

November 28, 2025

The Town of Plympton-Wyoming
546 Niagara Street
Wyoming, ON
N0N 1T0

Re: Trusler Drain (2025) and Associated Branch Drains

In accordance with your instructions, M. Gerrits Consulting Inc. has undertaken an examination of the existing Trusler Drain on Part of Lots 9 & 10, Concession 9, in the Town of Plympton-Wyoming.

Authorization Under the Drainage Act

This Engineer's Report has been prepared under Section 4 (1c) and Section 76 of the Drainage Act, as per the petition of the Road Authority and instructions from Council.

Existing Reports

S. Code, O.L.S., C.E. prepared a drain report, dated February 1921, for the Lower and Upper Trusler Drains. The Trusler Upper Drain extends 470m to the southwest and then 430m along the south side of Hyslop Line to Camlachie Road. The Trusler Lower Drain appears to extend from the McFarlane Drain (previously called the Sawmill Creek Drain) in a southwest direction for 356m, to the south side of Camlachie Road, and then extends 1,228m in a southern direction along the east side of Camlachie Road. The report was resubmitted under the same date with an additional drain that extended from the McFarlane Drain (previously called the Sawmill Creek Drain), in a southwest direction for 610m, to the south side of the Hyslop Road road allowance.

J. C. Monteith, P. Eng., prepared a report, dated January 1957, for the repair and improvement of the Lower Trusler Drain. The report included an open channel drain that extended 360m to the southwest to Camlachie Road. The drain then extended 805m south along the east limit of the Camlachie Road road allowance.

J. A. Monteith, P. Eng., prepared a report, dated July 1971, for the repair and improvement of the Upper Trusler Drain, and new drain to the McFarlane Drain (previously called the Sawmill Creek Drain). The drain improvements on the McFarlane Drain (previously called the Sawmill Creek Drain) extended from the Lower Trusler Drain (1957) south for 182m to the Upper Trussler Drain, and west across a field for 312m where it the rain splits into two drains. One drain extended in a northwest direction to Camlachie Road. The second drain extended in a southwest direction to Camlachie Road and then extended south 1,220m within the Camlachie Road road allowance.

J. A. Monteith, P. Eng., prepared a report, dated June 1983, for a proposed drain within Camlachie. The drain extended from the Mcfarlane Drain (Station 0+085), 755m south and

was located on the east side of the Camlachie Road road allowance. The drain included one catch basin at the top end of the drain at Station 0+840. All other catch basins and leads were added as part of the reconstruction of Camlachie Road.

Existing Conditions

A desktop review of the watershed was completed by M. Gerrits Consulting Inc. and the following was noted:

- There have been severances and changes in land use within the watershed since the construction of the 1983 Trusler Drain.
- The Arie Court development brought approximately 4.24 Ha of land into the watershed. The development utilized a storm water management pond to control flows entering the Trusler Drain (2025) via the Trusler Branch Drain No. 1.

On Site Meeting

A site meeting was held on November 5, 2025, at the Town of Plympton-Wyoming Municipal Council Chambers. All landowners within the watershed were invited to this meeting.

The following attended the meeting:

J. Van Klavern, Town of Plympton-Wyoming	J. Wilson, Town of Plympton-Wyoming
R. Tamming, Town of Plympton-Wyoming	M. Gerrits, M. Gerrits Consulting Inc.
J. Bryce, Landowner	W. Krawczyk, Landowner
G. Dunham, Landowner	R. Sipkens, Landowner
S. Dunham, Landowner	D. Sybenga, Landowner
N. Elliot, Landowner	J. Whitelaw, Landowner

The following is a summary of the meeting:

- R. Tamming provided an overview of the Drainage Act and how the Town of Plympton-Wyoming utilizes the Drainage Act for urban drainage systems.
- M. Gerrits provided all present with additional information on benefit assessments, outlets assessments, allowances and Schedules of Maintenance.
- M. Gerrits informed all present that the original drain along Camlachie Road was installed in 1983 under a drain report.
- M. Gerrits provided preliminary costs to landowners.
- M. Gerrits informed all present that no work is being completed under this report. The report has been prepared to assess future maintenance costs and incorporate the Arie Court storm system into the drain.
- General correspondence from landowners included land use rates, and how often maintenance will occur.

- R. Tamming informed all present that maintenance is normally on a request basis, and once the maintenance is completed, the costs will be assessed out. It was explained that debenturing these costs may be an option at the time of maintenance
- M. Gerrits informed all that a review of the lot land use will be completed when the report is prepared.

Design

Montieth-Ingram Engineering Limited completed the design the 1983 Trusler Drain and T. W. Grey & Associates Engineering Limited completed the design of the Arie Court development. All storm sewer designs, storm water management designs, watershed plans, street construction plans, and street construction profiles, were prepared by either Montieth-Ingram Engineering Limited, T. W. Grey & Associates Engineering Limited, or BMRoss and Associates Ltd., and are appended to this report.

Recommendations

It is therefore recommended that the following work be carried out:

- Prepare a Schedule of Assessment to assess out the cost for the Trusler Drain (2025) and Associated Branch Drains, drain report.
- Incorporate the appended 2009 Elite Homes Constructed drawings PP2 (Revision 6), and STM (Revision 1), prepared by T. W. Grey & Associates Engineering Limited, into the Trusler Drain (2025) and Associated Branch Drains Drain Report.
- Incorporate the appended 2018 Arie Court Plan and Profile Phase 3 As Recorded drawings 2 and 3 (Revision 4), prepared by BMRoss and Associates Ltd., into the Trusler Drain (2025) and Associated Branch Drains Drain Report.
- Incorporate the appended Schedule of Plans, Specifications, General Conditions and Standards, prepared by BMRoss and Associates Ltd., into the Trusler Drain (2025) and Associated Branch Drains Drain Report.
- Prepare an updated Schedule of Maintenance for the 1983 Trusler Drain. The 1983 drain report drawings and specifications prepared by Monteith-Ingram Engineering Limited are to be used for maintenance and are appended to this report.
- Prepare a Schedule of Maintenance for the Trusler Branch Drain No. 1, which extends from Camlachie Road (Station 1+000) in a south west direction to the Arie Court Development (Station 1+135). The drain then extends south 115m, and west 166m, to the lands with the landowner identification Number B1 (Station1+416).
- Prepare a Schedule of Maintenance for the Trusler Branch Drain No. 2, which extends from the Trusler Branch Drain No. 1 at Station 2+000, south 166m, and east for 95m, to the lands with the landowner identification Number B2 (Station 2+261).
- Future land use changes will be subject to reassessment under the provisions of Section 65 of the Drainage Act.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of \$27,609, which includes engineering fees, and an allowance for incorporating the existing Arie Court storm system into the drain.

Assessment

As per Section 21 of the Drainage Act, a Schedule of Assessment for the lands and roads affected by the Drain has been prepared.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works, may be assessed for benefit (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet (Section 23(1)). The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. Outlet assessments are generally based on equivalent hectares (Eq. Ha) which are determined by the land use. Typical Ha to Eq. ha ratio are listed below:

- Agricultural Lands – 1 Ha = 1Eq. Ha
- Residential Lands – 1 Ha = 1.5-2.0 Eq. Ha
- Gravel Roads – 1 Ha = 3 Eq. Ha
- Paved Roads – 1 Ha = 4 -6 Eq. Ha
- Subsurface Drainage – 1Ha = 0.5 Eq. Ha
- Surface Drainage – 1Ha = 0.5 Eq. Ha

If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow, may be assessed for injuring liability with respect to a drainage works, to relieve the injury so caused to such other land or road (Section 23(2)).

The Engineer may assess for special benefit, any lands for which special benefits have been provided by the drainage works (Section 24).

Assessments may be made against any Public Utility or Road Authority, as per Section 26 of the Drainage Act, for any increased cost for locating, special backfill or construction, or for the removal or relocation of any of its facilities or plants that may be necessary for the construction or maintenance of the drainage works. Items to be assessed under Section 26 shall be tendered separately, and the Utility or Road Authority shall be assessed the actual

construction costs, plus the associated overhead and engineering costs (20% of the construction costs).

The estimated cost of the drainage works has been assessed in the following manner:

- The cost to prepare the drain report has been assessed with 100% of the costs as an outlet assessment to upstream properties, based on the number of residential lots, and equivalent Town of Plympton-Wyoming lots.
- The section 31 allowance for the existing Arie Court storm sewer system, has been assessed to the Town of Plympton-Wyoming.

Allowances

Under Section 31 of the Drainage Act, where an existing drain that was not constructed on requisition or petition under this Act or any predecessor of this Act, is incorporated in whole or in part in a drainage works, the engineer in the report shall estimate and allow in money to the owner of such drain or part, the value to the drainage works of such drain or part, and shall include such sum in the estimate of the cost of the construction, improvement, repair or maintenance of the drainage works. A \$15,550 Section 31 allowance will be provided under this report for the storm sewers, and storm water management facilities.

Table of Allowances

Description	Landowner	Section 31 (\$)	Total (\$)
<u>Trusler Branch Drain No. 1</u>			
Storm Sewer	Town of Plympton-Wyoming	\$ 14,050	\$ 14,050
Storm Pond and Outlet	Town of Plympton-Wyoming	\$ 1,500	\$ 1,500
Total Allowances		\$ 15,550	\$ 15,550

Access and Working Area

Access to the drain shall be gained from road allowances, public lands, existing easements and storm water management areas, when possible, and along existing private lanes, fence lines, property lines, and the drain. Access to the working area along the private lanes, property lines and fence lines, shall be restricted to a width of 6m. The primary access for the work or future repair and maintenance will be from road allowances, storm water management areas, and existing easements. The working area on residential lands shall be restricted to the existing easements.

Restrictions

No trees or shrubs shall be planted, nor shall permanent structures be erected within the working area, without prior written permission of Council.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refers to the obstruction of a drainage works, the removal of obstructions in a drain, and the damage caused to a drain by an obstruction.

Maintenance

The Lower Trusler Drain, Upper Trusler Drain, Trusler Drain 1971 shall continue to be maintained in accordance with the current by-laws.

The Trusler Drain (2025) and Associated Branch Drains shall be repaired and maintained by the Town of Plympton-Wyoming, under the provisions of the Drainage Act, at the expense of the lands and roads assessed in the Schedules of Maintenance, and in the same relative proportion, until said assessment is varied in accordance with the provisions of the Drainage Act.

Maintenance costs are limited to the storm drain and private drain services located within the road allowance and does not include any necessary road reconstruction items such as curb, granular materials, import fill, or pavement, which shall be assessed to the Road Authority, as a Section 26 assessment. Maintenance of private services may be with trenchless technologies, or by conventional construction methods. Conventional construction methods shall include service piping, fittings, and cleanouts. Future service maintenance costs shall be assessed with 50% of the cost to the benefiting landowner (s), and 50% of the cost to the Road Authority.

The Trusler Drain (2025) that is located in the Camlachie Road road allowance, shall be maintained in accordance with the appended 1983 drain report drawings and specifications, prepared by Monteith-Ingram Engineering Limited. All catch basins and catch basin leads, except the catch basin 1 (CB1) at Station 0+840, will be maintained by the road authority.

The Trusler Branch Drain No. 1 and Trusler Branch Drain No. 2 shall be maintained in accordance with the appended Schedule of Plans, Specifications, General Conditions and Standards, prepared by BMRoss and Associates Ltd., and the appropriate W. Grey & Associates Engineering Limited or BMRoss and Associates Ltd. drawing.

The Schedules of Maintenance are for the future maintenance of the Drain and have been prepared based on a hypothetical repair cost of \$10,000.

Yours truly,

MA
Nov 28, 2025
24-03



Michael Gerrits, P. Eng.
M. Gerrits Consulting Inc.

Trusler Drain (2025) & Associated Branch Drains
Town of Plympton-Wyoming
November 28, 2025

ESTIMATE OF COST

Item	Description	Total (\$)
1	Prepare Report including Schedules of Assessment for Maintenance	11,850
2	Allowances	15,550
3	Net H.S.T.	209
	Total Estimate	<u>27,609</u>

Trusler Drain (2025) & Associated Branch Drains
 Town of Plympton-Wyoming
 November 28, 2025

**SCHEDULE OF ASSESSMENT
 for Preparation of Trusler Drain 2025 Report**

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit	Outlet (\$)	Total (\$)	Eq. Ha
<u>Non - Agricultural Lands</u>									
9	Pt 9	340.020.14107	0.29	D8	M. Sanders		86	86	0.58
	Pt 9	340.020.14300	0.12	D-15	Town of Plympton-Wyoming (Arnold Minielly Park)		86	86	0.12
	Pt 9	340.020.14310	0.80	D16	Town of Plympton-Wyoming (Camlachie Community Centre)		86	86	2.80
	Pt 9	340.020.14350	1.30	D14	Town of Plympton-Wyoming (Arnold Minielly Park)		86	86	1.30
	Pt 9	340.020.14400	0.12	B14	R. Cody & E. Baker		86	86	0.24
	Pt 9	340.020.14420	0.34	B17	Town of Plympton-Wyoming (Camlachie Cemetery)		86	86	0.68
	Pt 9	340.020.14499	0.12	B40	T. Wright		86	86	0.24
	Pt 9	340.020.14501	0.21	B55	S. Ganter		86	86	0.42
	Pt 9	340.020.14502	0.14	B42	L. Young		86	86	0.28
	Pt 9	340.020.14605	0.15	B56	T. Dobbin & K. Harris		86	86	0.30
	Pt 9	340.020.14805	0.08	B38	J. & C. Beauregard		86	86	0.20
	Pt 9	340.020.14808	0.10	B37	A. & L. Bissonnette		86	86	0.20
	Pt 9	340.020.14811	0.08	B39	B. MacDougall		86	86	0.20
	Pt 9	340.020.14814	0.08	B41	L. Cloud		86	86	0.20
	Pt 9	340.020.14817	0.12	B54	G. & C. Simpson		86	86	0.24
	Pt 9	340.020.14820	0.06	B51	C. & C. Veinot		86	86	0.15
	Pt 9	340.020.14823	0.06	B50	M. Deciano		86	86	0.15
	Pt 9	340.020.14826	0.06	B49	D. & E. Downton		86	86	0.15
	Pt 9	340.020.14829	0.06	B48	A. Harb		86	86	0.15
	Pt 9	340.020.14832	0.08	B32	J. Hull		86	86	0.20
	Pt 9	340.020.14835	0.08	B33	B. Charette & R. Lisabeth		86	86	0.20
	Pt 9	340.020.14838	0.08	B34	L. & P. Kuipers		86	86	0.20
	Pt 9	340.020.14841	0.08	B35	L. & S. Capp		86	86	0.20
	Pt 9	340.020.14844	0.10	B36	S. Orrange		86	86	0.20

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14847	0.13	B52	Town of Plympton-Wyoming		86	86	0.26
	Pt 9	340.020.14850	0.07	B53	Town of Plympton-Wyoming		86	86	0.18
	Pt 9	340.020.14856	0.07	B16	S. & J. Manders		86	86	0.18
	Pt 9	340.020.14857	0.08	B15	L. & D. Nocholls		86	86	0.20
	Pt 9	340.020.14858	0.10	B13	D. & C Begg		86	86	0.20
	Pt 9	340.020.14859	0.05	B12	J. & E. McLean		86	86	0.13
	Pt 9	340.020.14860	0.06	B11	M. & A. Kelly		86	86	0.15
	Pt 9	340.020.14861	0.06	B10	J. & C. Whitelaw		86	86	0.15
	Pt 9	340.020.14862	0.06	B9	K. Barnett		86	86	0.15
	Pt 9	340.020.14863	0.06	B8	D. & M Johnson		86	86	0.15
	Pt 9	340.020.14864	0.06	B7	C. & M Nap		86	86	0.15
	Pt 9	340.020.14865	0.08	B24	J. Darnell & D. Farlow		86	86	0.20
	Pt 9	340.020.14866	0.08	B25	D. Vandenberg		86	86	0.20
	Pt 9	340.020.14867	0.08	B26	L. & S. Karn		86	86	0.20
	Pt 9	340.020.14868	0.08	B27	G. & D. Elliot		86	86	0.20
	Pt 9	340.020.14869	0.10	B28	W. & M. Nameth		86	86	0.20
	Pt 9	340.020.14870	0.06	B6	N. Hodgkin		86	86	0.15
	Pt 9	340.020.14871	0.06	B5	J. & M. Vanegas		86	86	0.15
	Pt 9	340.020.14872	0.06	B4	1528535 Ontario Ltd.		86	86	0.15
	Pt 9	340.020.14873	0.06	B3	1528535 Ontario Ltd.		86	86	0.15
	Pt 9	340.020.14874	0.15	B1	1528535 Ontario Ltd.		86	86	0.30
	Pt 9	340.020.14875	0.11	B2	1528535 Ontario Ltd.		86	86	0.22
	Pt 9	340.020.14876	0.09	B18	1528535 Ontario Ltd.		86	86	0.23
	Pt 9	340.020.14877	0.09	B19	B. & S. Phillips		86	86	0.23
	Pt 9	340.020.14878	0.13	B20	1528535 Ontario Ltd.		86	86	0.26
	Pt 9	340.020.14879	0.19	B43	1528535 Ontario Ltd.		86	86	0.38
	Pt 9	340.020.14880	0.06	B44	1528535 Ontario Ltd.		86	86	0.15
	Pt 9	340.020.14881	0.06	B45	1528535 Ontario Ltd.		86	86	0.15
	Pt 9	340.020.14882	0.06	B46	1528535 Ontario Ltd.		86	86	0.15
	Pt 9	340.020.14883	0.06	B47	J. & M. Kucera		86	86	0.15
	Pt 9	340.020.14884	0.08	B31	D. & I. Barriault		86	86	0.20
	Pt 9	340.020.14885	0.07	B30	1528535 Ontario Ltd.		86	86	0.18

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14886	0.08	B29	1528535 Ontario Ltd.		86	86	0.20
	Pt 9	340.020.14887	0.08	B21	1528535 Ontario Ltd.		86	86	0.20
	Pt 9	340.020.14888	0.07	B22	1528535 Ontario Ltd.		86	86	0.18
	Pt 9	340.020.14889	0.08	B23	R. & B. Hooper		86	86	0.20
	Pt 9	340.020.16000	0.15	D3	Canada Post Corporation		86	86	0.45
	Pt 9	340.020.16101	0.12	D5	D. & H. Mackie		86	86	0.24
	Pt 9	340.020.16200	0.20	D6	Town of Plympton-Wyoming (Camlachie Fire Hall)		86	86	0.80
	Pt 9	340.020.16300	0.20	D4	D. Sybenga & E. Regan		86	86	0.40
	Pt 9	340.020.16400	0.10	D1	J. Lippiatt		86	86	0.20
	Pt 9	340.020.16401	0.12	D2	P. Delanghe		86	86	0.24
	Pt 9	340.020.16800	0.15	D7	J. Greenaway		86	86	0.30
	Pt 9	340.020.16900	0.23	D9	K. Moffatt & P. Williams		86	86	0.46
	Pt 9	340.020.17000	0.12	D10	M. Long & J. Clark		86	86	0.24
	Pt 9	340.020.17100	0.21	D11	S. Kabir		86	86	0.42
	Pt 9	340.020.17101	0.20	D12	K. Barnes		86	86	0.40
	Pt 9	340.020.17300	0.41	D13	Town of Plympton-Wyoming (Camlachie Library)		86	86	0.82
	Pt 10	340.020.17500	0.11	C2	Huron is Home		86	86	0.22
	Pt 10	340.020.17602	0.39	C1	D. Burnley		86	86	0.59
	Pt 10	340.020.17610	0.16	C3	L. Emmerson & L. Spurdza		86	86	0.32
	Pt 10	340.020.17800	0.06	E3	2279993 Ontario Inc.		86	86	0.15
	Pt 10	340.020.18100	0.11	E4	S. Palumbo		86	86	0.28
	Pt 10	340.020.18101	0.07	E3	W. Lapointe		86	86	0.14
	Pt 10	340.020.18300	0.05	E1	E. Smith		86	86	0.14
	Pt 10	340.020.18500	0.11	E2	E. Smith		86	86	0.22
	Pt 10	340.020.18600	0.08	E5	D. Brillinger		86	86	0.21
	Pt 10	340.020.18700	0.13	E9	M. Radychewsky & K. Nickerson		86	86	0.26
	Pt 10	340.020.18705	0.09	E6	K. & D. Bass		86	86	0.23
	Pt 10	340.020.18707	0.09	E7	M. & A. Henry		86	86	0.23
	Pt 10	340.020.18709	0.03	E8	M. Bryce		86	86	0.08
	Pt 10	340.020.18800	0.20	E10	S. Taylor & H. Hanson		86	86	0.40

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit	Outlet (\$)	Total (\$)	Eq. Ha	
9	Pt 10	340.020.18900	0.05	E11	R. & H. Nestor		86	86	0.13	
	Pt 10	340.020.20200	0.21	E12	A. & T. McKay		86	86	0.42	
	Pt 10	340.020.20300	0.28	E13	Y. & S. Holbrook		86	86	0.56	
	Pt 10	340.020.20400	0.26	E15	T. & F. Watson		86	86	0.65	
	Pt 10	340.020.20500	0.28	E14	T. MacNeil & S. Hall & D. Hall		86	86	0.56	
	Pt 10	340.020.20600	0.09	E16	V. & L. Kennedy		86	86	0.23	
	Pt 10	340.020.20601	0.21	E17	L. Sutton		86	86	0.42	
	Pt 10	340.020.20700	0.53	E18	W. & T. Somerville		86	86	0.40	
	Pt 10	340.020.20701	0.06	E19	J. Aikin		86	86	0.12	
	Pt 10	340.020.20702	0.18	E20	L. & T. Gower		86	86	0.12	
	Pt 10	340.020.20704	0.04	E22	L. Ellis & A. Parr		86	86	0.08	
	Pt 10	340.020.20703	0.05	E21	W. Krawczyk & N. Elliott		86	86	0.10	
	Pt 10	340.020.20800	0.03	A6	B. Kuczma		86	86	0.08	
	Pt 10	340.020.20900	0.26	A5	G. & S. Dunham		86	86	0.39	
	Pt 10	340.020.21000	0.26	A4	M. Woodall		86	86	0.52	
	Pt 10	340.020.21100	0.11	A2	C. & J. Robinson		86	86	0.22	
	Pt 10	340.020.21101	0.19	A1	R. & S. Sipkens		86	86	0.38	
	Pt 10	340.020.21102	0.12	A3	B. & M. Tough		86	86	0.24	
	Pt 10	340.020.21200	0.13	A7	T. & M. Wales		86	86	0.26	
	Pt 10	340.020.21300	0.05	A11	W. DeGraaf		86	86	0.13	
	Pt 10	340.020.21310	0.05	A10	J. Glynsinski		86	86	0.13	
	Pt 10	340.020.21320	0.05	A9	K. Cole		86	86	0.13	
	Pt 10	340.020.21330	0.05	A8	T. Kember		86	86	0.13	
	Pt 10	340.020.21400	0.06	A12	L. & J. & E. Van Reenen		86	86	0.15	
							9,460	9,460		
Total (Non-Agricultural Lands)								9,460		

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit	Outlet (\$)	Total (\$)	Eq. Ha
<u>Roads</u>									
	Arie Court		1.42	Town of Plympton-Wyoming		15,550	860	16,410	5.68
	Camlachie Road		1.59	Town of Plympton-Wyoming			879	879	6.36
	Egremont Road		0.44	Town of Plympton-Wyoming			258	258	1.76
	Mutual Street		0.11	Town of Plympton-Wyoming			86	86	0.44
	O'Banwell Street		0.07	Town of Plympton-Wyoming			86	86	0.28
	Park Street		0.12	Town of Plympton-Wyoming			86	86	0.48
	Warehouse Street		0.13	Town of Plympton-Wyoming			86	86	0.52
	Unopened Road Allowance		0.04	Town of Plympton-Wyoming			86	86	0.08
	Alley Lot 10, Concession 9 (Camlachie - North of Park St.)		0.05	Town of Plympton-Wyoming			86	86	0.03
	Alley Lot 10, Concession 9 (Camlachie - South of Park St.)		0.03	Town of Plympton-Wyoming			86	86	0.02
						15,550	2,599	18,149	
Total (Roads)							18,149		
Total (Non-Agricultural Lands)							9460		
Total (Roads)							18149		
Total Assessment							\$ 27,609		

Trusler Drain (2025) & Associated Branch Drains
 Town of Plympton-Wyoming
 November 28, 2025

SCHEDULE OF MAINTENANCE - TRUSLER DRAIN (2025)

For maintaining the Trusler Drain (2025) between the outlet to the McFarlane Drain (Station 0+085) to the upper end at Station 0+840. Catch basins, catch basin leads, and private drain connections (PDC) within road allowances shall be maintained as per the maintenance provisions set out in the drain report. Road base and road restoration costs do not form part of the drain maintenance costs. The Schedule of Maintenance has been prepared based on a hypothetical maintenance cost of \$10,000.

