

**DRAINAGE REPORT
FOR THE**

**LESPERANCE ROAD
DRAIN EAST & WEST**

**IN THE
TOWN OF TECUMSEH**



(DRAFT-CLIENT REVIEW)

27 JANUARY 2025

MARK D. HERNANDEZ, P.ENG.

FILE No. 18-8342

TECUMSEH FILE NO. E09LE(51) & E09LE(115)

File No. 18-8342

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

**Drainage Report for the
LESPERANCE ROAD DRAIN EAST & WEST
Town of Tecumseh**

Mayor and Council:

Instructions

The Municipality received a request from the County of Essex dated 30 April 2018 to repair and improve the municipal drains along County Road No. 42 as part of the County Road No. 42 reconstruction project. Council accepted the request under Section 78 of the Drainage Act and on 27th August 2018 appointed Dillon Consulting Limited to prepare a report. The Municipality made a single appointment for the following drains:

- St. Louis Drain
- 11th Concession Drain
- Banwell Road Drain
- Klondyke & Branch Drain
- Lesperance Road Drain West & East
- Dame & East Branch Drain

Background

The County of Essex is undertaking the reconstruction of County Road No. 42 which includes construction of new storm sewers to facilitate the change from a rural to an urban road cross section. As part of the same project, 11th Concession Road and Banwell Road (which constitute County Road No. 43) will be relocated westerly such that the two roads align at a single intersection with County Road No. 42. The proposed work is recognized to have various impacts to the existing municipal drainage infrastructure and as such the Municipality has made the appointment under the Act to incorporate the new drainage works and rectify any impacts to the remaining municipal drains and associated assessment schedules for future maintenance.

As there are several drains affected by the proposed work, the appointment has been separated out into separate reports for the new and existing drains. This will assist the drainage superintendents with the implementation of future maintenance. Recommended works and updated assessment schedules for future maintenance on other affected drains have been included under separate reports.



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The Lesperance Road Drain, East Side shall here forth be referred to as the Lesperance Road Drain East. This report addresses the realignment of the Lesperance Road Drain East and West, which ultimately discharge to a new enclosed municipal drain, referred to as the County Road No. 42 Drain. This report also provides updated schedules of assessments for future maintenance for the Lesperance Road Drain West and Lesperance Road Drain, East Side.

Watershed Description

Lesperance Road Drain East

The Lesperance Road Drain East is located within the S. Pt. Lot 152, Concession 3 Petite Cote. The drain commences near Docherty Drive and proceeds southerly before turning westerly to discharge into the Lesperance Road Drain West. The enclosed drain along the east side of Lesperance Road and the portion of drain located at the intersection of Lesperance Road and County Road No. 42 underwent changes outside of the Drainage Act as part of the Lesperance Road reconstruction in 2003.

The watershed of the Lesperance Road Drain East is within Lot 152, Concession 3 Petite Cote and has an area of 9.2 hectares (22.7 acres) that is predominantly of residential land use and some agricultural land use. The drain length is approximately 785 metres.

Lesperance Road Drain West

The Lesperance Road Drain West is located within the S. Pt. Lot 151, Concession 3 Petite Cote. The drain commences at the north limit of Shields Street and proceeds southerly to discharge to the County Road No. 42 Drain.

The report for the County Road No. 42 Drain recommended the abandonment of the portion of the Lesperance Road Drain West from County Road No. 42, southerly to its outlet into the Klondyke Drain. The remaining upstream drain length will be approximately 450 metres.

The new watershed of the Lesperance Road Drain West is within Lot 151, Concession 3 Petite Cote and has an area of 12.3 hectares (30.7 acres) and is entirely of residential land use.

Drain History

The recent history of Engineers' reports for the Lesperance Road Drain West as follows:

- **24 November 1989 by Lou Zarlenga, P.Eng.:** The recommended work included enclosing the existing roadside ditch along the westerly side of Lesperance Road to its outlet into the Klondyke Drain complete with catch basins and manholes and incorporating the drain under the Drainage Act.

The recent history of Engineers' reports for the Lesperance Road Drain East as follows:

- **12 September 1969 by C.G.R. Armstrong, P.Eng.:** The recommended work included the construction of an enclosed drain along the east side of Lesperance Road and the enclosure of a portion of the Dame Drain.

On-Site Meeting

We conducted an on-site meeting on 2 October, 2018. A record of the meeting is provided in Schedule 'A', which is appended hereto.

Survey

The survey was completed with the survey work performed for the County Road No. 42 road reconstruction.

Design Considerations

The stormwater management report for the County Road No. 42 reconstruction authored by Dillon Consulting Limited (September 2021) recommended that the County Road No. 42 Drain provide a 5-year level of service to the road, and a 2-year level of service to the lands within its watershed. Drainage connections provided to existing lands and future developments will have limited capacity in accordance with the stormwater management report. The report further specifies that runoff generated in storm events greater than the 2-year storm is expected to either temporarily pond within private property, or flow overland within the road rights-of-way as the topography allows. The stormwater report informed this drainage report and should be referred to for further detail.

We believe that these design standards should provide a reasonable level of service, but it should be clearly understood that runoff generated from large storms or fast snow melts may sometimes exceed the capacity of the proposed systems and result in surface ponding for short periods of time.

Recommendations and Cost Estimate

We recommend the portion of the Lesperance Road Drain West be realigned with the construction of a new storm sewer and outlet directly into the new County Road No. 42 Drain, as shown on the Drawings attached. Further, we recommend the Lesperance Road Drain East be realigned and outlet into the Lesperance Road Drain West. These works are shown on the Drawing attached hereto.

We find that the reconstructed storm sewer which replaced the Lesperance Road Drain East provides sufficient capacity for the lands and roads and recommend incorporation of the existing works. Drawings and Specifications for the purpose of future maintenance are provided herein.

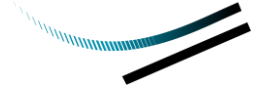
Based on our review of the history, the information obtained during the site meeting and our examination and analysis of the survey data, we recommend that the Lesperance Road Drain East and West be improved as described in the following table.

Allowances


In accordance with Sections 29 and 30 of the Drainage Act, we do not anticipate any lands being damaged or taken as a result of the proposed drainage works. Any residential properties and grassed areas shall be restored to original conditions as part of the work.

We find that the existing alignment of the Lesperance Road Drain East cannot be fully maintained within the limits of the road right-of-way.

Should the drain between Station 0+586.4 and Station 0653.6 ever require to be exposed, property Roll Nos. 570-02500 and 570-02600 would be disturbed. We therefore find that said lands be awarded allowances under Section 29 of the Drainage Act for lands used to accommodate part of a 6 metre wide working corridor. The total amount of allowances is \$1,100.00 as shown in Schedule 'B' attached herein.



Item	Description	Amount
	<u>LESPERANCE ROAD DRAIN EAST</u>	
	<u>STORM SEWER WORK</u>	
1.	Removal of existing 600 mm and 750 mm diameter storm sewers along County Road No. 42 (Lesperance Road Drain East) (approximately 140 metres long) complete with catch basin and manholes.	\$20,000.00
2.	Supply and install concrete A257.2 65-D storm sewers, as follows:	
	a) Sta. 0+024.4 to Sta. 0+041.2 - Supply and install 16.8 m of 750 mm diameter reinforced concrete pipe.	\$22,000.00
3.	Supply and install concrete storm manhole, as follows:	
	a) 1800 mm diameter (1 required)	\$18,500.00
4.	Temporary Silt Control Measures During Construction	<u>\$1,200.00</u>
	SUB-TOTAL – EXCLUDING SECTION 26 COSTS	\$61,700.00
5.	Allowances under Section 29.	\$1,100.00
6.	Survey, Report, Assessment and Final Inspection (cost portion)	\$18,500.00
7.	Expenses and incidentals (cost portion)	<u>\$1,500.00</u>
	TOTAL – LESPERANCE ROAD DRAIN EAST	\$82,800.00
	<u>LESPERANCE ROAD DRAIN WEST</u>	
	<u>STORM SEWER WORK</u>	
1.	Removal of existing 825 mm and 900 mm diameter pipes along County Road No. 42 (Lesperance Road Drain West) approximately 40 metres long).	\$8,000.00
2.	Supply and install concrete A257.2 65-D storm sewers, as follows:	
	a) Sta. 0+000 to Sta. 0+024.4 - Supply and install 24.4 m of 900 mm diameter reinforced concrete pipe.	\$44,000.00



Item	Description	Amount
3.	Supply and install concrete storm manholes, as follows:	
	a) 1800 mm diameter (1 required)	\$18,500.00
4.	Temporary Silt Control Measures During Construction	<u>\$1,200.00</u>
	SUB-TOTAL – EXCLUDING SECTION 26 COSTS	\$71,700.00
5.	Survey, Report, Assessment and Final Inspection (cost portion)	\$8,500.00
6.	Expenses and incidentals (cost portion)	<u>\$1,500.00</u>
	TOTAL – LESPERANCE ROAD DRAIN WEST	\$81,700.00

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 lands and roads as listed in Schedule 'C' under "Value of Special Benefit," "Value of Benefit" and "Value of Outlet." Details of the Value of Special Benefit listed in Schedule 'C.' Since there is only one special benefit assessment for each drain, Schedule 'D' for each drain has been omitted.

Assessment Rationale

Lesperance Road Drain East

Special Benefit assessment shown in Schedule 'C-1' for the Lesperance Road Drain East were derived as follows:

1. As the proposed recommendations are directly a result of the proposed road reconstruction of County Road No. 42, all associated costs of the drainage works, including the engineering portion shall be assessed 100% against the County of Essex.
2. Engineering costs of \$10,000.00 and Section 29 allowances associated with the incorporation of the Lesperance Road Drain East shall be assessed against the Town of Tecumseh Road Authority as shown in Schedule 'C-1'.

Lesperance Road Drain West

Special Benefit assessment shown in Schedule 'C-2' for the Lesperance Road Drain West were derived as follows:

1. As the proposed recommendations are directly a result of the proposed road reconstruction of County Road No. 42, all associated costs of the drainage works, including the engineering portion shall be assessed 100% against the County of Essex.

Utilities

It may become necessary to temporarily or permanently relocate utilities that may conflict with the construction recommended under this report. In accordance with Section 26 of the Drainage Act, we assess any relocation cost against the public utility having jurisdiction. Under Section 69 of the Drainage Act, the public utility is at liberty to do the work with its own forces, but if it should not exercise this option within a reasonable time, the Municipality will arrange to have this work completed and the costs will be charged to the appropriate public utility.

Future Maintenance

In order for the cost of future maintenance works be fairly proportioned against the lands and roads within the Lesperance Road Drain East and West watersheds, we recommend that the new schedule of assessments included in this report be adopted and used for future maintenance until otherwise varied in accordance with the Drainage Act. These schedules replace the maintenance schedules contained in the previous reports.

Lesperance Road Drain East

We recommend that future work of repair and maintenance of the new and remaining portion of the Lesperance Road Drain East be carried out by the Town of Tecumseh, in accordance with the technical specifications contained in the governing by-law for the drain and the costs assessed against the affected lands and roads in the same relative proportions as Schedule 'E-1' and as described below.

