prior to securing the lids on the gabion basket, the gabion basket shall be slightly overfilled by 25 to 50 mm of gabion stone in order to allow for settlement of the stone within the units.

Internal connecting wires shall be installed according to the manufacturer's recommendations. When gabions are used as a channelling revetment, internal connecting wires are not necessary.

When the gabion has been filled, the gabion lid shall be bent over until all lid edges coincide with the front and side edges of the gabion and shall be secured to the front and sides by wire according to manufacturer's instructions and as specified in the Contract Documents.

Geotextile shall be placed uniformly, free of folds, tears or punctures and as specified in the Contract Documents. The geotextile shall be joined so that the material overlaps a minimum of 500 mm and shall be pinned together. Alternatively, the geotextile shall be joined to conform to the seam requirements of OPSS 1860. Geotextile shall be fixed to prevent movement during installation.

## **6.5 Erosion Protection**

Erosion protection within the drain channel shall be constructed of quarry stone rip-rap (R50), as shown on the drawings and as specified herein. The rip rap shall be sloped 1 vertical to 1.5 horizontal, with a filter fabric underlay spanning across the entire width of the drain. The minimum thickness requirement of the erosion stone layer is 350 mm, with no portion of the filter fabric to be exposed.

## **6.6 Lateral Tile Drains**

The Contractor shall re-route any outlet tile drains, in consultation with the Drainage Superintendent, as required to accommodate the new culverts. Tile drain outlets through the wall of the new culvert will not be permitted. All costs associated with re-routing lateral tile drains (if any) shall be at the Contractor's expense.

## **6.7 Hydroseeding**

The newly established drain banks and all existing grassed areas disturbed by construction shall be hydraulic mulch seeded as specified herein. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

The Contractor shall apply a fibre reinforced matrix (FRM) hydromulch engineered with pasteurized wood fibers and cross-linked with dispersible synthetic fibers and exclusive soil bonding agents for immediate and effective soil erosion control on newly constructed drain channels where the sideslopes are 2:1 (horizontal : vertical) such as the FlexGuard product by Fibremulch company or approved equal . The hydromulch should be non-toxic and 100% biodegradable with a minimal curing period and up to 12 months longevity. The hydromulch shall be applied at a minimum rate of 3,300 kg of dry product per 10,000 m<sup>2</sup>. It shall be thoroughly mixed with water in a hydraulic seeder and mulcher at a rate of 20 kg of dry product to 225 litres of water. Refer to OPSS.PROV 804 for additional specifications.

Seeding and mulching shall be a one step process in which the seed and hydraulic mulch are applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniform, cohesive mat over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent.

The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly. Grass seed shall be MTO roadside seed mixture meeting the requirements as follows:

<i>Creeping Red Fescue</i>	52%
<i>Perennial Ryegrass</i>	35%
<i>Kentucky Bluegrass</i>	10%
<i>White Clover</i>	3%

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 170 kg per 10,000 m<sup>2</sup>. **The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.**

### **6.8 Site Cleanup and Restoration**

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

## **GENERAL SPECIFICATIONS**

### **1.0 AGREEMENT AND GENERAL CONDITIONS**

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.

Where the word "Drainage Superintendent" 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.

Tenders will be received and contracts awarded only in the form of a lump sum contract for the completion of the whole work or of specified sections thereof. The Tenderer agrees to enter into a formal contract with the Municipality upon acceptance of the tender. The General Conditions of the contract and Form of Agreement shall be those of the Stipulated Price Contract CCDC2-Engineers, 1994 or the most recent revision of this document.

### **2.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS**

Each tenderer must visit the site and review the plans and specifications before submitting his/her tender and must satisfy himself/herself as to the extent of the work and local conditions to be met during the construction. Claims made at any time after submission of his/her tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions, will not be allowed. The Contractor will be at liberty, before bidding to examine any data in the possession of the Municipality or of the Engineer.

The quantities shown or 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 the quantities for accuracy prior to submitting his/her tender.