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
<u>Non - Agricultural Lands</u>									
9	Pt 9	340.020.14107	0.29	D8	M. Sanders		50	50	0.58
	Pt 9	340.020.14300	0.12	D-15	Town of Plympton-Wyoming (Arnold Minielly Park)		10	10	0.12
	Pt 9	340.020.14310	0.80	D16	Town of Plympton-Wyoming (Camlachie Community Centre)	73	235	308	2.80
	Pt 9	340.020.14350	1.30	D14	Town of Plympton-Wyoming (Arnold Minielly Park)	73	110	183	1.30
	Pt 9	340.020.14400	0.12	B14	R. Cody & E. Baker	73	20	93	0.24
	Pt 9	340.020.14420	0.34	B17	Town of Plympton-Wyoming (Camlachie Cemetery)	73	55	128	0.68
	Pt 9	340.020.14499	0.12	B40	T. Wright	73	20	93	0.24
	Pt 9	340.020.14501	0.21	B55	S. Ganter	73	35	108	0.42
	Pt 9	340.020.14502	0.14	B42	L. Young	73	25	98	0.28
	Pt 9	340.020.14605	0.15	B56	T. Dobbin & K. Harris		25	25	0.30
	Pt 9	340.020.14805	0.08	B38	J. & C. Beauregard	73	15	88	0.20
	Pt 9	340.020.14808	0.10	B37	A. & L. Bissonnette		15	15	0.20
	Pt 9	340.020.14811	0.08	B39	B. MacDougall		15	15	0.20
	Pt 9	340.020.14814	0.08	B41	L. Cloud		15	15	0.20
	Pt 9	340.020.14817	0.12	B54	G. & C. Simpson		20	20	0.24
	Pt 9	340.020.14820	0.06	B51	C. & C. Veinot		10	10	0.15

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14823	0.06	B50	M. Deciano		10	10	0.15
	Pt 9	340.020.14826	0.06	B49	D. & E. Downton		10	10	0.15
	Pt 9	340.020.14829	0.06	B48	A. Harb		10	10	0.15
	Pt 9	340.020.14832	0.08	B32	J. Hull		15	15	0.20
	Pt 9	340.020.14835	0.08	B33	B. Charette & R. Lisabeth		15	15	0.20
	Pt 9	340.020.14838	0.08	B34	L. & P. Kuipers		15	15	0.20
	Pt 9	340.020.14841	0.08	B35	L. & S. Capp		15	15	0.20
	Pt 9	340.020.14844	0.10	B36	S. Orrange		15	15	0.20
	Pt 9	340.020.14847	0.13	B52	Town of Plympton-Wyoming		20	20	0.26
	Pt 9	340.020.14850	0.07	B53	Town of Plympton-Wyoming		15	15	0.18
	Pt 9	340.020.14856	0.07	B16	S. & J. Manders		15	15	0.18
	Pt 9	340.020.14857	0.08	B15	L. & D. Nocholls		15	15	0.20
	Pt 9	340.020.14858	0.10	B13	D. & C Begg		15	15	0.20
	Pt 9	340.020.14859	0.05	B12	J. & E. McLean		10	10	0.13
	Pt 9	340.020.14860	0.06	B11	M. & A. Kelly		10	10	0.15
	Pt 9	340.020.14861	0.06	B10	J. & C. Whitelaw		10	10	0.15
	Pt 9	340.020.14862	0.06	B9	K. Barnett		10	10	0.15
	Pt 9	340.020.14863	0.06	B8	D. & M Johnson		10	10	0.15
	Pt 9	340.020.14864	0.06	B7	C. & M Nap		10	10	0.15
	Pt 9	340.020.14865	0.08	B24	J. Darnell & D. Farlow		15	15	0.20
	Pt 9	340.020.14866	0.08	B25	D. Vandenberg		15	15	0.20
	Pt 9	340.020.14867	0.08	B26	L. & S. Karn		15	15	0.20
	Pt 9	340.020.14868	0.08	B27	G. & D. Elliot		15	15	0.20
	Pt 9	340.020.14869	0.10	B28	W. & M. Nameth		15	15	0.20
	Pt 9	340.020.14870	0.06	B6	N. Hodgkin		10	10	0.15
	Pt 9	340.020.14871	0.06	B5	J. & M. Vanegas		10	10	0.15
	Pt 9	340.020.14872	0.06	B4	1528535 Ontario Ltd.		10	10	0.15
	Pt 9	340.020.14873	0.06	B3	1528535 Ontario Ltd.		10	10	0.15
	Pt 9	340.020.14874	0.15	B1	1528535 Ontario Ltd.		25	25	0.30
	Pt 9	340.020.14875	0.11	B2	1528535 Ontario Ltd.		20	20	0.22

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14876	0.09	B18	1528535 Ontario Ltd.		20	20	0.23
	Pt 9	340.020.14877	0.09	B19	B. & S. Phillips		20	20	0.23
	Pt 9	340.020.14878	0.13	B20	1528535 Ontario Ltd.		20	20	0.26
	Pt 9	340.020.14879	0.19	B43	1528535 Ontario Ltd.		30	30	0.38
	Pt 9	340.020.14880	0.06	B44	1528535 Ontario Ltd.		10	10	0.15
	Pt 9	340.020.14881	0.06	B45	1528535 Ontario Ltd.		10	10	0.15
	Pt 9	340.020.14882	0.06	B46	1528535 Ontario Ltd.		10	10	0.15
	Pt 9	340.020.14883	0.06	B47	J. & M. Kucera		10	10	0.15
	Pt 9	340.020.14884	0.08	B31	D. & I. Barriault		15	15	0.20
	Pt 9	340.020.14885	0.07	B30	1528535 Ontario Ltd.		15	15	0.18
	Pt 9	340.020.14886	0.08	B29	1528535 Ontario Ltd.		15	15	0.20
	Pt 9	340.020.14887	0.08	B21	1528535 Ontario Ltd.		15	15	0.20
	Pt 9	340.020.14888	0.07	B22	1528535 Ontario Ltd.		15	15	0.18
	Pt 9	340.020.14889	0.08	B23	R. & B. Hooper		15	15	0.20
	Pt 9	340.020.16000	0.15	D3	Canada Post Corporation	73	35	108	0.45
	Pt 9	340.020.16101	0.12	D5	D. & H. Mackie		20	20	0.24
	Pt 9	340.020.16200	0.20	D6	Town of Plympton-Wyoming (Camlachie Fire Hall)	73	65	138	0.80
	Pt 9	340.020.16300	0.20	D4	D. Sybenga & E. Regan		35	35	0.40
	Pt 9	340.020.16400	0.10	D1	J. Lippiatt		15	15	0.20
	Pt 9	340.020.16401	0.12	D2	P. Delanghe		20	20	0.24
	Pt 9	340.020.16800	0.15	D7	J. Greenaway	73	25	98	0.30
	Pt 9	340.020.16900	0.23	D9	K. Moffatt & P. Williams	73	40	113	0.46
	Pt 9	340.020.17000	0.12	D10	M. Long & J. Clark	73	20	93	0.24
	Pt 9	340.020.17100	0.21	D11	S. Kabir	73	35	108	0.42
	Pt 9	340.020.17101	0.20	D12	K. Barnes	73	35	108	0.40
	Pt 9	340.020.17300	0.41	D13	Town of Plympton-Wyoming (Camlachie Library)	73	70	143	0.82
	Pt 10	340.020.17500	0.11	C2	Huron is Home	73	20	93	0.22
	Pt 10	340.020.17602	0.39	C1	D. Burnley		50	50	0.59

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 10	340.020.17610	0.16	C3	L. Emmerson & L. Spurdza		25	25	0.32
	Pt 10	340.020.17800	0.06	E3	2279993 Ontario Inc.		10	10	0.15
	Pt 10	340.020.18100	0.11	E4	S. Palumbo		25	25	0.28
	Pt 10	340.020.18101	0.07	E3	W. Lapointe		10	10	0.14
	Pt 10	340.020.18300	0.05	E1	E. Smith	73	10	83	0.14
	Pt 10	340.020.18500	0.11	E2	E. Smith	73	20	93	0.22
	Pt 10	340.020.18600	0.08	E5	D. Brillinger	73	15	88	0.21
	Pt 10	340.020.18700	0.13	E9	M. Radychewsky & K. Nickerson	73	20	93	0.26
	Pt 10	340.020.18705	0.09	E6	K. & D. Bass		20	20	0.23
	Pt 10	340.020.18707	0.09	E7	M. & A. Henry		20	20	0.23
	Pt 10	340.020.18709	0.03	E8	M. Bryce		5	5	0.08
	Pt 10	340.020.18800	0.20	E10	S. Taylor & H. Hanson		35	35	0.40
	Pt 10	340.020.18900	0.05	E11	R. & H. Nestor		10	10	0.13
	Pt 10	340.020.20200	0.21	E12	A. & T. McKay	73	35	108	0.42
	Pt 10	340.020.20300	0.28	E13	Y. & S. Holbrook	73	45	118	0.56
	Pt 10	340.020.20400	0.26	E15	T. & F. Watson	73	55	128	0.65
	Pt 10	340.020.20500	0.28	E14	T. MacNeil & S. Hall & D. Hall	73	45	118	0.56
	Pt 10	340.020.20600	0.09	E16	V. & L. Kennedy	73	20	93	0.23
	Pt 10	340.020.20601	0.21	E17	L. Sutton	73	35	108	0.42
	Pt 10	340.020.20700	0.53	E18	W. & T. Somerville	73	35	108	0.40
	Pt 10	340.020.20701	0.06	E19	J. Aikin	73	10	83	0.12
	Pt 10	340.020.20702	0.18	E20	L. & T. Gower	73	10	83	0.12
	Pt 10	340.020.20704	0.04	E22	L. Ellis & A. Parr	73	5	78	0.08
	Pt 10	340.020.20703	0.05	E21	W. Krawczyk & N. Elliott	73	10	83	0.10
	Pt 10	340.020.20800	0.03	A6	B. Kuczma	73	5	78	0.08
	Pt 10	340.020.20900	0.26	A5	G. & S. Dunham	73	30	103	0.39
	Pt 10	340.020.21000	0.26	A4	M. Woodall	73	45	118	0.52

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 10	340.020.21100	0.11	A2	C. & J. Robinson	73	20	93	0.22
	Pt 10	340.020.21101	0.19	A1	R. & S. Sipkens	73	30	103	0.38
	Pt 10	340.020.21102	0.12	A3	B. & M. Tough		20	20	0.24
	Pt 10	340.020.21200	0.13	A7	T. & M. Wales		20	20	0.26
	Pt 10	340.020.21300	0.05	A11	W. DeGraaf		10	10	0.13
	Pt 10	340.020.21310	0.05	A10	J. Glynsinski		10	10	0.13
	Pt 10	340.020.21320	0.05	A9	K. Cole		10	10	0.13
	Pt 10	340.020.21330	0.05	A8	T. Kember		10	10	0.13
	Pt 10	340.020.21400	0.06	A12	L. & J. & E. Van Reenen		10	10	0.15

Roads

Arie Court	1.42	Town of Plympton-Wyoming	430	575	1005	5.68
Camlachie Road	1.59	Town of Plympton-Wyoming	2120	545	2665	6.36
Egremont Road	0.44	Town of Plympton-Wyoming	340	185	525	1.76
Mutual Street	0.11	Town of Plympton-Wyoming	56	35	91	0.44
O'Banwell Street	0.07	Town of Plympton-Wyoming		25	25	0.28
Park Street	0.12	Town of Plympton-Wyoming	56	40	96	0.48
Warehouse Street	0.13	Town of Plympton-Wyoming	182	45	227	0.52
Unopened Road Allowance	0.04	Town of Plympton-Wyoming	115	5	120	0.08
Alley Lot 10, Concession 9 (Camlachie - North of Park St.)	0.05	Town of Plympton-Wyoming		5	5	0.03
Alley Lot 10, Concession 9 (Camlachie - South of Park St.)	0.03	Town of Plympton-Wyoming		5	5	0.02

Total Maintenance Assessment \$ 6,000 \$ 4,000 \$ 10,000

Trusler Drain (2025) & Associated Branch Drains
 Town of Plympton-Wyoming
 November 28, 2025

SCHEDULE OF MAINTENANCE (TRUSLER BRANCH DRAIN NO.1)

For maintaining the Trusler Branch Drain No. 1 c/w the Storm Water Management Pond between the outlet to the Trusler Drain (2025) at Egremont Road to the lands with the Landowner ID B1. All private drain connections (PDC) within road allowances shall be maintained as per the maintenance provisions set out in the drain report. Road base and road restoration costs do not form part of the maintenance costs. The Schedule of Maintenance has been prepared based on a hypothetical maintenance cost of \$10,000.

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
Non - Agricultural Lands									
9	Pt 9	340.020.14808	0.10	B37	A. & L. Bissonnette	100	94	194	0.20
	Pt 9	340.020.14811	0.08	B39	B. MacDougall	100	94	194	0.20
	Pt 9	340.020.14814	0.08	B41	L. Cloud	100	94	194	0.20
	Pt 9	340.020.14817	0.12	B54	G. & C. Simpson	100	112	212	0.24
	Pt 9	340.020.14850	0.07	B53	Town of Plympton-Wyoming	100	65	165	0.18
	Pt 9	340.020.14856	0.07	B16	S. & J. Manders	100	65	165	0.18
	Pt 9	340.020.14857	0.08	B15	L. & D. Nocholls	100	75	175	0.20
	Pt 9	340.020.14858	0.10	B13	D. & C Begg	100	75	175	0.20
	Pt 9	340.020.14859	0.05	B12	J. & E. McLean	100	45	145	0.13
	Pt 9	340.020.14860	0.06	B11	M. & A. Kelly	100	55	155	0.15
	Pt 9	340.020.14861	0.06	B10	J. & C. Whitelaw	100	55	155	0.15
	Pt 9	340.020.14862	0.06	B9	K. Barnett	100	55	155	0.15
	Pt 9	340.020.14863	0.06	B8	D. & M Johnson	100	55	155	0.15
	Pt 9	340.020.14864	0.06	B7	C. & M Nap	100	55	155	0.15
	Pt 9	340.020.14865	0.08	B24	J. Darnell & D. Farlow	100	94	194	0.20
	Pt 9	340.020.14866	0.08	B25	D. Vandenberg	100	94	194	0.20
	Pt 9	340.020.14867	0.08	B26	L. & S. Karn	100	94	194	0.20
	Pt 9	340.020.14868	0.08	B27	G. & D. Elliot	100	94	194	0.20
	Pt 9	340.020.14869	0.10	B28	W. & M. Nameth	100	94	194	0.20
	Pt 9	340.020.14870	0.06	B6	N. Hodgkin	100	55	155	0.15

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14871	0.06	B5	J. & M. Vanegas	100	55	155	0.15
	Pt 9	340.020.14872	0.06	B4	1528535 Ontario Ltd.	100	55	155	0.15
	Pt 9	340.020.14873	0.06	B3	1528535 Ontario Ltd.	100	55	155	0.15
	Pt 9	340.020.14874	0.15	B1	1528535 Ontario Ltd.	100	125	225	0.30
	Pt 9	340.020.14887	0.08	B21	1528535 Ontario Ltd.	100	94	194	0.20
	Pt 9	340.020.14888	0.07	B22	1528535 Ontario Ltd.	100	65	165	0.18
	Pt 9	340.020.14889	0.08	B23	R. & B. Hooper	100	94	194	0.20

Roads

Arie Court			0.90	Town of Plympton-Wyoming		3300	1938	5238	3.60
Total Maintenance Assessment						\$ 6,000	\$ 4,000	\$ 10,000	

Trusler Drain (2025) & Associated Branch Drains
 Town of Plympton-Wyoming
 November 28, 2025

SCHEDULE OF MAINTENANCE (TRUSLER BRANCH DRAIN NO.2)

For maintaining the Trusler Branch Drain No. 2 between the Trusler Branch Drain No. 1 at Station 2+000 and the lands with the Landowner ID B2 at Station 2+261. All private drain connections (PDC) within road allowances shall be maintained as per the maintenance provisions set out in the drain report. Road base and road restoration costs do not form part of the drain maintenance costs. The Schedule of Maintenance has been prepared based on a hypothetical maintenance cost of \$10,000.

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
<u>Non - Agricultural Lands</u>									
9	Pt 9	340.020.14820	0.06	B51	C. & C. Veinot	122	95	217	0.15
	Pt 9	340.020.14823	0.06	B50	M. Deciano	122	95	217	0.15
	Pt 9	340.020.14826	0.06	B49	D. & E. Downton	122	95	217	0.15
	Pt 9	340.020.14829	0.06	B48	A. Harb	122	95	217	0.15
	Pt 9	340.020.14832	0.08	B32	J. Hull	122	125	247	0.20
	Pt 9	340.020.14835	0.08	B33	B. Charette & R. Lisabeth	122	125	247	0.20
	Pt 9	340.020.14838	0.08	B34	L. & P. Kuipers	122	125	247	0.20
	Pt 9	340.020.14841	0.08	B35	L. & S. Capp	122	125	247	0.20
	Pt 9	340.020.14844	0.10	B36	S. Orrange	122	125	247	0.20
	Pt 9	340.020.14847	0.13	B52	Town of Plympton-Wyoming	122	160	282	0.26
	Pt 9	340.020.14875	0.11	B2	1528535 Ontario Ltd.	122	135	257	0.22
	Pt 9	340.020.14876	0.09	B18	1528535 Ontario Ltd.	122	140	262	0.23
	Pt 9	340.020.14877	0.09	B19	B. & S. Phillips	122	140	262	0.23
	Pt 9	340.020.14878	0.13	B20	1528535 Ontario Ltd.	122	160	282	0.26
	Pt 9	340.020.14879	0.19	B43	1528535 Ontario Ltd.	122	235	357	0.38
	Pt 9	340.020.14880	0.06	B44	1528535 Ontario Ltd.	122	95	217	0.15
	Pt 9	340.020.14881	0.06	B45	1528535 Ontario Ltd.	122	95	217	0.15
	Pt 9	340.020.14882	0.06	B46	1528535 Ontario Ltd.	122	95	217	0.15
	Pt 9	340.020.14883	0.06	B47	J. & M. Kucera	122	95	217	0.15
	Pt 9	340.020.14884	0.08	B31	D. & I. Barriault	122	125	247	0.20

Conc.	Lot or Part	Roll No.	Aff. Hect.	Owner ID No.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Ha
9	Pt 9	340.020.14885	0.07	B30	1528535 Ontario Ltd.	122	110	232	0.18
	Pt 9	340.020.14886	0.08	B29	1528535 Ontario Ltd.	122	125	247	0.20
<u>Roads</u>									
	Arie Court		0.52	Town of Plympton-Wyoming		3316	1285	4601	2.08
Total Maintenance Assessment						\$ 6,000	\$ 4,000	\$ 10,000	

Trusler Drain (2025)
& Associated Branch Drains
Town of Plympton-Wyoming
November 28, 2025

SPECIFICATION OF WORK

1. Plans and Specifications

The plans and specifications included in this report are to be read in conjunction with the following documents:

- Appended 1983 Trusler Drain report drawings and specifications prepared by Monteith-Ingram Engineering Limited.
- Appended 2009 Elite Homes Constructed drawings PP2 (Revision 6), and STM (Revision 1), prepared by T. W. Grey & Associates Engineering Limited.
- Appended 2018 Arie Court Plan and Profile Phase 3 As Recorded drawings 2 and 3 (Revision 4), prepared by B.M. Ross and Associates Ltd.
- Appended Schedule of Plans, Specifications, General Conditions and Standards, prepared by B.M. Ross and Associates Ltd.

Any work required for the repair and maintenance that are not described in these specifications or the appended specifications, shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings. Any reference to the Owner contained in these Contract Documents, shall refer to the Town of Plympton-Wyoming or the Engineer authorized by the Town of Plympton-Wyoming, to act on its behalf.

2. Health and Safety

The Contractor, at all times, shall be responsible for health and safety on the worksite, including ensuring that all employees wear suitable personal protective equipment, including safety boots and hard hats.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act, to ensure that work sites are safe, and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency, and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for a stop work order to be issued, or even termination of the Contract.

The Contractor shall also ensure that only competent workmen are employed onsite, and that appropriate training and certification is supplied to all employees.

3. Traffic Control and Construction Signage

The Contractor shall be responsible for traffic control, as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision), when working on public road allowances. The Contractor will be required to provide the Engineer with a detailed traffic control plan, one week prior to mobilizing to the site. A copy of the traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position, to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance, and when entering or exiting a worksite onto a Pedestrian access should be provided to all properties, at all times during construction. The Contractor shall be responsible for supply, installation, maintenance, and removal of all temporary traffic control signage required on the project.

Following the installation of traffic signage for temporary conditions, the Contractor is responsible to remove, store and reinstate any permanent traffic signage, as required to facilitate the construction process. The Contractor is responsible to reinstate the pre-existing signs and posts, or at the option of the Town of Plympton-Wyoming, reinstall new signs and posts supplied by the Town of Plympton-Wyoming.

4. Workplace Safety and Insurance Board

The Contractor hereby certifies, that all employees and officers working on the project are covered by the Contractor's benefits. The WSIB Clearance Certificate must be furnished prior to the execution of the Contract, and updated every 90 days.

5. Utility Locates

Prior to completing any tile installation, the Contractor shall locate all utilities in the working area and adjacent road allowances.

6. Geotechnical Investigation

A geotechnical investigation has not been undertaken within the project limits.

