# DRAINAGE REPORT
# FOR THE

# 8TH CONCESSION DRAIN

## FORMER TOWNSHIP OF GOSFIELD NORTH

## TOWN OF KINGSVILLE

DILLON CONSULTING

FINAL REPORT
10 JUNE 2024
TIM R. OLIVER, P. ENG.
FILE No. 21-3142

File No. 21-3142

Mayor and Members of Council
Town of Kingsville
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Kingsville, Ontario
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**Drainage Report for the**
# 8TH CONCESSION 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 realignment of the upper portion of the 8th Concession Drain, new culvert for the realigned South Talbot Road and the extension of the King's Highway No. 3 culvert. The proposed drainage works are required to facilitate the highway widening. Council accepted the request under Section 78(1) of the Drainage Act for major improvements to a drainage works and on 14 August, 2023 appointed Dillon Consulting Limited to prepare a report.

## Watershed Description

The 8th Concession Drain consists of an open channel commencing near the middle of the of Lot 270, Concession ST.R. It flows southerly for a distance of approximately 650 metres, then turns westerly and following the north side of South Talbot Road for a distance of 1250 metres before turning south and crossing King's Highway No. 3. The 8th Concession Drain then continues for approximately 325 metres westerly following the south side of Kings Highway No. 3 to Road 8 West. Joined by the Sedgewick Drain, the 8th Concession Drain flows south westerly for a length of 3775 metres to County Road No. 23 where it turns south for a distance of 950 metres before turning west and crossing County Road No. 23 to its outlet into the 10th Concession Drain with the Town of Essex. The upstream drainage area for the upper portion of the 8th Concession Drain along the west side of County Road No. 27 is approximately 25.9 hectares (63.7 acres).

Roadside drainage along the east side of County Road No. 27, between South Talbot Road and County Road No. 34, will be redirected to the 8th Concession Drain as part of the future roadworks associated with the Highway 3 improvements. Historically, the watersheds for the Cottam Sideroad Branch of the 7th Concession Drain and the 8th Concession Drain have been interconnected across County Road No. 27 at South Talbot Road via an existing 1390 mm x 910 mm corrugated steel pipe culvert. The surficial soils are predominately Brookston Clay which is defined as having poor natural drainage, with the upper part of the watershed within the village of Cottam consisting of Burford Loam having a moderate infiltration rate.

## Drain History

The recent history of Engineers' reports for the 8th Concession Drain follows:

- **12 January 1982 By William J. Setterington, P.Eng.:** The report was prepared to recommend the cleaning of sediment in part of the 8th Concession Drain upstream of King's Highway No. 3 along the South Talbot Road to County Road No. 27.
- **21 May 1981 by William J. Setterington, P.Eng.:** The report was prepared to recommend for the realignment of the 8th Concession Drain within the King's Highway No. 3 (Bypass) right-of-way and on to private lands to facilitate theconstruction of the highway. The report recommends the new alignment of an open drain and filling in the existing open drain portion.
- **12 October 1960 by William D. Colby, P.Eng.:** The report was prepared to recommend the repair of the upper portion of the 8th Concession Drain along the west side of County Road No. 27 by widening and a realignment to move the drain off the road allowance.

## On-site Meeting

An on-site meeting was held on February 23, 2024 to discuss the proposed improvements to the 8th Concession Drain including the realignment of the upper portion of drain further west of its existing location to facilitate the widening of County Road No. 27. Other works include new culverts for the new South Talbot Road realignment to the north and the extension of the King's Highway No. 3 culvert for the highway widening. A summary of the on-site meeting is provided within Schedule 'A' herein.

## Survey

Our survey and examination of the 8th Concession Drain was carried out in June 2023. The survey comprised the recording of topographic data and examining the channel for available depth necessary to provide sufficient drainage.

## Design Considerations

(Drain Cleanout and Culvert Works)

To provide sufficient depth and improved design capacity to better serve the upstream lands and associated new drain crossings required for the King's Highway No. 3 widening and the proposed new northerly alignment of South Talbot Road, a drain realignment, clean out and deepening of the upper drain portion is required. The improvements start at the 8th Concession Drain crossing of Road 8 West on the south side of Highway 3 and continue upstream to the upper end of the drain. The drain spoils removed as part of the drain cleanout work from Station 0+320 to Station 1+560 shall be cast upon the adjacent lands to the north; and from Station 1+750 to Station 2+055 on the west side of the drain. For the other drain segments between Station 0+000 and Station 0+320, between Station 1+560 and Station 1+750 and between Station 2+055 and Station 2+220, drain excavation materials shall be trucked off site. To attain the full capacity of these new culverts it is further recommended the 8th Concession Drain be cleaned both upstream and downstream for the full extent of the works from Station 0+000 to Station 2+220.

For Culvert No. 1, serving as the Highway No. 3 crossing, the existing 28.65 m long, 3046 mm span x 1830 mm rise concrete culvert shall be extended to facilitate highway widening. The proposed downstream extension is a 27.6 m long, 3046 mm x 2279 mm concrete box culvert embedded 400 mm for fish habitat considerations and connected to the existing 3046 mm x

1830 mm concrete culvert on a skewed alignment. The new end of the culvert shall consist of cast-in-place concrete headwalls. The disturbed drain channel beyond the culvert ends shall be fully lined with R-50 riprap, minimum 500 mm thickness and extending 9 metres in length.

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. The highway culvert is located within the upper half of the 8th Concession Drain and upstream of South Talbot Road, the said portion of drain has less than a 1 in 25 year storm capacity.

A Drainage, Hydrology/Hydraulics and Stormwater Management Report was completed by Dillon Consulting Limited (August 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 meet the MTO freeboard design criteria, despite the limited capacity of the downstream 8th Concession Drain being less than the flows expected during a 1 in 25 year storm event. The extension of the culvert recommended would have a negligible increase in the 25 year storm water elevation and therefore no adverse impacts to the upstream lands served by the 8th Concession Drain.

For Culvert No. 2, serving as the South Talbot Road crossing, the existing 15 m long, 3050 mm span x 1830 mm rise concrete culvert shall be cleaned to remove accumulated sediment. The existing culvert has adequate capacity for a 1 in 25 year storm event.

For Culvert No. 3, serving as an existing farm access, the existing 5 m long, 4000 mm span x 1500 mm rise concrete culvert shall be cleaned to remove accumulated sediment. The existing culvert has adequate capacity for a 1 in 25 year storm event.

For Culvert No. 4, involving a new roadway crossing for the South Talbot Road realignment, the culvert is designed to convey storm flows from a 1 in 10 year event. The proposed structure is a 90.0 m long, 2130 mm span x 910 mm rise concrete box culvert. Both ends of the culvert shall consist of sloping stone erosion protection, R-50 riprap, minimum 350 mm thickness.

For Culvert No. 5, involving a new roadway crossing for the South Talbot Road realignment, the culvert is designed to convey storm flows from a 1 in 10 year event. The proposed structure is a 40.0 m long 900 mm diameter HDPE pipe culvert. Both ends of the culvert shall consist of sloping stone erosion protection, R-50 riprap, minimum 350 mm thickness.

(Drain Realignment Station 1+555 to Station 1+708)

For the upper portion of the 8th Concession Drain situated along the west side of County Road No. 27 from the proposed northerly South Talbot Road realignment southward, we recommend the drain be realigned to accommodate the road improvements involving regrading and widening for the addition of a turning lane. The new channel bank slopes shall be constructed at 4:1 fore slope (east bank) and 2:1 back slope (west bank). With the proposed raising of the road platform for County Road No. 27, as it approaches the intersection with King's Highway No. 3, there is a significant infilling that will be overlapped by the new broader drain channel. To prevent future erosion to the new channel's easterly bank, a 4.0 m wide portion of the upper channel section shall be lined with R-10 rip rap that shall be encapsulated within a wire mesh gabion mattress, having a minimum 300 mm thickness. The erosion protection shall extend from Station 1+575 to Station 1+650. For the realigned drain bend from Station 1+555 to Station 1+575 the drain channel shall be fully lined with R-50 riprap, minimum 350 mm thickness.

## Allowances

In accordance with Section 29 of the Drainage Act, we have determined that the landowner on

the west side of the drain receive compensation for additional lands required to establish a new 9.0 m wide working corridor along side the drain from Station 1+555 to Station 1+708 as well as compensate the said property owner (Roll No. 570-10700) for additional lands used that will be occupied by the drain channel beyond the previously widened right-of-way. For this segment of drain, future maintenance is more accessible and safer from the west side given the close proximity of the road to the drain.

The said corridor lands had not been previously established as part of the 1960 report beyond that of the lands taken for the drain channel when it was previously moved westerly to improve road safety at that time. Schedule 'B' herein, shows the distribution of these allowances for land used in the total amount of $9,300.00 for the 8th Concession Drain realigned portion.

In accordance with Section 30 of the Drainage Act, we determined the compensation to landowners for damages for the spreading and levelling of drain spoils with the designated working corridor between Station 1+748 and Station 2+055. Schedule 'B' herein, shows the distribution of these allowances for damages in the total amount of $1,200.00 for the 8th Concession Drain cleanout between Station 1+748 and Station 2+055.

**Recommendations and 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 drainage works be repaired and improved as described below:

| Item | Description | Amount |
|---|---|---|
| | **8TH CONCESSION DRAIN** | |
| 1. | Brushing of the drain from Station 0+000 to Station 2+220 including removal off-site with trimming and/or removal of existing trees within the drain as required to accommodate the drainage works. The work shall include disposal of brush by means of stockpiling and burning where permitted or alternatively to be trucked off-site. Working corridor confined to the County Road No. 27 right-of-way between Station 2+055 and Station 2+220. | $30,000.00 |
| 2. | Bridge removal Road 8 West, as follows; | |
| | a) Demolition, removal and disposal offsite of existing 3660 mm x 1830 mm concrete bridge 13.0 m long complete with concrete head walls and footings. The work also includes the reinstatement of the open channel with the supply and placement of rip-rap R-50 erosion protection, minimum 350 mm thickness to fully line the drain channel (approx. 150 $m^2$) | $40,000.00 |
| 3. | Excavation and levelling of excavated material, as follows: | |
| | a) Station 0+120 to Station 0+210, totalling approximately 90 lineal metres of drain and approximately 10 $m^3$ of material. | $3,000.00 |
| | b) Station 0+320 to Station 1+560, totalling approximately 1,240 lineal metres of drain and approximately 330 $m^3$ of material. | $28,000.00 |

| Item | Description | Amount |
|---|---|---|
| | c) Station 1+748 to Station 2+055, totalling approximately 307 lineal metres of drain and approximately 230 $m^3$ of material. | $8,500.00 |
| 4. | Excavation and trucking of excavated material, as follows: | |
| | a) Station 0+000 to Station 0+120 totalling approximately 120 lineal metres of drain and approximately 15 $m^3$. | $5,000.00 |
| | b) Station 0+210 to Station 0+305 totalling approximately 95 lineal metres of drain and approximately 5 $m^3$. | $2,000.00 |
| | c) Station 2+055 to Station 2+220 totalling approximately 165 lineal metres of drain and approximately 200 $m^3$. | $27,500.00 |
| 5. | Excavate new open channel along proposed realignment, approximately 153 lineal metres, Station 1+555 to Station 1+703. Any excess soils not required to fill in the original drain alignment shall be hauled off-site under the management of the Contractor for the highway improvements. | $32,000.00 |
| 6. | Strip and remove vegetation and topsoil from the existing channel from Station 1+555 to Station 1+703 and fill up to existing grade with clean native backfill including compaction in maximum 300 mm lifts. | $20,000.00 |
| 7. | Placement of salvaged or imported topsoil complete with fine grading over the following areas between Station 1+560 and Station 1+703. | |
| | a) On top of the filled drain portion at 100 mm depth. | $3,500.00 |
| | b) On the new drain banks at 50 mm depth. | $4,000.00 |
| 8. | Supply and placement of fibre reinforced matrix hydraulic mulch seed on new drain banks from Station 1+575 to Station 1+703. | $14,000.00 |
| 9. | Stone erosion protection work, as follows: | |
| | a) Supply and placement of stone erosion protection (R-50 riprap) on upstream end of Culvert No. 1 (Station 0+284 to Station 0+293) minimum 500 mm thickness, complete with filter fabric underlay, (approx. 80 $m^2$). | $10,000.00 |
| | b) Supply and placement of stone erosion protection consisting of a wire mesh gabion mat (R-10 riprap) on drain banks (Station 1+575 to Station 1+650) 4.0 m wide, minimum 300 mm thickness, complete with filter fabric underlay, (approx. 300 $m^2$). | $55,000.00 |
| | c) Supply and placement of stone erosion protection (R-50 riprap) on drain bend (Station 1+555 to Station 1+575) minimum 350 mm thickness, complete with filter fabric underlay, (approx. 270 $m^2$). | $27,000.00 |