1. Costs of restoration of asphalt roadways, concrete curb and gutter and road catchbasins shall be assessed to the Town of Tecumseh Road Authority under Section 26 of the Drainage Act.
2. Costs of restoration of asphalt driveways shall be assessed to the landowner as a non-proratable assessment.

Catchbasins and leader pipes do not form part of the Lesperance Road Drain East and are considered to be the responsibility of the Town of Tecumseh.

Lesperance Road Drain West

We recommend that future work of repair and maintenance of the new and remaining portion of the Lesperance Road Drain West be carried out by the Town of Tecumseh, in accordance with the technical specifications contained in the governing by-law for the drain and the costs assessed against the affected lands and roads as described below.

The Schedule of Assessments have both been developed on the basis of an arbitrary cost of \$10,000.00.

1. All work shall be assessed 100% against the lands and roads listed in Schedule E-2' in the same relative proportions as the amounts listed under "Value of Benefit" and "Value of Outlet."

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

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. The necessary approvals for the recommended works have been acquired from Essex Region Conservation Authority, Department of Fisheries and Oceans and Ministry of Environment, Conservation and Parks. Construction of the works shall be carried out in accordance with all mitigation measures, timing windows, standard practices and other applicable limitations related to in-stream works.

Construction and Design Drawings

The work included in this report will be performed under the contract for the Reconstruction of County Road No. 42. Drawings and specifications have been prepared for the County Road No. 42 construction and they must adhere to the new drain grade, alignment, sizes, materials, location and, maintenance holes shown in this drainage report and shall be in general compliance with this report.

Drawings and Specifications

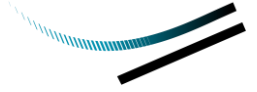
Attached to this report is "Schedule F," which contains specifications setting out the details of the recommended works, and "Schedule G," which represents the following drawings that are also attached to this report for the use of future maintenance:

- Page 1 of 6: Overall Watershed Plan**
- Page 2 of 6: Lesperance Road Drain East Plan**
- Page 3 of 6: Lesperance Road Drain East Profile 1 & 2**
- Page 4 of 6: Lesperance Road Drain East Profile 3**
- Page 5 of 6: Realignment Detail & Profile**
- Page 6 of 6: Details**

Grants

In accordance with the provisions of Sections 85, 86 and 87 of the Drainage Act, a grant in the amount of 33-1/3 percent of the assessment eligible for a grant may be made in respect to the assessment made under this report upon privately owned lands used for agricultural purposes.

The assessments levied against privately owned agricultural land must also satisfy all other eligibility criteria set out in the Agricultural Drainage Infrastructure Program policies. In this particular circumstance, the entire cost of the work will be levied against the County of Essex and therefore, none of the assessed cost is eligible for a grant from the Ministry of Agriculture, Food and Rural Affairs, however some properties may be eligible for grant for future maintenance works.



Respectfully submitted,

DILLON CONSULTING LIMITED

Mark D. Hernandez, P.Eng.

MDH:wlb:lld

DRAFT

SCHEDULE 'A'

County Road 42 Drains – Minutes of Onsite Meeting

Tuesday October 2, 2018 – Tecumseh Council Chambers

General discussion regarding the Drainage Act

- Provincial Act but it is the responsibility of the municipalities to implement.
- Act is over 100 years old.
- Copy of the Act can be found on E-Laws Ontario Website.
- 'User Pay System' unlike sewers owned by the municipality.
- The process can generally be described as follows:
 - Request submitted
 - Engineer is appointed by the municipality
 - Conservation Authority notified
 - Site meeting held
 - Field work completed
 - Draft report prepared
 - Public Information Centre (not required by the Act)
 - Report finalized
 - Meeting to Consider
 - Court of Revision
 - Construction (if no appeals)

What is a Municipal Drain?

- Means that the drain has status under a municipal bylaw
- The drain would have been established through the Drainage Act
- The drain will have a report which outlines pertinent information about the drain

What is the purpose of the site meeting in general?

- Gather information
 - Opportunity for landowners to provide feedback about the performance of the drain
 - Opportunity for landowners to comment on the drainage area
 - Not everyone in attendance may be in the watershed

What is the nature of the request(s)?

- Request from the County of Essex for 7 drains including:
 - Klondyke Drain
 - Leperance Road West Drain
 - Lesperance Road East Drain
 - Dame Drain, Branch and Extension
 - 11th Concession Drain
 - Banwell Drain
 - St. Louis Drain

- 5 go to Pike Creek and 2 go to through the City via other drains to Little River.
- The County of Essex has retained Dillon Consulting to undertake the design for the reconstruction of County Road 42 from the City/Tecumseh boundary to the Pike Creek and the diversion of County Road 43.
 - The project generally entails widening of the road and the addition of bike lanes and sidewalks.
 - The additional width will affect the municipal drains and is the reason for Dillon's appointment under the Drainage Act.
 - The drains will likely be enclosed but may also be realigned and consolidated, however, the design has not yet been completed.
- Currently our appointment only pertains to how the drains will be impacted by the proposed roadwork
 - We do not intend to look upstream unless the Town receives a request in writing from a landowner.

Who is going to pay and how?

- The assessment will ultimately depend on the scope of work
 - It is anticipated that the County will pay most if not all of the costs
 - Typically, upstream landowners receive a small assessment for the equivalent value of maintaining the drain as it exists today
 - If the drain is in good condition, then this does not apply
- The engineer determines the assessment
 - Assessment is detailed in report for each property in the watershed
 - Block assessments are used for built up areas
- Grants are available for properties with Farm Class Tax Rate (1/3)
- The Municipality will bill the landowners after the work is complete for their net assessment

What should I expect in the report?

- All landowners receive copies of the draft report with their notice for the PIC, Meeting to Consider and Court of Revision.
- Reports generally contain:
 - Background information about the request
 - Watershed drawing
 - History of the drain
 - Design considerations
 - Recommended work
 - Cost estimate
 - Meeting minutes
 - Assessments including FM provisions
 - Drawings
 - Specifications

How landowners will be affected during Construction

- Typically, only landowners along the drain affected by construction
 - Working corridors are defined in the report
- Work must result in the same or better level of service
- The quality of work is typically monitored during construction by the Drainage Superintendent
 - The Engineer is required to complete a final inspection

Environmental requirements

- DFO, MNRF and ERCA

Next Steps

- Topographical survey will be completed and then the preparation of the report will commence
- PIC
- Board meetings

Discussion:

- 1) Concern with respect to flooding – New drain will have to meet established level of service.
- 2) The scope of work cannot go upstream on an existing drain unless specifically requested by a landowner.
- 3) Town owned storm sewers are managed through Public Works.
- 4) Existing ditches will be cleaned out and enclosed.
- 5) Any new subdivision will have to manage their stormwater with a pond and/or other measures. They will not be allowed to release their flows with no controls.
- 6) The value of the work is not yet known. The request comes from the County to undertake the road improvements.
- 7) New pipes cannot be sized for major storm events as it would be cost prohibitive. Pre and post ponding will be reviewed during design.
- 8) The improvements to Pike Creek are being undertaken via a separate appointment and is unrelated to the County's request.
- 9) The new storm sewer will be under the improved / widened roadway.
- 10) The timing for the improvements will depend on the County's phasing and timing for the road improvements.
- 11) It is not clear whether drainage improvements could result in MPAC assessment changes.
- 12) Landowners can send additional questions at a later date via email or phone call.

Minutes taken by Mark Hernandez, P.Eng.

"SCHEDULE C-1"
SCHEDULE OF ASSESSMENT
LESPERANCE ROAD DRAIN EAST
TOWN OF TECUMSEH

MUNICIPAL LANDS:

Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
County Road No. 42	0.00	0.00	County of Essex	\$71,700.00	\$0.00	\$0.00	\$71,700.00
Lesperance Road	0.00	0.00	Town of Tecumseh Road Authority	\$11,100.00	\$0.00	\$0.00	\$11,100.00
Total on Municipal Lands.....				\$82,800.00	\$0.00	\$0.00	\$82,800.00
TOTAL ASSESSMENT				\$82,800.00	\$0.00	\$0.00	\$82,800.00
	(Acres)	(Ha.)					
Total Area:	0.00	0.00					

"SCHEDULE C-2"
SCHEDULE OF ASSESSMENT
LESPERANCE ROAD DRAIN WEST
TOWN OF TECUMSEH

MUNICIPAL LANDS:

Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
County Road No. 42	0.00	0.00	County of Essex	\$81,700.00	\$0.00	\$0.00	\$81,700.00
Total on Municipal Lands.....				\$81,700.00	\$0.00	\$0.00	\$81,700.00
TOTAL ASSESSMENT				\$81,700.00	\$0.00	\$0.00	\$81,700.00
	(Acres)	(Ha.)					
Total Area:	0.00	0.00					

"SCHEDULE E-1"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE
LESPERANCE ROAD DRAIN EAST
TOWN OF TECUMSEH

MUNICIPAL LANDS:

Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
Lesperance Road	3.40	1.38	Town of Tecumseh	\$0.00	\$2,370.00	\$1,404.00	\$3,774.00
Total on Municipal Lands.....				\$0.00	\$2,370.00	\$1,404.00	\$3,774.00

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
570-00801	3	S. Pt. Lot 152 RP12R20271 Pts. 2&3	1.00	0.40	2023324 Ontario Inc.	\$0.00	\$324.00	\$165.00	\$489.00
570-009	3	S. Pt. Lot 152	0.23	0.09	Karim & Zainab Nash	\$0.00	\$73.00	\$56.00	\$129.00
570-010	3	S. Pt. Lot 152	0.23	0.09	Giovanni & Serafina Bachetti	\$0.00	\$73.00	\$56.00	\$129.00
570-011	3	S. Pt. Lot 152	1.93	0.78	Heather & Samuel Higginbottom	\$0.00	\$137.00	\$208.00	\$345.00
570-012	3	Pt. Lot 152 RP12R26862 Pt. 1	0.30	0.12	Gurmej K. & Avtar S. Aujla	\$0.00	\$175.00	\$74.00	\$249.00
570-01202	3	Pt. Lot 152 RP12R26862 Pt. 2	0.20	0.08	Gurmej K. Aujla	\$0.00	\$175.00	\$50.00	\$225.00
570-01275	3	Pt. Lot 152 RP12R17174 Pt. 2	0.18	0.07	Gregory C. & Loriann M. Glenn	\$0.00	\$60.00	\$43.00	\$103.00
570-013	3	S. Pt. Lot 152 RP12R17174 Pt. 1	0.24	0.10	Cheryl Logan & Adrian Power	\$0.00	\$83.00	\$62.00	\$145.00
570-01302	3	Pt. Lot 152 RP12R7893 Pt. 2 RP12R13691 Pt. 1	0.22	0.09	Sandra J. Chapman	\$0.00	\$75.00	\$56.00	\$131.00
570-015	3	S. Pt. Lot 152 RP12R12268 Pt. 7	0.32	0.13	Karen M. Manchurek & Penny R. Yablonsky	\$0.00	\$71.00	\$81.00	\$152.00
570-016	3	S. Pt. Lot 152 RP12R12268 Pt. 5	0.35	0.14	David W. Hawkins & Tami A. McLean	\$0.00	\$78.00	\$87.00	\$165.00
570-01602	3	Pt. Lot 152 RP12R12268 Pt. 3	0.35	0.14	Clifford J. Kocot	\$0.00	\$64.00	\$87.00	\$151.00
570-017	3	S. Pt. Lot 152 RP12R12268 Pt. 1	0.39	0.16	Clifford J. & Lauretta A. Kocot	\$0.00	\$72.00	\$99.00	\$171.00
570-018	3	S. Pt. Lot 152	0.50	0.20	Paul A. Adams	\$0.00	\$70.00	\$124.00	\$194.00