7. Access and Working Area

Refer to the report for the access and working area requirements.

8. Removals

Removals shall be in accordance with OPSS MUNI 510.

9. Brushing and Tree Removal

Brushing and clearing shall be in accordance with OPSS MUNI 201.

10. Excavation Channel

The storm water management pond shall be maintained to the depths and grades as per the drawings, which are appended to this Engineer's Report. Any excavation shall be completed using a laser, or similar approved device, with a labourer on site, to ensure that the grade is correct.

All exposed areas shall be seeded as soon as the final grading is completed.

Excavation shall be in accordance with OPSS MUNI 206.

11. Storm Water Management Pond

The storm water management pond shall be maintained at the direction of the Drainage Superintendent at the time of maintenance.

Excavation shall be in accordance with OPSS MUNI 206.

12. Installation/Maintenance of Tile/Pipe

The Contractor shall repair the tile (pipe) with the same pipe material, same pipe size and same wall thickness. The Contractor shall supply, install, and backfill the specified sizes of pipe to the depths and grades as shown on the drawings. If necessary, HDPE pipe can be substituted for concrete pipe when concrete pipe is not available.

Concrete pipe shall be reinforced gasketed pipe with bell and spigot joints.

HDPE pipe shall be smooth wall gasketed pipe with bell and spigot joints (320 kPa).

Laser control or GPS systems shall be used to ensure proper grades.

The pipe must be properly bedded and installed as per the manufacture's recommendations. Prior to backfilling, the pipe shall be covered manually to a depth of approx. 100mm over the pipe to ensure that the pipe are not displaced by large clumps of earth. The trench shall be backfilled with excavated material free of stones, broken pipe, or other deleterious material. All granular bedding and backfill material, including any required fill below the pipe invert, shall be mechanically compacted to 95% standard proctor maximum dry density. Pipes shall have a minimum of 150mm of bedding below the bottom of the pipe. Pipes shall be constructed to the depths and grades as shown on the drawings. Any over-excavation will be backfilled with granular material or clear stone.

When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with Granular "A", or clear stone, from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the pipe does not differ by more than 300mm, so that the pipe is not displaced.

Concrete and HDPE pipes shall be backfilled with Granular "B" material mechanically compacted to 95% standard proctor maximum dry density. The top 300mm of Granular "B" material, shall be mechanically compacted to 98% standard proctor maximum dry density. The backfill shall be placed from the top of the bedding, to within 200mm of the finished grade, less any asphalt. The top 150mm shall be restored with Granular "A" mechanically compacted to 100% standard proctor maximum dry density.

Maintenance of private services may be with trenchless technologies or by conventional construction methods as approved by the Town of Plympton-Wyoming.

Pipes shall be in accordance with OPSS MUNI 410.

13. Catch Basins

The and ditch inlet catch basins and catch basins shall be in accordance with the applicable OPSS and OPSD,

14. Concrete Headwall and Grate

Concrete Headwall and grates shall be in accordance with the applicable OPSS and OPSD. Headwall grate shall be in accordance with OPSS 804.05

15. Channel Protection (Rip Rap)

The channel protection shall be in accordance with the drawings and shall consist of rip rap and filter fabric.

Channel protection shall be in accordance with OPSS MUNI 511.

16. Trucking of Excavated Material

Excavated material across finished lawns, park land and drainage easements, shall be trucked and disposed offsite by the Contractor. The cost of trucking across finished lawns will form part of the drain maintenance cost, and be assessed as per the Schedule of Maintenance.

17. Survey Bars

Any survey bars that are removed as a result of construction must be replaced by an Ontario Land Surveyor, registered with the Association of Ontario Land Surveyors. If a property bar is required to be moved or replaced to facilitate construction or maintenance, the costs to reinstate the property bar will be in addition to the contract price.

18. Restoration

Restoration shall be in accordance with the following:

Excavation shall be in accordance with OPSS MUNI 206.

Compaction shall be in accordance with OPSS MUNI 501.

Topsoil shall be in accordance with OPSS MUNI 802.

Seed shall be in accordance with OPSS MUNI 804.

Granular shall be in accordance with OPSS 1010.

Asphalt shall be in accordance with OPSS MUNI 310.

19. Silt Fence

Light duty silt fencing shall be in accordance with OPSS MUNI 805 and OPSD 219.110.

20. Straw bale

Straw bale check dams shall be in accordance with OPSS 577 and OPSD 219.110.

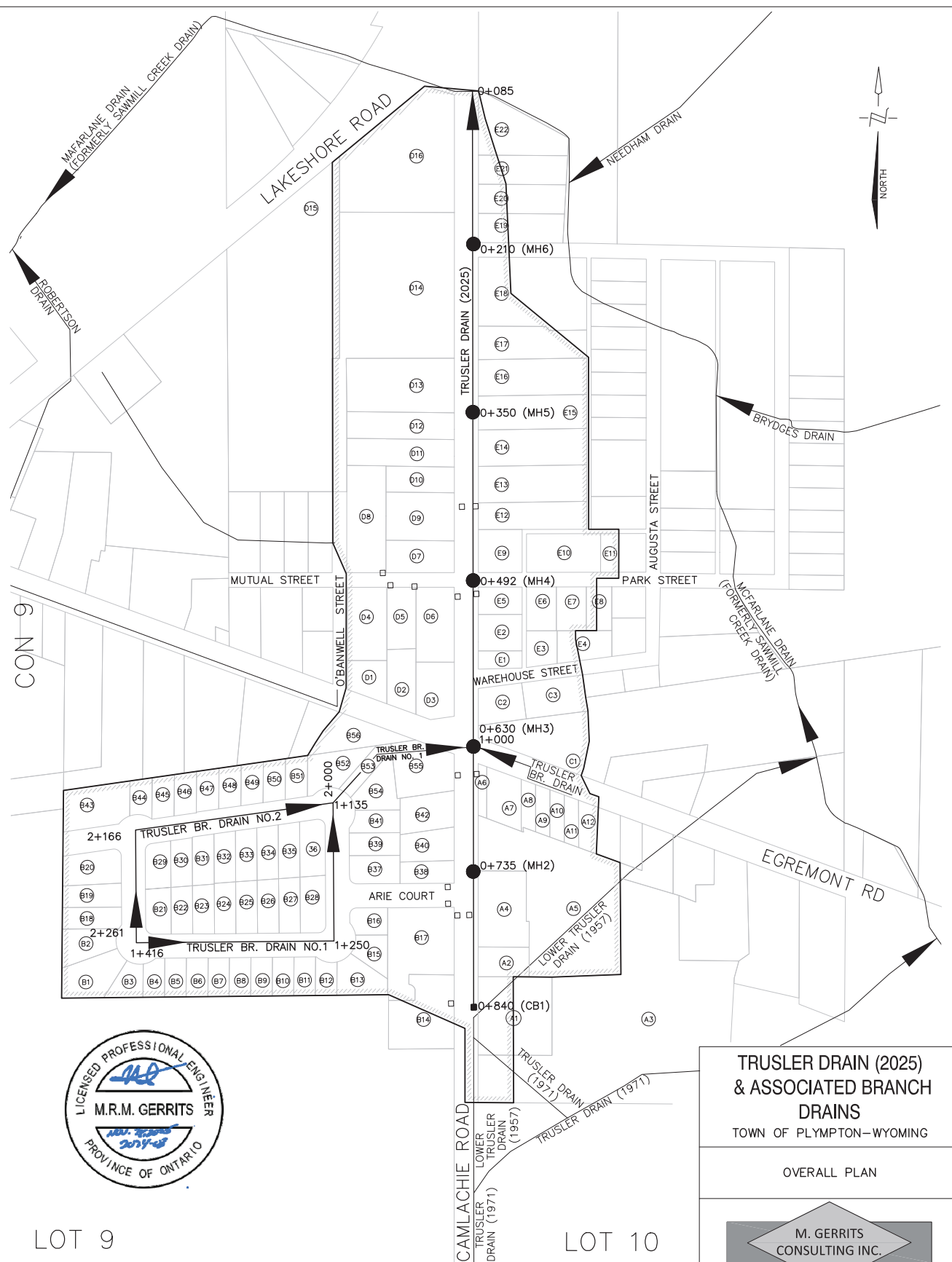
21. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

1. All excavated and stockpiled material shall be placed a minimum of 1.5m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel or closed drain.
2. All granular and erosion control materials shall be stockpiled a minimum of 1.5m from the top of the bank or surface water runs. Material shall not be placed in surface water runs or open inlets that enter the channel or open inlets that enter the channel or closed drain.
3. All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance, shall

be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank, surface water runs, and open inlets that enter the drain.

4. When possible, all construction shall be carried out during periods of low flow. When possible, the Contractor shall schedule work to avoid periods of high winds and rain. The Contractor shall maintain a dry working area during construction. Prior to construction, the Contractor shall install a silt fence downstream of the work area.
5. All machinery shall be operated in a manner that minimizes disturbance to the banks of the watercourse.
6. The work shall be completed in accordance with any required Department of Fisheries and Oceans timing windows and Conservation Authority permits.









CON 9



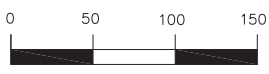
LOT 9

LOT 10

LEGEND

-  DRAINAGE AREA
-  TRUSLER DRAIN (2025) & ASSOCIATED BRANCH DRAINS
-  EX MUNICIPAL DRAIN
-  PROPOSED MAINTENANCE HOLE
-  PROPOSED DITCH INLET CATCH BASIN
-  EXISTING CATCH BASIN (ROAD AUTHORITY)

SCALE: 1:3,000



**TRUSLER DRAIN (2025)
& ASSOCIATED BRANCH
DRAINS**

TOWN OF PLYMPTON-WYOMING

OVERALL PLAN

M. GERRITS
CONSULTING INC.

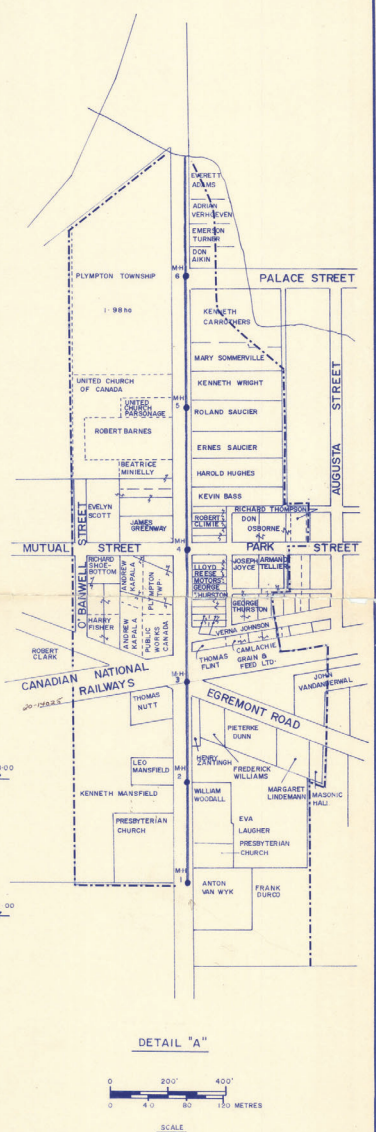
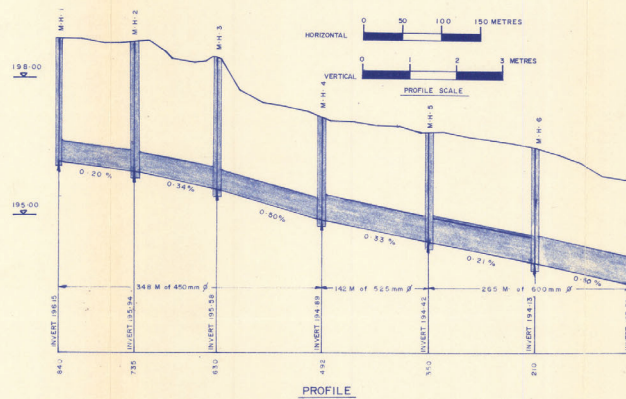
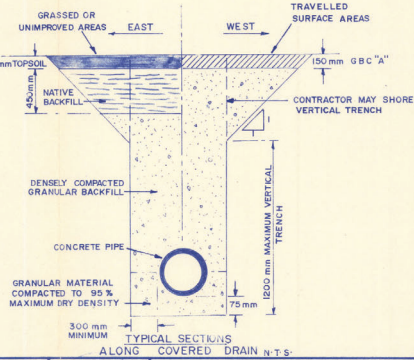
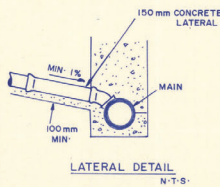
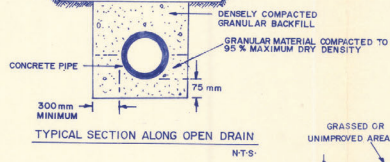
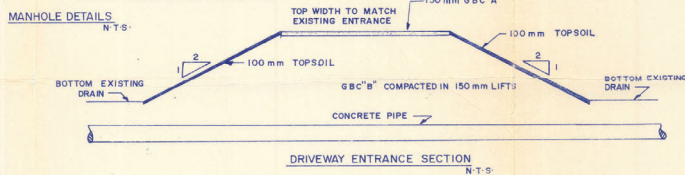
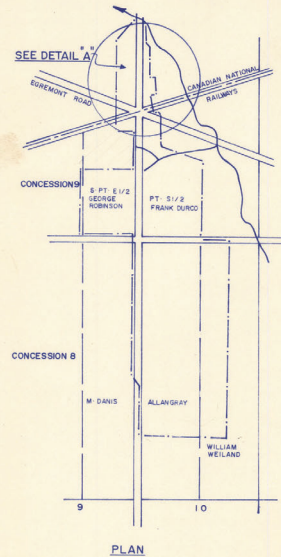
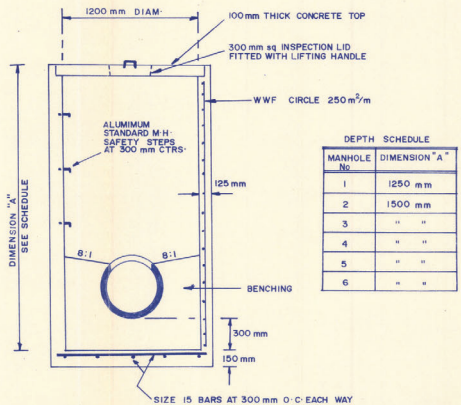
NO	REVISION	DATE	
1	FOR ONSITE MEETING	NOV 21, 2025	MG
2	FOR REPORT	NOV 28, 2025	MG

DRAWN	MG	SHEET
CHECKED	EG	1 OF 1
DATE	NOV 28, 2025	
PROJECT NO.	2024-03	

APPENDIX

Monteith-Ingram Engineering Limited.

- 1983 Trusler Drain Drawings and Specifications



NOTES:	<p>MONTEITH - INGRAM ENGINEERING LIMITED CONSULTING ENGINEERS</p>	<p>PETROLIA ONTARIO</p>	DESIGN: P.K.M.	<p>TOWNSHIP OF PLYMPTON TRUSLER DRAIN</p>	PROJECT NO: 3259
SCALE: HORIZONTAL: VERTICAL:			DRAWN: G.F.T.		SHEET NO: 1
			CHECKED: F.D.R.		
			APPROVED: J.A.M.		
			NO. _____		
			REVISIONS: _____		
			DATE: _____		

SPECIFICATION OF WORK

SCOPE OF WORK

In general, the work to be done under this specification comprises the reconstruction of part of the Trusler Drain from the outlet at Sawmill Creek upstream to the south end of the residential area in the Hamlet of Camlachie. The drain shall be constructed as shown on the accompanying plan. This work involves the reconstruction of approximately 755 metres of storm drain with appurtenances.

GENERAL CONDITIONS

Tenders will be received and the Contract awarded only in the form of unit prices on tender forms to be furnished by the Engineer. The quantities indicated thereon are not guaranteed and the Contractor shall be compensated only for the quantities actually installed in accordance with plans, profiles, and this specification. Each Tenderer must visit the site of the work before submitting his tender and must satisfy himself by personal examination as to the conditions to be met with during the construction of the installations. He shall make his own estimates as to quantities and difficulties to be encountered including the nature of subsurface materials and conditions. Intending bidders may examine any information in possession of either the Engineer or the Township of Plympton, however, the information furnished is not guaranteed to be accurate and is furnished without any liability on the part of the Township.

Prior to the commencement of work, an Agreement shall be made between the Contractor and the Municipality setting forth the Contract prices and other details relating to the performance of and payment for the work.

The Contractor shall furnish and place in position all necessary lights, temporary fencing, barricades, etc., for the proper protection of the public during night and day.

The Contractor shall indemnify and save harmless the Municipality against any loss, damages, costs, charges, or any other expenses which the Municipality may sustain by reason of accident or injury to any persons or property by reason of the construction of this work either due to the Contractor's negligence or otherwise until the work has been accepted by the Engineer.

Materials

The Contractor shall furnish all materials. All materials shall conform to the size and materials as shown on the drawing and shall meet the following standards:

Reinforced Concrete Pipe - C.S.A. 257 Class III, 460,
530 and 610 mm. diameter

Non-reinforced Concrete Pipe - C.S.A. 257 Extra
strength 150 mm.
diameter

Perforated Corrugated Steel Pipe - 16 gauge, 150 mm.
diameter

Manholes - M.T.C. Standard

Materials found to be defective or damaged shall be replaced at the Contractor's expense.

Equipment and Labour

The Contractor shall furnish all equipment and labour necessary for the proper completion of the whole work.

Alignment and Grades

The alignment for the storm drain shall follow the line of planted stakes to be established by the Engineer. The sewer will be located within the width of the existing open channel. Grades for actual construction shall be in accordance with stakes to be furnished by the Engineer. Except as otherwise noted, batter boards shall be constructed in an approved manner by the Contractor to

ensure perfectness of grade and to facilitate inspection. In the event that laser controls are utilized, the Contractor shall co-operate with the the inspection staff in checking the grades.

Inspection and Supervision

Inspection and control of the work shall be carried out by the Superintendent and the Engineer or Inspectors appointed by the Engineer. The Contractor shall at all times and at his own expense, furnish all reasonable aid and assistance required for proper inspection and examination of the work or any part thereof. The Contractor shall obey the directions and instructions of the Superintendent or Inspector. In the event of disagreement the Engineer shall be sole judge of the interpretation of the specifications and drawings.

The Contractor shall not deviate from the approved drawings and profiles without the consent in writing of the Engineer.

General Excavation

The Contractor shall do all excavation of whatever substances are encountered to the depths shown on the drawings. All excavated materials shall be disposed of and this shall be the responsibility of the Contractor. Excavation for manholes and other accessories shall be 300 mm. minimum and 600 mm. maximum clearance on all sides. Excavation shall not be carried below the required level. Excess excavation below the required elevation shall be backfilled at the Contractor's expense with thoroughly compacted gravel or concrete as directed by the Engineer. Unstable soils shall be removed and replaced with gravel, crushed stone or crushed slag. The Engineer shall determine the depth of removal of unstable soil. Ground adjacent to all excavation shall be graded to prevent water from running in. The Contractor shall remove by pumping or other means approved by the Engineer any water accumulated in the excavation.

Trench Excavation

The banks of the trenches shall be vertical unless otherwise directed by the Engineer. The Contractor shall do all bracing, sheathing and shoring necessary to protect and perform all excavations as indicated on the drawing, as required for safety, and in accordance with the Trench Excavators Protection Act (as amended). The existing culvert structures along the existing drain shall be removed by the Contractor and left in a location or locations satisfactory to the Superintendent. Every care shall be taken by the Contractor to salvage pipe sections including removing sediment and debris prior to removal. Temporary bridges or crossings shall be built by the Contractor where required to maintain access.

Laying Pipe

The pipe shall be laid true to line and grade. Sections of the pipe shall be so laid and fitted together that, when complete, the drain will have a smooth and uniform invert. Each pipe shall be inspected for defects before being lowered into the trench. Water shall not be allowed in the trenches where pipes are being laid. Pipe bedding shall be as shown on the drawing. Not more than 15 metres of trenching shall be opened in advance of the pipe laying operations unless directed by the Engineer. The trenching shall be fully completed a sufficient distance in advance of the laying of the pipe, and the exposed ends of the pipes shall be fully protected with a board or other approved stopper to prevent earth or other substances from entering the pipe. Before a joint is made the interior of each pipe shall be carefully freed of all dirt, cement or other superfluous material, and the end shall be thoroughly cleaned and brushed with a suitable lubricant recommended by the pipe manufacturer to facilitate in the jointing operation. Pipes shall be thoroughly flushed at the completion of the laying and jointing operations.

Backfill

After the pipes have been tested and approved, backfilling shall be carried out with granular material supplied by the Contractor from an approved source. The top 600 mm. of the trench through lawn or unimproved areas may be backfilled with suitable native material and topsoil for the top 150 mm. In all cases the backfill shall be consolidated by the Contractor and shall conform with the typical sections in the drawing. Backfill material around utilities shall be granular and shall be carefully compacted in 300 mm. lifts to 95% Maximum Dry density. Backfilling of the trench shall be done up to existing elevations both in the existing ditch and at road and access crossings. Road and access crossings shall be sloped at 2 horizontal to 1 vertical into the ditch bottom, covered with topsoil and seeded.

At the locations along the drain designated by the Engineer, the Contractor shall construct french drains. This will consist of making a 25 mm. diameter hole in the top of the pipe and backfilling around and over the hole to the surface with 75 mm. dia. clear stone. The least dimension of the clear stone backfill shall be 400 mm. There are approximately 20 locations for the french drains.

Connections

All connections which are for future use shall be properly capped. No pipe shall be cut for connection except when permitted by the Engineer. The ends of the pipe which enter masonry shall be neatly cut to fit the inner face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Lateral Connections

A new lateral connection shall be provided for each property fronting on the drain and shall be constructed from

the main to the property line. In no case shall any one property be permitted more than one direct connection to this installation. The affected owners shall be responsible for the construction of suitable headers in the event that more than one connection has been made to the existing installation. Before any such connections are backfilled the Contractor shall be required to notify the Engineer so that the exact location may be recorded for the Township's records. Bedding and backfilling shall be done to the same standard as the main pipe, except that suitable native backfill will be allowed outside the limits of the present and future roadways. Road drains shall be connected to manholes, where practical, or directly to the sewer where this is not possible. The Municipality may arrange with the Contractor to install additional connections for catchbasins. Catchbasin laterals shall be not less than 250 mm. diameter concrete pipe placed according to the same standards set out herein for the sewer construction with the ends plugged to the satisfaction of the Engineer in the event that the catchbasins are not to be installed until a later date.

Manholes

Manholes shall be constructed as shown on the plan and they shall conform to M.T.C. standard drawings for 1200 mm. minimum inside dimension manholes with benching. All work in connection with these structures shall conform to M.T.C. Forms 9 and 407.

At each manhole two 6 metre lengths of 150 mm. diameter perforated C.S.P. shall be placed alongside the main pipe in the trench bottom and outlet into the manhole. Around the C.S.P. 75 mm. diameter clear stone shall be placed to a depth of 300 mm. above the C.S.P. The upstream end of the C.S.P. shall be plugged in a manner approved by the Engineer.

