

D.K. ANDREWS DRAIN
Municipality of West Elgin



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London, Ontario
October 13, 2022

D.K. ANDREWS DRAIN

Municipality of West Elgin

To the Mayor and Council of
the Municipality of West Elgin

Mayor and Council:

We are pleased to present our report on the reconstruction of the D.K. Andrews Municipal Drain serving parts of Lot Z, Concessions 2 and 3 in the Municipality of West Elgin and parts of Lots 1 and 2, Concessions 2 and 3 in the Municipality of Dutton Dunwich. The total watershed area contains approximately 90 hectares.

AUTHORIZATION

This report was prepared pursuant to Section 78 of the Drainage Act. Instructions were received from your Municipality with respect to a motion of Council. The work was initiated by a request signed by the one of the affected landowners.

HISTORY

The D.K. Andrews Drain was last reconstructed pursuant to a report submitted by J.R. Spriet, P. Eng. dated August 31, 1981, and consisted of the construction of a new Main Drain and Branch, commencing at the outlet and running southerly through Lot Z, Concessions 2 and 3, to the east side of Dunborough Road. In total, 960 lineal meters of 300mm to 450mm diameter field tile was installed.

EXISTING DRAINAGE CONDITIONS

A site meeting held with respect to the project and through later discussions, the owners reported the following:

- that the requesting landowner, Brian McGill Farms Ltd. (Roll No. 4-047 & 70-049), indicated that the existing drain did not provide sufficient capacity to drain his lands in a reasonable amount of time
- that the Drainage Superintendent for the Municipality of West Elgin indicated that the existing drain was in good condition with few repairs required



EXISTING DRAINAGE CONDITIONS (cont'd)

- that the landowner, Herman Minnema Farms Ltd. (Roll No. 70-022), indicated that his lands were systematically tiled and had no issues with drainage on them

A field investigation and survey were completed. Upon reviewing our findings, we note the following:

- that the existing D.K. Andrews Drain, constructed in the early 1980's, is in good condition but undersized by today's standards
- that the new drain should be constructed on the easterly limits of the lands of Herman Minnema Farms Ltd. (Roll No. 70-022) to minimize disruption to the field tile
- that the drain could be twinned following an alternate route from the head of the Main Drain downstream through the lands of Brian McGill Farms Ltd. (Roll No. 4-047) to the point where Branch "A" connects to the same lands

Preliminary design, cost estimates and assessments were prepared, and an informal public meeting was held to review the findings and preliminary proposals. Further input and requests were provided by the affected owners at that time in which it was suggested that the drain be twinned along the alternate route. Based on this suggestion it was decided to proceed with the request.

DESIGN CONSIDERATIONS

The Drainage Coefficient method contained in the "DRAINAGE GUIDE FOR ONTARIO", Publication 29 by the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) is typically used to design municipal drains. The Drainage Coefficient defines a depth of water that can be removed in a 24-hour period and is expressed in millimetres per 24 hours. The coefficient used to design this drain with respect to capacity was 38mm per 24 hrs based on a twinned design.

We would like to point out that there have been no indications of any adverse soil conditions. It should be noted that no formal soil investigation has been made, with this information being provided by the owners.

The proposed design and report have been generally completed using the "GUIDE FOR ENGINEERS WORKING UNDER THE DRAINAGE ACT IN ONTARIO" OMAFRA Publication 852.

RECOMMENDATIONS

We are therefore recommending the following:

- that the D.K. Andrews Drain be twinned to provide the above lands with a sufficient outlet. The drain shall commence at the outlet at the McEachren Drain and travel south-easterly through the lands of Herman Minnema Farms Ltd. (Roll No. 70-022), parallel to Dunborough Road, for a distance of 570 lineal meters. The drain shall then cross under Dunborough Road into the lands of Brian McGill Farms Ltd. (Roll No. 4-047) where it will then travel south-easterly, parallel to the property line, to its head at the point where the existing drain crosses into these lands, for a total length of 861 lineal meters

RECOMMENDATIONS (cont'd)

- that the crossing under Dunborough Road be done by boring to minimize disturbance to the operation of the roadway
- that the existing drain and the new drain be interconnected at Sta. 0+560 and Sta. 0+861 to ensure they work effectively together
- that catchbasins be installed to alleviate surface flows and ponding
- that Branch "A" from the main drain to the new basin at Sta. 0+590 be officially abandoned pursuant to Section 19 of the drainage act.