| Item | Description | Amount |
|---|---|---|
| 10. | Road Culvert Work, as follows: | |
| | a) Culvert No. 1 D/S Extension (King's Highway No. 3) – Supply and installation of a new 27.6 m long culvert 3046 mm x 2279 mm precast concrete box culvert connected to the existing culvert with flush end, complete with skewed outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, cast-in-place concrete headwalls and stone erosion protection (R50 riprap) within the drain channel fully lined beyond the culvert for a minimum 9 m distance and minimum 500 mm thickness (approx.. 80 $m^2$). Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 28.65 m long culvert and the removal off-site of excess materials not suitable for culvert backfill. | $535,000.00 |
| | b) Culvert No. 4 – Station 1+203 (South Talbot Road) – Supply and installation of a new 90.0 m long culvert 2130 mm x 910 mm concrete box culvert, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, sloping stone end treatment at both ends with a minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas and the removal off-site of excess materials not suitable for culvert backfill. | $750,000.00 |
| | c) Culvert No. 5 – Station 1+728 (South Talbot Road) – Supply and installation of a new 40.0 m long, 900 mm diameter High-density polyethylene (HDPE), clear stone bedding (min. 150 mm thickness, compacted full Granular 'A' backfill up to road subgrade. Sloping stone R-50 riprap end treatment. Work to include fine grading, seeding and restoration of all disturbed areas and the removal off-site of excess materials not suitable for culvert backfill. | $45,000.00 |
| 11. | Culvert Cleaning Work, as follows: | |
| | a) Culvert No. 2 – (South Talbot Road) – Remove sediment build up from within the existing 15.0 m long 3046 mm x 1830 mm concrete culvert, complete with disposal off-site. | $10,000.00 |

| Item | Description | Amount |
|---|---|---|
| | b) Culvert No. 3 – (Roll No. 570-00100) – Remove sediment build up from within the existing 5.0 m long 4000 mm x 1500 mm concrete culvert, complete with disposal off-site. | $10,000.00 |
| 12. | Temporary silt control measures during construction. | $5,000.00 |
| | **SUB-TOTAL** | **$1,664,500.00** |
| 13. | Allowances as per Section 29 of the Drainage Act | $9,300.00 |
| 14. | Allowances as per Section 30 of the Drainage Act | $4,200.00 |
| 15. | Report, Assessments and Final Inspection. | $39,000.00 |
| 16. | Expenses and Incidentals. | $1,000.00 |
| | **TOTAL ESTIMATE – 8TH CONCESSION DRAIN** | **$1,718,000.00** |

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 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 drain realignment and deepening of the upper portion of drain, new culvert works and associated drain cleanout 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 (Open Drain Sta. 0+000 to Sta. 0+300)**

For the portion of open drain that resides on Ministry of Transportation lands from Road 8 West upstream to the north limit of King's Highway No. 3, including the culvert across the highway, the future maintenance costs for the open drain shall be assessed 100% to the Ministry of Transportation. The Ministry may elect to undertake the future maintenance costs as per Section

69 of the Drainage Act or defer the maintenance to the Town of Kingsville.

**Future Maintenance (Open Drain Sta. 0+300 to Sta. 1+560)**

For the portion of open drain that resides along the north side of South Talbot Road extending easterly to County Road No. 27, the future maintenance costs for the open drain shall be assessed in accordance with the previous report dated 12 January 1982 until otherwise varied as per the Drainage Act.

**Future Maintenance (Open Drain Sta. 1+560 to Sta. 2+220)**

For the portion of open drain that resides along the west side of County Road No. 27 extending northerly to the upper end where the Cottam Sideroad Road Drain enters, the future maintenance costs for the open drain shall be assessed in the same relative proportions as outlined within Schedule 'E-1' appended hereto.

**Future Maintenance (Road Culvert Crossings of South Talbot Road)**

For the road culverts across South Talbot Road, denoted herein as Culvert No 2, No. 4 and No. 5, the future maintenance costs shall be assessed 100% to the Town of Kingsville, in accordance with Section 26 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 8 – Overall Plan**
**Page 2 of 8 – Enlargement Plan 'A'**
**Page 3 of 8 – Culvert No. 1 Details**
**Page 4 of 8 – Culvert No. 4 Details**
**Page 5 of 8 – Drain Realignment Details**
**Page 6 of 8 – Profile No. 1 & Cross Sections**
**Page 7 of 8 – Profile No. 2 & Cross Sections**
**Page 8 of 8 – Profile No. 3 & Cross Sections**

**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. Culvert drawings have been prepared for the construction complete with associated specifications which shall adhere to the elevations, alignment, sizes, materials and location and be 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 this report. 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 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, July2021) provides the impact analysis.

The 8th Concession Drain was identified to support direct 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:sjc

## SCHEDULE 'A'
## SUMMARY OF ON-SITE MEETING
**February 23, 2024 @ 9:00 a.m.**

**Present:**

| | |
|---|---|
| Jeff Kettlewel | Ministry of Transportation Ontario |
| Orion Raes | Green Infrastructure Partners Inc. |
| Mark Fishleigh | County of Essex Roads Dept. |
| Lu-Ann Marentette | Town of Kingsville |
| Clare Janisse | Town of Kingsville |
| Clarke Campbell | Dillon Consulting Limited |
| Tim Oliver | Dillon Consulting Limited |

**Tim Oliver** provided an overview of relevant drainage history of the 8th Concession Drain referring to the last improvements made to the upper portion of the drain along the west side of County Road No. 27 as part of a 1960 engineer's report and by-law under the Drainage Act. The recommendation would be for this upper portion of drain to be relocated further west so as to allow for the widening of County Road No. 27 which includes two new road culvert crossings for the proposed realignment of South Talbot Road.

The upstream drainage area includes a portion of the Village of Cottam that has its drainage outlet through the Cottam Sideroad Drain that drains into the 8th Concession Drain. Notice of this site meeting was provided to the landowners within this upstream drainage area so as to make them aware of the proposed changes to the upper portion of the 8th Concession Drain.

Other works include the extension of the Highway No. 3 culvert, both upstream and downstream ends of the existing culvert, in order to facilitate the roadway widening. The portion of the 8th Concession Drain starting from Road 8 West and proceeding upstream across Highway No. 3 and easterly to County Road No. 27 and then northerly to the upper end of the drain shall require cleaning such that the new culverts provide the necessary capacity and can accommodate the revised grading and deepening of the drain required to suit the new culvert crossings of South Talbot Road. All the costs of the drain improvements shall be assessed to the Ministry of Transportation.

**Tim Oliver** stated that the drainage report would be completed within the next 3 months to accommodate construction schedule starting this Summer 2024.

*Meeting summary prepared by Tim Oliver, P. Eng.*

**"SCHEDULE B"**

**SCHEDULE OF ALLOWANCES**

**8TH CONCESSION DRAIN**

**TOWN OF KINGSVILLE**

| Roll No. | Con. | Description | Owner | Section 30 Damages | Section 29 Land | Total Allowances |
|---|---|---|---|---|---|---|
| 490-01600 | 7 | LOT 8 | Susan B. Loosemore | $400.00 | $0.00 | $400.00 |
| 570-00100 | S.T.R. | PT LOTS 271 & 272 | Peter M. & Liliana Steckle | $1,350.00 | $0.00 | $1,350.00 |
| 570-06205 | S.T.R. | PT LOT 271 | Steckle Farms Limited | $1,250.00 | $0.00 | $1,250.00 |
| 570-10700 | S.T.R. | PT LOT 270 | 2204157 Ontario Ltd. | $1,200.00 | $9,300.00 | $10,500.00 |
| **TOTAL ALLOWANCES** | | | | **$4,200.00** | **$9,300.00** | **$13,500.00** |

**SCHEDULE C**
**SCHEDULE OF ASSESSMENT**
**8TH CONCESSION DRAIN**
**TOWN OF KINGSVILLE**

**ONTARIO LANDS:**

| Description | Area Affected (Acres) | (Ha.) | Owner | Special Benefit | Benefit | Outlet | Total Assessment |
|---|---|---|---|---|---|---|---|
| King's Highway No. 3 | 0.00 | 0.00 | Ministry of Transportation | $1,718,000.00 | $0.00 | $0.00 | $1,718,000.00 |
| **Total on Ontario Lands** | | | | $1,718,000.00 | $0.00 | $0.00 | $1,718,000.00 |
| **TOTAL ASSESSMENT** | | | | **$1,718,000.00** | **$0.00** | **$0.00** | **$1,718,000.00** |

**"SCHEDULE E"**
**SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE**
**8TH CONCESSION DRAIN (STA. 1+560 TO STA. 2+220)**
**TOWN OF KINGSVILLE**

**MUNICIPAL LANDS:**

| Description/Roll No. | Area Affected (Acres) | (Ha.) | Owner | Special Benefit | Benefit | Outlet | Total Assessment |
|---|---|---|---|---|---|---|---|
| County Road No. 27 | 6.70 | 2.71 | County of Essex | $0.00 | $1,126.00 | $1,607.00 | $2,733.00 |
| County Road No. 34 | 0.82 | 0.33 | County of Essex | $0.00 | $45.00 | $196.00 | $241.00 |
| Vienna Blvd. | 0.19 | 0.08 | Town of Kingsville | $0.00 | $11.00 | $47.00 | $58.00 |
| William Street | 0.23 | 0.09 | Town of Kingsville | $0.00 | $12.00 | $53.00 | $65.00 |
| South Talbot Road | 0.98 | 0.40 | Town of Kingsville | $0.00 | $116.00 | $148.00 | $264.00 |
| 570-08801 | 0.18 | 0.07 | Town of Kingsville | $0.00 | $10.00 | $41.00 | $51.00 |
| Total on Municipal Lands | | | | $0.00 | $1,320.00 | $2,092.00 | $3,412.00 |

**PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:**

| Roll No. | Con. | Description | Area Affected (Acres) | (Ha.) | Owner | Special Benefit | Benefit | Outlet | Total Assessment |
|---|---|---|---|---|---|---|---|---|---|
| 570-10600 | S.T.R. | Pt. Lot 270 | 1.48 | 0.60 | Kevin M. & Judith I. Hamm | $0.00 | $25.00 | $108.00 | $133.00 |
| 570-10540 | S.T.R. | Pt. Lot 270 | 1.14 | 0.46 | Jeffery V. & Chelsea J. Bas | $0.00 | $24.00 | $102.00 | $126.00 |
| 570-10530 | S.T.R. | Pt. Lot 270 | 1.14 | 0.46 | Edward F. & Kimberlie M. Fuerth | $0.00 | $24.00 | $102.00 | $126.00 |
| 570-10520 | S.T.R. | Pt. Lot 270 | 1.14 | 0.46 | Guy R. & Angela F. Wigle | $0.00 | $24.00 | $102.00 | $126.00 |
| 570-10510 | S.T.R. | Pt. Lot 270 | 1.15 | 0.47 | Gary W. & Elaine K. Thorton | $0.00 | $24.00 | $103.00 | $127.00 |
| 570-10500 | S.T.R. | Pt. Lot 270 | 1.58 | 0.64 | Leonard H. Toner | $0.00 | $26.00 | $111.00 | $137.00 |
| 570-10400 | S.T.R. | Pt. Lot 270 | 0.88 | 0.36 | Abram Neufeld & Anna Heinrichs | $0.00 | $22.00 | $94.00 | $116.00 |
| 570-10300 | S.T.R. | Pt. Lot 270 | 1.14 | 0.46 | Trudy Unger & Abram Knelson | $0.00 | $24.00 | $102.00 | $126.00 |
| 570-10200 | S.T.R. | Pt. Lot 270 | 0.53 | 0.21 | Nathan W. Bennett | $0.00 | $17.00 | $73.00 | $90.00 |
| 570-10150 | S.T.R. | Pt. Lot 270 | 0.25 | 0.10 | Michael J. Etzel | $0.00 | $8.00 | $36.00 | $44.00 |
| 570-10100 | S.T.R. | Pt. Lot 270 | 0.36 | 0.15 | Kandus L. Flood | $0.00 | $12.00 | $53.00 | $65.00 |
| 570-10001 | S.T.R. | Pt. Lot 270 | 0.56 | 0.23 | James A. Carter | $0.00 | $18.00 | $78.00 | $96.00 |
| 570-09910 | S.T.R. | Pt. Lot 270 | 0.27 | 0.11 | Agris Co-operative Ltd. | $0.00 | $15.00 | $65.00 | $80.00 |
| 570-09900 | S.T.R. | Pt. Lot 270 | 0.54 | 0.22 | Daniel Mcarthy & Hans Kluymans | $0.00 | $18.00 | $76.00 | $94.00 |
| 570-09800 | S.T.R. | Pt. Lot 270 | 0.20 | 0.08 | Kristopher Ennis | $0.00 | $7.00 | $28.00 | $35.00 |
| 570-09700 | S.T.R. | Pt. Lot 270 | 0.37 | 0.15 | Kingsville Roofing Ltd. | $0.00 | $21.00 | $89.00 | $110.00 |
| 570-09600 | S.T.R. | Pt. Lot 270 | 0.15 | 0.06 | 813816 Ontario Limited | $0.00 | $5.00 | $21.00 | $26.00 |
| 570-09400 | S.T.R. | Pt. Lot 270 | 0.18 | 0.07 | Timothy & Teresa Lindsay | $0.00 | $0.00 | $21.00 | $21.00 |
| 570-09300 | S.T.R. | Pt. Lot 270 | 0.15 | 0.12 | 1882102 Ontario Inc. | $0.00 | $0.00 | $21.00 | $21.00 |
| 570-09200 | S.T.R. | Pt. Lot 270 | 0.19 | 0.08 | Micheal & Tracy Smith | $0.00 | $0.00 | $14.00 | $14.00 |
| 570-09100 | S.T.R. | Pt. Lot 270 | 0.19 | 0.08 | Louis B. Couvillion & Elizabeth A. Sampogna | $0.00 | $0.00 | $14.00 | $14.00 |
| 570-09000 | S.T.R. | Pt. Lot 270 | 0.41 | 0.17 | John W. Boer | $0.00 | $0.00 | $30.00 | $30.00 |
| 570-08901 | S.T.R. | Pt. Lot 270 | 0.05 | 0.02 | 13246566 Canada Inc. | $0.00 | $0.00 | $4.00 | $4.00 |
| 570-08900 | S.T.R. | Pt. Lot 270 | 0.07 | 0.03 | Pan West Pharma Inc. | $0.00 | $0.00 | $5.00 | $5.00 |
| 570-08705 | S.T.R. | Pt. Lot 270 | 0.10 | 0.04 | 1670057 Ontario Limited | $0.00 | $0.00 | $12.00 | $12.00 |
| 570-08700 | S.T.R. | Pt. Lot 270 | 0.16 | 0.06 | William P. Hodgkins | $0.00 | $0.00 | $11.00 | $11.00 |
| 570-00101 | S.T.R. | Pt. Lot 270 | 6.69 | 2.71 | Agris Co-operative Ltd. | $0.00 | $373.00 | $1,606.00 | $1,979.00 |
| 560-01100 | S.T.R. | Pt Lot 269 | 0.68 | 0.28 | Patrick J. & Theresa A. Diemer | $0.00 | $0.00 | $52.00 | $52.00 |
| 560-01110 | S.T.R. | Pt Lot 269 | 0.68 | 0.28 | Bryan J. & Jacyln R. Jacques | $0.00 | $0.00 | $52.00 | $52.00 |
| 560-01106 | S.T.R. | Pt Lot 269 | 0.18 | 0.07 | Micheal Bosse & Danielle Soulliere | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01108 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Brycon D. Sweet & Kendall L. Penner | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01111 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Rejean R. & Nicole T. Fillion | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01112 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Leonard K. & Corinne Johnson | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01114 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Kaitlyn J. Nadin & Bradley Carroll | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01116 | S.T.R. | Pt Lot 269 | 0.20 | 0.08 | Brent A. & Kathryn M. Brinacombe | $0.00 | $0.00 | $17.00 | $17.00 |
| 560-01188 | S.T.R. | Pt Lot 269 | 0.18 | 0.07 | Joseph M. & Lindsay L. Iatonna | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01190 | S.T.R. | Pt Lot 269 | 0.18 | 0.07 | Gerald A. & Patricia R. Crisford | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01192 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Martin J. & Melinda S. Janzen | $0.00 | $0.00 | $15.00 | $15.00 |

| Roll No. | Con. | Description | Area Affected (Acres) | (Ha.) | Owner | Special Benefit | Benefit | Outlet | Total Assessment |
|---|---|---|---|---|---|---|---|---|---|
| 560-01194 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Mark & Nanjette Radigan | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01196 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Gerald A. & Diane E. Soulliere | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-01198 | S.T.R. | Pt Lot 269 | 0.17 | 0.07 | Jennifer L. Wilkinson | $0.00 | $0.00 | $15.00 | $15.00 |
| 560-02415 | S.T.R. | Pt Lot 269 | 0.34 | 0.14 | Phillip & Elizabeth Blais | $0.00 | $0.00 | $30.00 | $30.00 |
| 560-02414 | S.T.R. | Pt Lot 269 | 0.34 | 0.14 | Louis S. & Carol A. Helmer | $0.00 | $0.00 | $30.00 | $30.00 |
| 560-01201 | S.T.R. | Pt Lot 269 | 0.37 | 0.15 | Kevin M. & Dale C. Ross | $0.00 | $0.00 | $32.00 | $32.00 |
| 560-01202 | S.T.R. | Pt Lot 269 | 0.31 | 0.13 | Erwin & Jacqueline M. Etzel | $0.00 | $0.00 | $28.00 | $28.00 |
| 560-01300 | S.T.R. | Pt Lot 269 | 0.58 | 0.23 | Eric Amlin | $0.00 | $18.00 | $78.00 | $96.00 |
| 560-01400 | S.T.R. | Pt Lot 269 | 0.38 | 0.15 | Marimus H. & Elizabeth A. Reitsma | $0.00 | $12.00 | $53.00 | $65.00 |
| 560-01475 | S.T.R. | Pt Lot 269 | 0.24 | 0.10 | Derek S. & Susan J. Tomkins | $0.00 | $8.00 | $36.00 | $44.00 |
| 560-01500 | S.T.R. | Pt Lot 269 | 0.28 | 0.11 | No Tan Lines Tanning Salon Inc. | $0.00 | $9.00 | $39.00 | $48.00 |
| 560-01600 | S.T.R. | Pt Lot 269 | 0.19 | 0.08 | Timothy D. Bezanson | $0.00 | $7.00 | $28.00 | $35.00 |
| 560-01700 | S.T.R. | Pt Lot 269 | 0.13 | 0.05 | Tammy L. Mcdermott | $0.00 | $4.00 | $18.00 | $22.00 |
| 560-01701 | S.T.R. | Pt Lot 269 | 0.13 | 0.05 | 813816 Ontario Limited | $0.00 | $4.00 | $18.00 | $22.00 |
| 560-01800 | S.T.R. | Pt Lot 269 | 0.36 | 0.15 | Kingsville Roofing Ltd. | $0.00 | $12.00 | $53.00 | $65.00 |
| 560-01900 | S.T.R. | Pt Lot 269 | 0.39 | 0.16 | 11337840 Canada Inc. | $0.00 | $13.00 | $57.00 | $70.00 |
| 560-02000 | S.T.R. | Pt Lot 269 | 0.15 | 0.06 | Kugan Merugesu | $0.00 | $0.00 | $11.00 | $11.00 |
| 560-02100 | S.T.R. | Pt Lot 269 | 0.93 | 0.38 | Brian D. & Malana A. Candido | $0.00 | $0.00 | $47.00 | $47.00 |
| 560-02200 | S.T.R. | Pt Lot 269 | 0.74 | 0.30 | Bernard C. & Kathryn J. Cormier | $0.00 | $0.00 | $44.00 | $44.00 |
| 560-02300 | S.T.R. | Pt Lot 269 | 0.76 | 0.31 | Robert Laman | $0.00 | $0.00 | $45.00 | $45.00 |
| 560-02301 | S.T.R. | Pt Lot 269 | 0.35 | 0.14 | Barbara E. Sisley | $0.00 | $0.00 | $25.00 | $25.00 |
| Total on Privately-Owned - Non-Agricultural Lands | | | | | | $0.00 | $774.00 | $4,039.00 | $4,813.00 |

**PRIVATELY-OWNED - AGRICULTURAL LANDS**

| Roll No. | Con. | Description | Area Affected (Acres) | (Ha.) | Owner | Special Benefit | Benefit | Outlet | Total Assessment |
|---|---|---|---|---|---|---|---|---|---|
| 570-10601 | S.T.R. | Pt Lot 270 | 7.00 | 2.83 | 2204157 Ontario Ltd. | $0.00 | $250.00 | $168.00 | $418.00 |
| 570-10700 | S.T.R. | Pt Lot 270 | 11.30 | 4.57 | 2204157 Ontario Ltd. | $0.00 | $603.00 | $471.00 | $1,074.00 |
| 570-10102 | S.T.R. | Pt Lot 270 | 4.79 | 1.94 | Rajac Group Inc. | $0.00 | $53.00 | $230.00 | $283.00 |
| Total on Privately-Owned - Agricultural Lands | | | | | | $0.00 | $906.00 | $869.00 | $1,775.00 |

| | | | | |
|---|---|---|---|---|
| **TOTAL ASSESSMENT** | **$0.00** | **$3,000.00** | **$7,000.00** | **$10,000.00** |

| | (Acres) | (Ha.) |
|---|---|---|
| **Total Area:** | **63.69** | **25.86** |

"SCHEDULE F"
DRAINAGE REPORT FOR THE
**8TH CONCESSION 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:

- Excavation and trucking of excavated material, as follows:
    - Brushing of the drain from Station 0+000 to Station 2+220 including removal off-site with trimming and/or removal of existing trees within the drain as required to accommodate the drainage works. The work shall include disposal of brush by means of stockpiling and burning where permitted or alternatively trucked off-site. Working corridor confined to the County Road No. 27 right-of-way between Station 2+055 and Station 2+220.
- Bridge removal Road 8 West, as follows;
    - Demolition, removal and disposal offsite of existing 3660 mm x 1830 mm concrete bridge 13.0 m long complete with concrete head walls and footings. The work also includes the reinstatement of the open channel with the supply and placement of rip-rap R-50 erosion protection, minimum 350 mm thickness to fully line the drain channel (approx. 150 $m^2$)
- Excavation of the drain bottom and levelling of drain spoils, as follows:
    - Station 0+120 to Station 0+210, totalling approximately 90 lineal metres of drain and approximately 10 $m^3$ of material.
    - Station 0+320 to Station 1+560, totalling approximately 1,240 lineal metres of drain and approximately 330 $m^3$ of material.
    - Station 1+748 to Station 2+055, totalling approximately 307 lineal metres of drain and approximately 230 $m^3$ of material.
- Excavation and trucking of excavated material, as follows:
    - Station 0+000 to Station 0+120 totalling approximately 120 lineal metres of drain and approximately 15 $m^3$.
    - Station 0+210 to Station 0+305 totalling approximately 95 lineal metres of drain and approximately 5 $m^3$.
    - Station 2+055 to Station 2+220 totalling approximately 165 lineal metres of drain and approximately 200 $m^3$.