### **3.0 MAINTENANCE PERIOD**

The successful Tenderer shall guarantee the work for a period of one (1) year from the date of acceptance thereof from deficiencies that, in the opinion of the Engineer, were caused by faulty workmanship or materials. The successful Tenderer shall, at his/her own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Engineer. Should the successful Tenderer for any cause, fail to do so, then the Municipality may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges and expense so incurred may be deducted from any amount due to the Tenderer or may be collected otherwise by the Municipality from the Tenderer.

### **4.0 GENERAL CO-ORDINATION**

The Contractor shall be responsible for the coordination between the working forces of other organizations and utility companies in connection with this work. The Contractor shall have no cause of action against the Municipality or the Engineer for delays based on the allegation that the site of the work was not made available to him by the Municipality or the Engineer by reason of the acts, omissions, misfeasance or non-feasance of other organizations or utility companies engaged in other work.

### **5.0 RESPONSIBILITY FOR DAMAGES TO UTILITIES**

The Contractor shall note that overhead and underground utilities such as hydro, gas, telephone and water are not necessarily shown on the drawings. It is the Contractor's responsibility to contact utility companies for information regarding utilities, to exercise the necessary care in construction operations and to take other precautions to safeguard the utilities from damage.

All work on or adjacent to any utility, pipeline, railway, etc., is to be carried out in accordance with the requirements of the utility, pipeline, railway, or other, as the case may be, and its specifications for such work are to be followed as if they were part of this specification. The Contractor will be liable for any damage to utilities.

## **6.0 CONTRACTOR'S LIABILITY**

The Contractor, his/her agents and all workmen or persons under his/her control including sub-contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work. The Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect to any injury to persons or property of whatever description and in respect of any infringement of any right, privilege or easement whatever, occasioned in the carrying on of the work, or by any neglect on the Contractor's part.

The Contractor, shall indemnify and hold harmless the Municipality and the Engineer, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the contract.

## **7.0 PROPERTY BARS AND SURVEY MONUMENTS**

The Contractor shall be responsible for marking and protecting all property bars and survey monuments during construction. All missing, disturbed or damaged property bars and survey monuments shall be replaced at the Contractor's expense, by an Ontario Land Surveyor.

## **8.0 MAINTENANCE OF FLOW**

The Contractor shall, at his/her own cost and expense, permanently provide for and maintain the flow of all drains, ditches and water courses that may be encountered during the progress of the work.

## **9.0 ONTARIO PROVINCIAL STANDARDS**

Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) shall apply and govern at all times unless otherwise amended or extended in these Specifications or on the Drawing. Access to the electronic version of the Ontario Provincial Standards is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to <http://www.mto.gov.on.ca/english/transrd/>. Under the title Technical Manuals is a link to the Ontario Provincial Standards. Users require Adobe Acrobat to view all pdf files.

## **10.0 APPROVALS, PERMITS AND NOTICES**

The construction of the works and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced in this Contract. The Contractor shall obtain all approvals and permits and notify the affected authorities when carrying out work in the vicinity of any public utility, power, underground cables, railways, etc.

## **11.0 TRAFFIC CONTROL**

The Contractor will be required to control vehicular and pedestrian traffic along roads at all times and shall, at his/her own expense, provide for placing and maintaining such barricades, signs, flags, lights and flag persons as may be required to ensure public safety. The Contractor will be solely responsible for controlling traffic and shall appoint a representative to maintain the signs and warning lights at night, on weekends and holidays and at all other times that work is not in progress. All traffic control during construction shall be strictly in accordance with the **Occupational Health and Safety Act** and the current version of the **Ontario Traffic Manuals**. Access to the electronic version of the **Ontario Traffic Manual** is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to <http://www.mto.gov.on.ca/english/transrd/>, click on "Library Catalogue," under the "Title," enter "Ontario Traffic Manual" as the search. Open the applicable "Manual(s)" by choosing the "Access

Key," once open look for the "Attachment," click the pdf file. Users require Adobe Acrobat to view all pdf files.