Catchbasin

A 600 mm. square ditch inlet catchbasin shall be constructed in the highway ditch at or near the point where the main agricultural tile drain proceeds north easterly towards its open channel outlet. The installation shall be precast reinforced concrete with a sloping face and fitted with a grate acceptable to the Superintendent. The elevation of the structure shall be determined by the Engineer and a berm shall be formed within the ditch which will direct the surface flow into the catchbasin while permitting overflow to the north. The connection to the drain shall be constructed of 250 mm. 16 gauge C.S.P. All entries shall be carefully sealed off with concrete grout and inspected prior to backfilling.

Schedule of Operations

The Contractor shall schedule his operations such that no sections of the drainage system are left without a satisfactory outlet. He shall inform the Engineer, of the proposed scheduling prior to the start of construction and shall not deviate from the approved schedule without the approval of the Engineer. Simultaneous operations shall be permitted at two or more locations provided that the foregoing conditions are met in all respects.

Temporary Cessation of Work

The Engineer may at his own discretion, stop work at any time due to the weather or any other factor affecting the quality of the work and the Contractor shall not resume work until directed by the Engineer.

PUBLIC UTILITIES

Union Gas Limited and the Plympton Township Water Department shall be required to modify their service lines or mains crossing the open ditch sections to eliminate

conflict with the drain in advance of drainage construction. The Contractor shall inform all Public Utilities as to the work schedule so that they may take the necessary steps to protect their installations during the progress of the work. The Contractor shall work in co-operation with any Utility representatives in the field, and shall be held liable for any unnecessary damage to their installations. He shall undertake work manually where necessary to achieve this objective.

Surface Restoration and Clean-Up

Upon completion of the work the Contractor shall clean up and dispose of all debris, excess material, trash, wood forms etc., and leave the entire site in a neat tidy condition to the entire satisfaction of the Engineer. This work shall include manual trimming and raking of all improved surfaces adjacent to the trenching operations. The Contractor shall be responsible for settlement over excavated areas for a period of 6 months after the acceptance of the work by the Engineer.

Restoration procedures shall be as follows:

1. Road and Driveway Surfaces

The top 6 inches of the backfilled trenches and excavations shall be composed of granular base course Class A furnished by the Contractor and thoroughly consolidated. Corrections for settlement shall be effected with the same material.

2. Lawn Areas, Road and Driveway Slopes

The top 4 inches of all excavated areas shall be re-excavated after a reasonable time has elapsed for settlement and backfilled with topsoil which shall be manually sloped. Topsoil shall be used to compensate for any further settlement and when stabilised all areas shall be seeded and mulched in accordance with M.T.C. standards.

DRAINAGE SUPERINTENDENT

Where the word "Superintendent" is used in this specification it shall mean the person, other than the

engineer, appointed by the Council of the Township of Plympton for the letting and superintending of this work.

GENERAL

All work and materials to be to the entire satisfaction of the Engineer. These specifications shall generally relate to the performance of the work however, variations may be made within the tender documents and during construction operations provided that, under no circumstances, the design capacity of the project in any phase is decreased.

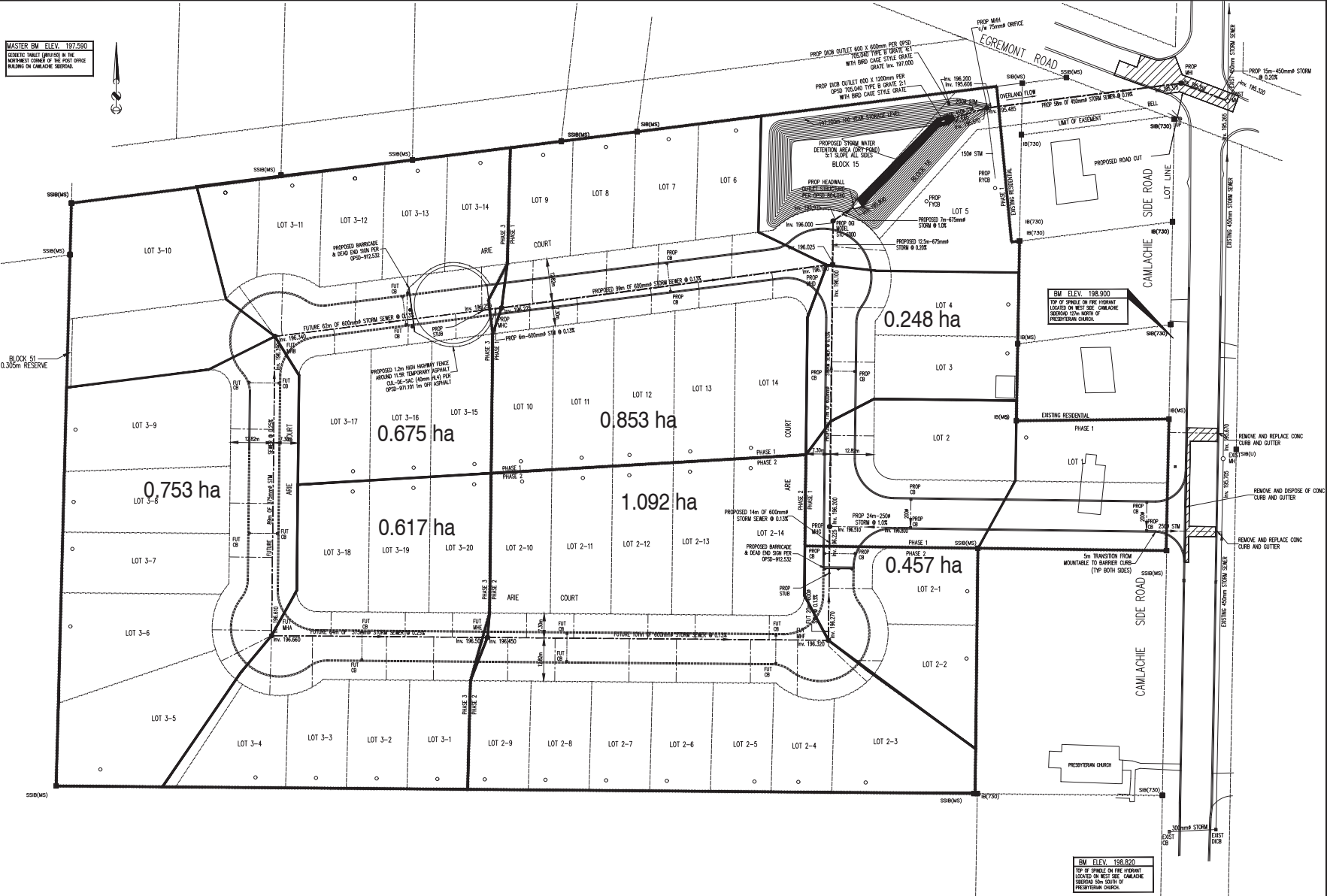
Job #3259
June, 1983

J. A. MONTEITH ASSOCIATES LIMITED
Consulting Engineers
360 Centre Street
Petrolia, Ontario.

T. W. Grey & Associates Engineering Limited

- 2009 Elite Homes Constructed Drawings PP2 (Revision 6), and STM (Revision 1)

MASTER EM ELEV. 197.590
 GEODETIC DATUM (GDA83) IN THE
 NORTHWEST CORNER OF THE POST OFFICE
 BUILDING ON CAMLACHIE SECTION.



Stamp



**T. W. GRAY & ASSOCIATES
 ENGINEERING LIMITED**
 301 FRONT STREET N, SARNA, ONTARIO N7T 5S6
 PHONE: (519) 336-0488 FAX: (519) 336-5379

No.	Revision	Date	By
1	FOR CONSTRUCTION	APR 2011	SPB
0	FOR MOE APPROVAL	08-10	SPB

Scale
 Plan
 1:500

Design	G.C. BLADON
Drawn	B. KELCH
Checked	T.W. GRAY
Date	JANUARY 2009

ELITE HOMES
 PLYMPTON-WYOMING, ONTARIO

PROPOSED SUBDIVISION
 STORM SEWER PLAN

Project No.
08-5377
 Day File: 5377 Overall
 Drawing No.
STM

B. M. Ross and Associates Ltd

- Schedule of Plans, Specifications, General Conditions and Standards, and Special Provisions, prepared by B.M. Ross and Associates Ltd.
- 2018 Arie Court Plan and Profile Phase 3 As Recorded drawings 2 and 3 (Revision 4), prepared by B.M. Ross and Associates Ltd.

SCHEDULE OF PLANS, SPECIFICATIONS, GENERAL CONDITIONS & STANDARDS

The work specified in this contract will be performed in strict accordance with the following plans, specifications, General Conditions, standards, etc. for Elite Homes, Arie Court, Phase 3, Contract No. 17283.

- A. SPECIAL PROVISIONS - Pages SP-1 to SP-40**
- B. PLANS - Drawing Nos. 1 to 5**
- C. INFORMATION TO BIDDERS - Pages IB-1 to IB-11**
- D. STANDARD SPECIFICATIONS**

Ontario Provincial Standard Specification Numbers shall apply to this contract mutatis mutandis. Only the most recent specifications shall apply to this contract.

OPSS – Municipal and Provincial Common

310-Nov/17	407-Nov/15	492-Nov/15	802-Nov/10
312-Nov/09	408-Nov/15		803-Nov/15

OPSS.MUNI – Municipal Oriented

106-Apr/17	314-Nov/16	401-Nov/15	410-Nov/15	501-Nov/17	518-Apr/17
206-Nov/13	353-Nov/16	402-Nov/16	441-Nov/16	506-Nov/17	603-Nov/17
		405-Nov/17	442-Nov/16	510-Nov/17	706-Apr/17
		409-Nov/17		517-Apr/17	

- E. STANDARD DRAWINGS**

Ontario Provincial Standard Drawing Numbers shall apply to this contract mutatis mutandis. Only the most recent drawings shall apply to this contract.

OPSD- Municipal and Provincial Common

351.010	400.020	701.010	705.010	802.010	1006.010
	401.010	701.021	708.020	802.030	
		704.010		809.010	

BMROSS-Standard Drawings

208	1000A
	1114

- F. FORM OF TENDER**
- G. SUPPLEMENTAL GENERAL CONDITIONS**
- H. GENERAL CONDITIONS - OPSS.MUNI 100 Rev. Date: 11/2006**
- I. AGREEMENT**
- J. PERFORMANCE BOND**
- K. LABOUR AND MATERIAL PAYMENT BOND**
- L. CONTRACT RELEASE**
- M. STATUTORY DECLARATION RE: LIENS, LIABILITIES & PAYMENT OF ACCOUNTS**

SPECIAL PROVISIONS

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	Restoration.....	SP-1
	Co-ordination of Work by Others	SP-2
	Public Notices	SP-2
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Item No. 2	Dust Suppressants and Compaction	SP-3
Item Nos. 3 & 4	Granular “A” and Granular “B” Type I.....	SP-4
Item No. 5	Hot Mix Asphalt.....	SP-4
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Item No. 35	Top Layer of Minimum 40 mm HL-3	SP-39
Item No. 36	Traffic Control and Pedestrian Safety	SP-39

GENERAL

MANAGEMENT OF EXCESS MATERIALS-OWNER

All excavated material shall become the property of the **Owner**, and the Contractor's lump sum prices bid for these items shall include the cost of loading, hauling, dumping and levelling the material on site to the limits as determined by the Owner at the time of construction. **The Contractor's management of excess materials shall be in accordance with OPSS 180.MUNI- General Specification for the Management of Excess Materials.**

1. **Earth material** shall be disposed of as directed by the Owner.
2. **Asphalt** shall be disposed of by the Contractor, at an approved site outside the contract limits.
3. **Concrete** shall be disposed of by the Contractor outside the contract limits.
4. **Asbestos Cement Pipe** shall be disposed of by the Contractor outside the contract limits.

RESTORATION

When noted in the Form of Tender or identified in the Special Provision, the unit price bid for the appropriate item(s) shall include complete restoration. All restoration shall be as noted below in the General Restoration Requirements.

Restoration Beyond the Limits of General Grading Operations

When noted in the Form of Tender or identified in the Special Provisions, the unit price bid for the appropriate item(s) shall include restoration beyond the general grading operations. Contract items are provided for the restoration of work **within** the general grading operations. Restoration of areas **beyond** the general grading operations shall be included in the unit price of the item. Areas beyond the general grading operations include, but are not limited to, stockpile locations, areas disturbed by equipment or material storage sites or service connections. All restoration shall be as noted below in the General Restoration Requirements.

General Restoration Requirements

All restoration shall be in accordance with OPSS 492 and the following:

- (a) Lawn Areas -- 100 mm of approved topsoil levelled and graded to conform to the existing ground, followed by nursery sod approved by the Contract Administrator.
- (b) Non-lawn, Non-roadway areas -- 100 mm of approved topsoil levelled and graded to conform to the existing ground, followed by an approved seed and mulch application.
- (c) Where existing roadway/driveway is paved -- 300 mm minimum of imported Granular "B" Type I, 150 mm of imported Granular "A", and 50 mm of HL-3 in driveways, or 2-40 mm lifts of HL-4 minimum in roadways or to match the depth of existing asphalt. Where 2 or more lifts of asphalt are required against existing pavement, a stepped joint shall be prepared by removing 0.5 m wide by the depth of the existing surface course prior to paving.

- (d) Where existing roadway/driveway is gravel -- 300 mm of imported Granular “B” Type I; and 150 mm of imported Granular “A”.
- (e) Where existing driveway is concrete -- 300 mm minimum of imported Granular “B” Type I and 150 mm of imported Granular “A”; for residential drives -- 150 mm of 30 MPa concrete with crushed limestone; and for commercial drives -- 200 mm of 30 MPa concrete with crushed limestone.
- (f) Where existing driveway is brick or unit pavers – 300 mm minimum of imported Granular “B” Type I and 150 mm of imported Granular “A” and 25 mm to 38 mm of limestone screening and match existing patterns.
- (g) All disturbed or damaged concrete structures, such as sidewalks, curbs and gutter, etc., shall be removed and replaced including 125 mm of Granular “A”.
- (h) Prior to the expiration of the maintenance holdback, the contractor shall repair all settlements. Settlements of lawns, non-lawns or non-roadway areas shall be restored by applying sufficient topsoil to the settled area followed by an application of approved seed and mulch. Asphalt settlements shall be restored by milling the deficient area followed by the placement Hot Mix Asphalt (HMA). All repairs shall be in accordance with OPSS 802, OPSS.MUNI 804, and OPSS 310.
- (i) Salvaged granular material shall not be used above sub-grade or re-used as Granular “B” Type I unless a granular analysis is performed at the Contractor’s expense.

NOTE

- In (a) and (b) above, it will be the Contractor’s responsibility to ensure a catch of grass at the termination of the contract.
- The Contract Administrator/Owner may request the delay of the sod placement during hot and dry weather conditions. No additional payment or penalty will result from the delay.
- All asphalt surfaces shall be saw-cut prior to resurfacing.
- All concrete structures shall be saw-cut prior to replacement.

CO-ORDINATION OF WORK BY OTHERS

The Contractor will co-ordinate his work with local utility companies for the installation of new underground ducts. When it is impossible to avoid working in the area at the same time, a barrier will have to be maintained to have separation in time or space between the Contractor and the utility company. Where necessary, the Contractor shall move the operation to another part of the contract and give the utility sufficient time to complete any work deemed necessary at that time during the contract.

Hydro One Networks Inc.: Terrilyn Fallowfield, Lines Customer Support Clerk
Tel: 519-423-6253 Ext. 3251

UGL Union Gas Limited: Brian Roberts
Tel: 519-667-4100 Ext. 5153453

Eastlink: Al Carnahan
Tel: 902-484-2800

PUBLIC NOTICES

The Contractor shall notify all impacted property owners/tenants of impending disruptions to services and or access. The Notice shall be delivered 24 hours prior to the disruption and shall

include a short description of the disruption, the probable timing and duration of the disruption, alternative actions that the owner/tenant should take while the work is being done ie) parking off site, and a contact person who could address any further questions.

PART 1 – PHASE 3 SERVICING

ITEM NO. 1 EARTH EXCAVATION

For the lump sum bid item a), the Contractor shall strip topsoil within the right-of-way and stockpile to the rear of lots 15 to 20 (as seen on drawing No. 1).

For the lump sum bid item b), the Contractor shall relocate the existing topsoil stockpile on right-of-way to the rear of lots 7 and 8 (as seen on drawing No. 1)

For the lump sum bid item c), the Contractor shall fill (from on site clay stockpile) to the required line and grade, or to new limits as established by the Contract Administrator at the time of construction. All excess excavated material shall be disposed of as outlined under the General SP - Management of Excess Materials.

For the lump sum bid item d), the Contractor shall be required to use approved excavated material to backfill and fine grade boulevards between back of curb and property line to within 100 mm of finished grade.

The lump sum bid item e) shall also include the removal and disposal of temporary asphalt cul-de-sacs including any granular base encountered.

ITEM NO. 2 DUST SUPPRESSANTS AND COMPACTION

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the application of water and calcium chloride solids when requested by the Contract Administrator, or upon approval of the Contract Administrator.

Dust suppressants shall be applied in a manner that avoids ponding, runoff, drifting, and tracking of the material beyond the area of application.

Water, for compaction shall be applied, as necessary, to achieve the degree of compaction specified.

General

The proper use and application of the dust suppressants is the responsibility of the Contractor and is subject to applicable Ministry of Environment and Climate Change requirements under legislation such as the Environmental Protection Act (EPA) and the Ontario Water Resources Act.

Materials

Water shall be free of contaminants that could adversely affect fill material or the environment.

Calcium chloride solid solution shall be in accordance with OPSS 2501. Should the Contractor choose to use a calcium chloride solution, the Contractor shall submit the mix design indicating the percentage of solid calcium chloride. Dust suppressants containing waste material are not approved for use.

Measurement for Payment

Measurement for water shall be by cubic meters based on the tank size. Measurement for calcium chloride solid shall be mass in tonnes. Measurement for calcium chloride solution shall be by mass of equivalent solid based on the submitted mix design.

ITEM NOS. 3 & 4 GRANULAR “A” AND GRANULAR “B” TYPE I

For the unit price bid, the Contractor shall supply to the site, place, fine grade and compact Granular “A” and Granular “B” materials required in the roadway for roadbed, subdrains, and curb and gutter, which are applicable to this contract. All other Granular “A” or Granular “B” Type I materials required shall be included in the unit prices bid for those items where material is required.

Granular material shall be compacted to a minimum dry density of 100%.

ITEM NO. 5 HOT MIX ASPHALT

General

For the unit price bid, the Contractor shall supply all labour, equipment and materials, for the execution of paving work in accordance with OPSS 310 for Marshall mixes of Hot Mix Asphalt (HMA).

The Contractor’s unit price bid for this item shall also include all ramping along lip of curb, transverse joints, and/or removal of all transverse joints and all deramping at structures, sidewalk drops and driveway entrances, as identified by the Contract Administrator at the time of construction.

All asphalt plant operations shall comply with municipal regulations and ordinances governing the area in which the plant is located.

The Contractor will be required to submit a mix design for approval prior to commencing the paving operations.

310.05 Materials

Performance graded asphalt cement shall be PG 58-28. The Performance Graded Asphalt Cement (PGAC) will conform to OPSS.MUNI 1101 for the specified grade.

310.06 Equipment

OPSS 310 is amended in that no surface trial coat area shall be required under this contract.

Prior to paving, the Contractor shall submit a list of equipment that will be used. The list shall identify the make & model of the paving equipment and rollers. For the rollers, the Contractor shall also identify the Class of Roller and identify the Minimum Roller Combinations to be used on the contract as per Table 5 of OPSS 310.

310.07 Construction

The Contractor is responsible for all Quality Control (QC) testing. The QC documentation shall be made available to the Contract Administrator upon request. A through lane paving course shall be completed prior to placement of adjacent side roads, speed change lanes and other paved areas.

310.07.05 Sampling

OPSS 310.07.05.01 Asphalt Cement - Asphalt cement sampling and testing is not a requirement of the contract.

OPSS 310.07.05.02 Hot Mix Asphalt - When the Hot Mix Price Adjustment is part of the contract, Hot Mix asphalt sampling and testing is a requirement of the contract and all costs are to be paid by the Contractor. Sample sizes and frequency of samples shall be as per Table 6 of OPSS 310.

310.07.08- Widening and Irregular Sections - 450 mm stepped joints are required when placing HMA adjacent to existing paved areas with an existing asphalt depth of 80 mm or more.

310.07.09 - Hot Mix Asphalt Padding - Padding shall be placed prior to placing the surface course of asphalt. The tonnage required for HMA padding will be included with the appropriate HMA item.

310.07.11.03- Transverse Joints - The third paragraph has been amended as follows:

- a) When a binder course is placed flush against an existing HMA pavement and a butt joint is to be made, the existing pavement shall be trimmed back to form a straight vertical surface. *When the surface course is to be placed at a later date, temporary ramping shall be provided as per BMROSS Standard Drawing 208 – Asphalt Joint Detail for Transverse Joints.*

310.07.13 Tolerances

The paving tolerance of OPSS 310.07.13 shall be reviewed upon completion. Should the deviations exceed 6 mm on the binder course or 3 mm on the surface course, as measured in any direction with a 3m straight edge, the Contractor shall correct these deviations to the satisfaction of the Road Authority. Paving tolerances are not applicable to irregular sections of paving, or within 3 m of a butt joint with an existing HMA pavement.

310.08 Quality Assurance

Quality Control laboratory testing shall be used for acceptance in place of Quality Assurance laboratory test results. All other Quality Assurance testing shall be performed by the Contract Administrator.

310.09 Measurement for Payment

Measurement for payment of hot mix asphalt shall be by mass in tonnes unless specified otherwise. Tack coat shall be included in the unit price bid unless tack coat is listed as a separate item.

Hot Mix Miscellaneous – Driveways and Paved Boulevards

The Contractor shall also take note that Hot Mix Miscellaneous paving is to be performed at designated drives, boulevards and areas behind the curb or to the limits established by the Contract Administrator at the time of construction. This hand laid asphalt will only apply to areas that, in the opinion of the Contract Administrator, do not permit the operation of a paving machine. The supply of the HL-3 for these areas shall be included under the item for Hot Mix Miscellaneous. Hot Mix Price Adjustment shall not be calculated for Hot Mix Miscellaneous.

Rural entrances shall be graded as per OPSD 301.010 or OPSD 301.020.

Hot Mix Miscellaneous shall be measured in square metres. In areas where Hot Mix Miscellaneous is designated on the plans and more than one 50 mm lift of Hot Mix is required, measurement for payment will be made for two single courses of Hot Mix where required.

Hot Mix Price Adjustment for HL-3 and HL-4

Payment to the contractor for hot mix HL-3 and HL-4 to be based on changes to the Ministry of Transportation's performance graded asphalt cement price index as presented herein.

The price index will be published monthly in the MTO Contract Bulletin and displayed on the OHMPA (www.ohmpa.org) and the MTO website (www.raqs.mto.gov.on.ca). The price index will be used to calculate the amount of the payment adjustment per tonne of asphalt cement accepted into the Work.