- Excavate new open channel along proposed alignment, approximately 153 lineal metres, Station 1+555 to Station 1+703. Any excess soils not required to fill in the original drain alignment shall be hauled off-site under the management of the Contractor for the highway improvements.
- Strip and remove vegetation and topsoil from the existing channel from Station 1+555 to Station 1+703 and fill up to existing grade with clean native backfill including compaction in maximum 300 mm lifts.
- Placement of salvaged or imported topsoil complete with fine grading over the following areas between Station 1+560 and Station 1+703.
    - On top of the old drain at 100 mm depth.
    - On new drain banks at 50 mm depth.
- Supply and placement of fibre reinforced matrix hydraulic mulch seed on new drain banks from Station 1+575 to Station 1+703.
- Supply and placement of stone erosion protection (R-50 riprap) on upstream end of Culvert No. 1 (Station 0+284 to Station 0+293) minimum 500 mm thickness, complete with filter fabric underlay, (approx. 80 $m^2$).
- Supply and placement of stone erosion protection consisting of a wire mesh gabion mat (R-10 riprap) on drain banks (Station 1+575 to Station 1+650) 4.0 m wide, minimum 300 mm thickness, complete with filter fabric underlay, (approx. 300 $m^2$)
- Supply and placement of stone erosion protection (R-50 riprap) on drain bend (Station 1+555 to Station 1+575) minimum 350 mm thickness, complete with filter fabric underlay, (approx. 270 $m^2$)

- Road Culvert Work, as follows:
    - Culvert No. 1 D/S Extension (King's Highway No. 3) – Supply and installation of a new 27.6 m long culvert 3046 mm x 2279 mm precast concrete box culvert connected to the existing culvert with flush end, complete with skewed outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, cast-in-place concrete end walls within the drain channel beyond fully lined for a minimum 9 m distance and minimum 500 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 28.65 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.
    - Culvert No. 4 – Station 1+203 (South Talbot Road) – Supply and installation of a new 90.0 m long culvert 2130 mm x 910 mm concrete box culvert, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, sloping stone end treatment at both ends with a minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas and the removal off-site of excess materials not suitable for culvert backfill.
    - Culvert No. 5 – Station 1+728 (South Talbot Road) – Supply and installation of a new 40.0 m long, 900 mm diameter High-density polyethylene (HDPE), clear stone bedding (min. 150 mm thickness, compacted full Granular 'A' backfill up to road subgrade. Sloping stone end treatment. Work to include fine grading, seeding and restoration of

all disturbed areas and the removal off-site of excess materials not suitable for culvert backfill.

- Road Cleaning Work, as follows:
  - Culvert No. 2 – (South Talbot Road) – Remove sediment build up from within the existing 15.0 m long 3046 mm x 1830 mm concrete culvert, complete with disposal off-site.
  - Culvert No. 3 – (Roll No. 570-00100) – Remove sediment build up from within the existing 5.0 m long 4000 mm x 1500 mm concrete culvert, complete with disposal off-site.

- 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, South Talbot Road and the County Road No. 27 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

For both the construction and future maintenance of the drain the Contractor shall restrict his/her equipment to the working corridors as specified in this Section. Any damage resulting from non-compliance with this Section shall be borne by the Contractor. The working corridor shall be as follows:

| FROM STA. | TO STA. | PRIMARY (See Note 1) | SECONDARY (See Note 2) |
|---|---|---|---|
| 0+000 | 0+210 | 9.0 m wide on the south side of the drain measured off top of south bank | N/A |
| 0+210 | 0+300 | King's Highway No. 3 right-of-way | N/A |
| 0+300 | 1+158 | 9.0 m wide on the north side of the drain measured off top of north bank | South Talbot Road |
| 1+158 | 1+270 | South Talbot Road right-of-way | N/A |
| 1+270 | 1+560 | 9.0 m wide on the north side of the drain measured off top of north bank | South Talbot Road |
| 1+560 | 1+708 | 9.0 m wide on the west side of the drain measured off top of west bank | County Road No. 27 |
| 1+708 | 1+750 | South Talbot Road right-of-way | N/A |
| 1+750 | 2+055 | 9.0 m wide on the west side of the drain measured off top of west bank | County Road No. 27 |
| 2+055 | 2+220 | County Road No. 27 right-of-way | N/A |

Note 1: *Primary working corridor* indicates the access corridor along the side of the drain where excavation is recommended (unless noted otherwise below and/or in the Specifications, as well as all purposes listed for Secondary Working Corridors).

Note 2: *Secondary working corridor* indicates the access corridor alongside the drain where construction equipment may travel for the purpose of trucking.

## 5.0 CLEARING & GRUBBING DRAIN PRIOR TO DRAIN EXCAVATION

Prior to drain excavation and removal of sediment within the existing drain as well as drain infilling activities, all brush and trees within the limits of the channel and within 1 metre from the top of the drain banks and in the designated spread area for the excavated material, are to be cut and those roots and stumps within the channel and on the banks where the filling takes place shall be completely removed to a depth at least 1 metre below the level of the finished grade.

Brush and trees removed from the existing drain are to be put into piles by the Contractor, in locations where they can be safely burned, and to be burned by the contractor after obtaining the necessary permits, as required. If, in the opinion of the Drainage Superintendent, any of the piles are too wet or green to be burned, he shall so advise the Contractor to haul away the unburned materials to an approved dump site or advise the Contractor to obtain an agreement in writing with the owners when to return to burn the materials. Prior to and during the course of burning operations the Contractor shall comply with the current guidelines prepared by the Air Quality Branch of the Ontario Ministry of Environment and shall ensure that the Environmental Protection Act is not violated.

The Contractor shall first consult with and obtain approval from the landowner, Drainage Superintendent and Town of Kingsville Fire Services prior to burning the brush removed from this specified area.

## 6.0 EXCAVATION FOR DRAIN CLEANOUT

### 6.1 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 6.2. Materials deposited on the farmlands shall be within the working corridors, at least 1.0 m from the top of the drain bank, or as specified on the drawings. Upon allowing drying of excavated materials (if necessary) and as approved by the Drainage Superintendent, the Contractor shall level excavated materials in accordance with Section 6.2. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

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.

### 6.2 Levelling of Excavated Materials

Excavation of the drain bottom shall be completed as specified in Section 6.1, above as shown on the drawings.

Excavated drain materials shall be spread to a depth not to exceed 300 mm, unless specified otherwise on the drawings. The material shall be sufficiently levelled to allow further working by agricultural implements. All stones and other debris removed from the drain, which may interfere with agricultural implements, shall be disposed of off-site. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

### 6.3 Trucking of Excavated Materials

Contractor shall be solely responsible for acquiring all permits required prior to hauling any fill materials off-site. 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. Should the landowner prefer to have the excavated materials trucked rather than levelled on site, all additional costs shall be at the landowner's expense

## 7.0 DRAIN REALIGNMENT

### 7.1 New Drain Excavation

Excavation shall be carried out in accordance with the profile shown on the drawings for the drain relocation. In all cases, the Contractor shall use the benchmarks to establish the proposed grade.

All excavated material from the new drain construction (Station 1+575 to Station 1+708), shall be used as backfill for the infilling of the old section of drain. All roadways and laneways disturbed by the trucking of excavated materials shall be restored to original conditions.

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.

Prior to seeding of the drain, the stripped topsoil shall be placed on the drain banks at 50 mm depth.

Hydraulic Seeding of the newly shaped drain banks shall be completed immediately following drain construction and as specified in Section 9.0.

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.

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.

## 8.0 DRAIN INFILLING

Prior to the infilling of the open drain, the contractor shall remove all vegetation and organic debris from

the existing drain slopes. The native materials used to fill the drain shall be placed in maximum 300 mm loose lifts and compacted with vibratory compaction equipment capable of achieving 95% of the maximum standard proctor density or better.

## 9.0 HYDRAULIC SEEDING OF NEW DRAIN CHANNEL

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 $m^2$. 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:

| | |
|---|---|
| *Creeping Red Fescue* | *52%* |
| *Perennial Ryegrass* | *35%* |
| *Kentucky Bluegrass* | *10%* |
| *White Clover* | *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 $m^2$. **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 taken into consideration to achieve the end result and the costs shall be incidental to the works.**

## 10.0 STONE 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 size of the rip-rap shall mostly vary between 150 mm and 250 diameter. The rip-rap shall be sloped 1 vertical to 1.5 horizontal, with 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.

## 11.0 GABION MATS (STA. 1+575 TO STA. 1+650)

Gabion mats shall be manufactured from PVC or HDPE based polymer coated galvanized steel wire mesh. Gabion mats 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 mat exceeds its horizontal width, the gabion mat 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 mats shall be manufactured with all components connected at the production facility with the exception of the gabion mat lid. Gabion mats 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 mats shall be according to OPSS 1430 Tables 2, 4 & 5. Gabion stones shall be according to OPSS 1004 and as specified in the Contract Documents. Excavation for gabion mats shall be according to OPSS 206.

Gabions shall be installed at the locations and to the line, grade, and dimensions specified in the Contract Documents. As per Table 2, Mat Size 14 having a length of 30 m, 2 m width and 0.3 m depth is recommended for this application for two mats fastened together to form a 4 m wide gabion mat. 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 mat, the gabion mat 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 channeling 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.

## 12.0 ROAD CULVERT CONSTRUCTION

### 12.1 Location

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

### 12.2 Materials

Materials shall be as follows:

| | |
|---|---|
| *Culvert No. 1 (downstream extension)* | *New 27.6 m long, 3046 mm x 2279 mm reinforced precast concrete box culvert per OPSS 1821 or CHBDC CAN/CSA 56-06 standards where applicable.* |
| *Culvert No. 4* | *New 90.0 m long, 2130 mm x 910 mm reinforced precast concrete box culvert per OPSS 1821 or CHBDC CAN/CSA 56-06 standards where applicable.* |

| | |
|---|---|
| *Culvert No. 5* | *New 40.0 m long, 900 mm diameter corrugated high-density polyethylene pipe, 320 kPa (smooth interior wall), complete with bell and spigot pipe joining system.* |
| *Bedding below culvert pipes* | *Granular 'A' conforming to OPSS Division 10 or 19 mm clearstone minimum 150 mm.* |
| *Bedding below box culverts* | *Concrete mud matt minimum 100 mm thickness and Granular 'A' conforming to OPSS Division 10, minimum 300 mm thickness.* |
| *Culvert Backfill* | *Granular 'A' conforming to OPSS Division 10.* |
| *Erosion Stone* | *All stone to be used for erosion protection shall be R-50 clear quarried rock per OPSS 1004, minimum 350 mm thickness.* |
| *Filter Fabric* | *"Non-Woven" geotextile filter fabric with a minimum strength equal or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC, or approved equivalent.* |

### 12.3 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.

### 12.4 Vertical Cast-in-Place End walls (Culvert No. 1)

The wingwalls shall be designed by the contractor and shall retain a Professional Engineer for which a Professional engineer's stamped shop drawings shall be submitted to the MTO for review and approval prior to construction.

### 12.5Sloping stone End walls (Culvert No. 4 and Culvert No. 5)

Sloping stone end walls shall be constructed of quarry stone riprap (R-50), as shown on the drawings and as specified herein. The riprap shall be sloped 1 vertical to 1.5 horizontal, with filter fabric underlay and spanning across the entire drain. The minimum thickness requirement of the erosion stone layer is 350 mm with no portion of the filter fabric to be exposed.

### 12.6Lateral 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.

### 12.7 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.

## 11.0TRAFFIC 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.

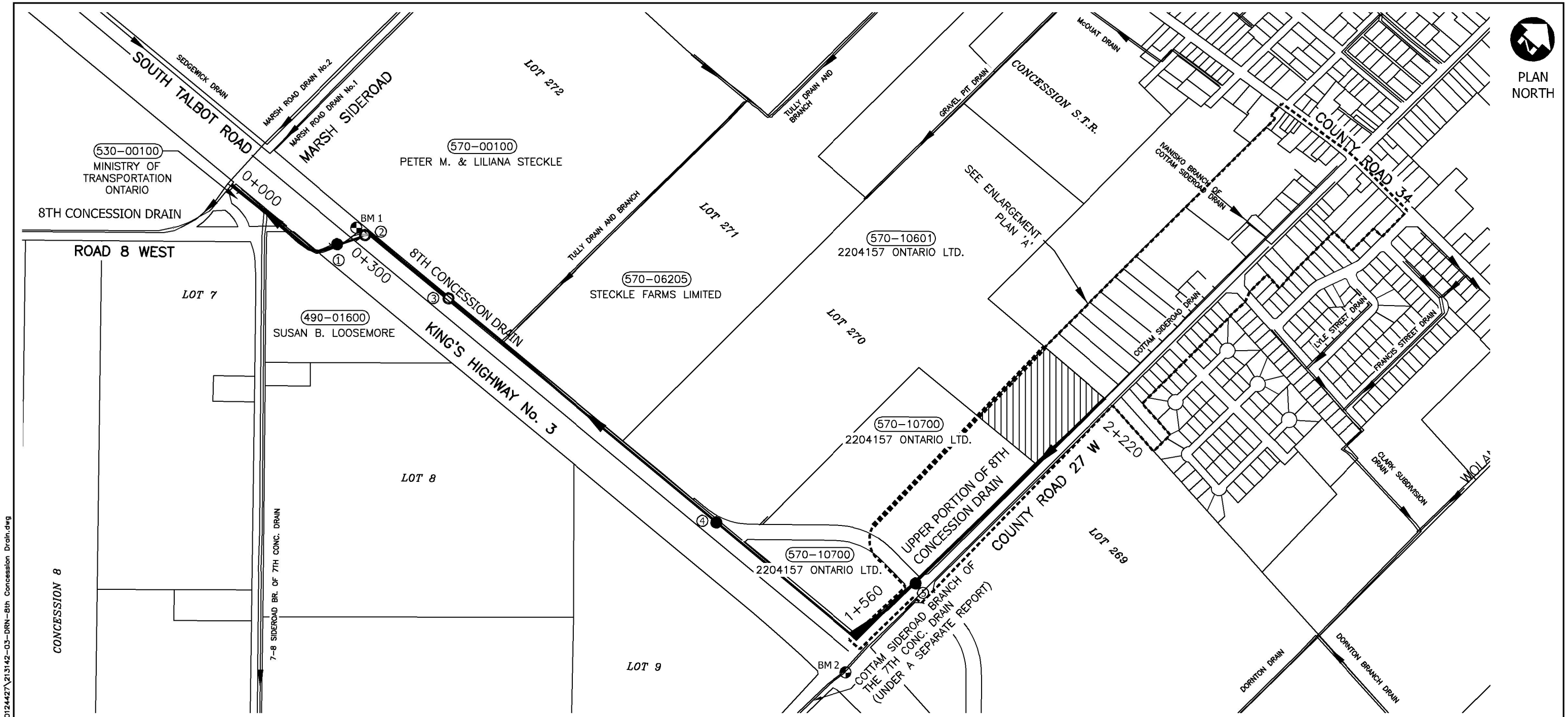
## 14.0 FINAL INSPECTION

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.