Roll No.	Con.	Description	Area Affected		Owner	Special Benefit	Benefit	Outlet	Total Assessment
			(Acres)	(Ha.)					
570-019	3	N. Pt. Lot 152	0.50	0.20	Daniel R. Beaulieu	\$0.00	\$72.00	\$124.00	\$196.00
570-020	3	N. Pt. Lot 152	0.47	0.19	Lehmber S. & Kulwant K. Pahal	\$0.00	\$70.00	\$118.00	\$188.00
570-021	3	N. Pt. Lot 152	0.53	0.21	Mary A. Lee	\$0.00	\$73.00	\$128.00	\$201.00
570-022	3	N. Pt. Lot 152	0.50	0.20	Brian & Karen Rutherford	\$0.00	\$72.00	\$124.00	\$196.00
570-023	3	N. Pt. Lot 152	0.54	0.22	Blaze, Anka & Liubica Ristovski	\$0.00	\$73.00	\$132.00	\$205.00
570-024	3	N. Pt. Lot 152	0.53	0.21	Carole Kitching	\$0.00	\$73.00	\$128.00	\$201.00
570-025	3	Pt. Lot 152	0.53	0.21	Marie A. Gagnier	\$0.00	\$73.00	\$128.00	\$201.00
570-026	3	N. Pt. Lot 152	0.51	0.21	Farina G. Keuhfuss	\$0.00	\$76.00	\$128.00	\$204.00
570-02601	3	Pt. Lot 152 RP12R6077 Pt. 2	0.69	0.28	Anthony D. & Michelle D. DiCarlo	\$0.00	\$67.00	\$150.00	\$217.00
570-027	3	N. Pt. Lot 152 RP12R6077 Pt. 1	0.72	0.29	Corey D. Beaudoin	\$0.00	\$83.00	\$153.00	\$236.00
570-028	3	N. Pt. Lot 152	0.47	0.19	Isabelle P. Lesperance	\$0.00	\$73.00	\$118.00	\$191.00
570-029	3	N. Pt. Lot 152	0.47	0.19	Tino Cargnelli	\$0.00	\$73.00	\$118.00	\$191.00
570-030	3	N. Pt. Lot 152	0.37	0.15	Bailey E. Purcka	\$0.00	\$142.00	\$97.00	\$239.00
570-031	3	Pt. Lots 152	0.10	0.04	Brian J. Berry	\$0.00	\$0.00	\$29.00	\$29.00
570-03101	3	Pt. Lot 152 RP12R1289 Pts. 1-3	1.02	0.41	Cassandra L. Catalanc	\$0.00	\$0.00	\$173.00	\$173.00
590-005			4.40	1.78	Hydro One Networks Inc.	\$0.00	\$80.00	\$372.00	\$452.00
			0.50	0.20	Canadian Pacific Railway	\$0.00	\$0.00	\$128.00	\$128.00
Total on Privately-Owned - Non-Agricultural Lands.....						\$0.00	\$2,630.00	\$3,596.00	\$6,226.00
TOTAL ASSESSMENT						\$0.00	\$5,000.00	\$5,000.00	\$10,000.00
			(Acres)	(Ha.)					
Total Area:			22.69	9.15					

"SCHEDULE E-2"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE
LESPERANCE ROAD DRAIN WEST
TOWN OF TECUMSEH

MUNICIPAL LANDS:

Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
Holmes Crescent	0.85	0.34	Town of Tecumseh	\$0.00	\$0.00	\$312.00	\$312.00
Docherty Drive	2.11	0.85	Town of Tecumseh	\$0.00	\$0.00	\$780.00	\$780.00
Shields Street	1.17	0.47	Town of Tecumseh	\$0.00	\$66.00	\$431.00	\$497.00
Lesperance Road	3.00	1.21	Town of Tecumseh	\$0.00	\$1,250.00	\$1,087.00	\$2,337.00
Total on Municipal Lands.....				\$0.00	\$1,316.00	\$2,610.00	\$3,926.00

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
570-12701	-	Plan 12M260 Lot 33	0.23	0.09	Guido J. & Denise Didomenico	\$0.00	\$0.00	\$50.00	\$50.00
570-12702	-	Plan 12M260 Lot 32	0.30	0.12	Paul A. & Marilyn T. Prior	\$0.00	\$0.00	\$66.00	\$66.00
570-12703	-	Plan 12M260 Lot 31	0.25	0.10	Gaetano & Kimberly Luppino	\$0.00	\$0.00	\$55.00	\$55.00
570-12704	-	Plan 12M260 Lot 30	0.24	0.10	Kelly G. Martin	\$0.00	\$0.00	\$55.00	\$55.00
570-12705	-	Plan 12M260 Lot 29	0.23	0.09	Maurice & Brankica Rotondi	\$0.00	\$0.00	\$50.00	\$50.00
570-12706	-	Plan 12M260 Lot 28	0.24	0.10	John R. & Carol Maleyko	\$0.00	\$0.00	\$55.00	\$55.00
570-12707	-	Plan 12M260 Lot 27	0.23	0.09	Lyle S. Handsor	\$0.00	\$0.00	\$50.00	\$50.00
570-12708	-	Plan 12M260 Lot 26	0.33	0.13	Perry & Liana A. Silvaggi	\$0.00	\$0.00	\$72.00	\$72.00
570-12709	-	Plan 12M260 Lot 25	0.24	0.10	David A. & Patricia J. Slaughter	\$0.00	\$0.00	\$55.00	\$55.00
570-12710	-	Plan 12M260 Lot 24	0.31	0.13	Miroslav & Ivana Javorik	\$0.00	\$0.00	\$72.00	\$72.00
570-12711	-	Plan 12M260 Lot 23	0.27	0.11	Matthew J. Gosselin & Laura L. Clement	\$0.00	\$0.00	\$61.00	\$61.00
570-12712	-	Plan 12M260 Lot 22	0.27	0.11	Susan Wolcott	\$0.00	\$0.00	\$61.00	\$61.00
570-12713	-	Plan 12M260 Lot 21	0.23	0.09	Christopher & Karen Athavale	\$0.00	\$0.00	\$50.00	\$50.00
570-12714	-	Plan 12M260 Lot 20	0.23	0.09	Brent N. & Jennifer L. Jershy	\$0.00	\$0.00	\$50.00	\$50.00
570-12715	-	Plan 12M260 Lot 19	0.25	0.10	Lena H. Fromm & Massimo Sperduti	\$0.00	\$0.00	\$55.00	\$55.00
570-12716	-	Plan 12M260 Lot 18	0.32	0.13	Arcangelo & Suzanne R. Pernasilici	\$0.00	\$0.00	\$72.00	\$72.00
570-12717	-	Plan 12M260 Lot 17	0.25	0.10	John & Souad Stephan	\$0.00	\$0.00	\$55.00	\$55.00
570-12718	-	Plan 12M260 Lot 16	0.23	0.09	Michel Y. Gagnon	\$0.00	\$0.00	\$50.00	\$50.00
570-12719	-	Plan 12M260 Lot 15	0.26	0.11	Gurmeet K. Dhindsa & Rajinder Shergill	\$0.00	\$0.00	\$61.00	\$61.00
570-12720	-	Plan 12M260 Lot 14	0.23	0.09	Timothy & Nada Mrkalj	\$0.00	\$0.00	\$50.00	\$50.00
570-12721	-	Plan 12M260 Lot 13	0.23	0.09	Liviu & Cornelia V. Pop	\$0.00	\$0.00	\$50.00	\$50.00

Roll No.	Con.	Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
570-12722	-	Plan 12M260 Lot 12	0.23	0.09	Caroline M. Stallard	\$0.00	\$0.00	\$50.00	\$50.00
570-12723	-	Plan 12M260 Lot 11	0.23	0.09	Joseph E. & Diane T. Paquette	\$0.00	\$0.00	\$50.00	\$50.00
570-12724	-	Plan 12M260 Lot 10	0.23	0.09	Shane D. & Magdalena Renaud	\$0.00	\$0.00	\$50.00	\$50.00
570-12725	-	Plan 12M260 Lot 9	0.23	0.09	Michael & Angela Dethomasis	\$0.00	\$0.00	\$50.00	\$50.00
570-12726	-	Plan 12M260 Lot 8	0.23	0.09	Violet Kovacic	\$0.00	\$0.00	\$50.00	\$50.00
570-12727	-	Plan 12M260 Lot 7	0.23	0.09	Margarito & Marta M. Monroy	\$0.00	\$0.00	\$50.00	\$50.00
570-12728	-	Plan 12M260 Lot 6	0.23	0.09	Domenic & Rita Petrilli	\$0.00	\$0.00	\$50.00	\$50.00
570-12729	-	Plan 12M260 Lot 5	0.23	0.09	Domingos & Delfina Pedro	\$0.00	\$0.00	\$50.00	\$50.00
570-12730	-	Plan 12M260 Lot 46	0.26	0.11	Paul C. & Georgette M. Chadwick	\$0.00	\$0.00	\$61.00	\$61.00
570-12731	-	Plan 12M260 Lot 47	0.23	0.09	Christopher A. & Tanya Larking	\$0.00	\$0.00	\$50.00	\$50.00
570-12732	-	Plan 12M260 Lot 48	0.23	0.09	Thomas M. & Patricia K. Renaud	\$0.00	\$0.00	\$50.00	\$50.00
570-12733	-	Plan 12M260 Lot 49	0.23	0.09	Brian I. & Marianne Spisic	\$0.00	\$0.00	\$50.00	\$50.00
570-12734	-	Plan 12M260 Lot 50	0.23	0.09	Trisha M. Dufresne	\$0.00	\$0.00	\$50.00	\$50.00
570-12735	-	Plan 12M260 Lot 51	0.23	0.09	Jagtar S. & Amritpal K. Dhillon	\$0.00	\$0.00	\$50.00	\$50.00
570-12736	-	Plan 12M260 Lot 52	0.23	0.09	Giuseppina Tiberia	\$0.00	\$0.00	\$50.00	\$50.00
570-12737	-	Plan 12M260 Lot 53	0.25	0.10	Patrick K. & Margaret A. Kiely	\$0.00	\$0.00	\$55.00	\$55.00
570-12738	-	Plan 12M260 Lot 54	0.30	0.12	Frances Cusenza & Silvio Bucciarelli	\$0.00	\$0.00	\$66.00	\$66.00
570-12739	-	Plan 12M260 Lot 55	0.35	0.14	George A. & Lindsay A. Giahatzis	\$0.00	\$0.00	\$77.00	\$77.00
570-12740	-	Plan 12M260 Lot 58	0.25	0.10	Giuseppe & Enza Cavallaro	\$0.00	\$0.00	\$55.00	\$55.00
570-12741	-	Plan 12M260 Lot 57	0.23	0.09	Barbara A. & Robert W. Morden	\$0.00	\$0.00	\$50.00	\$50.00
570-12742	-	Plan 12M260 Lot 56	0.23	0.09	Albert M. & Ruth C. Hunt	\$0.00	\$0.00	\$50.00	\$50.00
570-12743	-	Plan 12M260 Lot 34	0.23	0.09	Gaby & Marie M. Zina	\$0.00	\$0.00	\$50.00	\$50.00
570-12744	-	Plan 12M260 Lot 35	0.23	0.09	Kimberly Facchinato & Christopher R. Broadwell	\$0.00	\$0.00	\$50.00	\$50.00
570-12745	-	Plan 12M260 Lot 36	0.23	0.09	Jennifer L. Spanik & Edme R. Dubeau	\$0.00	\$0.00	\$50.00	\$50.00
570-12746	-	Plan 12M260 Lot 37	0.24	0.10	Himanshu Arora & Swati Bhalla	\$0.00	\$0.00	\$55.00	\$55.00
570-12747	-	Plan 12M260 Lot 38	0.24	0.10	Corey T. Parent & Alexandra C. Duke	\$0.00	\$0.00	\$55.00	\$55.00
570-12748	-	Plan 12M260 Lot 39	0.23	0.09	Jandu S. & Jandu B. Singh	\$0.00	\$0.00	\$50.00	\$50.00
570-12749	-	Plan 12M260 Lot 40	0.23	0.09	Giampietro & Concetta Mussio	\$0.00	\$0.00	\$50.00	\$50.00
570-12750	-	Plan 12M260 Lot 41	0.23	0.09	Joseph & Cheryl A. Cascio	\$0.00	\$0.00	\$50.00	\$50.00
570-12751	-	Plan 12M260 Lot 42	0.23	0.09	Richard T. Levang	\$0.00	\$0.00	\$50.00	\$50.00