The price index will be based on the price, excluding taxes, FOB the depots in the Toronto area, of asphalt cement grade PG 58-28 or equivalent. One index will be used to establish and calculate the payment adjustment for all grades. The price index for each month will reflect the average of the same month's prices and be published on the last day of the month and be retroactively applied to HMA laid in the same month.

A payment adjustment per tonne of asphalt cement will be established for each month in which paving occurs when the price index for the month differs by more than \$15.00/tonne from the AC price index **or for the month prior to tender opening**. When the price index differential is less than \$15.00/tonne, there will be no payment adjustment for that month. Payment adjustments due to changes in the price index are independent of any other payment adjustments made to hot mix tender items.

The payment adjustment per tonne will apply to the quantity of asphalt cement in the hot mix accepted into the Work during the month for which it is established. The payment adjustment for the month will be calculated by the following means:

1. **When AC Prices are Rising** by more than \$15.00/tonne, the payment adjustment to be paid to the Contractor is the result of subtracting the price index **or for the month prior to tender opening** from the price index in effect when paving takes place, minus the \$15.00 float, multiplied by the number of tonnes of PGAC incorporated in the mix(s) as determined by the average of field test results.
2. **When AC Prices are Falling** by more than \$15.00/tonne, the payment adjustment made in favour of the Owner is the result of subtracting the price index in effect when paving takes place, plus the \$15.00 float, from the price index **or for the month prior to the tender opening**, multiplied by the number of tonnes of PGAC incorporated in the mix(s) as determined by the average of field test results.
3. **When Paving Occurs After the Date of Completion:** The price index for the month of **completion** shall be used when determining the payment adjustment should the paving be performed after the specified completion date. The calculations used in determining the payment, regardless of rising AC prices or falling AC prices, shall be as indicated above.

For mixes which contain reclaimed asphalt pavement, the quantity of new asphalt cement will be determined from the difference between the asphalt cement content required by the job mix formula and the asphalt cement content of the reclaimed asphalt pavement incorporated into the hot mix, as calculated by the Contract Administrator.

The quantity of new asphalt cement includes all grades of asphalt cement supplied by the Contractor with and without polymer modifiers. For each month in which a payment adjustment has been established, the quantity of the escalation/de-escalation will be calculated using the hot mix quantity accepted into the Work and its corresponding asphalt cement content as determined by the average of field test results.

For mixes which contain reclaimed asphalt pavement, the increase due the Contractor or the rebate due the owner will be calculated as if virgin hot mix asphalt has been supplied. This fairly reflects the increasing value of the Contractor's RAP pile when AC prices are increasing and the opposite when they are declining.

Example 1 – AC Prices Increasing

- PGCA 58-28 specified, 1,100 tonnes of HL4 @ 5.2% AC (57.2 tonnes AC)
- The Price Index on tender opening is \$900/tonne
- The applicable Price Index as published on August 31st effective for the August 17th-24th, 2009 actual paving dates is \$950.00/tonne (PG 58-28)
- Payment adjustment to be paid to the Contractor:
 $(\$950 - \$15.00) - \$900.00 \times 57.2 \text{ tonnes AC} = \$35.00 \times 57.2 \text{ tonnes AC} = \$2,002.00$

Example 2 – AC Prices Decreasing

- PGAC 58-28 specified, 1,100 tonnes of HL4 @ 5.2% AC (57.2 tonnes AC)
- The Price Index on tender opening is \$900.00/tonne (PG 58-28)
- The applicable Price Index as published on September 30st effective for the September 11th-18th, 2009 actual paving dates in \$775.00/tonne (PG 58-28)
- Payment for hot mix items reduced by:
 $\$900.00 - (\$775.00 + \$15.00) \times 57.2 \text{ tonnes AC} = \$110 \times 57.2 \text{ tonnes AC} = \$6,292.00$

**ITEM NO. 6
CONCRETE CURB AND GUTTER SYSTEMS (OPSD-600.100)**

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete construction of the specified style of concrete curb & gutter, in accordance with OPSS.MUNI 353 – Construction Specification for Concrete Curb and Gutter Systems.

General

Concrete shall conform with CAN/CSA A23.1 and shall be Exposure Class C-2 with the following specifications:

- 32 MPa at 28 days
- 0.45 w/c ratio
- 5-8% Air Entrainment
- 19mm nominal size
- 75mm +/- 20mm

The submitted concrete mix design shall indicate the expected slump and if it is permitted to add water to the concrete mix on-site without exceeding the specified w/c ratio.

When placing concrete curb and gutter by the slip form method, contraction joints shall be saw-cut in the hardened concrete within a sufficient time of placing of the curb and gutter to prevent uncontrolled cracking. The spacing of these joints shall be not more than 3.0 metres.

When placing concrete curb and gutter systems by the formwork method, the formwork shall be accordance with OPSS 919-Construction Specification for Formwork and Falsework. The Contractor shall notify the Contract Administrator of the intent to use formwork at the pre-construction meeting.

Termination

When required, the Contractor shall provide end termination treatments as per OPSD 608.010.

Catch basin covers shall be set at base course asphalt grade, a 1.8 m gap shall be left in the curb and gutter, an asphalt curb constructed with a 2" x 8" wood plank against the curb at either side to form the temporary asphalt curb as per municipal standards. The costs for temporary asphalt curbs shall be paid under this item at the tendered unit price for concrete curb and gutter.

**ITEM NO. 7
SAW CUTTING**

For the unit price bid, the Contractor shall supply all labour and equipment to saw cut existing asphalt or concrete at locations and limits established by the Contract Administrator at the time of construction.

The Contractor will be responsible for supplying of water while saw cutting to eliminate dust.

ITEM NO. 8
SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL STORM PIPE SEWERS

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation and testing of the storm sewers as indicated on the contract drawings. The sizes of the sewers as well as the backfill material are as noted on the Form of Tender and on the contract drawing.

Pipe Material

OPSS 410.05 materials is amended to accept the following pipe material for storm sewers:

- (a) Concrete Sewer Pipe (Rigid)
- 450 mm or greater reinforced as specified in the tender form – CSA certified to A257.2
- (b) Polyvinyl Chloride (PVC) Pipe (Flexible)
- 200 mm to 375 mm inclusive - Class SDR 35 or Class V (320 kPa)

If pipe material selected differs from that specified in the Form of Tender, the Contractor shall, upon request, supply the Contract Administrator with proof of CSA certification for both the pipe and the elastomeric gaskets, all at the expense of the Contractor.

The Contractor shall supply the pipe in the size and strength designated, as noted in the Form of Tender or approved equivalent by the Contract Administrator.

Bedding, Embedment and Backfill

Bedding shall be Class B as per OPSD 802.030, 802.031, 802.032, 802.033 or 802.034 for **rigid pipe** and whichever soil type is applicable.

Embedment shall be as per OPSD 802.010, 802.013, or 802.014 for **flexible pipe** and whichever soil type is applicable.

Bedding, embedment, and cover material to 300 mm above top of pipe shall be compacted granular “A”. Bedding and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill shall be as specified in the Form of Tender. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

The unit price bid shall include the cost of all granular bedding, embedment cover material and the backfilling noted herein.

All excavated material not required for backfill shall be disposed as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the unit price bid of sewer.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense. It is also to be noted that the use of stone may result in settlements; as such, the Contractor shall assume all risk in its use.

OPSS.MUNI 410.07.16 – Field Testing has been amended as follows:

410.07.16.02 - Prequalification Leakage Tests are not a requirement when sewers are active.

410.07.16.03 - Infiltration Tests are not a requirement when sewers are active.

410.07.16.04 - Exfiltration Tests are not a requirement when sewers are active.

410.07.16.05-Deflection Testing of Pipe Sewers is always a requirement when using flexible pipe. The unit price bid for the flexible pipe shall include all costs of this testing.

410.07.16.06-Closed Circuit Television Inspection of Pipelines is a requirement of the contract. All work shall be in accordance with OPSS 409-Construction Specification for Closed-Circuit Television Inspection of Pipelines. The unit price bid for the sewer installation shall include the cost of the CCTV inspection.

The Contractor will engage a Closed Circuit Television Inspection Contractor and co-ordinate the work to have it completed prior to **achieving substantial performance** for the contract.

The General Contractor will be responsible for hiring the Closed Circuit Television Inspection Contractor directly, however, the Closed Circuit Television inspection work will be carried out to the satisfaction of the Contract Administrator.

Should deficiencies be identified upon review of the camera inspection video, the deficiencies shall be promptly corrected and re-inspected with CCTV inspection. All costs associated with the CCTV inspections shall be borne by the Contractor.

Compaction

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Backfill shall be placed to a minimum depth of 900 mm above the crown of the pipe before power operated rolling equipment shall be used for compacting.

All costs of compaction and water used for compaction shall be included in the unit price for sewer.

Removing Existing Storm Sewer

The unit price bid shall include the cost of removing existing sewers, watermains, or minor structures encountered in the trench excavation where applicable.

Connecting Sewers

For the unit price bid, the Contractor will be required, to make all connections to new and existing catch basins, maintenance holes, culverts, or sewers (regardless of pipe material) in a manner set out in the contract drawings or as determined by the Contract Administrator at the time of construction.

Maintenance of Flow

The Contractor shall provide for the maintenance of flow in all sewers and maintenance holes at all times.

Restoration

Restoration shall be as outlined under General SP - Restoration.

ITEM NO. 9**SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL 600 mm x 600 mm CATCH BASINS (705.010), INCLUDING FRAME AND GRATES**

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the structures as indicated on the contract drawings and in accordance with OPSS 407. The sizes of the structures are as noted on the Form of Tender and on the contract drawing.

The Contractor shall excavate to the required grade, supply the necessary granular bedding and backfill and compact the material in accordance with OPSS.MUNI 402.

The Contractor shall supply and install frame and grates as listed on the contract drawings to the grade established at the time of construction. Adjustment of the frame and grate to grade shall be achieved using precast concrete adjustment units and shall include the cost of connecting new basins to existing sewers as determined at the time of construction. All surfaces on the frame and grates shall be painted in the shop with one coat of asphalt or tar base paint having a minimum softening point of 71°C. All joints shall be thoroughly coated.

The Contractor shall supply and install filter cloth (Terrafix 270R or equivalent) sediment traps under the covers of the existing catch basins at tie-in points, and the proposed catch basins once they are installed.

The contractor shall remove the sediment traps for cleaning as necessary, dispose of the collected sediment within the subdivision, and replace the traps until final completion of the contract maintenance period.

All costs for this work shall be at the contractor's expense.

Parging

The precast adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside with 12 mm thick mortar coat.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Payment for the structure shall be 80% of the unit price for the installation and the remaining 20% of the unit price upon completion of parging and removal of debris from the bottom of the structure.

Catch basin covers shall be set at base course asphalt grade, a 1.8 m gap shall be left in the curb and gutter, an asphalt curb constructed with a 2" x 8" wood plank against the curb at either side to form the temporary asphalt curb.

ITEM NO. 10

SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL 1200 mm, PRECAST MAINTENANCE HOLES AND MAINTENANCE HOLE-CATCH BASINS, OPSD 701.010, INCLUDING FRAMES AND GRATES

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the structures and in accordance with OPSS 407. The sizes of the structures are as noted on the Form of Tender and on the contract drawing.

The Contractor shall excavate to the required grade, supply the necessary granular bedding and backfill and compact the material in accordance with OPSS.MUNI 402.

Steel reinforcement shall be according to OPSS.MUNI.1440. Steel reinforcement for precast concrete components shall be:

- a) Steel bars, 400MPa minimum yield strength
- b) Welded steel wire, 500 MPa minimum yield strength
- c) Welded deformed steel wire, 500 MPA minimum yield strength

The Contractor shall supply and install frames and grates as listed on the drawings to the grade established at the time of construction. Adjustment of the frame and grate to grade shall be achieved using precast concrete adjustment units. The Contractor shall supply ladder rungs and all materials to make all connections to existing sewers. All surfaces on the frames and grates shall be painted in the shop with one coat of asphalt or tar base paint having a minimum softening point of 71°C. All joints shall be thoroughly coated.

Parging

The precast adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside with 12 mm thick mortar coat.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment

shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Payment for the structure shall be 80% of the unit price for the installation and 20% of unit price upon completion of parging, removal of debris from the bottom of the structure and benching when applicable.

**ITEM NO. 11
SUPPLY AND PLACE 150 mm FILTER WRAPPED PERFORATED SUBDRAIN
INCLUDING EXCAVATION**

For the unit price bid, the Contractor shall excavate for, supply and install the subdrain, including filter wrap (non-woven type) Class 1 with a Filter Opening Size (FOS) of 130-100 μm as indicated on the contract drawings or to the limits established by the Contract Administrator at the time of construction.

The supply and backfilling of granular backfill shall be paid for with the granular item for the roadbed.

Pipe Material

OPSS 405.05 Materials is amended to accept the following material for pipe subdrains.

- (a) Polyethylene Big "O" Boss 2000 or equivalent for manhole subdrains
- (b) Perforated, corrugated high density polyethylene subdrain with 210 kPa stiffness for continuous subdrains behind curbs

The filter wrap geotextile shall be in accordance with OPSS 1860.

The maximum stone size for the granular backfill shall be 50 mm dia.

**ITEM NO. 12
INSTALLATION OF STORM SERVICES**

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the storm services as indicated on the contract drawings. The sizes of the services are as noted on the Form of Tender. The unit price bid shall also include the cost of the main line service tee and end cap required for each service.

Service tees for use with flexible mainline sewer pipe shall be factory manufactured tees. Service tees for use with rigid mainline sewer to be factory installed 3 stage cored tees with gaskets or field cored connections with "Core Bell" adapters. Cored tees to be the same diameter or larger than the servicing piping. All required reducers shall be included in the unit price bid for this item.

The service connections shall be as per OPSD 1006.010 for sewer service connections for main pipe sewer.

Pipe Material

Pipe material for storm sewer services shall be polyvinyl chloride (PVC) SDR-28. (Green Colour)

Bedding and Backfill

Bedding and cover shall be as per OPSD 1006.010 for service connections. Backfill shall be as noted on the Form of Tender.

Bedding, embedment, and cover material to 300 mm above top of pipe shall be compacted granular "A". Bedding and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill of storm service under the road platform shall match mainline storm sewer backfill material. Backfill beyond the road platform shall be as specified in the Form of Tender. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

All excavated material not required for backfill shall be disposed as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the unit price bid.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense. It is also to be noted that the use of stone may result in settlement of the installed piping; as such, the Contractor shall assume all risk in its use.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

All bedding, embedment, cover and backfill materials shall be placed in layers prior to compacting in accordance with OPSS.MUNI 401.07.10.

Installation of Services

All services to vacant lots or previously unserved lots, shall include an end cap and the ends of all services shall be marked by a 50 mm x 100 mm wood post extending from the service to 300 mm above the surface of the ground with the top section painted fluorescent green. The post shall be supplied and placed by the Contractor.

Restoration

Restoration shall be as outlined under General SP - Restoration.

**ITEM NO. 13
SANITARY SEWER PIPE**

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation and testing of the sanitary sewers as indicated on the contract drawings. The sizes of the sewers as well as the backfill material are as noted on the Form of Tender and/or on the contract drawing.

Pipe Material

Pipe material for sanitary sewers shall be as noted in the Form of Tender. Where required and/or shown on the drawings, end caps, adapters, reducers, etc. shall be provided and the cost included in the unit price bid for this item.

Bedding, Embedment and Backfill

Bedding shall be Class B as per OPSD 802.030, 802.031, 802.032, 802.033 or 802.034 for **rigid pipe** and whichever soil type is applicable.

Embedment shall be as per OPSD 802.010, 802.013 or 802.014 for **flexible pipe** and whichever soil type is applicable.

Bedding, embedment, and cover material to 300 mm above top of pipe shall be compacted granular "A". Bedding and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill shall be as specified in the Form of Tender. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

The unit price bid shall include the cost of all granular bedding or embedment, cover material and the backfilling noted herein.

All excavated material not required for backfill shall be disposed of as outlined under the General SP - Management of Excess Materials. The cost of this work shall be included in the unit price bid of sewer.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense. It is also to be noted that the use of stone may result in settlements; as such, the Contractor shall assume all risk in its use.

Maintenance of Flow

The Contractor shall provide for the maintenance of flow of sanitary sewage in the sewers and in any maintenance holes being connected by this work.

The Contractor shall provide adequate pumping and power facilities to maintain operation of the sewer system on a continuous basis. The method of maintaining flow shall be approved by the Contract Administrator in advance of construction proceeding.

All cost of maintaining sewage flow, where required, shall be included in the unit price bid for these items.

OPSS.MUNI 410.07.16 - Field Testing has been amended as follows:

410.07.16.02-Prequalification Leakage Tests are not a requirement when sewers are active.

410.07.16.03- Infiltration Tests are not a requirement when sewers are active.

410.07.16.04-Exfiltration Tests are not a requirement when sewers are active.

410.07.16.05-Deflection Testing of Pipe Sewers is always a requirement when using flexible pipe. The unit price bid for the flexible pipe shall include all costs of this testing.

410.07.16.06-Closed Circuit Television Inspection of Pipelines is a requirement of the contract. All work shall be in accordance with OPSS 409-Construction Specification for Closed-Circuit Television Inspection of Pipelines. The unit price bid for the sewer installation shall include the cost of the CCTV inspection.

The Contractor will engage a Closed Circuit Television Inspection Contractor and co-ordinate the work to have it completed prior to **achieving substantial performance** for the contract.

The General Contractor will be responsible for hiring the Closed Circuit Television Inspection Contractor directly, however, the Closed Circuit Television inspection work will be carried out to the satisfaction of, the Contract Administrator.

Should deficiencies be identified upon review of the camera inspection video, the deficiencies shall be promptly corrected and a re-inspected with CCTV inspection. All costs associated with the CCTV inspections shall be borne by the Contractor.

Compaction

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Backfill shall be placed to a minimum depth of 900 mm above the crown of the pipe before power operated rolling equipment shall be used for compacting.

Cleaning and Flushing Pipe Sewers

OPSS.MUNI 410.07.17 is to be included in the unit price bid for this item.

Restoration

Restoration shall be as outlined under General SP - Restoration.

ITEM NO. 14

SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL 1200 mm PRECAST MAINTENANCE HOLES, OPSD 701.010

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the structures. The sizes of the structures are as noted on the Form of Tender and on the contract drawing.

Steel reinforcement shall be according to OPSS.MUNI.1440. Steel reinforcement for precast concrete components shall be:

- d) Steel bars, 400MPa minimum yield strength
- e) Welded steel wire, 500 MPa minimum yield strength
- f) Welded deformed steel wire, 500 MPA minimum yield strength

The Contractor shall excavate to the required grade, supply the necessary granular bedding and backfill and compact the material in accordance with OPSS.MUNI 402.

For the unit price bid, the Contractor shall supply and install frames and grates as shown on the drawings to the grade established by the Contract Administrator. The Contractor shall supply ladder rungs and all materials to make all connections to existing sewers. All surfaces on the frames and grates shall be painted in the shop with one coat of asphalt or tar based black paint having a minimum softening point of 71°C. All joints shall be thoroughly coated.

Also included in the unit price bid, the Contractor shall include 'Kor-N-Seal' boots or approved equivalent flexible adapters to provide water tight joints between sanitary sewers and maintenance holes. The benching of all sanitary maintenance holes designated in accordance with standard drawing OPSD 701.021.

Where new maintenance holes are to be constructed on existing sewers, the Contractor will be required to maintain the sewage flow by either piping through the maintenance hole location or providing bypass pumping around the maintenance hole site. Prior to the commencement of work, the Contract Administrator shall approve the method proposed by the Contractor for maintaining flow.

The Contractor shall confirm in writing to the Contract Administrator that the means of connecting sanitary sewers to the sanitary manholes is appropriate for the materials being used and for the site conditions.

Parging

The precast adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside with 12 mm thick mortar coat.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Payment for the structure shall be 80% of the unit price for the installation and 20% of unit price upon completion of parging, removal of debris from the bottom of the structure and benching when applicable.

ITEM NO. 15 INSTALLATION OF SANITARY SERVICES

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the sanitary services as indicated on the contract drawings. The sizes of the services are as noted on the Form of Tender. The unit price bid shall also include the cost of the main line service tee and end cap required for each service.

Service tees for use with flexible mainline sewer pipe shall be factory manufactured tees. All required reducers shall be included in the unit price bid for this item.

The service connections shall be as per OPSD 1006.010 for sewer service connections for main pipe sewer.

Pipe Material

Pipe material for sanitary sewer services shall be polyvinyl chloride (PVC) SDR-28. (White Colour)

Bedding and Backfill

Installation, bedding and cover shall be as per OPSD 1006.010 for service connections. Backfill shall be as noted on the Form of Tender.

Bedding, embedment, and cover material to 300 mm above top of pipe shall be compacted granular "A". Bedding and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill of sanitary service under the road platform shall match the mainline sanitary sewer backfill material. Backfill beyond the road platform shall be as specified in the Form of Tender. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

Compaction

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment

shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Backfill shall be placed to a minimum depth of 900 mm above the crown of the pipe before power operated rolling equipment shall be used for compacting.

Installation of Services

All services to vacant lots and previously unserviced properties shall include an end cap and the ends of all services shall be marked by a 50 mm x 100 mm wood post extending from the service to 300 mm above the surface of the ground with the top section painted brown. The post shall be supplied and placed by the Contractor.

Controlled Settlement Joint

When deep services are encountered with near vertical risers extending out of the service tee, controlled settlement joints shall be used, as per OPSD 1006.010.

The controlled settlement joint (C.S.J.) shall be installed as per the manufacturer's recommendations and the following:

- Service pipe and controlled settlement joint, shall be surrounded by compacted bedding material.
- Controlled settlement joint shall be inserted into fitting branch.

For the unit price bid, the Contractor shall supply all labour, equipment and material for the complete installation of the controlled settlement joint.

Restoration shall be as outlined under General SP - Restoration.

ITEM NO. 16

SANITARY SEWER SERVICE CLEANOUT, 100 mm CLEANOUT RISERS AND 4 m LONG 150 mm STUBS

For the unit price bid, the Contractor shall supply all labour and materials for the complete installation of service cleanouts as shown on the detail drawing BMROSS 1000A.

Cleanout risers shall extend 300 mm above finished grade c/w temporary PVC cap. Permanent ferrous cleanout caps shall be provided and installed by the home builder when the lot is graded and the cleanout riser is cut to finished grade.

Basis of Payment

Payment shall be as follows:

- 80% for all piping
- 20% for the installation of the cleanout cap to finished grade

ITEM NOS. 17 - 20 WATERMAIN INSTALLATION

Work Plan

Prior to site activities, the Contractor shall submit a Work Plan for review by the Contract Administrator. The Work Plan shall provide the following construction details:

- connection point(s) between existing and new watermains
- source water connection(s)
- cross-connection prevention procedures and equipment
- temporary watermains, if any
- swabbing details
- hydrostatic pressure test details
- disinfection details
- dechlorination details
- flushing water disposal details
- details of final connection to existing watermain
- details of final connection to existing services
- Emergency/unplanned repairs
- Tracer Wire conductivity testing procedures

The Contractor shall allow two weeks for the review and approval of the Work Plan. **No site work shall proceed until the Work Plan has been approved by the Contract Administrator.** The Work Plan shall be submitted no later than at the pre-construction meeting.