## LEGEND

- 8TH CONCESSION DRAIN
- WATERSHED (UPPER PORTION OF 8TH CONC. DRAIN)
- OTHER DRAINS
- NEW CULVERT
- EXISTING CULVERT
- WOODED LOT

## OVERALL PLAN

**SCALE=1:7,500**

## SITE BENCHMARKS

BM

BM1– TOP OF EXISTING HWY 3 CONCRETE CULVERT SOUTH END. (8TH CONC. DRAIN)

ELEVATION=194.64m

BM2– TOP OF EX. HWY 3 CONCRETE CULVERT SOUTH END. (COTTAM SDRD BR. 7TH CONC. DRAIN)

ELEVATION=194.20m

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

**'SCHEDULE G'**

LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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PROJECT NO. 21-3142

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Drainage Report for
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SHEET TITLE: OVERALL PLAN

PAGE NO. 1 of 8

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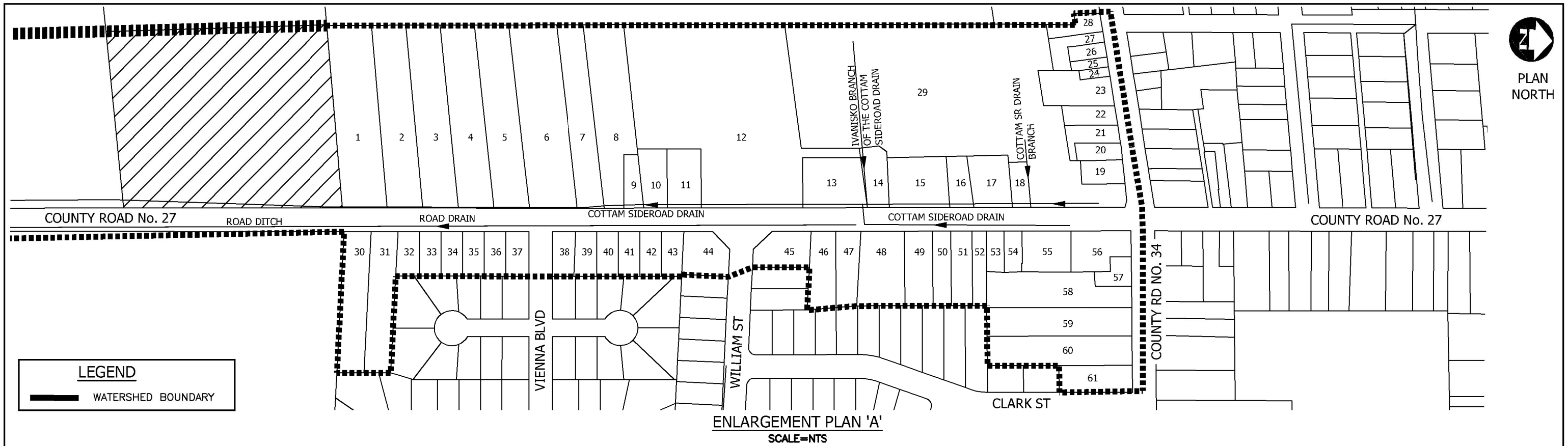


ENLARGEMENT PLAN 'A'

**SCALE=NTS**

| PROPERTY INFORMATION | | |
|---|---|---|
| ID | ROLL NO. | OWNER |
| 1 | 570-10600 | KEVIN M. & JUDETH I. HAMM |
| 2 | 570-10540 | JEFFREY V. & CHELSEA J. BAS |
| 3 | 570-10530 | EDWARD F. & KIMBERLIE M. FUERTH |
| 4 | 570-10520 | GUY R. & ANGELA F. WIGLE |
| 5 | 570-10510 | GARY W. & ELAINE K. THORTON |
| 6 | 570-10500 | LEONARD H. TONER |
| 7 | 570-10400 | ABRAM NEUFELD & ANNA HEINRICHS |
| 8 | 570-10300 | TRUDY UNGER & ABRAM KNELSEN |
| 9 | 570-10200 | NATHAN W. BENNETT |
| 10 | 570-10150 | MICHAEL J. ETZEL |
| 11 | 570-10100 | KANDUS L. FLOOD |
| 12 | 570-10102 | RAJAC GROUP INC. |
| 13 | 570-10001 | JAMES A. CARTER |
| 14 | 570-09910 | AGRIS CO-OPERATIVE LTD. |
| 15 | 570-09900 | DANIEL MCARTHY & HANS KLUYMANS |
| 16 | 570-09800 | KRISTOPHER ENNIS |
| 17 | 570-09700 | KINGSVILLE ROOFING LTD |
| 18 | 570-09600 | 813816 ONTARIO LIMITED. |

| PROPERTY INFORMATION | | |
|---|---|---|
| ID | ROLL NO. | OWNER |
| 19 | 570-09400 | TIMOTHY & TERESA LINDSAY |
| 20 | 570-09300 | 1882102 ONTARIO INC. |
| 21 | 570-09200 | MICHEAL & TRACEY SMITH |
| 22 | 570-09100 | LOUIS B. COUVILLION & ELIZABETH A. SAMPOGNA |
| 23 | 570-09000 | JOHN W. BOER |
| 24 | 570-08901 | 13246566 CANADA INC. |
| 25 | 570-08900 | PAN WEST PHARMA INC. |
| 26 | 570-08705 | 1670057 ONTARIO LIMITED |
| 27 | 570-08801 | TOWN OF KINGSVILLE |
| 28 | 570-08700 | WILLIAM P. HODGKINS |
| 29 | 570-00101 | AGRIS CO-OPERATIVE LTD. |
| 30 | 560-01100 | PATRICK J. & THERESA A. DIEMER |
| 31 | 560-01110 | BRIAN J. & JACYLN R. JACQUES |
| 32 | 560-01106 | MICHEAL BOSSE & DANIELLE SOULLIERE |
| 33 | 560-01108 | BRYCON D. SWEET & KENDALL L. PENNER |
| 34 | 560-01111 | REJEAN R. & NICOLE T. FILLION |
| 35 | 560-01112 | LEONARD & CORINNE JOHNSON |
| 36 | 560-01114 | KAITLYN J. NADIN & BRADLEY CARROLL |

| PROPERTY INFORMATION | | |
|---|---|---|
| ID | ROLL NO. | OWNER |
| 37 | 560-01116 | BRENT A. & KATHRYN M. BRINACOMBE |
| 38 | 560-01188 | JOSEPH M. & LINDSAY L. IATONNA |
| 39 | 560-01190 | GERALD A. & PATRICIA R. CRISFORD |
| 40 | 560-01192 | MARTIN J. & MELINDA S. JANZEN |
| 41 | 560-01194 | MARK & NAJETTE RADIGAN |
| 42 | 560-01196 | GERALD A. & DIANE E. SOULLIERE |
| 43 | 560-01198 | JENNIFER L. WILKINSON |
| 44 | 560-02415 | PHILLIP & ELIZABETH BLAIS |
| 45 | 560-02414 | LOUIS S. & CAROL A. HELMER |
| 46 | 560-01201 | KEVIN M. & DALE C. ROSS |
| 47 | 560-01202 | ERWIN & JACQUELINE M. ETZEL |
| 48 | 560-01300 | ERIC AMLIN |
| 49 | 560-01400 | MARIMUS H. & ELIZABETH A. REITSMA |
| 50 | 560-01475 | DEREK S. & SUSAN J. TOMKINS |
| 51 | 560-01500 | NO TAN LINES TANNING SALON INC. |
| 52 | 560-01600 | TIMOTHY D. BEZANSON |
| 53 | 560-01700 | TAMMY L. MCDERMOTT |
| 54 | 560-01701 | 813816 ONTARIO LIMITED |

| PROPERTY INFORMATION | | |
|---|---|---|
| ID | ROLL NO. | OWNER |
| 55 | 560-01800 | KINGSVILE ROOFING LTD |
| 56 | 560-01900 | 11337840 CANADA INC. |
| 57 | 560-02000 | KUGAN MERUGESU |
| 58 | 560-02100 | BRIAN D. & MALANA A. CANDIDO |
| 59 | 560-02200 | BERNARD C. & KATHRYN J. CORMIER |
| 60 | 560-02300 | ROBERT LAMAN |
| 61 | 560-02301 | BARBARA E. SISLEY |

LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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SCALE: AS SHOWN

DILLON CONSULTING

PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

'SCHEDULE G'

Drainage Report for
# 8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE
## ENLARGEMENT PLAN 'A'

PAGE NO. 2 of 8

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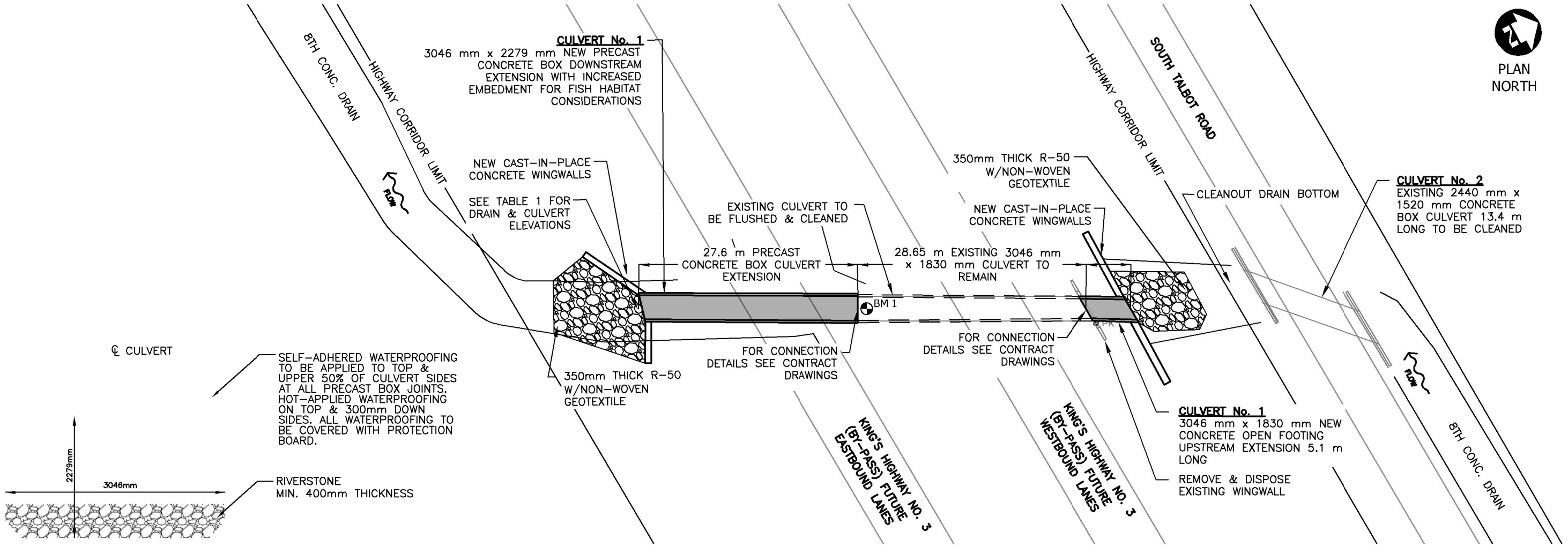


DETAIL
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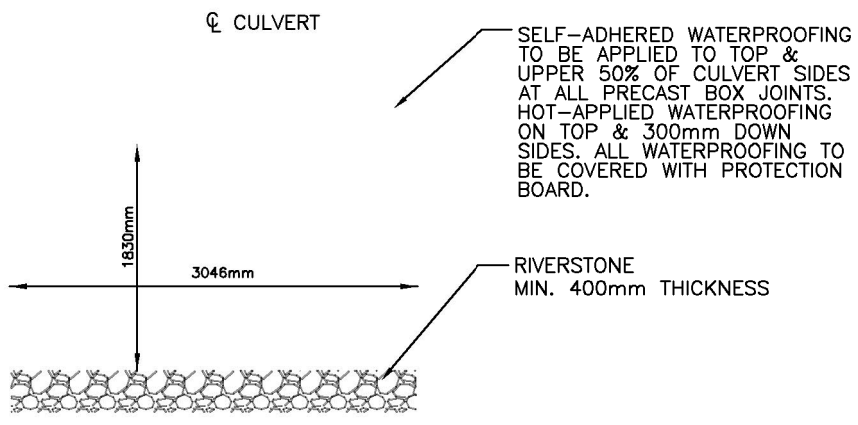
CULVERT NO. 1 SECTION (DOWNSTREAM EXTENSION)
N.T.S.