**Contractors are reminded of the requirements of the Occupational Health and Safety Act pertaining to Traffic Protection Plans for workers and Traffic Control Plan for Public Safety.**

## **12.0 SITE CLEANUP AND RESTORATION**

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

## **13.0 UTILITY RELOCATION WORKS**

In accordance with Section 26 of the Drainage Act, if utilities are encountered during the installation of the drainage works that conflict with the placement of the new culvert, the operating utility company shall relocate the utility at their own costs. The Contractor however will be responsible to co-ordinate these required relocations (if any) and their co-ordination work shall be considered incidental to the drainage works.

## **14.0 FINAL INSPECTION**

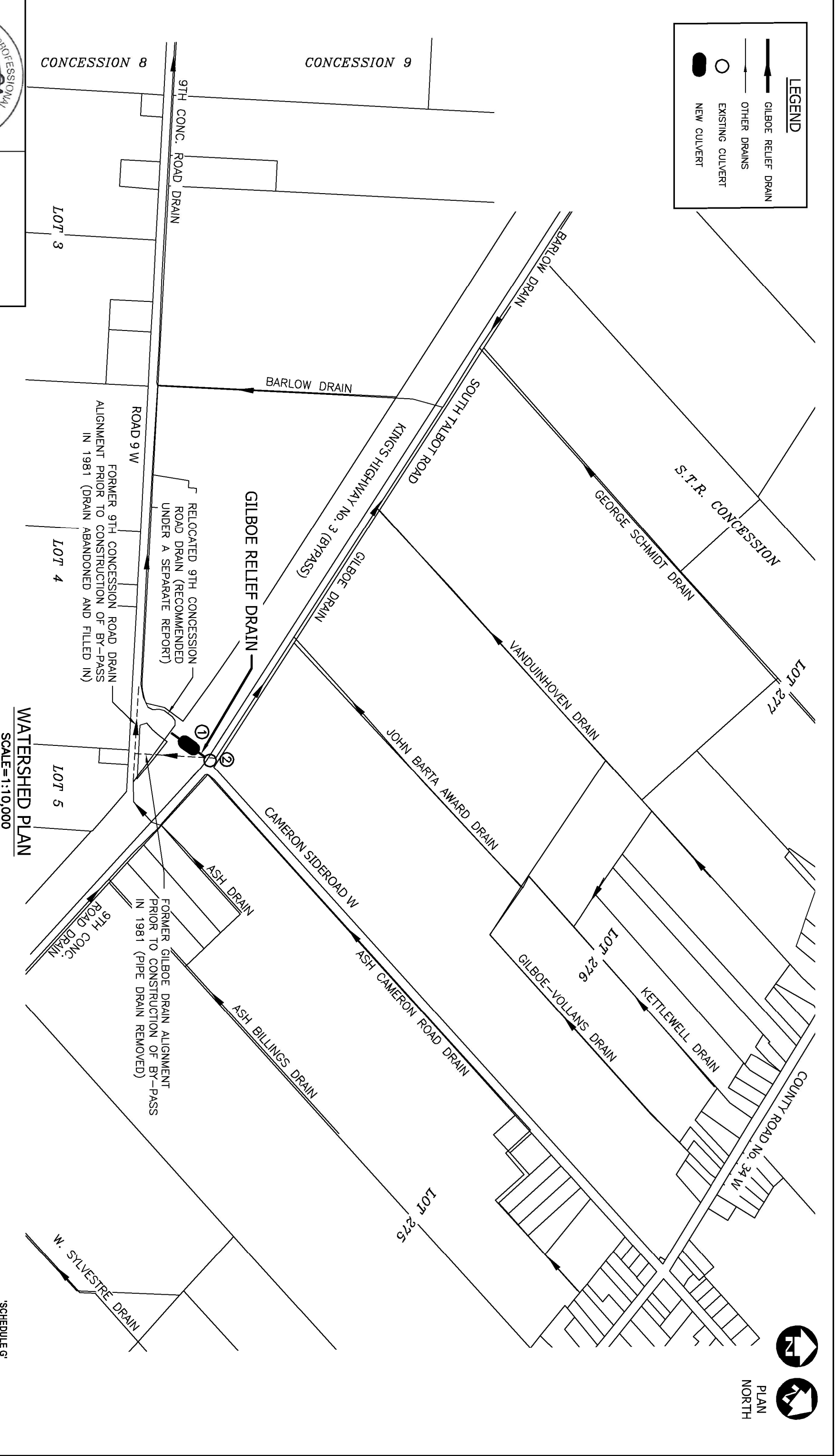
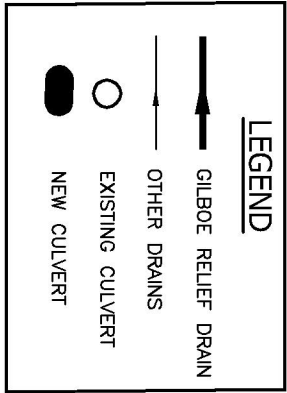
All work shall be carried out to the satisfaction of the Drainage Superintendent for the Municipality, in compliance with the specifications, drawings and the Drainage Act. Upon completion of the project, the work will be inspected by the Engineer and the Drainage Superintendent. Any deficiencies noted during the final inspection shall be immediately rectified by the Contractor.