ENVIRONMENTAL CONSIDERATIONS AND MITIGATION MEASURES

There are no significant wetlands or sensitive areas within the affected watershed area or along the route of the drains. The proposed construction of the D.K. Andrews Drain includes quarry stone outlet protection and surface inlets which greatly help reduce the overland surface flows and any subsequent erosion. A temporary flow check of silt fencing is to be installed in the ditch downstream of the tile outlet for the duration of the construction.

SUMMARY OF PROPOSED WORK

The proposed work consists of approximately 916 lineal meters of 300mm (12") to 525mm (21") diameter concrete field tile & H.D.P.E. pipe, including related appurtenances.

SCHEDULES

Four schedules are attached hereto and form part of this report, being Schedule 'A' - Allowances, Schedule 'B' - Cost Estimate, Schedule 'C' - Assessment for Construction, and Schedule 'D' - Assessment for Maintenance.

Schedule 'A' - Allowances. In accordance with Sections 29 and 30 of the Drainage Act, allowances are provided for right-of-way and damages to lands and crops along the route of the drain as defined below.

Schedule 'B' - Cost Estimate. This schedule provides for a detailed cost estimate of the proposed work which is in the amount of \$ 182,000.00. This estimate includes engineering and administrative costs associated with this project. The assessed cost in the Municipality of West Elgin is \$ 83,580.00 and the estimated cost in the Municipality of Dutton Dunwich is \$ 98,420.00.

Schedule 'C' - Assessment for Construction. This schedule outlines the distribution of the total estimated cost of construction over the roads and lands which are involved.

Schedule 'D' - Assessment for Maintenance. In accordance with Section 38 of the Drainage Act, this schedule outlines the distribution of future repair and/or maintenance costs for portions of, or the entire drainage works.

Drawing No. 1, Job No. 221274, and specifications form part of this report. They show and describe in detail the location and extent of the work to be done and the lands which are affected.

ALLOWANCES

DAMAGES: Section 30 of the Drainage Act provides for the compensation to landowners along the drain for damages to lands and crops caused by the construction of the drain. The amount granted is based on \$3,613.00/ha. for closed drain installed with wheel machine. This base rate is multiplied by the hectares derived from the working widths shown on the plans and the applicable lengths.

RIGHT-OF-WAY Section 29 of the Drainage Act provides for an allowance to the owners whose land must be used for the construction, repair, or future maintenance of a drainage works.

For tile drains where the owners will be able to continue to use the land, the allowance provides for the right to enter upon such lands, and at various times for the purpose of inspecting such drain, removing obstructions, and making repairs. Also, the allowance provides for the restrictions imposed on those lands to protect the right-of-way from obstruction or derogation. The amounts granted for right-of-way on tile drains is based on a percentage of the value of the land designated for future maintenance. Therefore, the amounts granted are based on \$6,670.00/ha. through cropped lands. This value is multiplied by the hectares derived from the width granted for future maintenance and the applicable lengths.

ASSESSMENT DEFINITIONS

In accordance with the Drainage Act, lands that make use of a drainage works are liable for assessment for part of the cost of constructing and maintaining the system. These liabilities are known as benefit, outlet liability and special benefit liability as set out under Sections 22, 23, 24 and 26 of the Act.

BENEFIT as defined in the Drainage Act means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair, or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or sub-surface water, or any other advantages relating to the betterment of lands, roads, buildings, or other structures.

OUTLET liability is assessed to lands or roads that may make use of a drainage works as an outlet either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse.

In addition, a Public Utility or Road Authority shall be assessed for and pay all the increased cost to a drainage works due to the construction and operation of the Public Utility or Road Authority. This may be shown as either benefit or special assessment.

ASSESSMENT

A modified "Todgham Method" was used to calculate the assessments shown on Schedule 'C'- Assessment for Construction. This entailed breaking down the costs of the drain into sections along its route. Special Assessments were then extracted from each section.



ASSESSMENT (cont'd)

The remainder is then separated into Benefit and Outlet costs. The Benefit cost is distributed to those properties receiving benefit as defined under "Assessment Definitions", with such properties usually being located along or close to the route of the drain. The Outlet Costs are distributed to all properties within the watershed area of that section on an adjusted basis. The areas are adjusted for location along that section, and relative run-off rates. Due to their different relative run-off rates, forested lands have been assessed for outlet at lower rates than cleared lands. Also, roads have been assessed for outlet at higher rates than cleared farmlands.