Watermain Construction and Materials

The Contractor shall obtain the approval of the Operating Authority of the proposed disruption of service to make all connections to the existing distribution system.

The watermain construction shall be staged so as to minimize water service disruption to residences. Property owners shall be informed by the Contractor a minimum of 24 hours in advance, as to when these disruptions will occur. All costs associated with providing notice to the property owners shall be borne by the Contractor.

Only authorized Operating Authority personnel shall operate valves on existing watermains for the purpose of controlling water. No person other than the authorized Operating Authority personnel shall shut down or charge any section of existing watermain or operate any valve for the purpose of controlling water from existing watermains.

The Contractor shall provide the Operating Authority at least 48 hours advance notice when a change in control of the water is required. All necessary water supply interruptions shall be scheduled in co-operation with the local operating authority.

The Contractor shall comply with the Safe Drinking Water Act (SDWA) and all applicable regulations made in accordance with that act, including but not limited to the Drinking Water Works Permit (DWWP), the Municipal Drinking Water License (MDWL) and the most current

version of ANSI/AWWA C651. Both the DWWP and the MDWL can be made available to the Contractor by the Contract Administrator upon request. For the purpose of the DWWP Condition 2.3, the most recent version of the Ministry of Environment and Climate Change “Watermain Disinfection Procedure”, replaces ANSI/AWWA C651-Standard for disinfecting watermains with respect to cleaning, tapping, maintenance and repairs of watermains, appurtenances and fittings.

The Contractor shall operate only those valves, hydrants and curb stops installed in their contract during the construction period and only prior to the date of acceptance of the Contractor’s work. After the works are accepted, only the local operating authority may operate the system.

Basis of Payment

The unit price bid for each item shall include all costs incurred in excavating for, placing, restraining, connecting, testing, flushing and disinfecting all watermain and fittings, as outlined in OPSS.MUNI 441 and restoration outside general grading operations. This shall also include all costs for hydrant extensions and hydrant flow testing.

The unit price bid per lineal metre shall include the cost of all granular bedding and backfill up to subgrade and/or original ground. All costs of compaction and water shall be borne by the Contractor.

Town of Plympton-Wyoming Material:

1. Watermain Pipe

Supply and Place Watermain pipe and appurtenances meeting the specifications outlined below, (unless the pipe material is stated on the contract drawings or otherwise specified):

- For sizes of 100mm to 300mm, pipe must conform to, A.W.W.A. C-900, Pressure Class 150 psi, (DR 18) OPSS 441 and certified Third Party in accordance to OPSS and Standards Council of Canada; CSA B137.3 PVC watermain pipe and appurtenances.

Or

"Molecularly oriented PVC pipe in sizes 100mm (4”) through 300mm (12”) shall be Biaxially Oriented (molecular orientation in two directions), CSA certified to CSA Standard B137.3.1-09, third party certified to AWWA C909 and NSF 61 for potable water use. The pipe shall have Cast Iron Outside Diameters (CIOD), be color coded blue and have a Pressure Class of 235 psi."

Where required, Bionax PVCO Approved Restraints Pipe-to-Pipe and Pipe-to-Fittings Restrainers shall be used as per manufacturer’s recommendations”. Pipe to be IPEX Bionax PVCO, CIOD watermain pressure pipe 100mm (4”) through 300mm (12”).

- For sizes of 350mm to 600mm (C.I.O.D.) pipe must conform to AWWA C905, Pressure Rating 165 psi, (DR 25) and be certified by CSA; CSA B137.3 “Rigid Poly (Vinyl Chloride)(PVC) Pipe for Pressure Applications.” For pressure applications, each length of pipe must be hydro-tested at twice the rating and a short-term pressure test must be conducted once per production run.

- All joints to be bell and spigot with NSF approved rubber gaskets conforming to ASTM D3139; CSA logo must be clearly and permanently marked on all product; All watermain to be blue in colour
- All Pipes and fittings shall be manufactured by IPEX Inc; Northern Pipes; Rehau Industries Inc; Royal Pipe Co; Harrington Corporation; Diamond Plastic Corporation or National Pipe and Plastic Inc; or approved equal.
- Injection molded fittings (AWWA C907) shall be used up to 12" (300mm) diameter size. Fabricated fittings shall not be used.
- Ductile Iron Fittings (Self-Restrained) shall have distinctly cast on them the pressure rating, nominal diameter, manufacturers name and AWWA Standard. All fittings shall be fusion bonded epoxy coated inside & out to NSF-61 standard and come capped from the factory to prevent contaminants inside the fitting. Joints and Fittings shall be in accordance with AWWA C111 & C153 latest revisions. Petroleum tape is not required on epoxy coated fittings. Self-Restrained fittings will be rated for 350PSI and can be used on PVC/PVCO and HDPE DIPS sizes. RCT Flex-Tite for sizes 4" (100mm) to 12" (300mm) size.
- Appurtenance and fittings for pipe sizes 350mm (14") diameter and greater, shall be, Ductile Iron, conforming to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53. Appurtenance and fittings shall be furnished with MJ (Mechanical type Joints) in accordance with ANSI/AWWA C111/A21.11, of latest revision. The fittings must meet the requirements of pressure rating of the pipe system. All Ductile Iron fitting are required to be treated with full petrolatum coating as detailed in Watermain - Materials.
- Tracer wire shall be installed on all non-metallic watermains, hydrants lateral and water services except where such water service pipe is of copper material.

2. Water Services and Meters

i) Residential

Each property shall have a 19mm I.D. service. The water services shall be 25mm CTS SDR9 PEX service tubing extending from the watermain to the curb stop box. No couplings are allowed within the municipal right of way.

Where the water meter is not installed inside a new or existing dwelling, at the discretion of the Contract Administrator the meter may be installed in a meter pit at the property line.

3. Gate Valves

Gate valves for watermain use shall conform to A.W.W.A. C509- 87 Standard for Resilient Seated Gate Valves for Water and Sewage Systems and shall conform to OPSS 441 and shall:

- For pipe sizes 100 mm (4") diameter to 200 mm (8") diameter, Joint ends must be Push on, complete with valve box, cover, riser and fittings.
- For pipe sizes 250 mm (10") and greater diameter, Joint ends must be mechanical joint with restrained gland packs, complete with valve box, cover, riser and fittings.
- Have resilient seated fully encapsulated gates

- Have a working design water pressure of 14.1 kg/cm (200 PSI) for all pipe sizes from 75 mm to 300 mm nominal pipe sizes
- All watermain gate valves turn to the right hand (clockwise) to open and shall have red painted operating nuts
- Have all exposed nuts and bolts made of type 304 stainless steel
- Have push-on joints (see AWWA 509 Sec 4.5.3 as per ANSI/A.W.W.A. C110/A21.11)
- Have epoxy coating to all interior and exterior ferrous surfaces as per A.W.W.A. C550-81
- Have a valve stem made of manganese bronze which has a yield strength greater than 207 MPa (30,000 PSI) or made of stainless steel BS420S37
- Be manufactured by Mueller (Model #A-2360-40) or American AVK Co series #25, #65 or Clow (model F6112)
- For pipe sizes 100mm (4”) diameter to 200mm (8”) diameter Push on joints, injection molded complete with valve box, cover, riser and fittings
- For pipe sizes 250mm (10”) diameter and greater shall be mechanical joint with restrained gland packs, complete with valve box, cover, riser and fittings.

4. Valve Boxes

Valve boxes shall be the 130 mm screw type as supplied by Bibby Waterworks Inc. or Domestic Foundry Limited. Valve boxes to come with a hole to accommodate the tracer wire. They shall not transmit shock or stress to the valve and shall be centered and plumbed over the wrench nut of the valve with the box cover flush with the ground surface. Extensions to be installed on the operating nuts of valves and be sized to extend up to within 150 mm and 450 mm below the valve box cover.

5. Fire Hydrants

Fire hydrants shall be Mueller Canada Valve “Century Hydrant”, conforming to A.W.W.A Standard C502 with an easy maintenance hydrant operating system. Hydrants shall be a minimum of 1.98 meters long from the springline of the hydrant lead to the fracture head flange (6’-6” buried) unless otherwise required, opening counter clockwise, plugged wet barrel (nondraining). Base connections are to be push-on style, ground and barrel flanges, base and barrel flanges to have stainless steel nuts and bolts. In commercial, institutional, rural, industrial and high density residential locations they will be required to have two C.S.A. 65 mm hose nozzles and a standard 100 mm Storz pumper connection (painted black).

6. Hydrant Extensions

Hydrant extensions shall be complete with one piece rod and all necessary appurtenances to a maximum height of 300mm (12”). Multiple hydrant extensions are not permitted.

7. Brass Valves & Fittings to Service Lines

Brass valves and fittings to service lines shall conform to ANSI/A.W.W.A. C800 latest revisions. All connections shall be compression connections unless individual approval is given by the Contract Administrator for an alternate connection. All connections must provide a leak-proof seal and retaining service tubing or copper without slippage at a working pressure of 1050 KPa (150PSI).

i) Corporation Stops

Corporation stops shall be no-lead brass, have inlet of AWWA taper thread (CC) and outlet shall be compression type (Mueller 110 style). All brass cast parts shall be certified to NSF-61 standard. Corporation stops shall be Mueller 300, Ford FB100NL or Cambridge Brass Series 301NL.

ii) Curb Stops and Boxes

Curb stops shall be ball style for all sizes and be no-lead brass certified to NSF-61 standard. Valves will have a minimum working pressure of 150 PSI and have a full bore ball. Approved manufacturers are Mueller 300, Cambridge 202NL & Ford B44NL. Curb stop boxes shall be Mueller type H-10306 – H-10334 or Clow Model No. VSP1 and VSP2. Service boxes shall have type 304 stainless steel rods and stainless steel cotter pins.

iii) Couplings and Adapters

Couplings and adapters shall be three piece couplings with compression joints at each end to fit the applicable connecting pipe sizes. Couplings shall be Mueller H15403 or Cambridge Brass 119NL or Ford C44 series with “Grip” or “Pack” or “Quick” joints.

8. Pipe for Services

All water services shall be PEX pipe manufactured to AWWA C904 and to SDR9 Copper tube size. All PEX shall be Blue in colour for potable water and certified to CSA B137.5 - cross linked polyethylene tubing for pressure application. All tubing will be certified to ASTM F876 and F877 and certified to NSF 14 and NSF 61. Approved PEX tubing may be Rehau Municipex and IpeX Blue904. All PEX tubing to be installed with tracer wire as per standard specification.

9. Restraint Clamps, Tie-Backs, Anchor Rods

- For permanent installations, all clamps shall be smoothed over by using mastic and then the surface wrapped with Denso Tape.
- All restraining clamps shall be torqued to the Manufactures Specifications.
- Tie-backs and anchor rods used for restraining, anchoring or for thrusting of the watermain will be of 19 mm diameter solid threaded bar and bolts and treated with Petrolatum and Petroleum coating system
- Concrete thrust blocks should be used wherever possible as per O.P.S.D. 1103.01
- Restraint clamps shall be manufactured by Uniflange, model 1300 series, Sigma or Clow or equivalent as approved by the Manufacturer.
- Restraint clamps for mechanical joint fittings shall be Mega-Lug, One-Lok or approved equal for all sizes 300mm (12”) in diameter or larger.

- Restraint design calculations may be required by the Manufacturer for Pipe over 300mm diameter.

10. Repair Clamps and Couplings

Stainless Steel repair clamps will be a minimum thickness of 20 gauge for sizes up to 200mm (8") 18 gauge for sizes over 300mm (12") Stainless steel will be fully passivated and gasket material shall be certified to NSF-61. All clamps will be a minimum of 300mm (12") long, nuts and or bolts shall be Teflon coated to prevent galling. Clamps will be Cambridge Brass model 425 or Smith Blair model 261.

All repair clamps and couplings shall be installed to manufacturer's recommendations for pipe prep and torque. All couplings shall be fusion bonded epoxy coated and supplied with 304 stainless steel bolts. Gaskets and Epoxy in contact with potable water will be certified to NSF-61. Approved bolted couplings shall be Smith-Blair Model 441, Robar Model 1506. Two bolt wide range couplings shall be Epoxy Coated with 304 Stainless Steel Bolts NSF-61 certified. Approved manufacturers Smith-Blair model 421 and Hymax model 2000.

11. Service Saddles

i) Ductile Iron, Cast Iron and Asbestos Cement Saddles for Ductile Iron, Cast Iron, and Asbestos Cement pipe shall have Ductile Iron epoxy body, galvanized steel straps and bolts. Saddles shall be manufactured by Smith Blair model 313, Robar 2506/2508, Mueller 521-529 or approved equal.

ii) PVC

Saddles for PVC pipe shall be full circumference wide band with stainless steel band, nuts, bolts and outlet. Band shall be type 304 Stainless Steel of minimum 18 gauge thickness. Saddles shall be manufactured by Smith Blair No. 375; Robar 2600 series; Cambridge Brass 8403 (double bolt)

12. Tracer Wire

Tracer wire shall be installed on all non-metallic watermains, hydrant laterals and water services except where such water service pipe is of copper material. The wire shall be installed in such a manner as to be able to properly trace all watermains, hydrant laterals and water services without loss or deterioration of signal or without the transmitted signal migrating off the tracer wire. Tracer wire is to be brought up the outside of the hydrant valves only and inserted in the upper section of the valve box.

Tracer wire shall be RWU90, 12 gauge copper clad steel wire single strand colour coded blue for water, insulated jacket will be 30 ml HDPE suitable for direct bury application and break load of 452 lbs.

All spliced or repaired wire connections to be made using SnakeBite Locking Connectors Part #LSC1230B, DRYCONN Waterproof Connectors or approved equivalent specifically designed for direct burial applications complete with water proof closure.

The Inspector may test the tracing wire for conductivity. If it is not continuous the Contractor shall at his expense, replace or repair the wire.

13. Tapping Valves and Sleeves

Tapping valves to be Mechanical Joint by Flange. Tapping valves shall conform to A.W.W.A. C509-87 and must open right (clockwise). All tapping sleeves shall be stainless steel complete with 20mm diameter NPT test plug. The Pressure test to never exceed the static pressure of the watermain.

Approved resilient seat tapping valves shall be McAvity No. 20675R, Mueller T20360, Clow R/W F-6114, AVK Series 65. Approved Tapping Sleeves to be Romac SST Series, Robar 6606 Series, Ford Fast-xxx-MM Style and Smith Blair 663, or alternative approved by the Contract Administrator.

An OPSS designed thrust block as per OPSD 1103.010 to be installed behind all tapping sleeves and valves.

14. Insulation for Watermains

Insulation for shallow watermains shall be Styrofoam SM(HI)-40 rigid board insulation installed at locations and thicknesses as shown on the drawings or to the limits as established by the Contract Administrator.

Installation

- The rigid board insulation shall be installed over 150mm of level, granular material.
- A minimum of 200mm of granular material shall be placed over the insulation before compaction equipment is used.
- Rigid boards shall butt tightly together without gaps. Ends shall be staggered if more than one layer is used.
- The insulation shall project a minimum of 1 pipe diameter beyond the outside edges of the pipe being protected
- The minimum width of rigid board shall not be less than 1200mm in width.

15. Petrolatum and Petroleum Coating Systems

Reference to petrolatum coating systems means an approved petrolatum and petroleum coating system that conforms to A.W.W.A. C217-90 standard and is approved for use by the Contract Administrator.

While each product must be applied according to the manufacturer's instructions, the application will generally be done in the following fashion:

The item to be coated shall be cleaned of all dirt, oil, grease, flakes of paint and metal and any other item that might prevent adhesion of the petrolatum system. If the item requires blast cleaning or heavy wire brushing to prepare it, it will be rejected.

After cleaning, a uniform and continuous coat having a film thickness of at least 3 mil (76 μm). Any rough or uneven surfaces shall be filled in or smoothed over by using the mastic supplied by the manufacturer.

The whole surface shall then be wrapped with the top coating at 55% overlap and a minimum thickness of 40 mil (1016 μm). Petrolatum and petroleum coating systems approved by the Contract Administrator are Denso Petrolatum Products as supplied through Denso of Canada

Limited and Petro Petrolatum Coating Systems as supplied by Petrolatum Coating Systems Pty. Ltd. All watermain appurtenances including caps, valves, hydrants, restrainer clamps, nuts, bolts, tees, elbows, fittings, clamps, couplings, blow offs, and transition joints are required to be treated with full petrolatum Coating System complying with manufacturer instructions.

16. Pipe Bedding and Cover Material

All watermain pipe bedding and cover shall be Granular “A”, using 100% S.B.C.M.

When trench conditions are wet so that the Granular “A” bedding becomes saturated and soft, but the bottom and side of the trench remain solid, then the bedding material is to be 20 mm uniformly graded clear crushed stone.

Pea stone bedding or backfill is not an acceptable material.

17. Granular Backfill Material

All granular backfill material shall be Granular “B” Type 1 in OPSS MUNI 1010 or be approved excavated native granular material complying to the requirements of select subgrade material in OPSS MUNI 1010, and be approved for use by the Contract Administrator.

18. Acceptable Native Material

Acceptable native material shall be friable and free from rubbish, wires, cans or debris of any sort; boulders or rock or concrete fragments with a dimension greater than 150 mm; roots, stumps, trees or timbers; and frozen materials. Material shall be compatible with native material.

Design

It is the responsibility of the Contractor to ensure the performance of the pipe and the restraining systems.

Design of the pipe joint restraining systems shall consider the pressures that the system will be subjected to as well as any expansion and contraction due to temperature changes during and following construction of the works.

Cathodic Protection

a) Polyvinyl Chloride (PVC) or Polyethylene (PE) Mainline Piping as per OPSD 1109.011.

<u>Appurtenance</u>	<u>Method of Protection</u>
Piping	Not required
Hydrants	One anode per each
Services <ul style="list-style-type: none"> • Each copper service • Each non-metallic service 	One anode per each service One anode per each main stop and curb stop
Valves	Sacrificial zinc nuts
Fittings	One anode per each and sacrificial zinc nuts
Mechanical Restraints	Sacrificial zinc nuts

- Anode sizes shall be 5.5 kg for watermain appurtenances up to and including 300 mm diameter and 11.0 kg for watermain appurtenances greater than 300 mm.
- Anodes for steel pipe encasement shall be 11.0 kg for all sizes.
- Sacrificial zinc nuts shall be of the Protecto-Cap type and installed on each bolt.

Excavation

All excavated material not required for backfill shall be disposed of as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the bid per metre of watermain.

Removal of Existing Mains, Services, Hydrants and Fittings

For the unit prices bid for watermain construction, the Contractor shall include the removal of existing mains and services when required, and/or as determined by the Contract Administrator at the time of construction.

These mains shall become the property of the Contractor and shall be removed from the site of the work.

Any fittings deemed salvageable shall be delivered to the Operating Authority's Workshop.

Bedding, Embedment and Backfill

Bedding shall be Class B as per OPSD 802.030, 802.031, 802.032, 802.033 or 802.034 for **rigid pipe** and whichever soil type is applicable.

Bedding and embedment shall be as per OPSD 802.010, 802.013, or 802.014 for **flexible pipe** for whichever soil type is applicable.

Bedding, embedment, and cover material shall be Granular "A" to 300 mm above the top of pipe. Bedding and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill shall be as specified in the Form of Tender. If select native material is specified, it shall be compacted to a minimum dry density of 95%. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

All excavated material not required for backfill shall be disposed as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the unit price bid.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense. It is also to be noted that the use of stone may result in settlement of the installed piping; as such, the Contractor shall assume all risk in its use.

Installation of Services

For the unit price bid per each, the Contractor shall include the cost of tapping the main, installing saddles where applicable, corporation stops and curb stops c/w service box, including all connections to new and existing mains and services.

For the unit price bid per lineal metre, the Contractor shall include the cost of installing water service tubing by means of trenching and/or boring. All services shall be installed to a depth as noted on the Watermain Materials Specification.

For connections to existing service tubing, the excavation for the curb stop shall not be backfilled until the new service has been connected to the existing. The Contract Administrator may request the Contractor backfill certain services before the connection is made. Payment for re-excavating the service for the connection will be in accordance with the unit price bid for Provisional Work.

All servicing tubing shall be disinfected in the presence of the Contract Administrator before installation. The Contractor shall provide 48 hours' notice before making these connections.

At each service location, the Contractor shall provide service tubing extensions extending above the ground surface to accommodate flushing of the services following the disinfection operations.

At vacant lot locations, these extensions shall be cut off and crimped below ground as directed. The cost of providing for such extensions is to be included in the unit price bid for testing, flushing, swabbing and disinfection of watermains.

At vacant lots, the ends of all services shall be marked by a 38 mm x 89 mm wood post extending from the service to 300 mm above the surface of the ground and top section painted fluorescent blue. The post shall be supplied and placed by the Contractor.

The unit price bid shall include all restoration beyond the general grading limits. Restoration shall be as outlined under the General SP - Restoration.

Tapping of Watermains

Where existing watermains are to be tapped, the pipe surface at the location of the tap shall be cleaned and disinfected using a minimum 1% sodium hypochlorite solution. Where applicable, the drill/cutting/tapping bits and all surfaces of mainstops, service saddles, tapping sleeves and valves which will come into contact with drinking water shall likewise be cleaned and disinfected using a minimum 1% sodium hypochlorite solution immediately prior to installation. If any of the disinfected surfaces come into contact with the soil and/or water in the excavation prior to use, the cleaning and disinfection procedure shall be repeated.

Conductivity Test

Before the final connection to the existing main, the Contractor shall demonstrate the integrity of the new underground tracer wire by applying a conductivity signal and confirming the signal correlation on all watermains and services. The Contract Administrator must witness the conductivity test(s).

Connection to Existing Main

For the unit price bid, the Contractor shall supply all labour, equipment and materials to reconnect the existing main to the new main with the proper fittings to make the connection. The length of the reconnection shall not exceed one standard pipe length (i.e. 6 metres).

After the pressure, leakage, chlorine residual and bacteriological tests have passed, the Contractor shall obtain written approval from the Contract Administrator to make the final watermain connection to the existing water distribution system.

The Operating Authority shall be contacted 48 hours prior to the final connection to determine if any special measures must be taken and/or an appropriately licensed operating authority employee is required to oversee the works. The Contractor will be liable for all costs for callouts of Operating Authority staff if the Contractor fails to notify the Operating Authority that the connection will not take place.

The Contractor shall co-ordinate the final connection of the new watermain to the existing water distribution system to enable the Contract Administrator to witness the entire process.

Watermains shall be cut back to remove all temporary taps. The Contractor shall disinfect the connection watermain as outlined below and shall, using all means possible, dewater the watermains and trench in a controlled manner to not allow backflow into any existing watermains.

The Contract Administrator at their discretion may require the Contractor to flush water through a nearby fire hydrant to remove water with elevated chlorine residual.

If trench water, dirt or debris has entered the watermain during the final connection, the watermain shall be aggressively flushed and additional bacteriological samples shall be taken as determined by the Contract Administrator or the Operating Authority. The Contract Administrator reserves the right to request the above steps be taken regardless.

The new piping, fittings and valves required for the connection shall be spray-disinfected and swabbed with a sodium hypochlorite solution of minimum 1% and maximum 5% chlorine just prior to being installed.