Final inspection will be made by the Engineer within 20 days after the Drainage Superintendent has received notice in writing from the Contractor that the work is completed, or as soon thereafter as weather conditions permit.

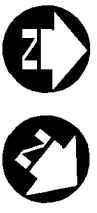
## **15.0 FISHERIES CONCERNS**

Standard practices to be followed to minimize disruption to fish habitat include embedment of the culvert a minimum 10% below grade, constructing the work 'in the dry' and cutting only trees necessary to do the work (no clear-cutting). No in-water work is to occur during the timing window unless otherwise approved by the appropriate authorities.





**WATERSHED PLAN**  
SCALE=1:10,000



PLAN NORTH

SCHEDULE G

**Conditions of Use**  
Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.  
Do not scale dimensions from drawing.  
Do not modify, drawing, re-use it, or use it for purposes other than those intended at the time of its preparation, without prior written permission from Dillon Consulting Limited.

No.		DATE	BY
1	CLIENT REVIEW	OCT/30/23	TRO
2	FINAL REPORT SUBMISSION	NOV. 8/23	TRO

DESIGN	REVIEWED BY
OEM	MDH
DRAWN	CHECKED BY
OEM	TRO

PROJECT NO	21-3142
DRAWING SCALES BASED ON A 11" X 17" SHEET	AS SHOWN

SHEET TITLE	DRAINAGE REPORT FOR THE <b>GILBOE RELIEF DRAIN</b> Town of Kingsville
PAGE NO	
	OVERALL PLAN
	1 of 3