The actual cost of the work involving this report, with the exception of Special Assessments, is to be assessed on a pro-rata basis against the lands and roads liable for assessment for benefit, outlet, and for special assessments as shown in detail below and on Schedule 'C' - Assessment for Construction. The Special Assessments shall be levied as noted in the Section "Special Assessment".

SPECIAL ASSESSMENT

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against the County of Elgin being the increased cost to the drainage work for boring a 610mm diameter steel pipe across their road allowance on the Main Drain due to the construction and operation of Dunborough Road. The Special Assessment shall be made up of the actual cost of this work and both the final and estimated values of the Special Assessment are to be calculated as follows:

Drain	Cost of Work	Less Equivalent Drain Cost (Fixed)	Plus Administration Cost	Plus Interest & Net H.S.T.	Special Assessment
610mm dia. Steel pipe	\$20,800.00	\$1,120.00	\$4,000.00	\$600.00	\$24,280.00

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against the Municipality of West Elgin Water Department being the increased cost to the drainage work for lowering a 200mm diameter watermain on Dunborough Road, road allowance due to its conflict with the new DK Andrews Drain. The Special Assessment shall be made up of the actual cost of this work and both the final and estimated values of the Special Assessment are to be calculated as follows:

Drain	Cost of Work	Plus Administration Cost	Plus Interest & Net H.S.T.	Special Assessment
Main Drain	\$7,500.00	\$2,500.00	\$250.00	\$10,250.00

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against West Elgin Water Department for the cost of locating and determining the elevation of their watermains on the Main Drain, being the increased cost to the drainage works due to the construction and operation of their watermain. The Special Assessment shall be as shown on Schedule 'C' and shall **not** apply when pro-rating future maintenance costs.



SPECIAL ASSESSMENT (cont'd)

In accordance with Section 26 of the Drainage Act, a Special Assessment has been made against Lagasco Inc. for the cost of locating and determining the elevation of their gas mains on the Main Drain, being the increased cost to the drainage works due to the construction and operation of their utilities. The Special Assessment shall be as shown on Schedule 'C' and shall **not** apply when pro-rating future maintenance costs.

The above special assessments shall not apply for future maintenance purposes.

If any additional work is required to the drainage works due to the existence of buried utilities such as gas pipelines, communications cables, etc. or if any of the utilities require relocation or repair, then, the extra costs incurred shall be borne by the utility involved in accordance with the provisions of Section 26 of the Drainage Act.

GRANTS

In accordance with the provisions of Section 85 of the Drainage Act, a grant **may** be available for assessments against privately owned parcels of land which are used for agricultural purposes and eligible for the Farm Property Class Tax rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of completion of this drain. The Municipality will then deduct the grant from the assessments prior to collecting the final assessments.

MAINTENANCE

Upon completion of construction, all owners are hereby made aware of Sections 80 and 82 of the Drainage Act which forbid the obstruction of or damage or injury to a municipal drain.

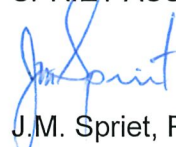
After completion, the D.K. Andrews Drain, excluding the 1981 drain, shall be maintained by the Municipality of West Elgin at the expense of all upstream lands and roads assessed in Schedule 'D' - Assessment for Maintenance and in the same relative proportions until such time as the assessment is changed under the Drainage Act.

The above existing portions of the drain shall be maintained in accordance with the grades and dimensions and maintenance assessments as set out in the plans and specifications contained in the report by J.R. Spriet, P.Eng., dated August 31, 1981.

Repairs or improvements to any road culvert or sub-surface road crossing required by the performance of this work and for future repair and/or replacement, shall be the responsibility of the applicable Road Authority, entirely at their cost.

Respectfully submitted,

SPRIET ASSOCIATES LONDON LIMITED


J.M. Spriet, P.Eng.



SCHEDULE 'A' - ALLOWANCES

D.K. ANDREWS DRAIN

Municipality of West Elgin

In accordance with Sections 29 and 30 of the Drainage Act, we determine the allowances payable to owners entitled thereto as follows:

<u>CONCESSION</u>	<u>LOT</u>	<u>ROLL NUMBER (Owner)</u>	<u>Section 29 Right-of-Way</u>	<u>Section 30 Damages</u>	<u>TOTALS</u>
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MAIN DRAIN

MUNICIPALITY OF WEST ELGIN

2	Pt. Z	70-022 (Herman Minnema Farms Ltd)	\$ 4,170.00	\$ 3,390.00	\$ 7,560.00
Total Allowances			\$ 4,170.00	\$ 3,390.00	\$ 7,560.00