Roll No.	Con.	Description	Area Affected (Acres) (Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
570-12752	-	Plan 12M260 Lot 43	0.23	0.09	Justin Boulos	\$0.00	\$0.00	\$50.00	\$50.00
570-12753	-	Plan 12M260 Lot 44	0.23	0.09	Gary E. & Paulette A. Littlejohns	\$0.00	\$0.00	\$50.00	\$50.00
570-12754	-	Plan 12M260 Lot 45	0.23	0.09	Jeffrey R. Peacock & Krista L. Deneau Peacock	\$0.00	\$0.00	\$50.00	\$50.00
570-12900	3	S. PT. Lot 151 RD112 Pt. 5	0.35	0.14	Ravinder P. Kaur	\$0.00	\$91.00	\$77.00	\$168.00
570-13000	3	S. PT. Lot 151 RP 12R112 Pt. 6	0.36	0.15	Robert J. & Brenda M. Mackie	\$0.00	\$91.00	\$83.00	\$174.00
570-13100	3	S. PT. Lot 151 RP 12R1273 PT. Pt. 2	0.69	0.28	Steven W. & Lisa M. Chase	\$0.00	\$71.00	\$134.00	\$205.00
570-13200	3	S. PT. Lot 151 RP 12R7285 Pt. 3	0.86	0.35	Nancy Pesic	\$0.00	\$71.00	\$145.00	\$216.00
570-13300	3	S. PT. Lot 151	0.85	0.34	Sandra J. Chapman	\$0.00	\$71.00	\$62.00	\$133.00
570-13400	3	S. PT. Lot 151	0.97	0.39	John Andrukonis	\$0.00	\$71.00	\$147.00	\$218.00
570-13500	3	S. PT. Lot 151 RP 12R3619 Pt. 1	0.98	0.40	Natale & Maria Roma	\$0.00	\$80.00	\$147.00	\$227.00
570-13501	3	S. PT. Lot 151 RP 12R3619 Pt. 2	0.47	0.19	Claude P. & Patricia M. Tremblay	\$0.00	\$68.00	\$105.00	\$173.00
570-13502	3	PT. Lot 151 RP 12R3619 Pt. 3	0.47	0.19	Louis & Marica Bilek	\$0.00	\$68.00	\$105.00	\$173.00
570-13700	3	S. PT. Lot 151	0.47	0.19	Andre G. & Elaine M. Leblanc	\$0.00	\$71.00	\$105.00	\$176.00
570-13800	3	PT. Lot 151	0.47	0.19	Christofer L. Mariani	\$0.00	\$71.00	\$105.00	\$176.00
570-13900	3	PT. Lot 151	0.47	0.19	Kaitlyn M. Myers & Nolan A. Crough	\$0.00	\$71.00	\$105.00	\$176.00
570-14000	3	PT. Lot 151	0.47	0.19	Leo P. & Anna M. Bracken	\$0.00	\$71.00	\$105.00	\$176.00
570-14001	3	PT. S. PT. Lot 151 RP 12R5683 Pt. 1	0.26	0.11	Lorri M. Tessier	\$0.00	\$65.00	\$61.00	\$126.00
570-14002	3	S. PT. Lot 151 RP 12R5683 Pt. 2	0.27	0.11	F&S Bashi Enterprises Inc	\$0.00	\$68.00	\$61.00	\$129.00
570-14100	3	S. PT. Lot 151 RP 12R3798 Pt. 1	0.20	0.08	F&S Bashi Enterprises Inc	\$0.00	\$85.00	\$44.00	\$129.00
570-15700	-	Plan 12M260 Lot 4 RP12R10484 Pt. 1	0.63	0.25	Debbie M. Docherty	\$0.00	\$0.00	\$126.00	\$126.00
570-15800	-	Plan 12M260 Lot 3	0.39	0.16	Francesco Cappelli	\$0.00	\$0.00	\$88.00	\$88.00
570-15900	-	Plan 12M260 Lot 2	0.38	0.15	Robert E. & Marilyn G. Cushman	\$0.00	\$0.00	\$83.00	\$83.00
570-16000	-	Plan 12M260 Lot 1	0.38	0.15	Shawn R. & Kara L. Charron	\$0.00	\$0.00	\$83.00	\$83.00
Total on Privately-Owned - Non-Agricultural Lands.....						\$0.00	\$1,184.00	\$4,890.00	\$6,074.00
TOTAL ASSESSMENT						\$0.00	\$2,500.00	\$7,500.00	\$10,000.00
			(Acres)	(Ha.)					
Total Area:			30.74	12.34					

"SCHEDULE F"
DRAINAGE REPORT FOR THE
LESPERANCE ROAD DRAIN EAST & WEST
IN THE TOWN OF TECUMSEH
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 and materials** to complete the following items:

Lesperance Road Drain East

- Removal of existing 600 mm and 750 mm diameter storm sewers along County Road No. 42 (Lesperance Road Drain East) (approximately 140 metres long) complete with catch basin and manholes.
- Supply and install concrete A257.2 65-D storm sewers, as follows:
 - Sta. 0+024.4 to Sta. 0+041.2 - Supply and install 16.8 m of 750 mm diameter reinforced concrete pipe.
- Supply and install concrete storm manhole, as follows:
 - 1800 mm diameter (1 required)
- Temporary Silt Control Measures During Construction

Lesperance Road Drain West

- Removal of existing 825 mm and 900 mm diameter pipes along County Road No. 42 (Lesperance Road Drain West) approximately 40 metres long).
- Supply and install concrete A257.2 65-D storm sewers, as follows:
 - Sta. 0+000 to Sta. 0+24.4 - Supply and install 24.4 m of 900 mm diameter reinforced concrete pipe.
- Supply and install concrete storm manhole, as follows:
 - 1800 mm diameter (1 required)
- Temporary Silt Control Measures During Construction

3.0 ACCESS TO THE WORK

Access to the drains shall be from Lesperance Road and County Road No. 42. The Contractor shall make his/her own arrangements for any additional access for his/her convenience. All road areas and grass lawn areas disturbed shall be restored to original conditions at the Contractor's expense.

4.0 WORKING AREA

The working area shall be within the County Road No. 42 and Lesperance Road right-of-way.

For the purposes of future maintenance of the Lesperance Road Drain East, the working area shall also include a 6 metre wide corridor, centred over the drain.

The Contractor shall restrict his equipment to the working corridor as specified in this Section. Any damage resulting from non-compliance with this Section shall be borne by the Contractor.

Should the contractor elect to make use of any private lands outside the designated area, he will be responsible to negotiate any terms for use of these lands with the property owner and be responsible for any damages that occur.

SPECIAL PROVISIONS – CONCRETE PIPE AND MANHOLES

5.0 STORM SEWERS AND CULVERTS

General

OPSS.MUNI 407, 409, 410 and 514 shall apply and govern the work except as amended or extended herein.

Scope of Work

Storm sewers and culverts shall be supplied and installed as shown on the Contract Drawings and described herein including connections to existing sewers or manholes, private service connections, reconnection of existing catchbasins and private drain connections, and supply and installation of grates.

The new sewers and culverts shall be kept dry at all times by pumping or other means.

Excavation

The Contractor shall note that the installation of storm sewers shall be completed with full height trench support in order to minimize trench width and restoration requirements. The Contractor shall be responsible to ensure that the use of engineered or prefabricated trench support systems are appropriate to comply with all regulations issued by the Ministry of Labour for the Province of Ontario in regard to work in open trenches.

The Contractor shall be responsible for the full costs of repair or replacement of asphalt pavement, as determined by the Engineer, including excavation, removal of existing asphalt, Granular “A”, paving equipment, labour, traffic control, and any other costs associated with replacement of asphalt which is damaged by the Contractor’s negligence as part of this work. The repair/replacement shall be inspected and approved by the Engineer and the County prior to project completion.

The Contractor will be responsible for minimizing disturbance to existing hydro and telecommunication poles including guy poles. The Contractor shall provide support as required and coordinate with Hydro One for support of Hydro One owned poles.

Excavated Materials

All excavated materials determined by the Engineer to be unsuitable or in excess for backfill, including earth, rock, broken concrete, rubble and broken asphalt, shall be removed from the work by the Contractor. The Contractor shall make arrangement for disposal and must comply with legislation governing disposal sites as outlined within the Contract Documents.

All excess material, as well as select native material which is to be used for backfill is to be placed directly into trucks and either hauled from the site or used to backfill the sewer trench, in accordance with the Contract Drawings.

The cost of removal and disposal of excess materials shall be included in the Contractor's Tender unit prices for storm sewers and culverts.