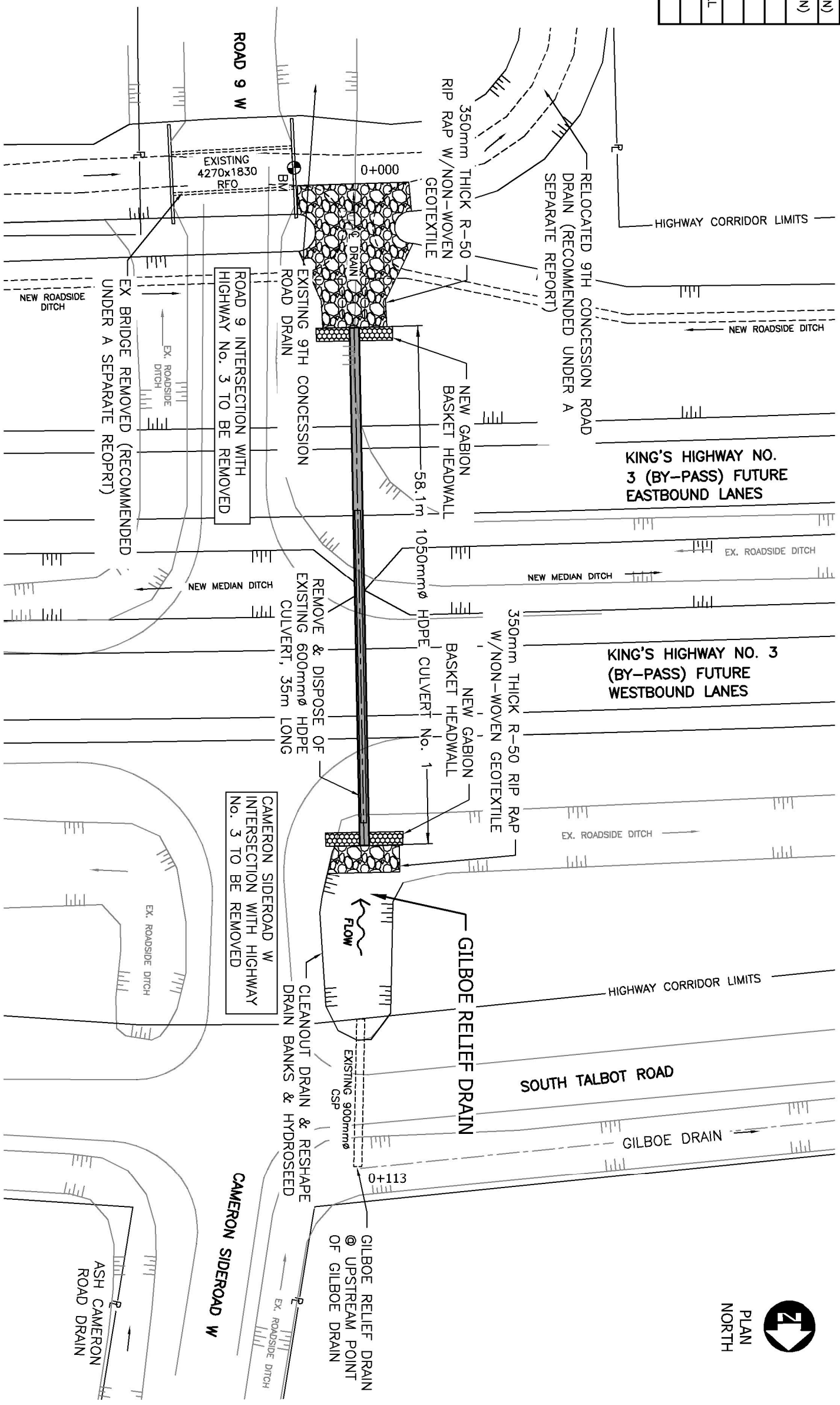
**TABLE 1 - CULVERT DESIGN INFORMATION**

DESCRIPTION	CULVERT No.1 (C2)
CULVERT LOCATION CENTRELINE	STA. 0+046
DRAIN BOTTOM DESIGN ELEVATION (m)	192.61(S) 192.90(N)
CULVERT INVERT ELEVATION (m) AT CULVERT ENDS	192.51(S) 192.80(N)
CULVERT SIZE	1050mm $\phi$
CULVERT LENGTH (m)	58.1
CULVERT GRADE (%)	0.50
CULVERT TYPE	H.D.P.E DUAL WALL
CULVERT STIFFNESS	320 kPa
CULVERT ENDWALL TYPE	GABION BASKET

**SITE BENCHMARK**  $\odot$  BM

BM - TOP OF EXISTING HEADWALL WEST END  
AT CENTERLINE OF 9TH CONCESSION ROAD  
DRAIN.  
ELEVATION=194.62m

**NOTE: CONTRACTOR TO VERIFY BENCHMARKS  
PRIOR TO CONSTRUCTION.**



**DETAIL PLAN**  
SCALE=1:500



**Conditions of Use**

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No.	Description	Date	By
1	CLIENT REVIEW	OCT/30/23	TRO
2	FINAL REPORT SUBMISSION	NOV. 8/23	TRO