TOTAL ALLOWANCES IN THE MUNICIPALITY OF WEST ELGIN **\$ 7,560.00**

MUNICIPALITY OF DUTTON DUNWICH

2	Pt. 1	4-047 (Brian McGill Farms Ltd)	\$ 1,790.00	\$ 1,460.00	\$ 3,250.00
Total Allowances			\$ 1,790.00	\$ 1,460.00	\$ 3,250.00

TOTAL ALLOWANCES IN THE MUNICIPALITY OF DUTTON DUNWICH **\$ 3,250.00**

TOTAL ALLOWANCES ON THE D.K. ANDREWS DRAIN **\$ 10,810.00**

D.K. ANDREWS DRAIN

Municipality of West Elgin

We have made an estimate of the cost of the proposed work which is outlined in detail as follows:

MAIN DRAIN

6 meters of 600mm dia., H.D.P.E. plastic sewer pipe including rodent gate,
quarry stone rip-rap protection around pipe and end of ditch
(Approximately 8m³ quarry stone req'd)

Supply	\$	1,100.00
Installation	\$	1,300.00

Installation of the following concrete field tile and H.D.P.E. sewer pipe including supply
& installation of bedding, backfill, and geotextile around tile joints (approx. 1450m req'd)

55 meters of 300mm dia. concrete tile	\$	1,700.00
100 meters of 450mm dia. concrete tile 2000D	\$	2,900.00
161 meters of 450mm dia. concrete tile	\$	4,700.00
200 meters of 525mm dia. concrete tile 2000D	\$	6,600.00
366 meters of 525mm dia. concrete tile	\$	12,100.00
Supply of the above listed tile & pipe	\$	46,800.00

Strip, stockpile and relevel topsoil from tile trench and adjacent working area (4m wide) specified on drawings (approx. 833m)	\$	5,000.00
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Supply & install two 900mm x 1200mm ditch inlet catchbasins and one 600mm x 600mm ditch inlet catchbasin including, berms, leads, ditching, coring and required prefabricated fittings and removal and disposal of existing basins	\$	12,400.00
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12 meters of 450mm dia. H.D.P.E. pipe		
Supply	\$	1,100.00
Installation under laneway by open cut	\$	3,000.00

16 meters of 610mm dia., 7.9mm thickness smooth wall steel pipe		
Supply	\$	5,900.00
Installation under Dunborough Road by boring	\$	12,900.00
Grouting of Existing Pipe	\$	2,000.00

Relocation of Watermain with offset	\$	7,500.00
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Exposing and locating existing tile drains and utilities	Preconstruction	\$	3,500.00
	Construction	\$	1,100.00

Tile connections and contingencies	\$	6,400.00
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Allowances under Sections 29 and 30 of the Drainage Act	\$	10,810.00
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SCHEDULE 'B' - COST ESTIMATE (cont'd)

**D.K. ANDREWS DRAIN
Municipality of West Elgin****ADMINISTRATION**

Interest and Net Harmonized Sales Tax	\$ 4,180.00
Survey, Plan and Final Report	\$ 22,900.00
Expenses	\$ 1,950.00
Supervision and Final Inspection	\$ <u>4,160.00</u>
TOTAL ESTIMATED COST	\$ <u><u>182,000.00</u></u>

SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION

D.K. ANDREWS DRAIN

Municipality of West Elgin

Job No. 221274

October 13, 2022

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
MAIN DRAIN						
Municipality of West Elgin						
2	Pt. Z	15.0	70-022 (Herman Minnema Farm)	\$ 34,680.00	\$ 2,965.00	\$ 37,645.00
3	Pt. Z	5.0	70-049 (Brian McGill Farms Ltd)	2,000.00	2,316.00	4,316.00
TOTAL ASSESSMENT ON LANDS				\$ 36,680.00	\$ 5,281.00	\$ 41,961.00
Dunborough Road				\$ 8,800.00	\$ 4,498.00	\$ 13,298.00
Stalker Line					1,211.00	1,211.00
TOTAL ASSESSMENT ON ROADS				\$ 8,800.00	\$ 5,709.00	\$ 14,509.00
SPECIAL ASSESSMENT (50%) against the County of Elgin for the increased cost of installing 16 meters of 610mm dia. 7.9mm thickness smooth steel wall steel pipe						\$ 12,140.00
SPECIAL ASSESSMENT against Lagasco Gas for the increased cost of locating and determining the elevation of their gasmain prior to construction						\$ 2,360.00
SPECIAL ASSESSMENT against Municipality of West Elgin for the increased cost of locating and determining the elevation of their watermain prior to construction						\$ 2,360.00
SPECIAL ASSESSMENT against Municipality of West Elgin for the increased cost of offsetting their 200mm dia. waterline						\$ 10,250.00
TOTAL ASSESSMENT IN THE Municipality of West Elgin						\$ 83,580.00