CULVERT NO. 1 SECTION (UPSTREAM EXTENSION)
N.T.S.

**TABLE 1 – CULVERT DESIGN INFORMATION (CULVERT No. 1)**

| DESCRIPTION | EXISTING CULVERT | DOWNSTREAM CULVERT EXTENSION | UPSTREAM CULVERT EXTENSION |
|---|---|---|---|
| DRAIN BOTTOM DESIGN ELEVATION | 192.59(S)192.63(N) | 192.58(S)192.60(N) | 192.63(S)192.63(N) |
| CULVERT INVERT ELEVATION | 192.59(S)192.63(N) | 192.12(S)192.14(N) | 192.63(S)192.63(N) |
| CULVERT SIZE | 3046 mm x 1830 mm | 3046 mm x 2279 mm | 3046 mm x 1830 mm |
| CULVERT LENGTH (m) | 28.65 | 27.6 | 5.1 |
| CULVERT GRADE (%) | 0.08 | 0.08 | 0.08 |

LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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DRAWING SCALES BASED ON A 11" X 17" SHEET

DILLON CONSULTING

'SCHEDULE G'

Drainage Report for
8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE: CULVERT No. 1 DETAILS
PROJECT NO. 21-3142
PAGE NO. 3 of 8

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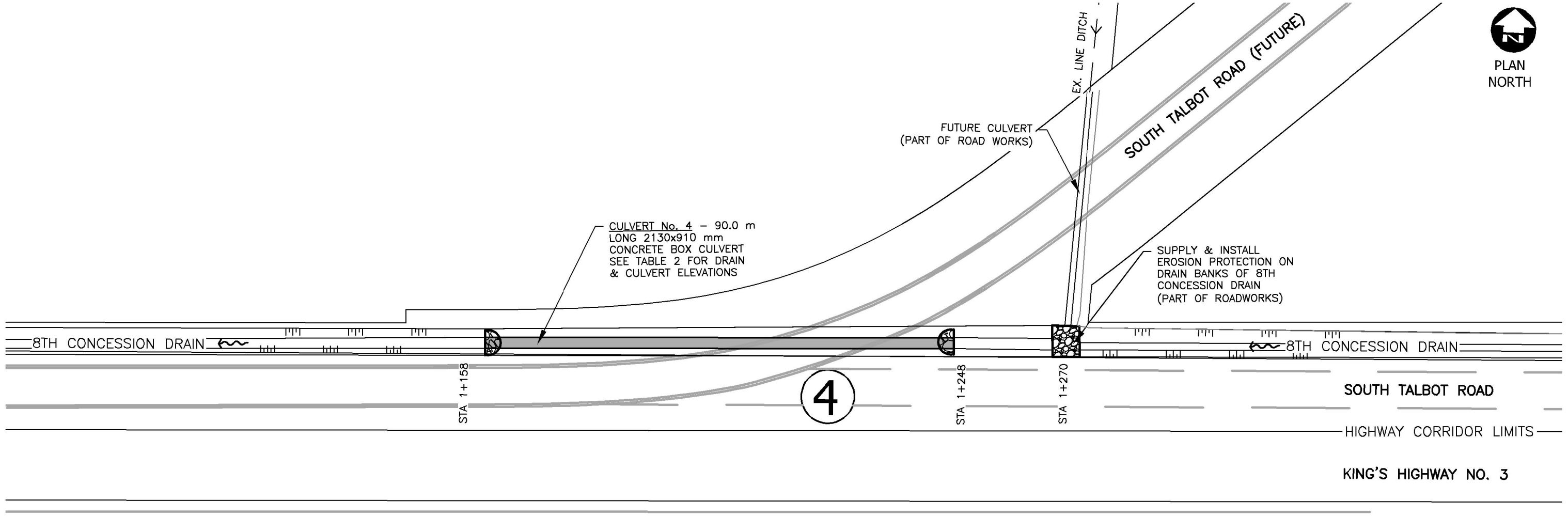


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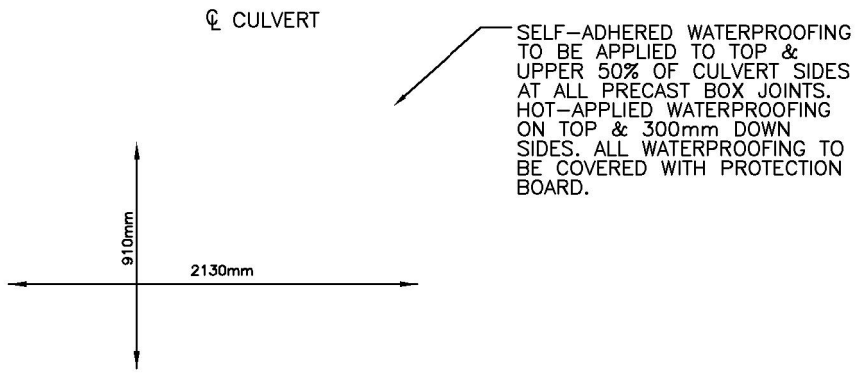


CULVERT NO. 4 SECTION
N.T.S.

**TABLE 2 – CULVERT DESIGN INFORMATION (CULVERT No. 4)**

| DESCRIPTION | CULVERT NO. 4 |
|---|---|
| DRAIN BOTTOM DESIGN ELEVATION | 192.88(W)192.91(E) |
| CULVERT INVERT ELEVATION | 192.78(W)192.81(E) |
| CULVERT SIZE | 2130 mm x 910 mm |
| CULVERT LENGTH (m) | 90.0 |
| CULVERT GRADE (%) | 0.03 |

LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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'SCHEDULE G'

Drainage Report for
# 8TH CONCESSION DRAIN
Town of Kingsville

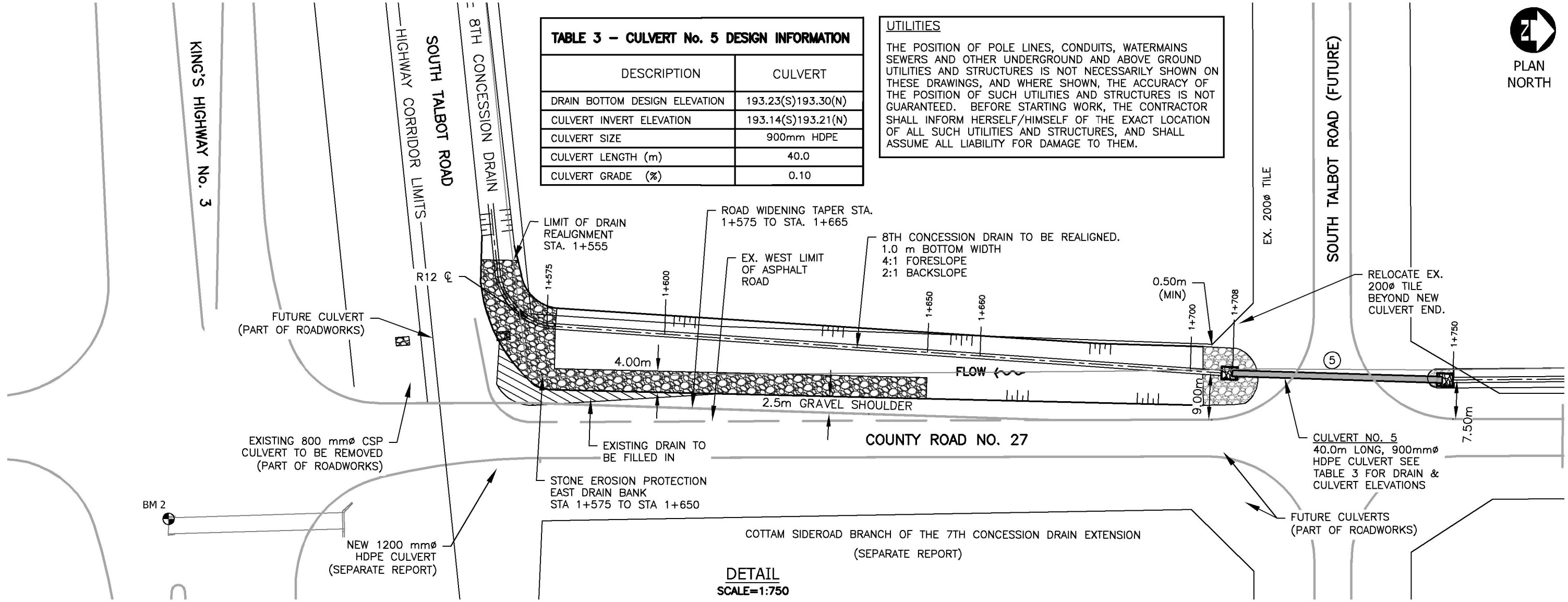
SHEET TITLE
## CULVERT No. 4 DETAILS

PAGE NO. 4 of 8

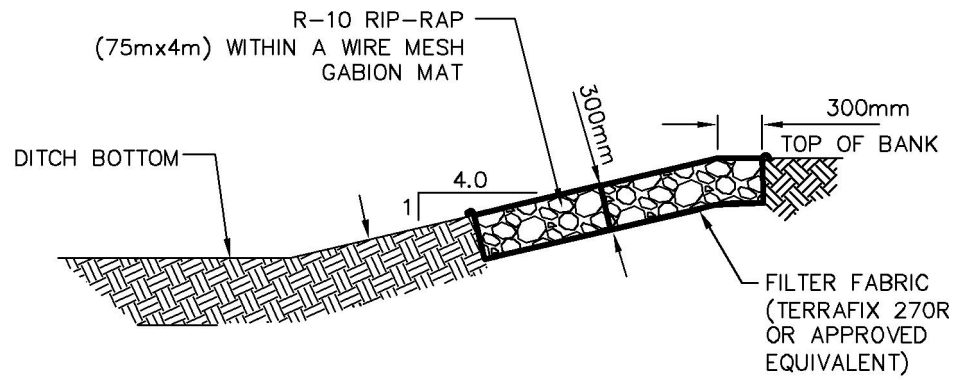
| TABLE 3 – CULVERT No. 5 DESIGN INFORMATION | |
|---|---|
| DESCRIPTION | CULVERT |
| DRAIN BOTTOM DESIGN ELEVATION | 193.23(S)193.30(N) |
| CULVERT INVERT ELEVATION | 193.14(S)193.21(N) |
| CULVERT SIZE | 900mm HDPE |
| CULVERT LENGTH (m) | 40.0 |
| CULVERT GRADE (%) | 0.10 |

UTILITIES

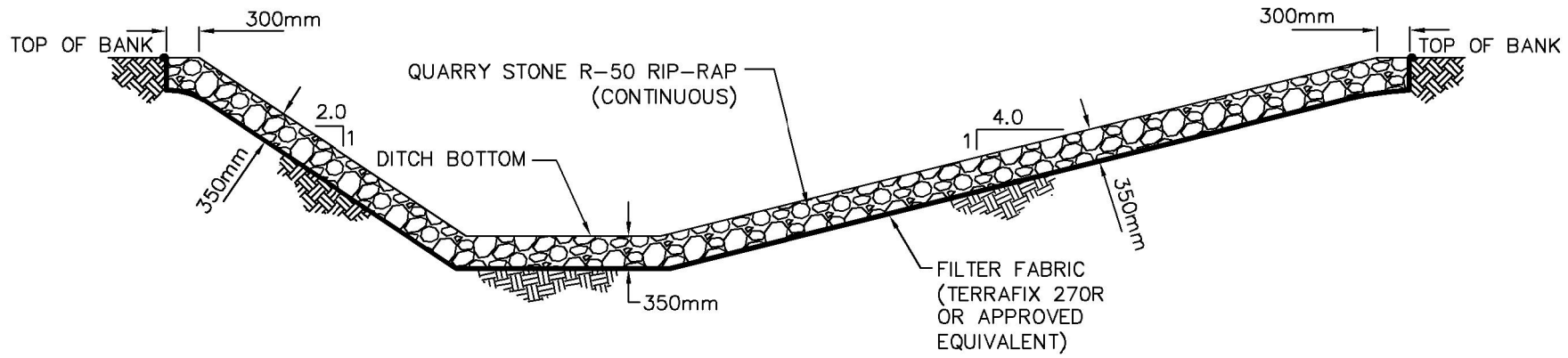
THE POSITION OF POLE LINES, CONDUITS, WATERMAINS SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THESE DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HERSELF/HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.