No sidecasting of excavated materials will be permitted without the approval of the Engineer.

Utility Supports

Where required, the Contractor shall construct utility supports following specifications and requirements of the respective Utility Companies. Utility supports shall be considered incidental to sewer construction. No payment shall be made for supports either temporary or permanent.

Utility supports shall be constructed as required by the respective utility companies per their respective standards and guidelines as outlined therein.

Control of Water

The Contractor shall be solely responsible for ensuring that all work is carried out in the dry and that partially completed work shall remain dry.

The method(s) of controlling surface or sub-surface water shall be by pumping or other methods as may be approved by the Engineer.

The Contractor shall assume full responsibility for all damages done to the works through the influence of water. They shall immediately repair any damage so caused without cost to the Owner.

No extra payment will be allowed for dewatering regardless of the method used.

Pipe Material

All storm sewer pipe material shall be as indicated on the Contract Drawings.

HDPE culverts shall be CSA approved and have a pressure rating of 320 kPa PVC culverts shall be DR 35.

Maximum Acceptable Grade Tolerances

Maximum acceptable deviations in the sewer grade shall be +/-0.02% which is equivalent to 20 mm in 100 m of installation.

Bedding & Cover Material

Class "B" bedding and cover material shall be Granular "A", compacted to 98 percent of the Standard Proctor Maximum Dry Density, to the dimensions detailed on the Contract Drawings (300 mm above the top of the pipe) unless under roadway.

The use of "sewer stone" bedding which complies with the following gradation specification will be permitted. In the presence of existing, fine-grained granular material, the pipe bedding is to be completely enclosed in a non-woven geotextile to prevent infiltration of fines.

Sieve Designation (inches)	Percent Passing
1	100
3/4	96-100
5/8	78-93
1/2	51-88

Sieve Designation (inches)	Percent Passing
3/8	26-62
No. 4	5-14
No. 8	0-5

Backfill & Compaction

Sewer trench backfill shall be Granular “A” or recycled material under all paved surfaces including driveways, sidewalks and trails, and within 1 metre of back of curb and 1 metre from the edge of shoulder unless otherwise specified. Select native material is acceptable at other locations.

Granular backfill material is to be mechanically compacted to a minimum of 100 percent of the Standard Proctor Maximum Dry Density in maximum 300 mm lifts. Native backfill material is to be mechanically compacted to a minimum of 98 percent of the Standard Proctor Maximum Dry Density in maximum 300 mm lifts.

Backfilling operations are to follow immediately behind sewer and culvert installation. Where bracing, shoring and/or sheeting is used to support the sides of the excavation or to prevent movements that could damage other services or adjacent pavements, this support shall be removed as backfilling proceeds.

Non-Shrink Fill Material

Portland cement stabilized granular backfill, known as non-shrink fill, shall be used to backfill excavations within the limits of the roadway, including a distance up to 1 m from the edge of shoulder, where working space is limited. This includes excavations adjacent to structures such as manholes and catchbasins, or any other location where standard hoe-pack equipment cannot be used for mechanical compaction of backfill material.

Materials to be used for non-shrink fill material shall have the following properties:

- a) Cement type - Normal Portland.
- b) Aggregate shall be Granular “A” or Granular “B” Type 1 with 100 percent passing the 1.5 inch sieve.
- c) Slump at point of discharge shall be 150 mm to 200 mm.
- d) Admixtures shall conform to OPSS 1303 but calcium chloride or pozzolanic mineral admixtures shall not be used. Air entraining admixtures may be added if desired to reduce segregation.
- e) Minimum 24-hour strength to be 70 kilopascals and minimum 28 day strength to be 700 kilopascals.

Mix proportions shall be selected in accordance with the latest revision of Section 14 of CSA Specification CAN3-A23.1-M77 where applicable. Approximate proportion per cubic yard for estimating only, - 19 kg of cement, 1637 kg of Granular “A”.

Non-shrink fill material shall flow into the excavation so that the entire space is filled and be excavatable in the future.

Maintenance of Flow in Sewers, Drains and Ditches

The Contractor shall, at its own cost and expense, permanently provide for and maintain the flow of all sewers, catchbasin leads, drains, ditches, and water courses which may be encountered during the progress of the work, including the connection of existing drains to the new sewer.

Should the Contractor wish to divert, block or otherwise impede or alter flows in any existing sewers, drains, ditches or waste courses, it shall be required to submit details and sketches of its proposed methods, to the Engineer and/or Conservation Authority, DFO, MNR and other regulatory agencies for approval, prior to proceeding. This submission shall include any emergency measures which may be required in the event of heavy rainfalls, sewer surcharging, flooding, etc.

The Contractor shall provide written confirmation that all materials used have been removed and the sewers, drains, ditches or water courses have been restored to original condition or to the satisfaction of the Engineer. Such restoration may include but not be limited to the flushing of sewers, topsoil, planting of grass or vegetation, rip rap.

Connection to Existing Sewers and Culverts

The Contractor to note that all new connections into the existing storm sewer requires the use of a Kor-N-Seal connection or approved equal as agreed by the Engineer and the County.

All connections to existing culverts shall be made using approved couplers.

Closed Circuit Television Inspection

The Contractor shall have the sewers flushed and professionally videoed, in accordance with OPSS 409 and to the satisfaction of the Engineer. All installed sewers are to be flushed, and camera inspected at the start and end of maintenance (two inspections). Reports are to be provided to the Engineer for review. Installed culverts are exempt from this requirement.

The Contractor shall satisfy themselves of the acceptability of installed sewers prior to completing restoration. Any restoration over installed sewers that have not been CCTV inspected and reviewed and accepted by the Engineer shall be done at the Contractor's own risk.

The Owner and the Engineer reserve the right to direct the Contractor to conduct a CCTV inspection during the course of construction if it is deemed appropriate to investigate the quality of the Contractor's work. The Contractor shall schedule this work to ensure that a representative of the Owner and the Engineer are on-site full-time during this CCTV inspection.

A provisional item for CCTV inspection of existing sewers to determine private drain connection locations has been included and is to be used if locating private drain connections cannot be done by other means.

Quality Control of Concrete Sewer Pipe

The Owner reserves the right to have third party inspection completed on a section of concrete pipe at locations as decided by the Owner and Engineer. Testing methods will be non-destructive in nature, unless there is sufficient reasoning to perform more invasive testing to confirm the pipe meets quality standards, as deemed by the Owner and Engineer.

Should unacceptable pipe materials be encountered, the cost of labour, materials and equipment necessary to remove the unacceptable work, as well as the costs associated with undertaking the third party inspection of the work, shall be borne by the Contractor.

6.0 STORM MANHOLES

General

OPSS.MUNI 407 shall apply and govern except as amended or extended herein.

Scope of Work

Precast concrete manholes are to be supplied and installed in conjunction with the installation of the sewer and shall be equipped with cast iron frames and covers to OPSD 401.010 (Type A), ladder rungs to OPSD 405.020 and adjustment units shall be IPEX Lifesaver Adjustment Rings. Type 20 cement shall be used for all manholes.

The Contractor shall consider the elevation of the future road as shown in the drawings when placing adjustment rings and shall ensure that there is an adequate number of adjustment rings to facilitate lowering of the roadway in a future roadwork contract.

The Contractor shall be responsible to ensure that the use of engineered or prefabricated trench support systems are appropriate to satisfy the requirements of the Occupational Health and Safety Act.

The location of private drain connections may be revised depending on final locations confirmed with landowners. An extra credit to the tendered price shall only be considered if there is a 300 mm or more difference between the as-built depth to invert and the design depth to invert.

Backfill

Backfill shall be Granular "A", mechanically compacted to 100 percent of the Standard Proctor Maximum Dry Density. Handheld mechanical compaction equipment or non-shrink fill shall be used where other conventional compaction equipment cannot be used.

Utility Supports

Where required, the Contractor shall construct utility supports following specifications and requirements of the respective Utility Companies. Utility supports shall be considered incidental to sewer construction. No payment shall be made for supports either temporary or permanent.

Utility supports shall be constructed as required by the respective utility companies per their respective standards and guidelines as outlined therein.

7.0 ROAD CROSSING INSTALLATION

The Contractor shall supply and install a new pipe across Lesperance Road from Station 0+024.4 to Station 0+041.2 from STMH 49 to STMH50. The pipe materials to be used on the road crossing shall consist of a 16.8 m length of 750 mm diameter A257.2 65-D concrete pipe.

The Contractor shall supply and install a new pipe across County Road No. 42 from Station 0+000 to Station 0+024.4 from STMH 20 to STMH49. The pipe materials to be used on the road crossing shall consist of a 24.4 m length of 900 mm diameter A257.2 65-D concrete pipe.

The exact location and alignment of the pipe shall be established in the field by the contractor and confirmed by the Drainage Superintendent and the Road Superintendent prior to commencement of construction.

On the alignment of the new road crossing, the excavation shall be true to line and grade and shall produce a clearance of 300 mm on each side of the pipe to be installed.

The Contractor shall supply and install minimum 150 mm thickness of Granular 'A' at the pipe site. The excavation of the trench bottom shall be shaped to receive the lower 10% of the pipe diameter. After pipe placement, the Granular "A" backfill shall be placed and compacted to the springline of the pipe throughout its entire length. Backfill above the springline of the pipe shall be full Granular A" material up to the bottom of the Granular 'A' surface layer. All bedding and backfill materials shall be placed in 200 mm thick layers equally on each side of the pipe. Each layer of granular materials shall be compacted to 100% Standard Proctor Density. Each layer of native materials shall be compacted to 95% Standard Proctor Density.

8.0 HYDRAULIC SEED AND MULCH

General

OPSS.MUNI 804 shall apply and govern the work except as amended or extended herein.

Scope of Work

The new swale banks and boulevard areas, as a result of the works shall be top dressed with a minimum 100 mm layer of topsoil, graded and 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 areas shall then be seeded with Primary Seed Type 1 Canada No. 1 grass seed mixture, as follows:

<i>Creeping Red Fescue</i>	50%
<i>Canada Bluegrass</i>	35%
<i>Perennial Ryegrass</i>	15%

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 100 kg per 10,000 m².

Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m². It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

Hydraulic mulch shall consist of finely ground cellulose pulp derived from recycled newsprint and shall be dyed green. Its fibre consistency shall be approximately 60% fine fibre with the balance being paper particles, 40% of which shall be a diameter of 3 mm minimum and 6 mm maximum. Hydraulic mulch shall be applied at 2,000 kg per 10,000 m². Clean water shall be applied at 42,700 litres per 10,000 m².

Seeding and mulching shall be a one step process in which the seed, fertilizer 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 uniformly over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Engineer.

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.

Depending on the completion of the road works, the placement of the hydro-seeding may be delayed. No additional costs will be entertained for the Owner delaying these works.

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.

The 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.

9.0 LATERAL TILE DRAINS

Should the Contractor encounter any lateral tiles within the proposed culvert limits not shown on attached drawings, the Contractor shall re-route the outlet tile drain(s) in consultation with the Drainage Superintendent, as required, to accommodate the new pipe. All costs associated with re-routing and connecting lateral tile drains (if any) shall be at the Contractor's expense.