SCHEDULE 'C' - ASSESSMENT FOR CONSTRUCTION (cont'd)

**D.K. ANDREWS DRAIN
Municipality of West Elgin**

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	BENEFIT	OUTLET	TOTAL
MAIN DRAIN (cont'd)						
Municipality of Dutton-Dunwich						
2	Pt. 1	35.2	4-047 (Brian McGill Farms Ltd)	\$ 19,390.00	\$ 23,337.00	\$ 42,727.00
2	Pt. 2	6.0	4-049 (T. Pettingill)		5,180.00	5,180.00
3	W. Pt. 1	0.4	4-078 (Crinan Community Center)		345.00	345.00
3	Mid Pt. 1	0.3	4-079-10 (J. Wilkie)		259.00	259.00
3	Pt. 1	15.4	4-079 (Brian McGill Farms Ltd)		13,296.00	13,296.00
3	Pt. 2	8.3	4-081 (T. Pettingill)		7,166.00	7,166.00
TOTAL ASSESSMENT ON LANDS				\$ 19,390.00	\$ 49,583.00	\$ 68,973.00
Duff Line				\$	\$ 5,595.00	\$ 5,595.00
Dunborough Road				9,900.00	1,812.00	11,712.00
TOTAL ASSESSMENT ON ROADS				\$ 9,900.00	\$ 7,407.00	\$ 17,307.00
SPECIAL ASSESSMENT (50%) against the County of Elgin for the increased cost of installing 16 meters of 610mm dia. 7.9mm thickness smooth steel wall steel pipe						\$ 12,140.00
TOTAL ASSESSMENT IN THE Municipality of Dutton-Dunwich						\$ 98,420.00
TOTAL ASSESSMENT ON THE MAIN DRAIN						\$ 182,000.00

SCHEDULE 'D' - ASSESSMENT FOR MAINTENANCE

D.K. ANDREWS DRAIN

Municipality of West Elgin

Job No. 221274

October 13, 2022

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	PERCENTAGE OF MAINTENANCE COST
MAIN DRAIN				
Municipality of West Elgin				
2	Pt. Z	15.0	70-022 (Herman Minnema Farms Ltd)	20.2 %
3	Pt. Z	5.0	70-049 (Brian McGill Farms Ltd)	3.3
TOTAL ASSESSMENT ON LANDS				23.5 %
Dunborough Roac		1.8	County of Elgin	8.8 %
Stalker Line		0.8	County of Elgin	1.2
TOTAL ASSESSMENT ON ROADS				10.0 %
TOTAL ASSESSMENT FOR MAINTENANCE IN THE Municipality of West Elgin				33.5 %
Municipality of Dutton-Dunwich				
2	Pt. 1	35.2	4-047 (Brian McGill Farms Ltd)	32.9 %
2	Pt. 2	6.0	4-049 (T. Pettingill)	5.2
3	W. Pt. 1	0.4	4-078 (Crinan Community Center)	0.3
3	Mid Pt. 1	0.3	4-079-10 (J. Wilkie)	0.3
3	Pt. 1	15.4	4-079 (Brian McGill Farms Ltd)	13.2
3	Pt. 2	8.3	4-081 (T. Pettingill)	7.1
TOTAL ASSESSMENT ON LANDS				59.0 %
Duff Line		1.9	County of Elgin	5.6
Dunborough Roac		0.6	County of Elgin	1.9
TOTAL ASSESSMENT ON ROADS				7.5 %
TOTAL ASSESSMENT FOR MAINTENANCE IN THE Municipality of Dutton-Dunwich				66.5 %
TOTAL ASSESSMENT FOR MAINTENANCE FOR THE MAIN DRAIN				100.0 %