DESIGN	REVIEWED BY
OEM	MDH
DRAWN	CHECKED BY
OEM	TRO

DATE	SCALE
November 8, 2023	AS SHOWN

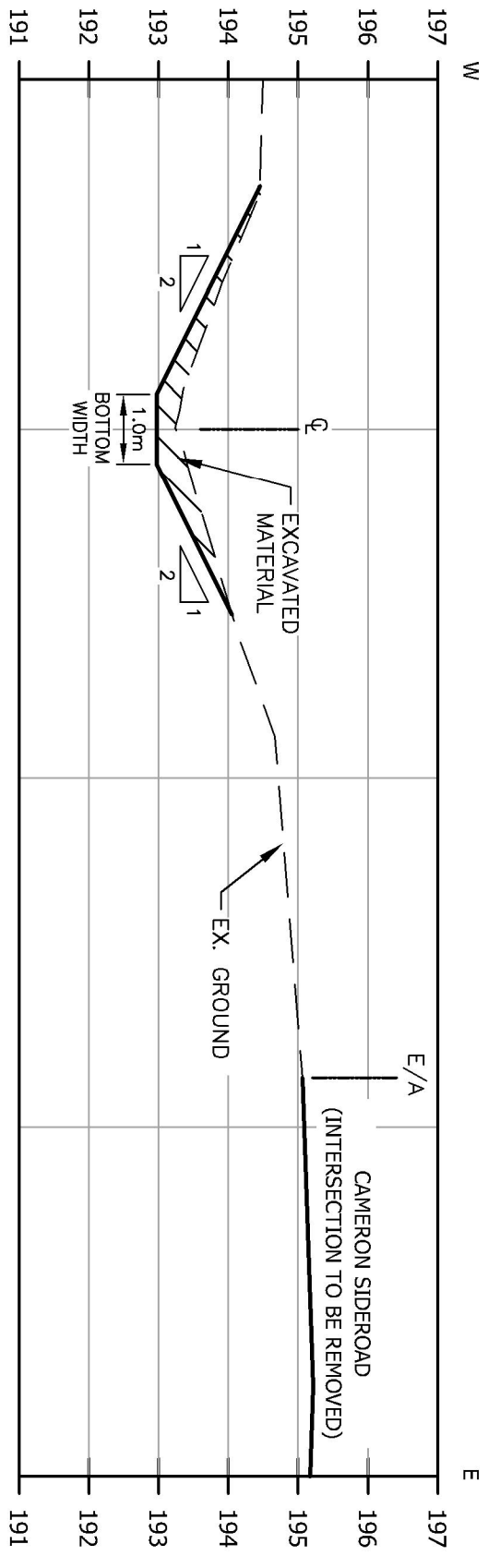
**DILION CONSULTING**  
PROJECT NO. 21-3142  
DRAWING SCALES BASED ON A 114 X 177 SHEET