Care must be taken in handling plastic drain pipe in cold weather to avoid causing damage.

Plastic drain pipe shall be held in position on planned grade immediately after installation by careful placement of backfill material.

10.0 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.

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 SUBLETTING

The Contractor shall keep the work under his/her personal control, and shall not assign, transfer, or sublet any portion without first obtaining the written consent of the Municipality.

12.0 TIME OF COMPLETION

The Contractor shall complete all work on or before the date fixed at the time of tendering. The Contractor will be held liable for any damages or expenses occasioned by his/her failure to complete the work on time and for any expenses of inspection, superintending, re-tendering or re-surveying, due to their neglect or failure to carry out the work in a timely manner.

13.0 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.

14.0 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.

15.0 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.

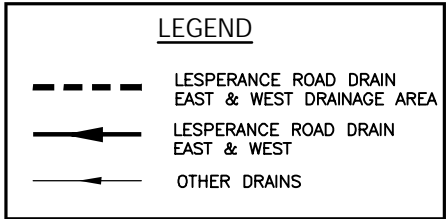
16.0 FINAL INSPECTION

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.

17.0 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.



1	CLIENT REVIEW	JAN. 27/25	MDH
No.	ISSUED FOR	DATE	BY

DESIGN MDH	REVIEWED BY CDP
DRAWN WLB	CHECKED BY OEM
DATE January 27, 2025	
SCALE AS SHOWN	

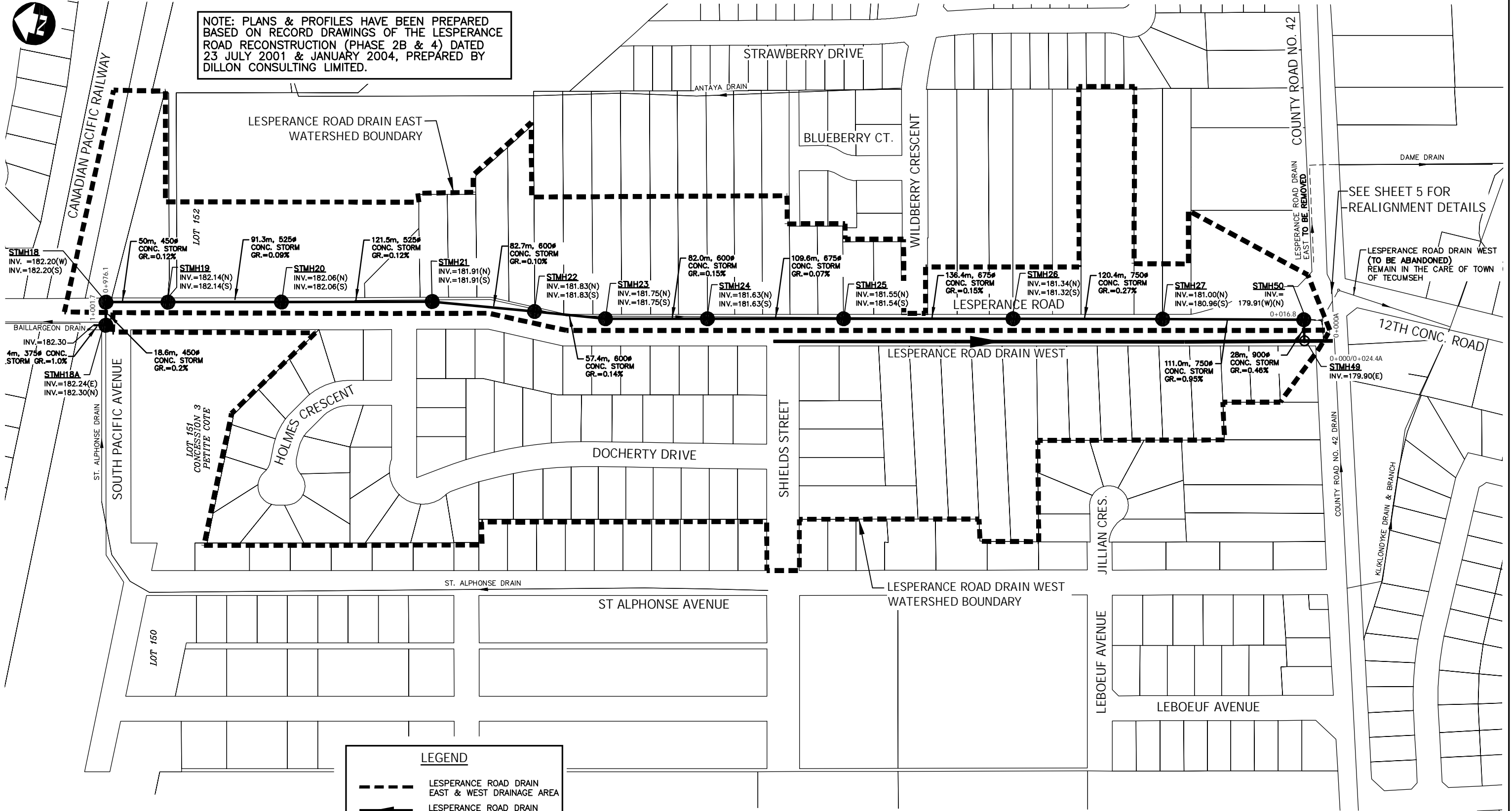


PAGE NO. 1 of 6

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NOTE: PLANS & PROFILES HAVE BEEN PREPARED
BASED ON RECORD DRAWINGS OF THE LESPERANCE
ROAD RECONSTRUCTION (PHASE 2B & 4) DATED
23 JULY 2001 & JANUARY 2004, PREPARED BY
DILLON CONSULTING LIMITED.



LEGEND

- LESPERANCE ROAD DRAIN EAST & WEST DRAINAGE AREA
- LESPERANCE ROAD DRAIN EAST & WEST
- OTHER DRAINS

LESPERANCE ROAD DRAIN EAST PLAN

SCALE=1:3,000

'SCHEDULE G'

DRAFT

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written permission from Dillon Consulting Limited.

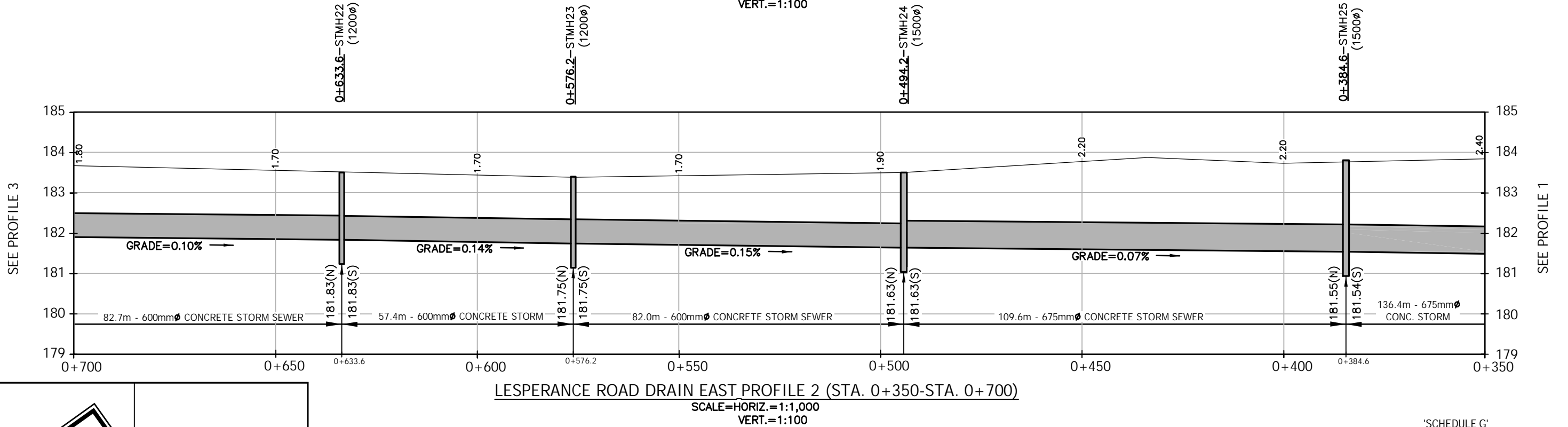
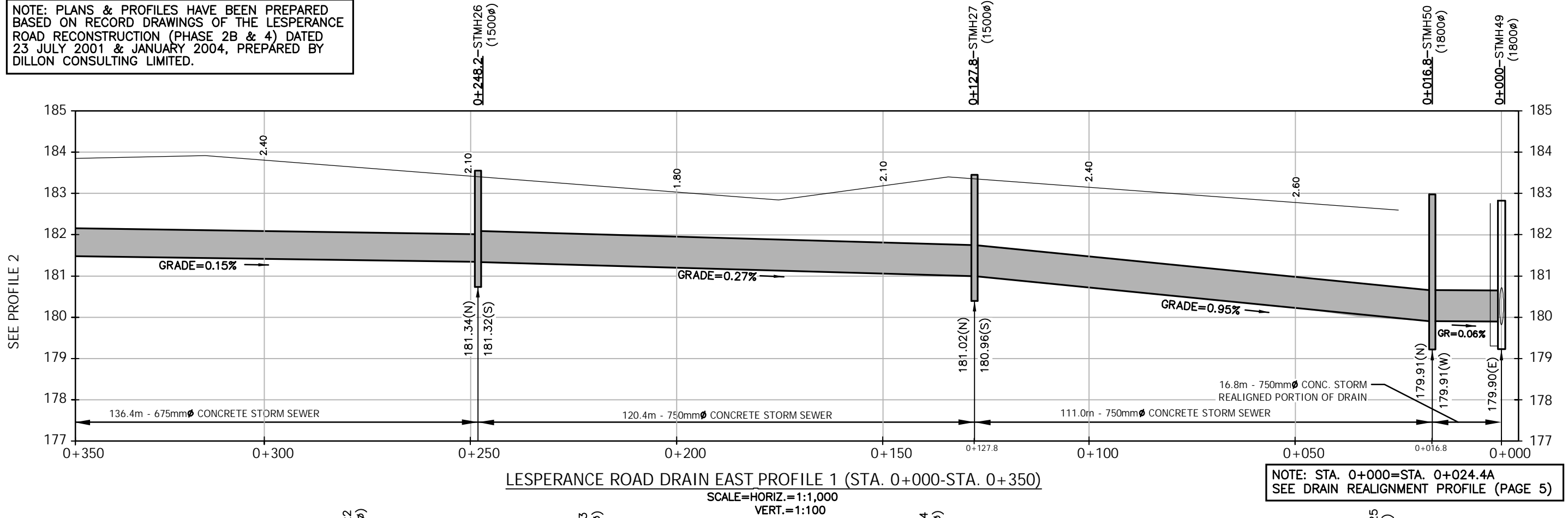
1	CLIENT REVIEW	JAN. 27/25	MDH		
No.	ISSUED FOR	DATE	BY		