SCHEDULE OF NET ASSESSMENT

D.K. ANDREWS DRAIN

Municipality of West Elgin

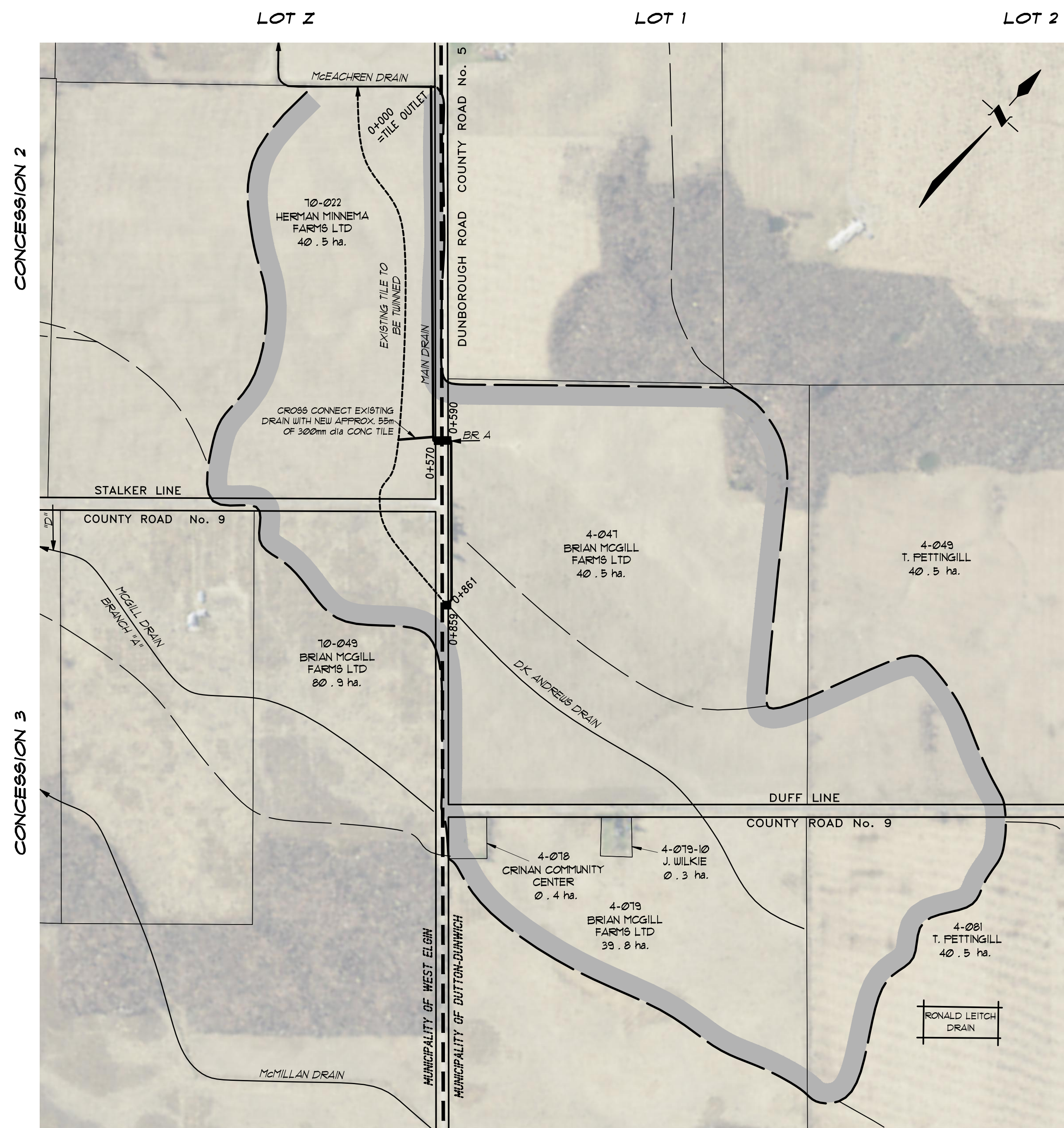
(FOR INFORMATION PURPOSES ONLY)