**GILBOE RELIEF DRAIN**  
Town of Kingsville

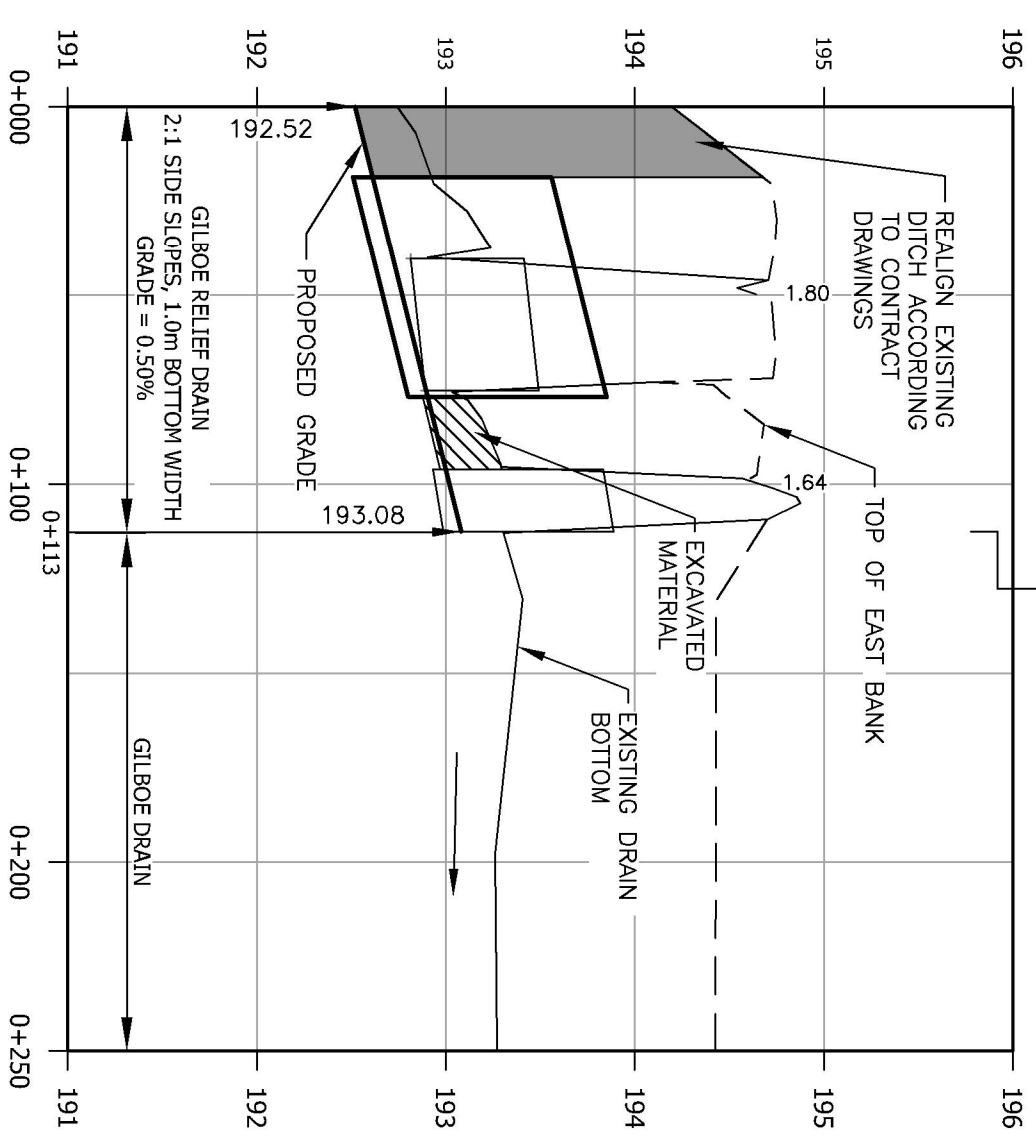
SHEET TITLE: **CULVERT NO. 1 DETAIL PLAN**

PAGE NO. 2 of 3

SCHEDULE G'



**CROSS-SECTION STATION 0+090 (LOOKING UPSTREAM)**  
SCALE=1:100



**PROFILE**  
SCALE: HORZ.=1:2,000  
VERT.=1:40

**STA 0+000** GILBOE RELIEF DRAIN ENTERS 9TH CONCESSION ROAD DRAIN

**STA 0+046-CULVERT No. 1**  
**KING'S HIGHWAY No. 3 (BYPASS)**  
REMOVE EX. 600Ø HDPE PIPE. SUPPLY & INSTALL 58.1m LONG, 1050Ø HDPE PIPE

**STA 0+105-CULVERT No. 2**  
**SOUTH TALBOT ROAD**  
EX. 900Ø CSP, 16.5m LONG

**STA 0+113** END GILBOE RELIEF DRAIN

**Conditions of Use**

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No.					
2	FINAL REPORT SUBMISSION	NOV. 8/23	TRO		
1	CLIENT REVIEW	OCT/30/23	TRO		
		DATE	BY		

DESIGN	OEM	REVIEWED BY	MDH
DRAWN	OEM	CHECKED BY	TRO
DATE	November 8, 2023		
SCALE	AS SHOWN		

PROJECT NO	21-3142
DRAWING SCALES BASED ON	A 114 X 177 SHEET

SHEET TITLE	<b>GILBOE RELIEF DRAIN</b> Town of Kingsville
PAGE NO.	3 of 3

SCHEDULE G

Drainage Report for the  
**GILBOE RELIEF DRAIN**  
Town of Kingsville

**PROFILE & SECTION**