DETAIL
SCALE=1:750




STA. 1+575 TO STA. 1+650 CROSS SECTION (LOOKING UPSTREAM)
SCALE=N.T.S.




STA. 1+575 CROSS SECTION (LOOKING UPSTREAM)
SCALE=N.T.S.

'SCHEDULE G'

T. R. OLIVER
100046433
10/06/24
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

**Conditions of Use**

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

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| 1 | CLIENT REVIEW | JUNE 4/24 | TRO |

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| DESIGN: TRO | REVIEWED BY: MDH |
| DRAWN: JNS | CHECKED BY: TRO |
| DATE: June 10, 2024 | |
| SCALE: AS SHOWN | |

DILLON CONSULTING

PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for
8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE
DRAIN REALIGNMENT DETAILS

PAGE NO. 5 of 8

Jun 07, 2024 - 12:48pm C:\pw working directory\projects 2021\33tro\d0124427\21314 2-03-DRN-8th Concession Drain.dwg

0+000– DRAIN TURNS SOUTH AT ROAD 8 WEST

0+010– ℄ EX. 3.66m x 1.83m CONCRETE BRIDGE OVER ROAD 8 WEST TO BE REMOVED & DRAIN CHANNEL RESTORED INCLUDING RIPRAP LINING FULL CROSS SECTION

0+210– DRAIN TURNS NORTH AT HWY 3 SOUTH LIMIT

0+228– CULVERT No.1 3046mm x 2279mm CONCRETE CULVERT DOWNSTREAM EXTENSION

0+255– EXISTING 3046mm x 1830mm CONCRETE CULVERT CLEAN OUT EXISTING CULVERT

0+289– CULVERT No.1 3046mm x 1830mm CONCRETE CULVERT UPSTREAM EXTENSION

0+300– HWY 3 NORTH LIMIT

0+305– CULVERT No.2 D/S END OF 3050mm x 1830mm CONCRETE CULVERT

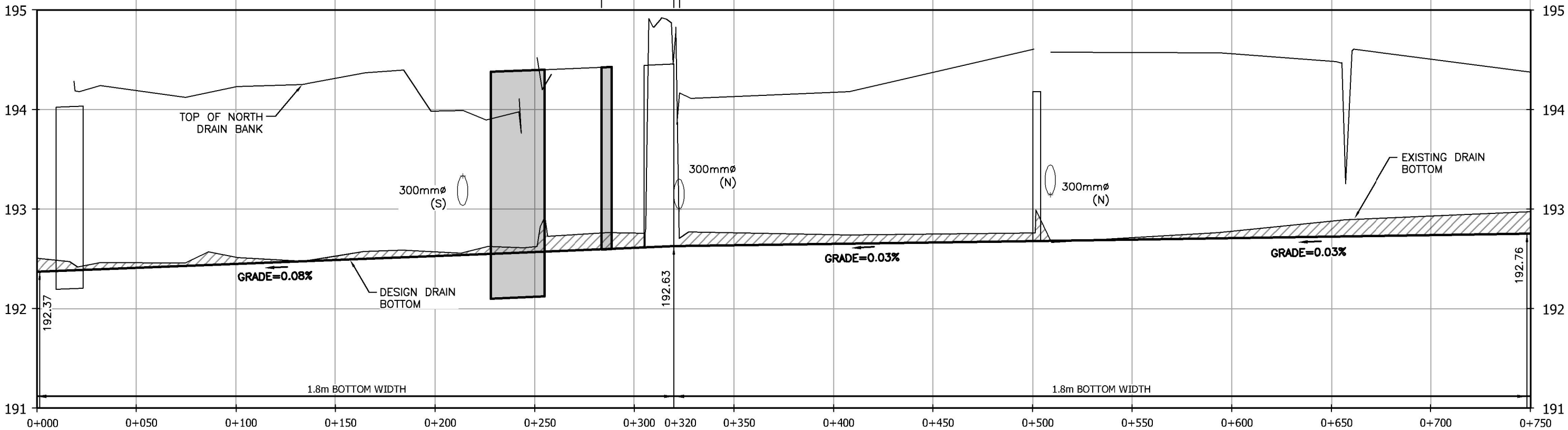
0+320– CULVERT No.2 U/S END OF 3050mm x 1830mm CONCRETE CULVERT CLEAN OUT EXISTING CULVERT

0+322– DRAIN TURNS EAST

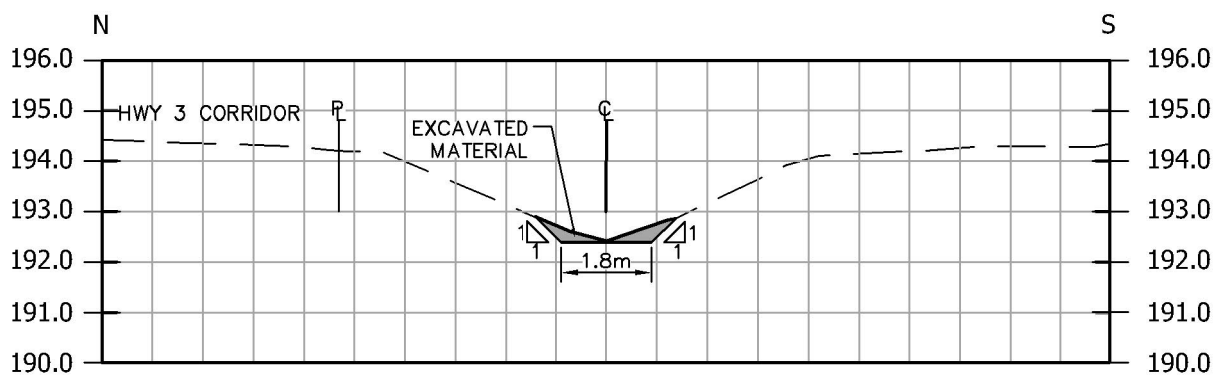
0+500– CULVERT No.3 D/S END OF 4000mm x 1500mm CONCRETE CULVERT

0+505– CULVERT No.3 U/S END OF 4000mm x 1500mm CONCRETE CULVERT CLEANOUT EXISTING CULVERT

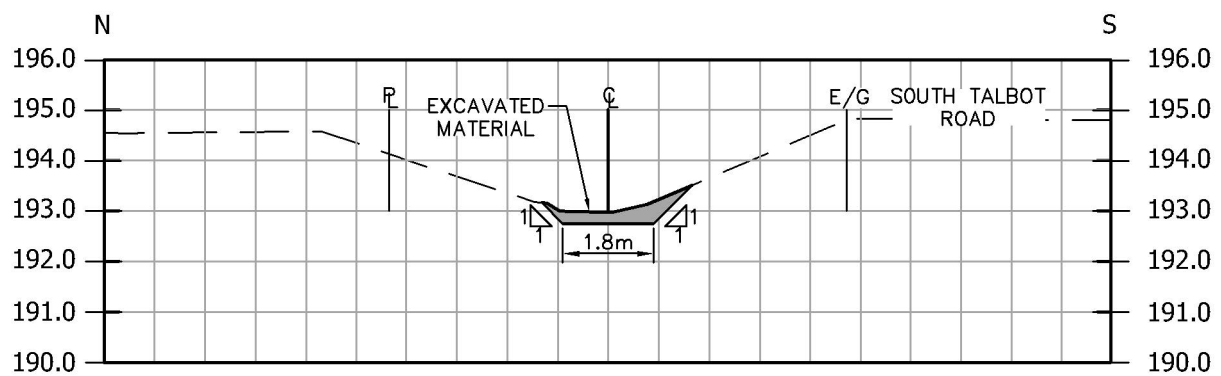
0+655– TULLY DRAIN ENTERS FROM THE NORTH




PROFILE NO.1
SCALE–HORIZ=1:2000
VERT.=1:40




CROSS SECTION 0+025 (LOOKING UPSTREAM)
SCALE–1:150




CROSS SECTION 0+750 (LOOKING UPSTREAM)
SCALE–1:150

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T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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| 1 | CLIENT REVIEW | JUNE 4/24 | TRO |

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| DATE: June 10, 2024 | |
| SCALE: AS SHOWN | |

DILLON CONSULTING

PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

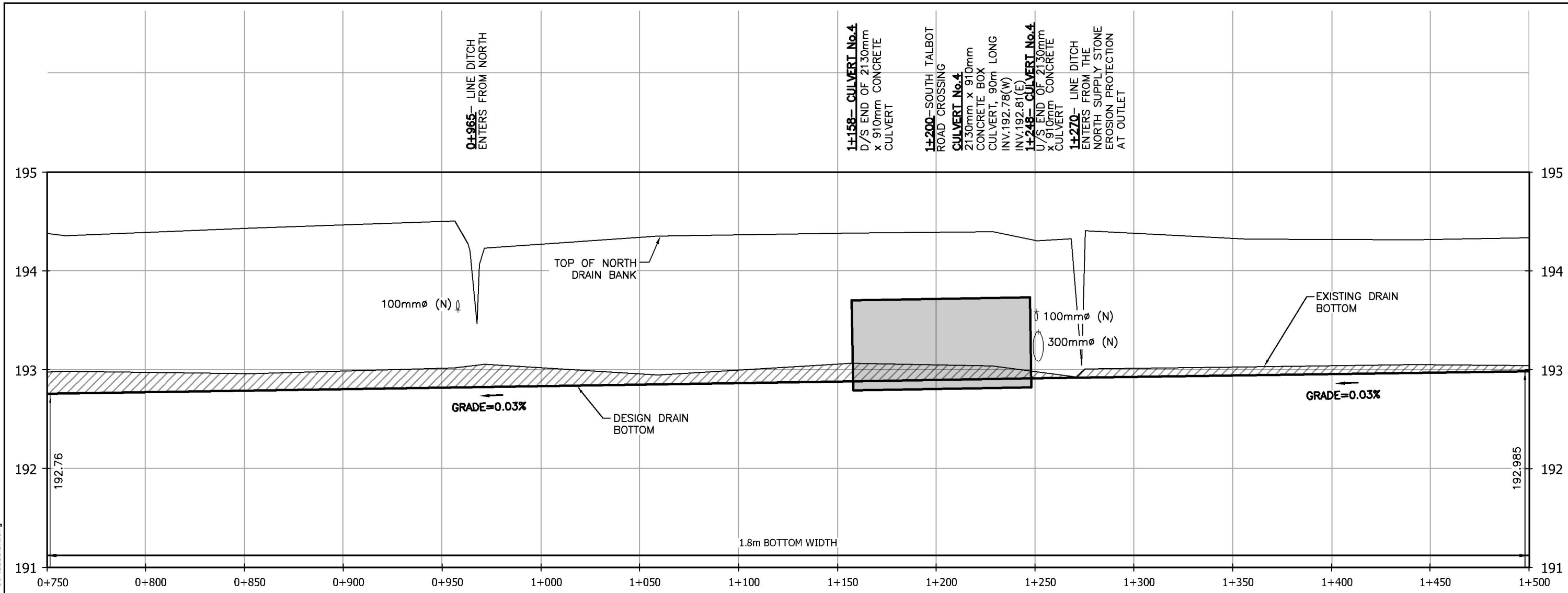
'SCHEDULE G'