Job No. 221274

October 13, 2022

* = Non-agricultural

ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
Municipality of West Elgin				
70-022 (Herman Minnema Farms Ltd)	\$ 37,645.00	\$ 12,548.00	\$ 7,560.00	\$ 17,537.00
70-049 (Brian McGill Farms Ltd)	4,316.00	1,439.00		2,877.00
* Dunborough Road	13,298.00			13,298.00
* Special Assessment	12,140.00			12,140.00
* Stalker Line	1,211.00			1,211.00
* Lagasco inc.				
* Special Assessment	2,360.00			2,360.00
* Mun. of West Elgin (Water Department)				
* Special Assessment (Locating)	2,360.00			2,360.00
* Special Assessment (Relocating)	10,250.00			10,250.00
Municipality of Dutton-Dunwich				
4-047 (Brian McGill Farms Ltd)	42,727.00	14,242.00	3,250.00	25,235.00
4-049 (T. Pettingill)	5,180.00	1,727.00		3,453.00
* 4-078 (Crinan Community Center)	345.00			345.00
* 4-079-10 (J. Wilkie)	259.00			259.00
4-079 (Brian McGill Farms Ltd)	13,296.00	4,432.00		8,864.00
4-081 (T. Pettingill)	7,166.00	2,389.00		4,777.00
* Duff Line	5,595.00			5,595.00
* Dunborough Road	11,712.00			11,712.00
* Special Assessment	12,140.00			12,140.00
TOTALS	\$ 182,000.00	\$ 36,777.00	\$ 10,810.00	\$ 134,413.00