During the final connection, the Contractor shall connect new tracer wire to the existing tracer wire or CADWELD to existing main to provide conductivity.

Anode Installation

For all mechanical joint fittings and couplings used with either ductile iron or PVC pipe, a sacrificial zinc nut shall be installed on each bolt.

For buried anodes, connect anode copper lead wire to pipe, valve, fitting, hydrant, etc., with “double nut” type connection. Connect to main stops or curb stops with the electrical ground connections supplied. Place anode in trench a minimum of 500 mm from pipe, valve, fitting, etc. Complete installation shall conform to anode manufacturer’s recommendations.

Emergency/Unplanned Repairs

Should there be the need for an emergency or unplanned repair, the Contractor shall immediately contact the Operating Authority and the Operator-In-Charge shall conduct a visual inspection to determine the nature of the break. The Operator-In-Charge will assess the evidence of Contamination or potential Contamination of the watermain before and during the repair procedure, and shall classify the break as a Category 1 break or a Category 2 break.

ITEM NO. 21

SWABBING, HYDROSTATIC PRESSURE TESTING, DISINFECTION AND FLUSHING OF WATERMAINS

For the lump sum bid, the Contractor shall supply all labour, equipment and materials for the temporary connection, testing, flushing, swabbing and disinfection of watermains, services and appurtenances in accordance with the following specifications, OPSS.MUNI 441 for pressure testing, AWWA C651 for disinfection and connection to waterworks system with the exception of the cleaning, tapping, maintenance and repair of watermains, appurtenances and fittings as these procedures shall follow the most recent version of the Ministry of the Environment and Climate Change document “Watermain Disinfection Procedure” (www.ontario.ca/page/water-main-disinfection-procedure).

General

The new watermain shall be isolated from the existing waterworks system using a physical separation until satisfactory bacteriological testing has been completed and accepted by the Contract Administrator and the Operating Authority. Water required to fill the new main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the existing water system and the new main. The temporary connection shall include an appropriate cross-connection control device consistent with the degree of hazard (a double check valve assembly, used above or below ground level) or a reduced pressure principle backflow preventer (used above ground level **ONLY**). The cross-connection control device operation shall be in accordance with CAN/Canadian Standards Association-B64 Series Manual and disinfected prior to installation. The backflow preventer shall be disconnected (physically separated) from the new main during the hydrostatic pressure test. It will be necessary to re-establish the temporary connection after completion of the hydrostatic pressure test to swab, chlorinate and flush out the disinfectant water prior to final connection of the new main to the waterworks system. (*Refer to both AWWA C651 and the most recent version of the MOECC document “Watermain Disinfection Procedure”*).

At each service location, the Contractor shall provide service tubing extensions to above the ground surface to accommodate flushing of the services following the disinfection operations. At vacant lot locations, these extensions shall be cut off and crimped below ground as directed. The cost of providing for such extensions is to be included in the unit price bid.

Materials

All chemicals and materials used in the disinfecting and testing of the drinking water system shall conform to the following standards:

- AWWA B300 for Hypochlorites
- AWWA B301 for Liquid Chlorine
- NSF/ANSI 60, Drinking Water Treatment Chemicals – Health Effects
- NSF/ANSI 61, Drinking Water System Components – Health Effects

Construction

The sequence of events for this item shall be 1) Swabbing, 2) Hydrostatic Pressure Testing, 3) Disinfection, 4) Flushing and Dechlorination 5) Bacteriological Testing

1. Swabbing

Swabbing will be required prior to pressure testing, disinfection and commissioning of the main. A minimum of two (2) new swabs shall be passed through each section of main line pipe, hydrant lead and all services larger than 75 mm, to ensure that there is no blockage, debris, etc. The Contractor shall note that auxiliary equipment may be required for the swabbing operation.

Swabs shall be polyurethane with a density of 24.7 kg/m³ and shall have a minimum diameter 50 mm larger than the diameter of the watermain and have a minimum length of one and one half times its diameter.

Swabs shall be propelled through the watermain at a speed of 0.5 to 1.0 m/s using potable water. The Contractor shall discharge water to an approved outlet ensuring all required erosion and sediment control and dechlorination measures are followed.

The swabbing shall be repeated until the discharge water runs clear within ten seconds of the last swab exiting the discharge point or until the Operating Authority is satisfied with the clarity of the water.

The Contractor shall mark, number and demonstrate to the Contract Administrator that all swabs, or parts thereof, have been retrieved. The Contractor shall be liable for costs associated with damage caused by and retrieving swabs that, for whatever reasons, escape into the existing water distribution system.

All swab launch or swab retrieval locations shall extend above the finished grade elevation and be capped when not in use to prevent debris and contaminants from entering the system.

2. Hydrostatic Pressure Testing

The pressure testing shall be in accordance with OPSS 441.07.24 Hydrostatic Testing and under the supervision of the Contract Administrator.

All hydrant leads, **services**, stubs, blow-offs etc. shall be subject to the hydrostatic pressure testing. Hydrant valves shall be in the open position to subject the hydrant to the test as well.

3. Disinfection

Service pipes of 100 mm diameter and greater shall be considered as watermains for the purposes of this procedure. For service pipes of diameters less than 100 mm, the Contractor

shall maintain sanitary conditions during installation and/or repairs, and shall clean and flush prior to placing in service. The Contractor shall provide the Operating Authority 48 hours' notice before making the service connections.

The method of disinfecting the main shall be identified on the Testing Submission plan submitted to the Contract Administrator.

Where the Contractor is chlorinating using the tablet, continuous feed, slug, or spray chlorination methods for disinfecting newly constructed watermains as per the procedures in ANSI/AWWA Standard C651, the minimum contact times, initial chlorine concentrations, and maximum allowable decreases in chlorine concentration as listed in Table 1 shall be used.

Disinfection Method	Minimum Contact Time	Initial Chlorine Concentration	Maximum Allowable Decrease in Chlorine Concentration
Tablet or Continuous Feed	24 hours	$\geq 25\text{mg/L}$	40% of the Initial Chlorine Concentration to a Maximum of 50 mg/L
Slug	3 hours	100 mg/L	25mg/L
Spray	30 minutes	200mg/L	Measurement Not Required

* At levels over 10 milligrams per litre, a measurement of total chlorine shall be deemed to be equivalent to a measurement of free chlorine

Where copper pipe is used for smaller diameter watermains, Table 1 does not apply. Copper watermains shall be disinfected using the Continuous Feed method, with an Initial Chlorine Concentration of $\geq 50\text{mg/L}$. Due to the chlorine demand exerted by the copper, no minimum chlorine concentration is required following the 24 hour contact time, and the effectiveness of the disinfection process shall be demonstrated by the Microbiological sampling referred to in Construction Sequence 5 below.

4. Flushing and Dechlorination

Following disinfection of the watermains and watermain branches, the heavily chlorinated water shall be expelled and managed as per the MOECC document "Watermain Testing Procedure" to prevent damage to the pipe lining or to prevent corrosion damage to the pipe itself and disposed of in accordance with OPSS 441.07.25.

Flushing shall continue until the disinfectant concentration at the point of flushing reaches at least 0.2mg/L free chlorine in a chlorinated system or 1.0mg/L combined chlorine in a chloraminated system. If these disinfectant concentrations cannot be achieved, flushing shall continue until the disinfectant concentration at the point of flushing is representative of the system residual in the break/connection area, determined by sampling upstream of the break/connection area and downstream at the flushing location, or by using documented

benchmarks for the area, as long as free chlorine concentrations are at least 0.05 mg/L in a chlorinated system and combined chlorine concentrations are at least 0.25 mg/L in a chloraminated system.

Dechlorination of discharged water is required for any water that is discharged into surface water or if the discharge into the natural environment causes or is likely to cause an adverse effect, as per Condition 10 of Schedule B of the Municipal Drinking Water Licence. The discharged water is deemed to be a Class II spill for the purposes of O. Reg. 675/98 (Classification and Exemption of Spills and Reporting of Discharges) made under the Environmental Protection Act. Discharges of flushed water are also regulated under Condition 4.5 of newer Municipal Drinking Water Licences.

In all cases, the wasted water must be neutralized to provide a total chlorine residual of less than 2 µg/L (0.002 ppm) (O.Reg. 170/03 - Procedure for Disinfection of Drinking Water in Ontario - AWWA C651) at the outfall where detrimental effects may be suffered by plants and/or animals in the natural environment. The Contract Administrator will monitor the discharge of wastewater. Should tests show a residual greater than 2 µg/L, the discharge shall be ceased immediately and the procedure modified to meet the less than 2 µg/L objective.

Sites within 100 m of natural drainage, or with direct discharge to a water body, should be considered high risk. In such instances, the Owner may request an enhanced dechlorination plan along with contingency and mitigation plans in the event that the chlorine residuals exceed those specified.

The Contract Administrator will monitor the discharge of wastewater to ensure the chlorine residual and discharge limits are not exceeded.

5. Bacteriological Testing

After disinfection in accordance with AWWA C651, two consecutive sets of water samples, taken at least 24 hours apart, shall be collected from every 350 metres of watermain or part thereof, from the ends of the main line and from each branch line off the main line (100 mm dia. or greater). If requested by the Operating Authority, the Contractor shall assist with the sampling of the existing water system at a location(s) near the construction.

For new watermains with limited sampling points available, an alternative method of collecting Microbiological samples is *Staged Sampling*. Staged Sampling shall be performed as follows:

- A flow meter shall be installed to measure flow through the new watermain
- A sampling point shall be installed at the end of the new watermain (additional sampling points may also be installed along the length of the watermain); and
- Flow shall be established and samples shall be collected from the sampling point(s) at intervals that are calculated to represent the lengths of the watermain as required by ANSI/AWWA C651, based on the pipe size and measured flow rate.

Certified municipal staff or trained designate only (OWRA Reg. 170/03) shall collect samples for bacteriological testing. All water samples are to be analyzed by a provincially accredited laboratory. One 200 mL bacteriological sample (bottles supplied by the Labs ONLY) must be

obtained from each location. The sample form is to be filled out requesting E. coli, Total Coliform and is to include the sampler's license number. Each sample collected must include a "Total and Free Chlorine residual" reading.

The Owner will pay Laboratory expenses for microbiological testing of the initial first 2 sets of water samples required for commissioning the new mains. If the disinfection fails to produce satisfactory sample test results, disinfection, sampling and testing shall be repeated at the Contractor's expense.

The minimum requirements for acceptability of bacteriological tests are:

Escherichia coli	Not detectable
Total Coliform	Not detectable

Commissioning of New Main and Services

Once a complete set of bacteriological samples produce satisfactory test results, the Contractor must request approval from the Operating Authority for the new watermain to be connected to the existing water system. The Operating Authority and/or the Contract Administrator must be present on site during the removal of the temporary connection and until the connection of the new main to the existing waterworks has been completed.

Where existing watermains are to be tapped or cut for connection purposes, the pipe surface at the location of the connection shall be cleaned and disinfected using a minimum 1% sodium hypochlorite solution. Where applicable, the drill/cutting/tapping bits and all surfaces of mainstops, service saddles, tapping sleeves and valves which will come into contact with drinking water shall likewise be cleaned and disinfected using a minimum 1% sodium hypochlorite solution immediately prior to installation. If any of the disinfected surfaces come into contact with the soil and/or water in the excavation prior to use, the cleaning and disinfection procedure shall be repeated.

Flushing of services shall continue until the disinfectant concentration at the point of flushing reaches at least 0.2mg/L free chlorine in a chlorinated system or 1.0mg/L combined chlorine in a chloraminated system. If these disinfectant concentrations cannot be achieved, flushing shall continue until the disinfectant concentration at the point of flushing is representative of the system residual in the break/connection area, determined by sampling upstream of the break/connection area and downstream at the flushing location, or by using documented benchmarks for the area, as long as free chlorine concentrations are at least 0.05 mg/L in a chlorinated system and combined chlorine concentrations are at least 0.25 mg/L in a chloraminated system.

ITEM NO. 22

REMOVAL OF EXISTING BARRICADES, SIGNS, AND FENCING

The Contractor shall remove and dispose of the existing barricades, dead end signs, project sign boards, and farm fence on both ends of Arie Ct.

**ITEM NO. 23
CONSTRUCTION LAYOUT**

The lump sum bid shall include all labour, equipment, and materials to provide construction survey line and grade for the construction of the underground services and road construction. Grade sheets for curb and gutter shall be provided to the Contract Administrator for review and confirmation prior to placing curb and gutter. All associated costs shall be included in the lump sum tendered price.

**ITEM NO. 24
BONDING AND INSURANCE**

For the lump sum price bid, the Contractor shall include the cost of bonding and insurance as specified in the Information to Bidders and the General Conditions of Contract. Payment under this item will be made after mobilization and included with the first payment certificate.

**ITEM NO. 25
SUPPLY AND INSTALL 100 MM TYPE DB 2 PVC CONDUITS FOR HYDRO
DISTRIBUTION, TELEPHONE, CABLE AND ROAD CROSSINGS**

Supply and install 100 mm PVC DB 2 conduits for utility road crossings as indicated on the drawings.

All PVC conduit shall be installed in an envelope of 150 mm fine sand, above and below the conduits. The conduits shall be installed at a depth of one metre and in accordance with OPSS 603 for road crossings and Hydro One standards.

PART 2 – PHASE 2 MAINTENANCE**ITEM NO. 26
FLUSHING AND CCTV INSPECTION OF STORM AND SANITARY SEWERS**

The Contractor will engage a Closed Circuit Television Inspection Contractor and co-ordinate the work to have it completed prior to achieving substantial performance for the contract.

The General Contractor will be responsible for hiring the Closed Circuit Television Inspection Contractor directly, however, the Closed Circuit Television inspection work will be carried out to the satisfaction of, the Contract Administrator.

Should deficiencies be identified upon review of the camera inspection video, the original contractor who constructed the job shall be responsible for correcting the deficiencies and all associated costs. Alternatively, the Developer may decide to request a quote for the correction of any observed deficiencies as an extra to the contract.

ITEM NOS. 27 & 28
REMOVE AND REPLACE DAMAGED CONCRETE & TEMPORARY ASPHALT
CURB AND GUTTER

For the lump sum bid the Contractor shall supply all labour, equipment, and materials to remove and dispose of existing damaged concrete & temporary asphalt curb and gutter as indicated on the contract drawings or to the limits established by the Contract Administrator at the time of construction.

The lump sum bid shall include the cost of saw cutting the existing concrete curb to provide a straight joint between the existing and new curb. Include the cost of saw cutting, removal, and replacement of the existing asphalt pavement 450 mm wide adjacent to the curb and gutter being removed.

For the lump sum bid, the Contractor shall supply all labour, equipment and materials for the complete construction of the specified style of concrete curb & gutter, in accordance with OPSS.MUNI 353 – Construction Specification for Concrete Curb and Gutter Systems.

General

Concrete shall conform with CAN/CSA A23.1 and shall be Exposure Class C-2 with the following specifications:

- 32 MPa at 28 days
- 0.45 w/c ratio (max.)
- 5-8% Air Entrainment
- 19mm Coarse Aggregate
- 75mm +/- 20mm Max Slump

The submitted concrete mix design shall indicate the expected slump and if it is permitted to add water to the concrete mix on-site without exceeding the specified w/c ratio.

When placing concrete curb and gutter by the slip form method, contraction joints shall be saw-cut in the hardened concrete within a sufficient time of placing of the curb and gutter to prevent uncontrolled cracking. The spacing of these joints shall be not more than 3.0 metres.

When placing concrete curb and gutter systems by the formwork method, the formwork shall be accordance with OPSS 919-Construction Specification for Formwork and Falsework. The Contractor shall notify the Contract Administrator of the intent to use formwork at the pre-construction meeting.

Termination

When required, the Contractor shall provide end termination treatments as per OPSD 608.010.

Restoration

The Contractor shall replace damaged sod behind curb replacements.

Management of excess materials shall be as outlined under the General SP- Management of Excess Materials.

ITEM NOS. 29 & 30

ADJUST MAINTENANCE HOLES AND CATCH BASINS TO GRADE

For the unit price bid, the Contractor shall supply all labour, equipment and material to adjust the designated maintenance holes or catch basins to finished asphalt grade. The frames and grates shall be adjusted by removing or placing additional precast concrete adjustment units as per OPSS 408 and OPSD 704.010.

Parging

The precast adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside with 12 mm thick mortar coat.

Restoration

Asphalt, curb and gutter and boulevard removal and restoration around structures shall be included in the price bid per each and shall include placing asphalt to the depth of existing asphalt for all disturbed areas where applicable. All work shall be carried out to the satisfaction of the Contract Administrator.

ITEM NO. 31

REMOVAL OF ASPHALT PAVEMENT PARTIAL DEPTH

For the unit price bid, the Contractor shall supply all labour, equipment and material to remove the bituminous pavement ramping along gutters by cold planing to the depth as indicated on the typical cross-section or to the limits established by the Contract Administrator at the time of construction.

The planing equipment shall be self-propelled with sufficient power, traction and stability to maintain accurate depth of cut and slope.

The machine shall be equipped with an integral means for reclaiming and loading the cut material into a hauling unit and a means to control dust created by the cutting, reclaiming and loading operations.

A mechanized sweeper shall be used to clean the roadway surface.

This material cut from the roadway surface shall be disposed of as outlined under the General SP - Management of Excess Materials.

ITEM NO. 32

CLEANING OF ASPHALT

For the unit price bid the contractor shall supply all labour, equipment, and materials to clean the existing asphalt surface and faces of gutters, catch basins, maintenance holes prior to tack coating and installation of the final layer of asphalt.

**ITEM NO. 33
CLEANING OF CURB**

For the lump sum bid the contractor shall supply all labour, equipment, and materials to clean all concrete curb and gutters in the specified work area to permit inspection of curb condition by the engineer and Town of Plympton-Wyoming.

**ITEM NO. 34
TACK COATING**

For the unit price bid the contractor shall supply all labour, equipment, and materials to tack coat the existing asphalt surface and faces of gutters, catch basins, maintenance holes prior to installation of the final layer of asphalt

This work shall be done in accordance with OPSS 310.

**ITEM NO. 35
TOP LAYER OF MINIMUM 40mm HL-3**

See Part 1, Item No. 5 for hot mix asphalt specifications.

**ITEM NO. 36
TRAFFIC CONTROL AND PEDESTRIAN SAFETY**

For the lump sum price bid, the Contractor shall include the cost of traffic control and pedestrian safety as specified below and in accordance with OPSS.MUNI 706 and in accordance with the Ministry of Labour, through the Occupational Health and Safety Act (OHSA) and Regulations for Construction Projects, R.S.O. 1990 and R.R.O. 213/91 as amended by 631/94 and 145/00, and as amended from time to time thereafter.

The Contractor shall prepare and submit a Temporary Conditions Control Plan, that is in conformance with the Ontario Traffic Manual (OTM) Book 7- Temporary Conditions (latest edition), to the Contract Administrator at the pre-construction meeting. The Temporary Conditions Control Plan shall reference the OTM Typical Layout used as a basis for the submission.

General

In addition to the requirements in the Information to Bidders for Contractors to control traffic and provide signage, in accordance with the Ontario Traffic Manual Book 7 - Temporary Conditions (latest edition), the following conditions will apply:

- At all times of construction, a minimum of one lane for traffic shall be open and maintained using appropriate traffic control measures and signage.
- At the end of each working day, two lane traffic, controlled by barricades, delineators, etc., shall be maintained. Entrances to commercial establishments shall be maintained.
- Pedestrian Safety Considerations as per 2.6.2 of Ontario Traffic Manual Book 7.

Restrictions on Construction Operations

Construction operations adversely affecting public traffic and the loading or unloading of materials and construction equipment onto and from the travelled portion of the road shall not be carried out during the following periods:

- 4:00 p.m. Friday to 7:00 a.m. Monday, for normal weekends
- All Canadian statutory holidays.

Basis of Payment for Traffic Control and Pedestrian Safety

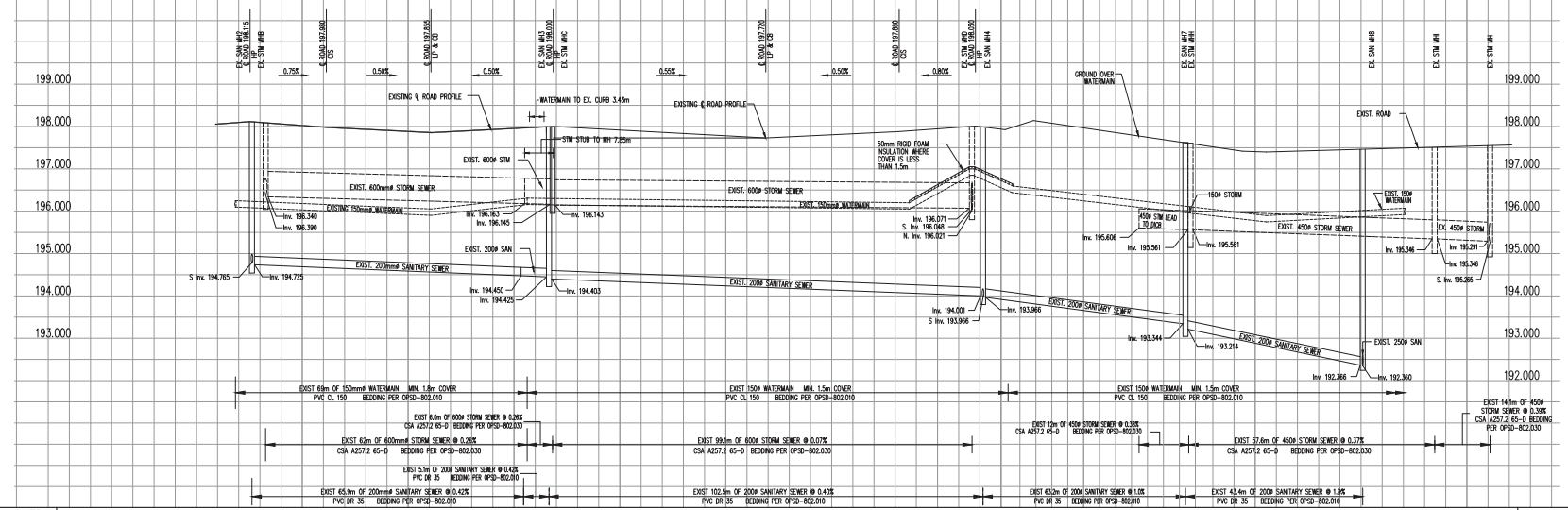
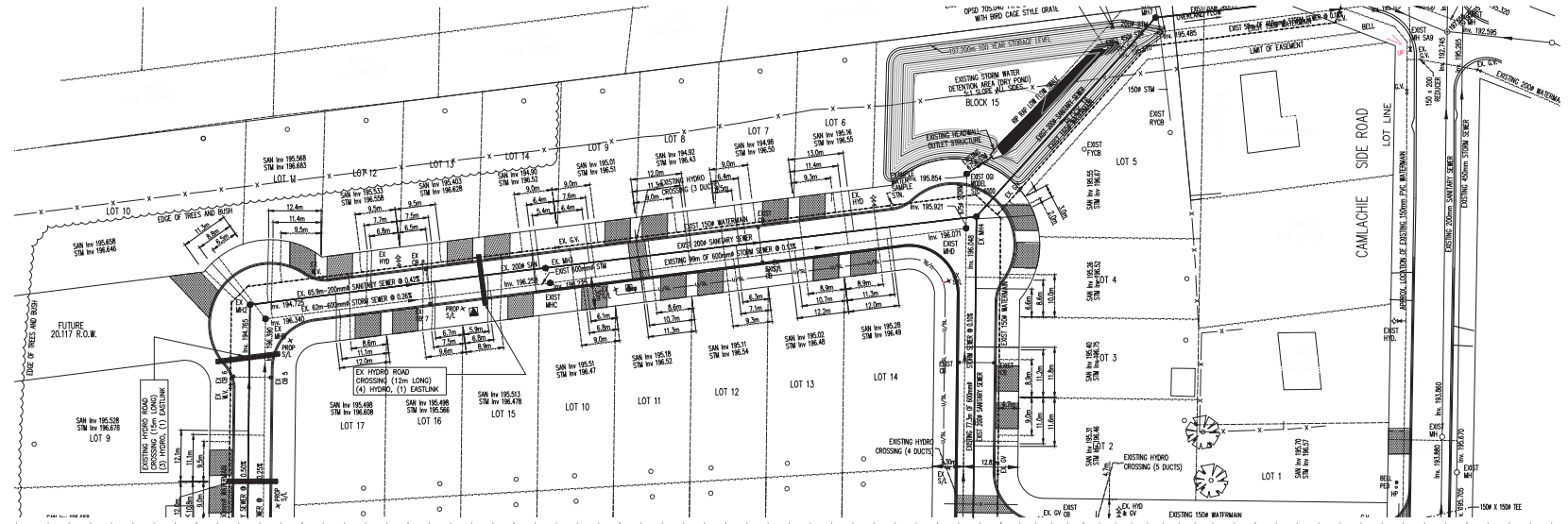
Payment for this item shall be as follows:

- (a) 60% for the submission of a Traffic Control Plan and initial installation.
- (b) 30% for maintenance and continual implementation of the Traffic Control Plan including, but not limited to, signage, flag persons, barricades, fencing etc. This portion of the lump sum bid shall be paid in proportion to the permanent work completed.
- (c) 10% for removal of signs, barricades, fencing etc.