Drainage Report for
# 8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE
## PROFILE NO.1 & CROSS SECTIONS

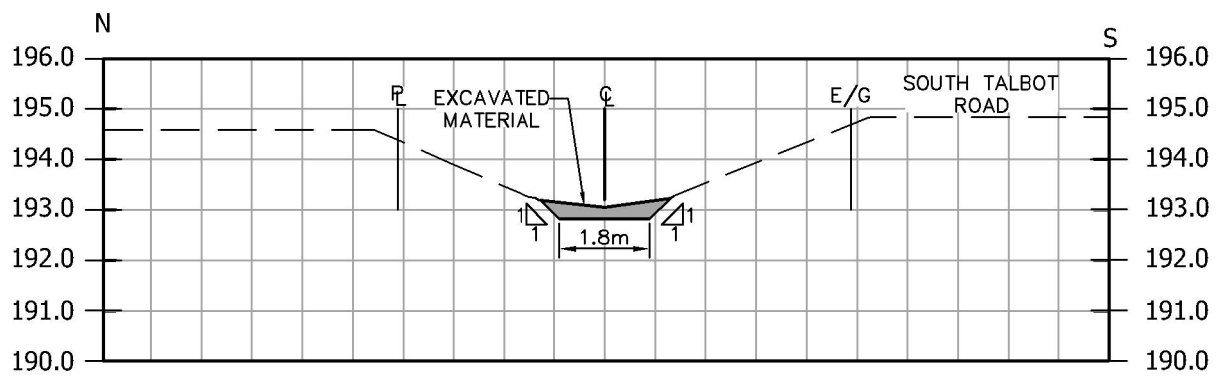
PAGE NO. 6 of 8

Jun 07, 2024 - 12:58pm C:\pw working directory\projects 2021\33tro\d0124427\21314 2-03-DRN-PROF-8TH CONCESSION.dwg



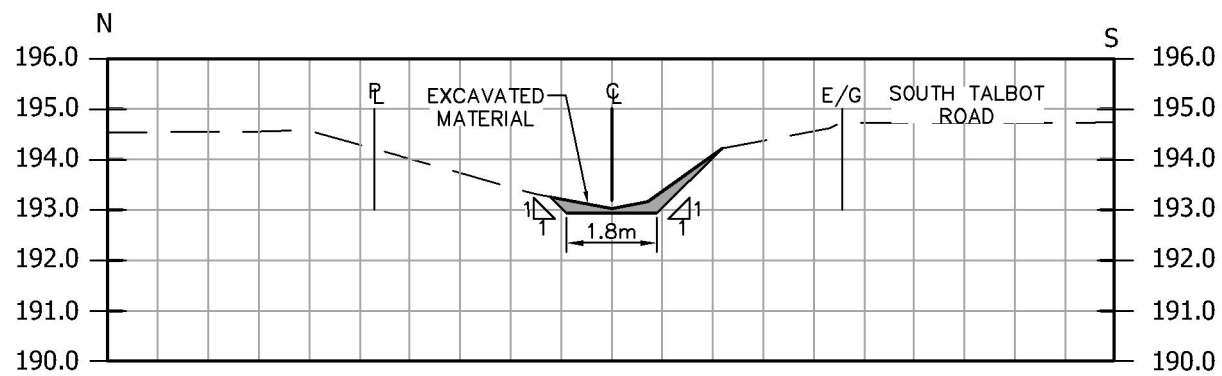

PROFILE NO.2

**SCALE–HORIZ=1:2000**
**VERT.=1:40**




CROSS SECTION 0+800 (LOOKING UPSTREAM)

**SCALE–1:150**




CROSS SECTION 1+350 (LOOKING UPSTREAM)

**SCALE–1:150**

'SCHEDULE G'

LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
10/06/24
PROVINCE OF ONTARIO

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| DRAWN JNS | CHECKED BY TRO |
| DATE June 10, 2024 | |
| SCALE AS SHOWN | |

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PROJECT NO. 21-3142

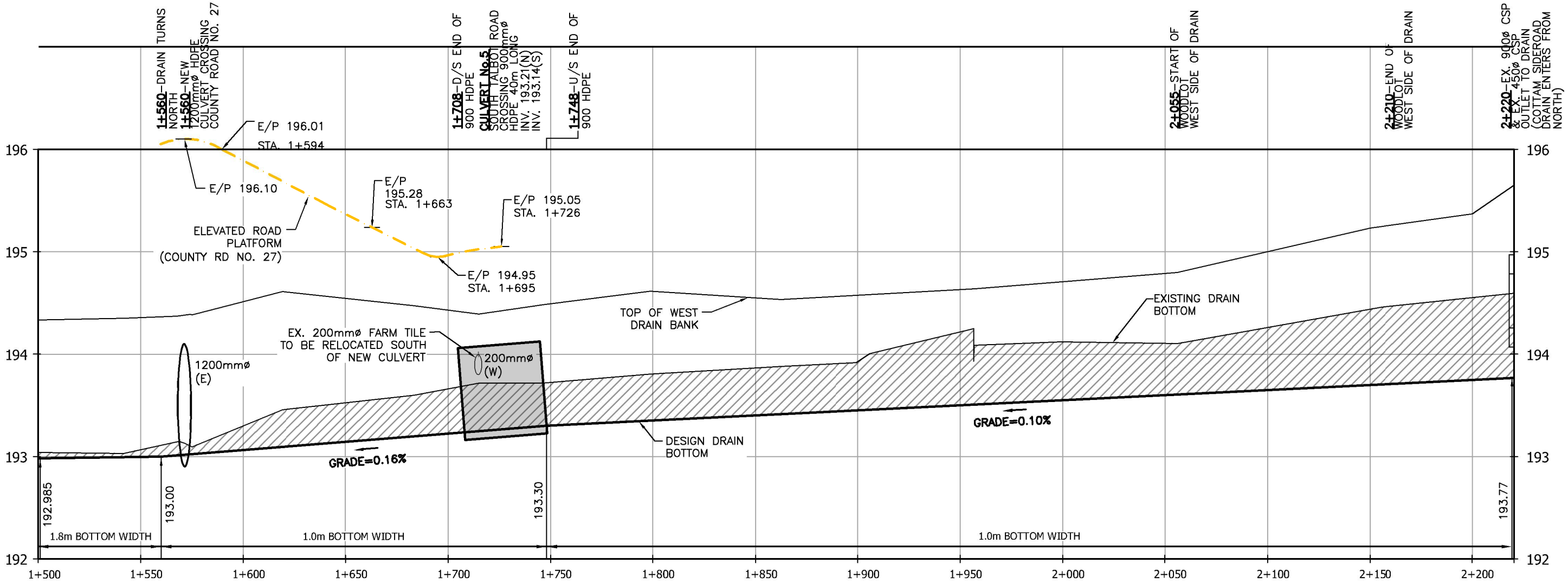
DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for
8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE
PROFILE NO.2 & CROSS SECTIONS

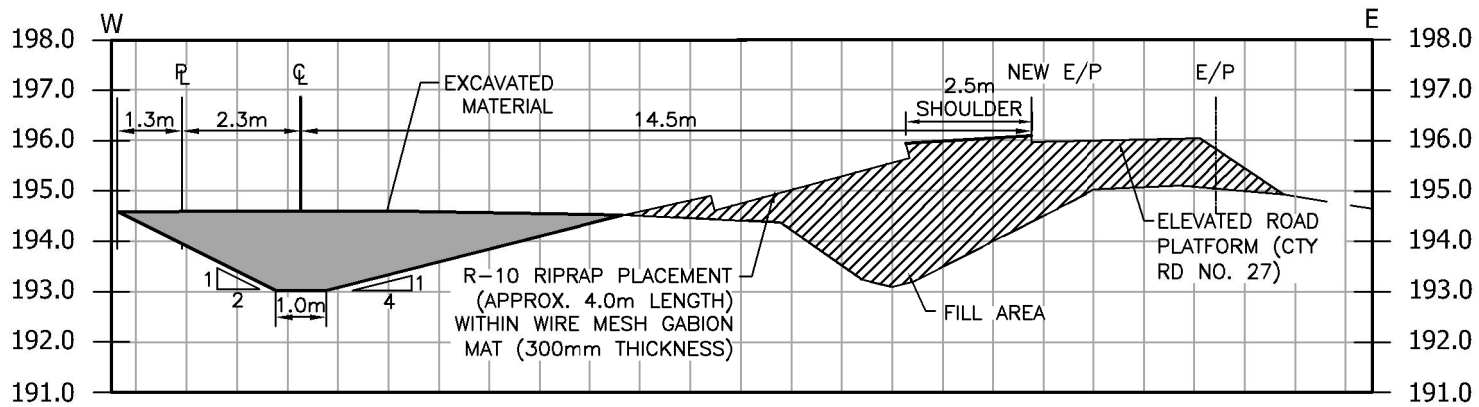
PAGE NO. 7 of 8

Jun 07, 2024 – 12:59pm C:\pw working directory\projects 2021\33tro\d0124427\213142-03-DRN-PROF-8TH CONCESSION.dwg



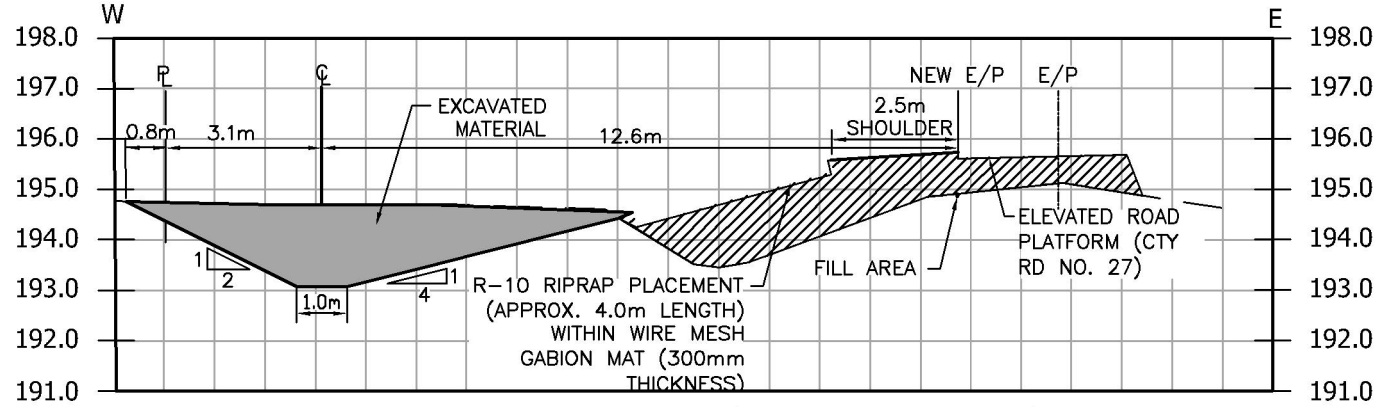

## PROFILE NO. 3

**SCALE–HORIZ=1:2000**
**VERT.=1:40**




## CROSS SECTION 1+575 (LOOKING UPSTREAM)

**SCALE–1:150**




## CROSS SECTION 1+620 (LOOKING UPSTREAM)

**SCALE–1:150**

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T. R. OLIVER
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10/06/24
PROVINCE OF ONTARIO

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| 1 | CLIENT REVIEW | JUNE 4/24 | TRO |

'SCHEDULE G'

| DESIGN | REVIEWED BY |
|---|---|
| OEM | MDH |
| DRAWN | CHECKED BY |
| JNS | TRO |
| DATE: June 10, 2024 | |
| SCALE: AS SHOWN | |

DILLON CONSULTING

PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for
# 8TH CONCESSION DRAIN
Town of Kingsville

SHEET TITLE
## PROFILE NO. 3 & CROSS SECTIONS

PAGE NO. 8 of 8

Jun 07, 2024 - 1:00pm C:\pw working directory\projects 2021\33tro\d0124427\213142-03-DRN-PROF-8TH CONCESSION.dwg