DESIGN	REVIEWED BY
MDH	CDP
DRAWN	CHECKED BY
WLB	OEM
DATE	January 27, 2025
SCALE	AS SHOWN


PROJECT NO. 18-8342
DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for the LESPERANCE ROAD DRAIN EAST & LESPERANCE ROAD DRAIN WEST Town of Tecumseh	
SHEET TITLE LESPERANCE ROAD DRAIN EAST PLAN	PAGE NO. 2 of 6

NOTE: PLANS & PROFILES HAVE BEEN PREPARED
BASED ON RECORD DRAWINGS OF THE LESPERANCE
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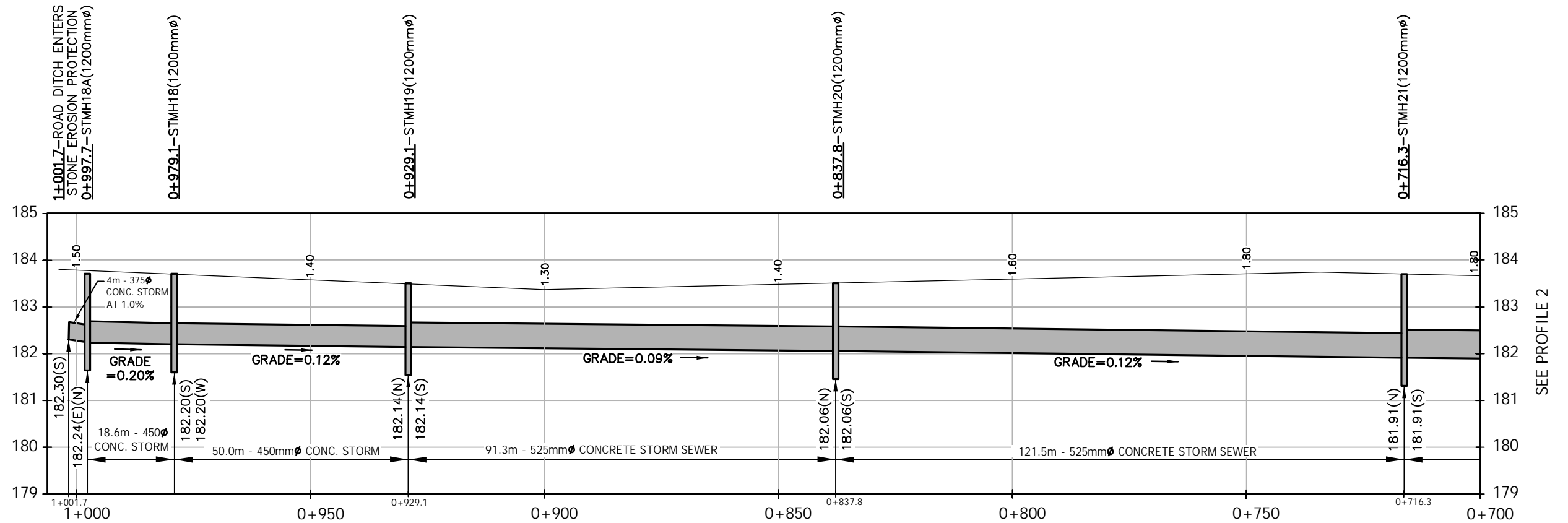
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1	CLIENT REVIEW	JAN. 27/25	MDH		
No.	ISSUED FOR	DATE	BY		

DESIGN	REVIEWED BY
MDH	CDP
DRAWN	CHECKED BY
WLB	OEM
DATE	January 27, 2025
SCALE	AS SHOWN

 PROJECT NO. 18-8342
DRAWING SCALES BASED ON A 11" X 17" SHEET

'SCHEDULE G'	
Drainage Report for the LESPERANCE ROAD DRAIN EAST & LESPERANCE ROAD DRAIN WEST Town of Tecumseh	
SHEET TITLE	LESPERANCE EAST PROFILE 1 & 2
PAGE NO.	3 of 6



NOTE: PLANS & PROFILES HAVE BEEN PREPARED
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23 JULY 2001 & JANUARY 2004, PREPARED BY
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LESPERANCE ROAD DRAIN EAST PROFILE 3 (STA. 0+700-STA. 1+001.7)

SCALE=HORIZ.=1:1,000
VERT.=1:100

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No.	ISSUED FOR	DATE	BY

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WLB	OEM
DATE	
January 27, 2025	
SCALE	
AS SHOWN	



PROJECT NO.

DRAWING SCALES BASED
ON A 11" X 17" SHEET

'SCHEDULE G'

Drainage Report for the LESPERANCE ROAD DRAIN EAST & LESPERANCE ROAD DRAIN WEST Town of Tecumseh

SHEET TITLE	LESPERANCE EAST PROFILE 3
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PAGE NO. 4 of 6

Jan 27, 2025 -- 9:51am C:\pw working directory\projects\2018\33\wb\dms43236\188342-03-DRN-CON COMBINED.dwg

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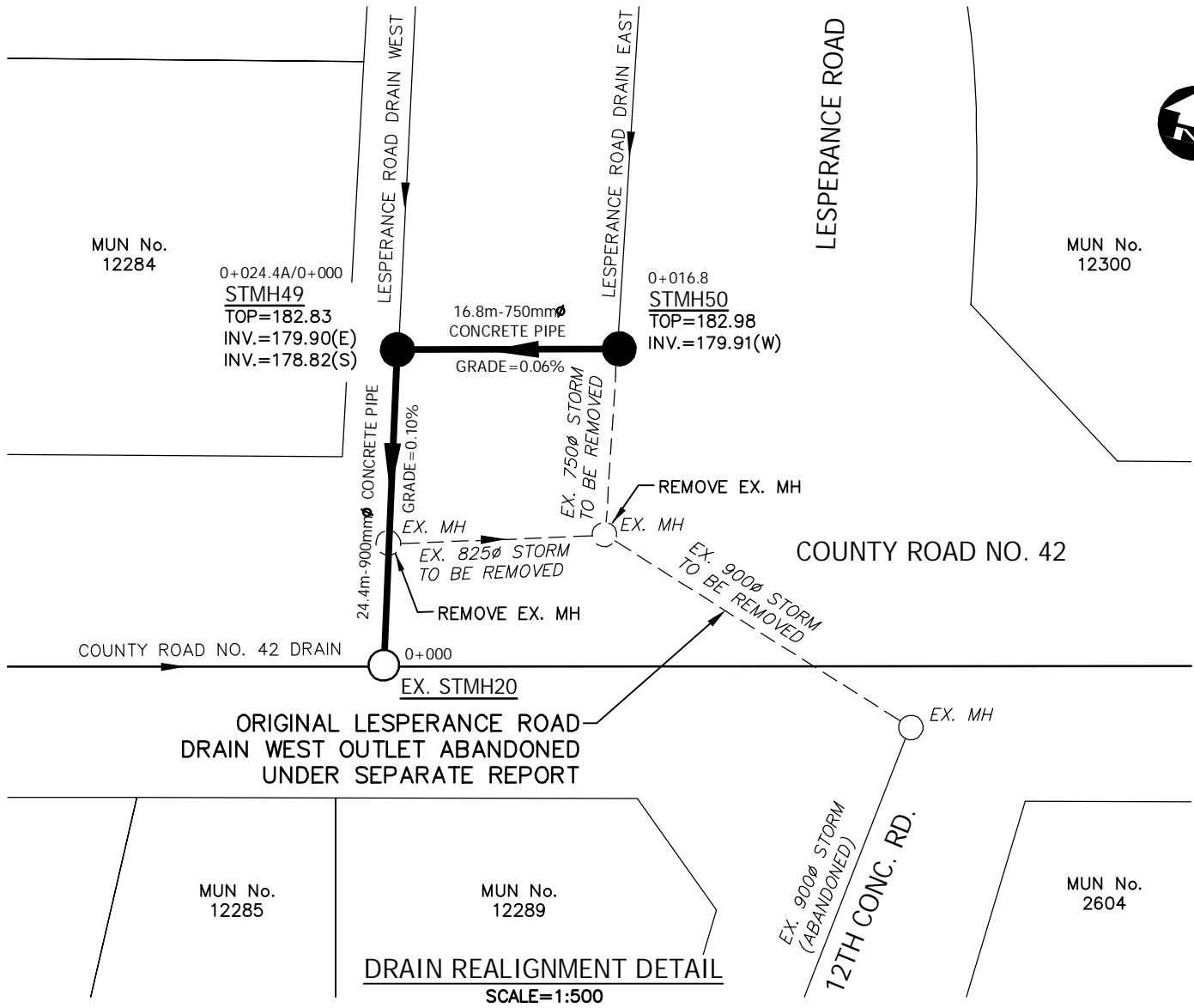
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No.	ISSUED FOR	DATE	BY		

DESIGN	REVIEWED BY
MDH	CDP
DRAWN	CHECKED BY
WLB	OEM
DATE	January 27, 2025
SCALE	AS SHOWN


PROJECT NO. 18-8342
DRAWING SCALES BASED ON A 11" X 17" SHEET

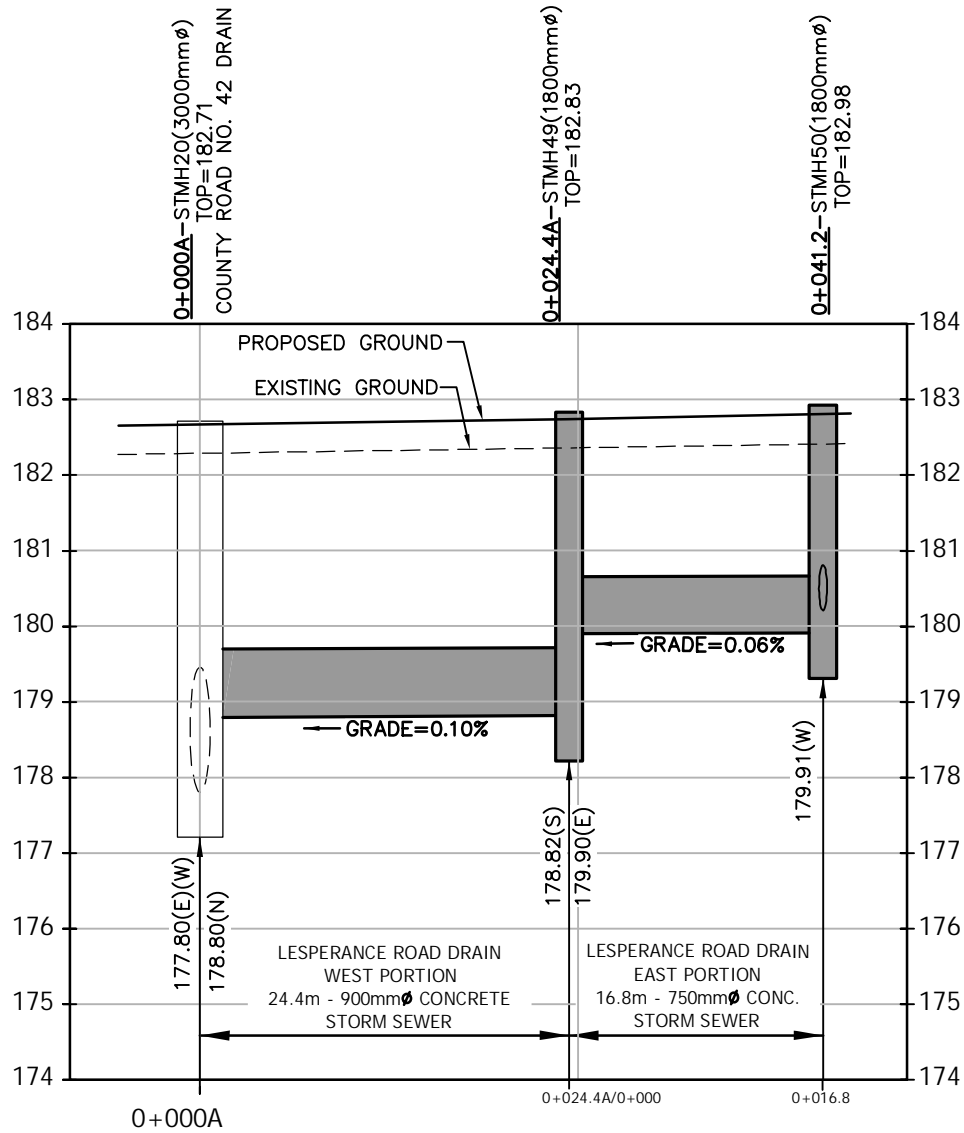
'SCHEDULE G'	
Drainage Report for the LESPERANCE ROAD DRAIN EAST & LESPERANCE ROAD DRAIN WEST Town of Tecumseh	
SHEET TITLE REALIGNMENT DETAIL & PROFILE	PAGE NO. 5 of 6