AS RECORDED STORM M.H. & C.B. DATA			
No.	Station (C/S)	From	To
CB1	1+092.0	PT 705.010	400.020
CB2	1+102.0	LT 705.010	400.020
CB3	1+102.0	LT 705.010	400.020
CB4	1+102.0	LT 705.010	400.020
CB5	1+102.0	LT 705.010	400.020
CB6	1+102.0	LT 705.010	400.020
CB7	1+102.0	LT 705.010	400.020
CB8	1+102.0	LT 705.010	400.020

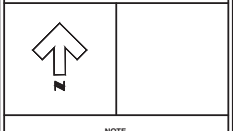
AS RECORDED SANITARY M.H. DATA			
No.	Station (C/S)	From	To
MH1	2+067.51	RT 701.010	402.010
MH2	2+067.51	RT 701.010	402.010
MH3	2+067.51	RT 701.010	402.010
MH4	2+067.51	RT 701.010	402.010
MH5	2+067.51	RT 701.010	402.010
MH6	2+067.51	RT 701.010	402.010
MH7	2+067.51	RT 701.010	402.010
MH8	2+067.51	RT 701.010	402.010

**STORM AND SANITARY MANHOLES SHALL BE BENCHMARKED



FINISHED ASPHALT GRADE	198.115	0.75%	197.980	0.50%	197.850	0.50%	197.720	0.50%	197.590	0.50%	197.460	0.50%	197.330	0.50%	197.200	0.50%	197.070	0.50%	196.940	0.50%	196.810	0.50%	196.680	0.50%	196.550	0.50%	196.420	0.50%	196.290	0.50%	196.160	0.50%	196.030	0.50%	195.900	0.50%	195.770	0.50%	195.640	0.50%	195.510	0.50%	195.380	0.50%	195.250	0.50%	195.120	0.50%	194.990	0.50%	194.860	0.50%	194.730	0.50%	194.600	0.50%	194.470	0.50%	194.340	0.50%	194.210	0.50%	194.080	0.50%	193.950	0.50%	193.820	0.50%	193.690	0.50%	193.560	0.50%	193.430	0.50%	193.300	0.50%	193.170	0.50%	193.040	0.50%	192.910	0.50%	192.780	0.50%	192.650	0.50%	192.520	0.50%	192.390	0.50%	192.260	0.50%	192.130	0.50%	192.000	0.50%	191.870	0.50%	191.740	0.50%	191.610	0.50%	191.480	0.50%	191.350	0.50%	191.220	0.50%	191.090	0.50%	190.960	0.50%	190.830	0.50%	190.700	0.50%	190.570	0.50%	190.440	0.50%	190.310	0.50%	190.180	0.50%	190.050	0.50%	189.920	0.50%	189.790	0.50%	189.660	0.50%	189.530	0.50%	189.400	0.50%	189.270	0.50%	189.140	0.50%	189.010	0.50%	188.880	0.50%	188.750	0.50%	188.620	0.50%	188.490	0.50%	188.360	0.50%	188.230	0.50%	188.100	0.50%	187.970	0.50%	187.840	0.50%	187.710	0.50%	187.580	0.50%	187.450	0.50%	187.320	0.50%	187.190	0.50%	187.060	0.50%	186.930	0.50%	186.800	0.50%	186.670	0.50%	186.540	0.50%	186.410	0.50%	186.280	0.50%	186.150	0.50%	186.020	0.50%	185.890	0.50%	185.760	0.50%	185.630	0.50%	185.500	0.50%	185.370	0.50%	185.240	0.50%	185.110	0.50%	184.980	0.50%	184.850	0.50%	184.720	0.50%	184.590	0.50%	184.460	0.50%	184.330	0.50%	184.200	0.50%	184.070	0.50%	183.940	0.50%	183.810	0.50%	183.680	0.50%	183.550	0.50%	183.420	0.50%	183.290	0.50%	183.160	0.50%	183.030	0.50%	182.900	0.50%	182.770	0.50%	182.640	0.50%	182.510	0.50%	182.380	0.50%	182.250	0.50%	182.120	0.50%	181.990	0.50%	181.860	0.50%	181.730	0.50%	181.600	0.50%	181.470	0.50%	181.340	0.50%	181.210	0.50%	181.080	0.50%	180.950	0.50%	180.820	0.50%	180.690	0.50%	180.560	0.50%	180.430	0.50%	180.300	0.50%	180.170	0.50%	180.040	0.50%	179.910	0.50%	179.780	0.50%	179.650	0.50%	179.520	0.50%	179.390	0.50%	179.260	0.50%	179.130	0.50%	179.000	0.50%	178.870	0.50%	178.740	0.50%	178.610	0.50%	178.480	0.50%	178.350	0.50%	178.220	0.50%	178.090	0.50%	177.960	0.50%	177.830	0.50%	177.700	0.50%	177.570	0.50%	177.440	0.50%	177.310	0.50%	177.180	0.50%	177.050	0.50%	176.920	0.50%	176.790	0.50%	176.660	0.50%	176.530	0.50%	176.400	0.50%	176.270	0.50%	176.140	0.50%	176.010	0.50%	175.880	0.50%	175.750	0.50%	175.620	0.50%	175.490	0.50%	175.360	0.50%	175.230	0.50%	175.100	0.50%	174.970	0.50%	174.840	0.50%	174.710	0.50%	174.580	0.50%	174.450	0.50%	174.320	0.50%	174.190	0.50%	174.060	0.50%	173.930	0.50%	173.800	0.50%	173.670	0.50%	173.540	0.50%	173.410	0.50%	173.280	0.50%	173.150	0.50%	173.020	0.50%	172.890	0.50%	172.760	0.50%	172.630	0.50%	172.500	0.50%	172.370	0.50%	172.240	0.50%	172.110	0.50%	171.980	0.50%	171.850	0.50%	171.720	0.50%	171.590	0.50%	171.460	0.50%	171.330	0.50%	171.200	0.50%	171.070	0.50%	170.940	0.50%	170.810	0.50%	170.680	0.50%	170.550	0.50%	170.420	0.50%	170.290	0.50%	170.160	0.50%	170.030	0.50%	169.900	0.50%	169.770	0.50%	169.640	0.50%	169.510	0.50%	169.380	0.50%	169.250	0.50%	169.120	0.50%	168.990	0.50%	168.860	0.50%	168.730	0.50%	168.600	0.50%	168.470	0.50%	168.340	0.50%	168.210	0.50%	168.080	0.50%	167.950	0.50%	167.820	0.50%	167.690	0.50%	167.560	0.50%	167.430	0.50%	167.300	0.50%	167.170	0.50%	167.040	0.50%	166.910	0.50%	166.780	0.50%	166.650	0.50%	166.520	0.50%	166.390	0.50%	166.260	0.50%	166.130	0.50%	166.000	0.50%	165.870	0.50%	165.740	0.50%	165.610	0.50%	165.480	0.50%	165.350	0.50%	165.220	0.50%	165.090	0.50%	164.960	0.50%	164.830	0.50%	164.700	0.50%	164.570	0.50%	164.440	0.50%	164.310	0.50%	164.180	0.50%	164.050	0.50%	163.920	0.50%	163.790	0.50%	163.660	0.50%	163.530	0.50%	163.400	0.50%	163.270	0.50%	163.140	0.50%	163.010	0.50%	162.880	0.50%	162.750	0.50%	162.620	0.50%	162.490	0.50%	162.360	0.50%	162.230	0.50%	162.100	0.50%	161.970	0.50%	161.840	0.50%	161.710	0.50%	161.580	0.50%	161.450	0.50%	161.320	0.50%	161.190	0.50%	161.060	0.50%	160.930	0.50%	160.800	0.50%	160.670	0.50%	160.540	0.50%	160.410	0.50%	160.280	0.50%	160.150	0.50%	160.020	0.50%	159.890	0.50%	159.760	0.50%	159.630	0.50%	159.500	0.50%	159.370	0.50%	159.240	0.50%	159.110	0.50%	158.980	0.50%	158.850	0.50%	158.720	0.50%	158.590	0.50%	158.460	0.50%	158.330	0.50%	158.200	0.50%	158.070	0.50%	157.940	0.50%	157.810	0.50%	157.680	0.50%	157.550	0.50%	157.420	0.50%	157.290	0.50%	157.160	0.50%	157.030	0.50%	156.900	0.50%	156.770	0.50%	156.640	0.50%	156.510	0.50%	156.380	0.50%	156.250	0.50%	156.120	0.50%	155.990	0.50%	155.860	0.50%	155.730	0.50%	155.600	0.50%	155.470	0.50%	155.340	0.50%	155.210	0.50%	155.080	0.50%	154.950	0.50%	154.820	0.50%	154.690	0.50%	154.560	0.50%	154.430	0.50%	154.300	0.50%	154.170	0.50%	154.040	0.50%	153.910	0.50%	153.780	0.50%	153.650	0.50%	153.520	0.50%	153.390	0.50%	153.260	0.50%	153.130	0.50%	153.000	0.50%	152.870	0.50%	152.740	0.50%	152.610	0.50%	152.480	0.50%	152.350	0.50%	152.220	0.50%	152.090	0.50%	151.960	0.50%	151.830	0.50%	151.700	0.50%	151.570	0.50%	151.440	0.50%	151.310	0.50%	151.180	0.50%	151.050	0.50%	150.920	0.50%	150.790	0.50%	150.660	0.50%	150.530	0.50%	150.400	0.50%	150.270	0.50%	150.140	0.50%	150.010	0.50%	149.880	0.50%	149.750	0.50%	149.620	0.50%	149.490	0.50%	149.360	0.50%	149.230	0.50%	149.100	0.50%	148.970	0.50%	148.840	0.50%	148.710	0.50%	148.580	0.50%	148.450	0.50%	148.320	0.50%	148.190	0.50%	148.060	0.50%	147.930	0.50%	147.800	0.50%	147.670	0.50%	147.540	0.50%	147.410	0.50%	147.280	0.50%	147.150	0.50%	147.020	0.50%	146.890	0.50%	146.760	0.50%	146.630	0.50%	146.500	0.50%	146.370	0.50%	146.240	0.50%	146.110	0.50%	145.980	0.50%	145.850	0.50%	145.720	0.50%	145.590	0.50%	145.460	0.50%	145.330	0.50%	145.200	0.50%	145.070	0.50%	144.940	0.50%	144.810	0.50%	144.680	0.50%	144.550	0.50%	144.420	0.50%	144.290	0.50%	144.160	0.50%	144.030	0.50%	143.900	0.50%	143.770	0.50%	143.640	0.50%	143.510	0.50%	143.380	0.50%	143.250	0.50%	143.120	0.50%	142.990	0.50%	142.860	0.50%	142.730	0.50%	142.600	0.50%	142.470	0.50%	142.340	0.50%	142.210	0.50%	142.080	0.50%	141.950	0.50%	141.820	0.50%	141.690	0.50%	141.560	0.50%	141.430	0.50%	141.300	0.50%	141.170	0.50%	141.040	0.50%	140.910	0.50%	140.780	0.50%	140.650	0.50%	140.520	0.50%	140.390	0.50%	140.260	0.50%	140.130	0.50%	140.000	0.50%
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Symbol	Legend
(Symbol)	EXISTING SANITARY, SANITARY OR STORM MANHOLE AND CATCHBASIN
(Symbol)	WATERMAIN
(Symbol)	EXISTING HYDRO
(Symbol)	STORM
(Symbol)	UNDERGROUND TELEPHONE
(Symbol)	UNDERGROUND HYDRO
(Symbol)	UNDERGROUND T.V. CABLE
(Symbol)	UTILITY POLES
(Symbol)	GRUBBIES
(Symbol)	REMOVE EXISTING CONC. SIDEWALK AND DRIVE
(Symbol)	REMOVE AND PLACE CONC. SIDEWALK AND DRIVE
(Symbol)	PLACE CONC. SIDEWALK AND DRIVE
(Symbol)	REMOVE EXISTING ASPHALT DRIVE
(Symbol)	REMOVE AND PLACE ASPHALT DRIVE
(Symbol)	REMOVE EXISTING CONC. DRIVE
(Symbol)	REMOVE EXISTING CONC. DRIVE

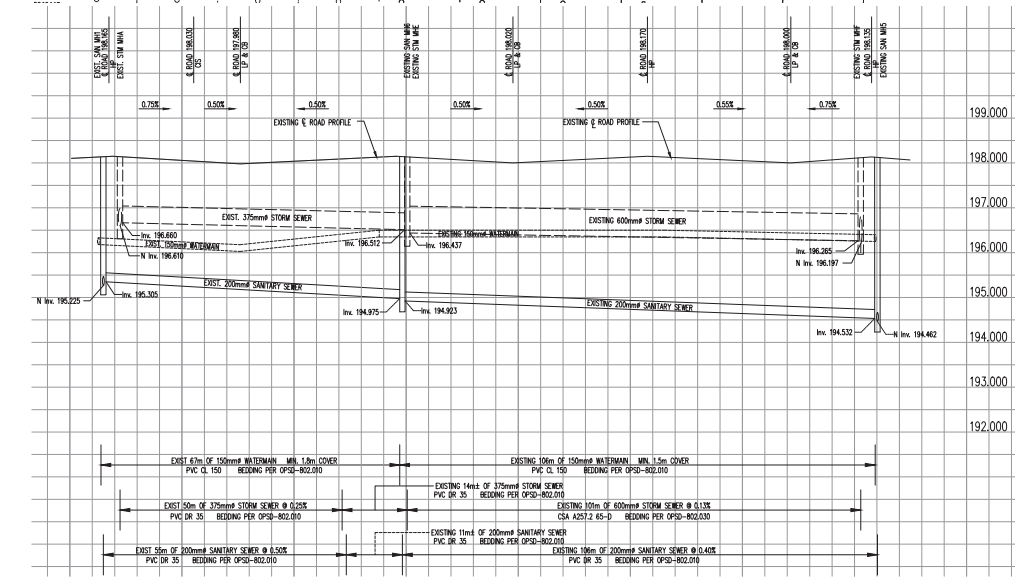
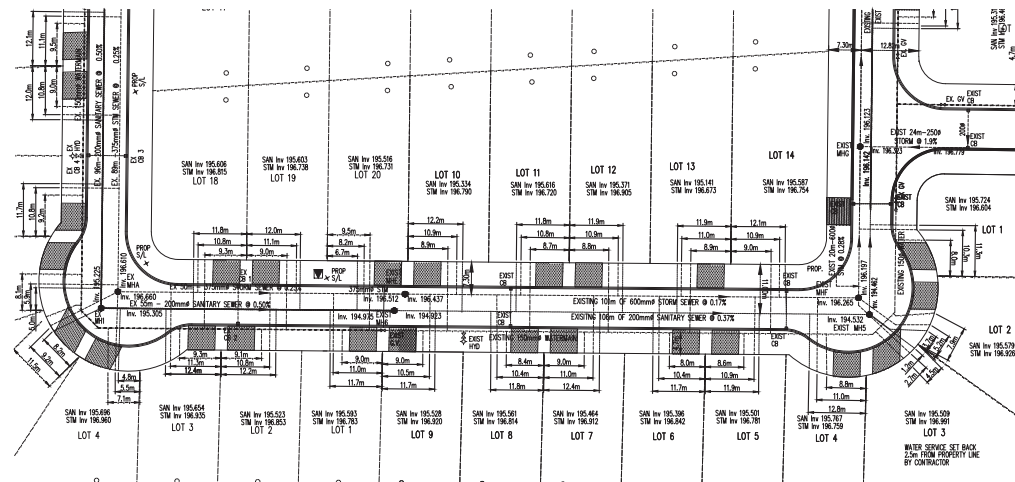


NOTE
The locations of existing sanitary and storm manholes are shown in an

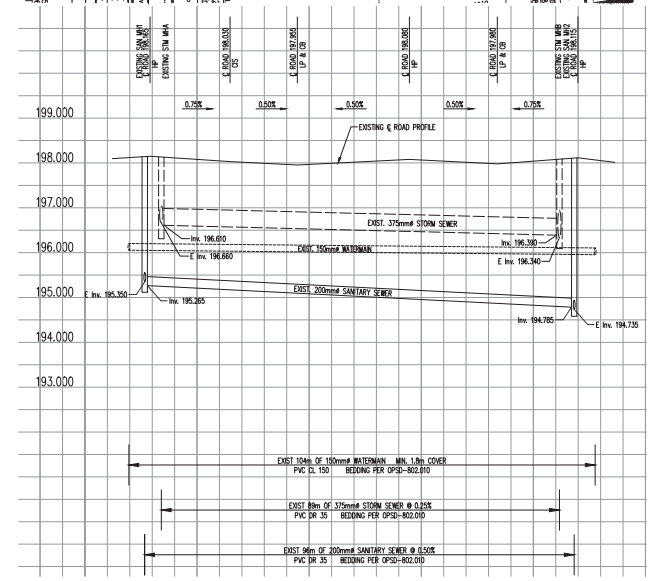
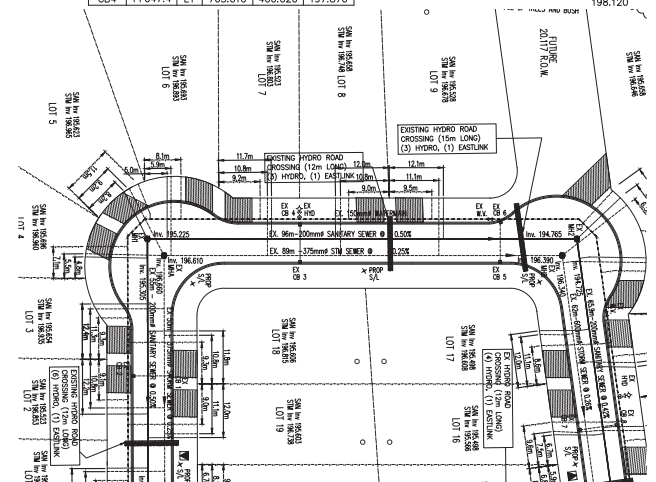
AS RECORDED STORM M.H. & C.B. DATA						
No	Station	I/O/S	Desc.	Grate	T/Grate	
CB1	0+032.5	RT	705.010	400.020	197.870	
CB2	0+032.5	LT	705.010	400.020	197.870	
MHA	0+059.3	RT	701.010	401.010	198.078	
CB3	1+047.4	RT	705.010	400.020	197.870	
CB4	1+047.4	LT	705.010	400.020	197.870	

AS RECORDED SANITARY M.H. DATA						
No	Station	I/O/S	Desc.	Grate	T/Grate	
MH1	0+063.0	RT	701.010	401.010	198.089	
MH2	2+067.5	LT	701.010	401.010	198.120	

**STORM AND SANITARY MANHOLES SHALL BE BENCHMARKED 198.089



FINISHED ASPHALT GRADE	198.165	0.75%	198.030	0.50%	197.980	0.50%	198.150	0.50%	198.020	0.50%	198.170	0.55%	198.000	0.75%	198.135
EXISTING Q GRADE															
STATION	0+060		0+040		0+020		0+000		198.020		198.170		198.000		198.135



FINISHED ASPHALT GRADE	198.135	0.75%	198.135	0.50%	198.135	0.50%	198.135	0.50%	198.135	0.75%	198.135
EXISTING Q GRADE											
STATION	1+010		1+030		1+050		1+070		1+090		1+110

LEGEND

- EXISTING SANITARY, SANITARY OR STORM MANHOLE AND OUTLET
- WATERMAIN
- STORM
- UNDERGROUND TELEPHONE
- UNDERGROUND HYDRO
- UNDERGROUND TV CABLE
- CURB
- SHEDS
- RESIDE EXISTING CONC. SIDEWALK AND DRIVE
- PAVEMENT AND PLANTING CONC. SIDEWALK AND DRIVE
- PLACE CONC. SIDEWALK AND DRIVE
- REMOVE EXISTING CONC. SIDEWALK AND DRIVE
- PAVE LOT AND DRIVE
- REMOVE EXISTING CONC. DRIVE
- REMOVE EXISTING CONC. DRIVE

SCALE

1:500

1:50

NOTE

The locations of existing overhead utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work and agrees to be fully responsible for any damage which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

BENCHMARK INFORMATION

BM Elev: 198.900
Top of Granite on West Side of Carmichael Sideroad
127m North of Presbyterian Church

Design By: G.C.B./E.K. Checked By: G.C.B.

AS RECORDED

The information on this record drawing is believed to be reliable, however, it may be limited, in part, upon information provided by others, which can not be verified by B.M. Ross and Associates Limited. Those relying on this record drawing are advised to obtain additional verification of its accuracy before applying it for any purpose.

August 17, 2018

No.	DATE	REVISION
1	05/18	For Review
2	04/18	For Tender
3	05/18	For Construction
4	05/18	As-Recorded

BMROSS
engineering better communities

Goderich Mount Forest Simons

Elite Homes

Arie Court
Plympton-Wyoming

Plan & Profile
Phase 3

Project No.
17283

Scale (24x36)
Horizontal: 1:500
Vertical: 1:50

Drawing No.
3 of 5