SITE BENCHMARK

PKNAIL IN TOP OF CONCRETE PUMP STATION
ON NORTH SIDE OF SHIELDS AVENUE LOCATED
OPPOSITE THE NORTHERLY PRODUCTION OF
THE EAST WALL OF TECUMSEH VISTA SCHOOL.
GEODETIC BENCHMARK ESTABLISHED BY
VERHAEGEN STUBBERFIELD HARTLEY BREWER
BEZAIRE INC, DECEMBER 2012
4-26338 05
PK NAIL ELEVATION=183.509

NOTE: CONTRACTOR TO VERIFY BENCHMARKS
PRIOR TO CONSTRUCTION.



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					DESIGN	REVIEWED BY
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					WLB	OEM
					DATE	
					January 27, 2025	
					SCALE	
					AS SHOWN	
1	CLIENT REVIEW	JAN. 27/25	MDH			
No.	ISSUED FOR	DATE	BY			

- NOTES:
- SLOPING OF TRENCH WALLS SHALL NOT BE PERMITTED.
 - SHEETING OR TRENCH SUPPORT SYSTEM FOR ALL SOILS SHALL CONFORM TO O.H.S.A. REG. 213/91 OR CURRENT.

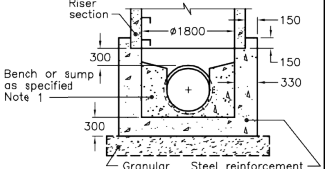
- NOTES:
- SLOPING OF TRENCH WALLS SHALL NOT BE PERMITTED.
 - SHEETING OR TRENCH SUPPORT SYSTEM FOR ALL SOILS SHALL CONFORM TO O.H.S.A. REG. 213/91 OR CURRENT.

- NOTES:
- O.D. = OUTSIDE DIAMETER OF PIPE.
 - IN ROCK TRENCHES, BEDDING DEPTH (d) BELOW WATERMAINS AND SEWER PIPES SHALL BE INCREASED TO 300mm
 - FOR PURPOSE OF CONTRACT SPECIFICATIONS BEDDING INCLUDES BEDDING, HAUNCHING AND COVER MATERIAL.
 - GRANULAR "A" BEDDING SHALL NOT CONTAIN RECYCLED ASPHALT.
 - ALL BEDDING MATERIAL MUST BE COMPACTED TO 98% STANDARD PROCTOR DENSITY

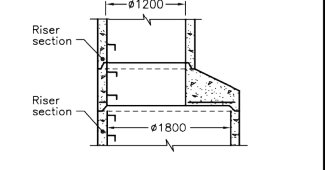
- NOTES:
- For sump detail, see OPSD 701.010.
 - Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
 - Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
 - Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
 - Pipe support shall be according to OPSD 708.020.
 - For benching and pipe opening details, see OPSD 701.021.
 - For adjustment unit and frame installation, see OPSD 704.010.
 - All dimensions are nominal.
 - All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5	
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER			

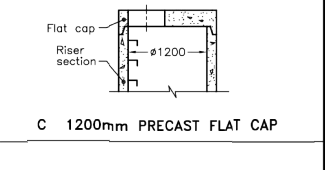
ALTERNATIVES



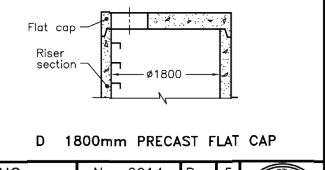
A CAST-IN-PLACE BASE



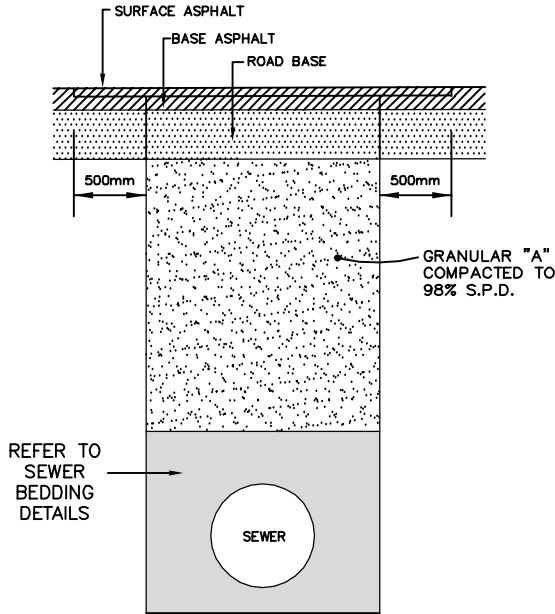
B TAPERED TRANSITION SLAB



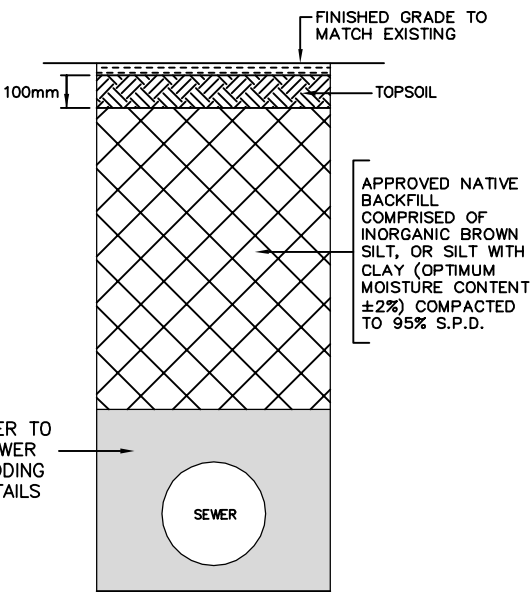
C 1200mm PRECAST FLAT CAP



D 1800mm PRECAST FLAT CAP

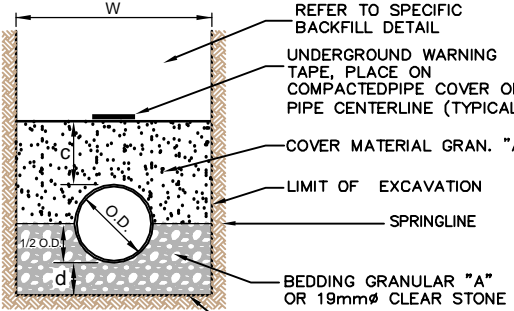


BACKFILL DETAIL
WITHIN ROAD AREAS
NOT TO SCALE

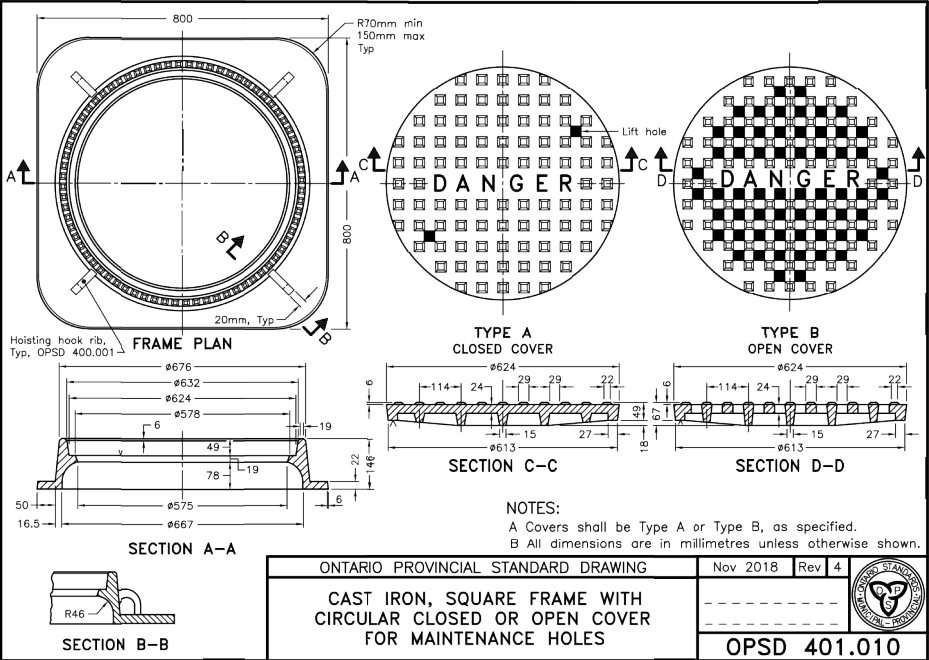


BACKFILL DETAIL
WITHIN GRASSED AREA
NOT TO SCALE

NOMINAL PIPE INSIDE DIAMETER D (mm)	MINIMUM TRENCH WIDTH W (mm)	MINIMUM BEDDING BELOW d (mm) (SEE NOTE 2)	MINIMUM COVER OVER PIPE C (mm)
RIGID PIPE			
675 or less	O.D. + 450	150	300
750 to 1500	O.D. + 600	225	300
1650 and over	O.D. + 800	300	300
FLEXIBLE PIPE			
under 1200	O.D. + 600	150	300
1200 to 1650	O.D. + 800	225	400
1800 and over	O.D. + 1000	225	500



CLASS "B" BEDDING
(L_f = 1.9)
BEDDING FOR RIGID AND FLEXIBLE
PIPE SEWERS



ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4	
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES			

'SCHEDULE G'