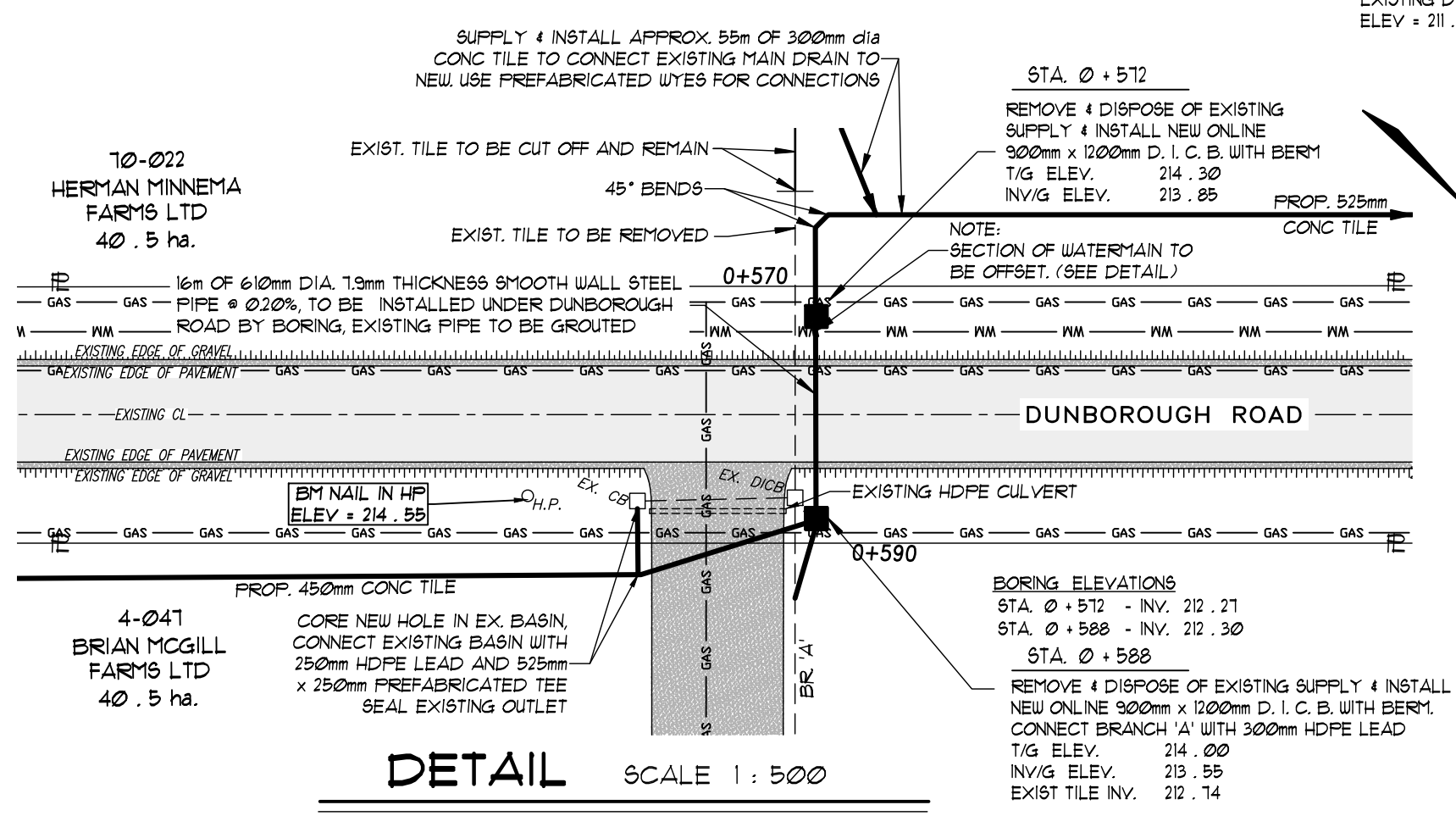
PLAN SCALE 1 : 5,000

CONCESSION 2

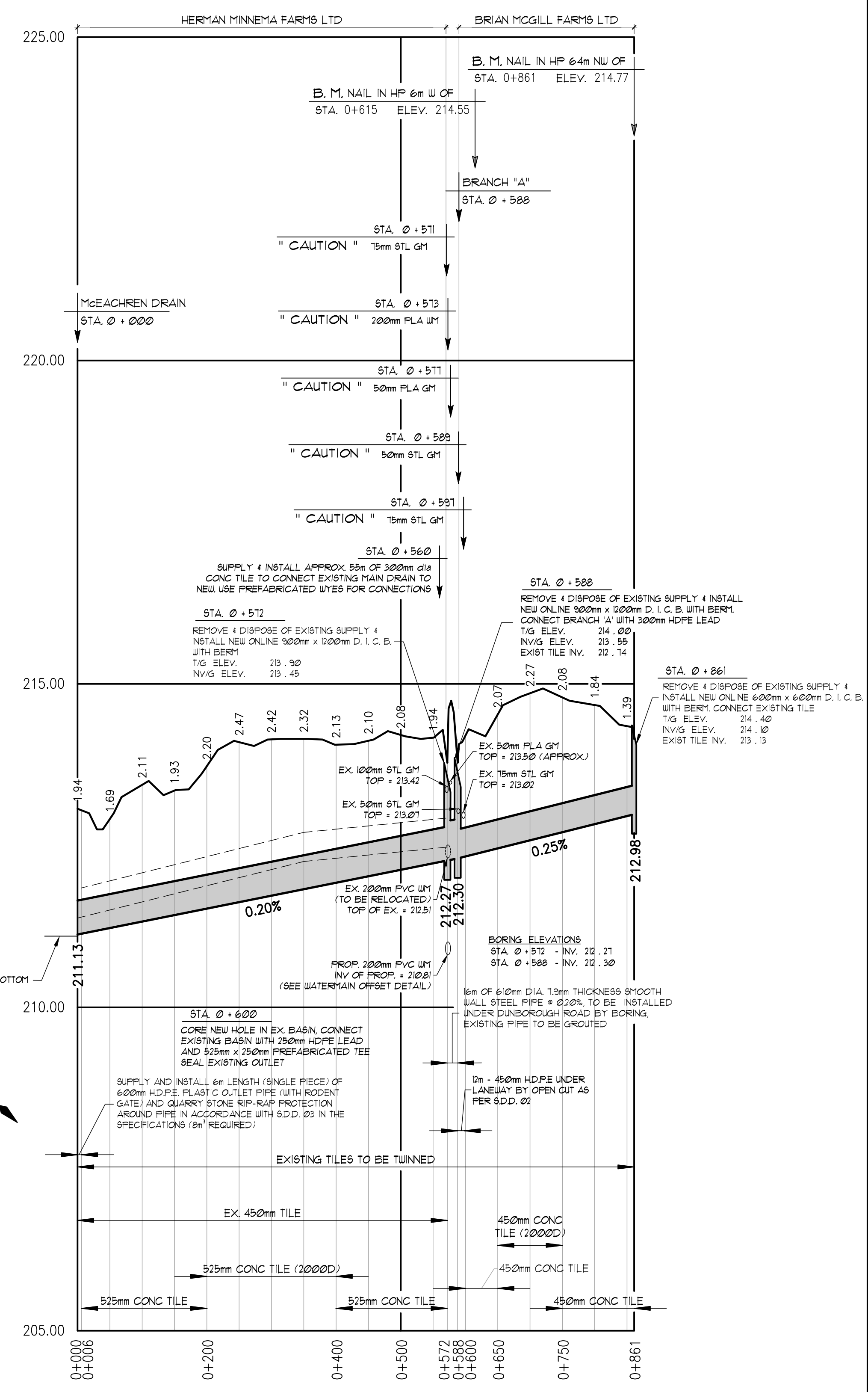
CONCESSION 3

GENERAL NOTES

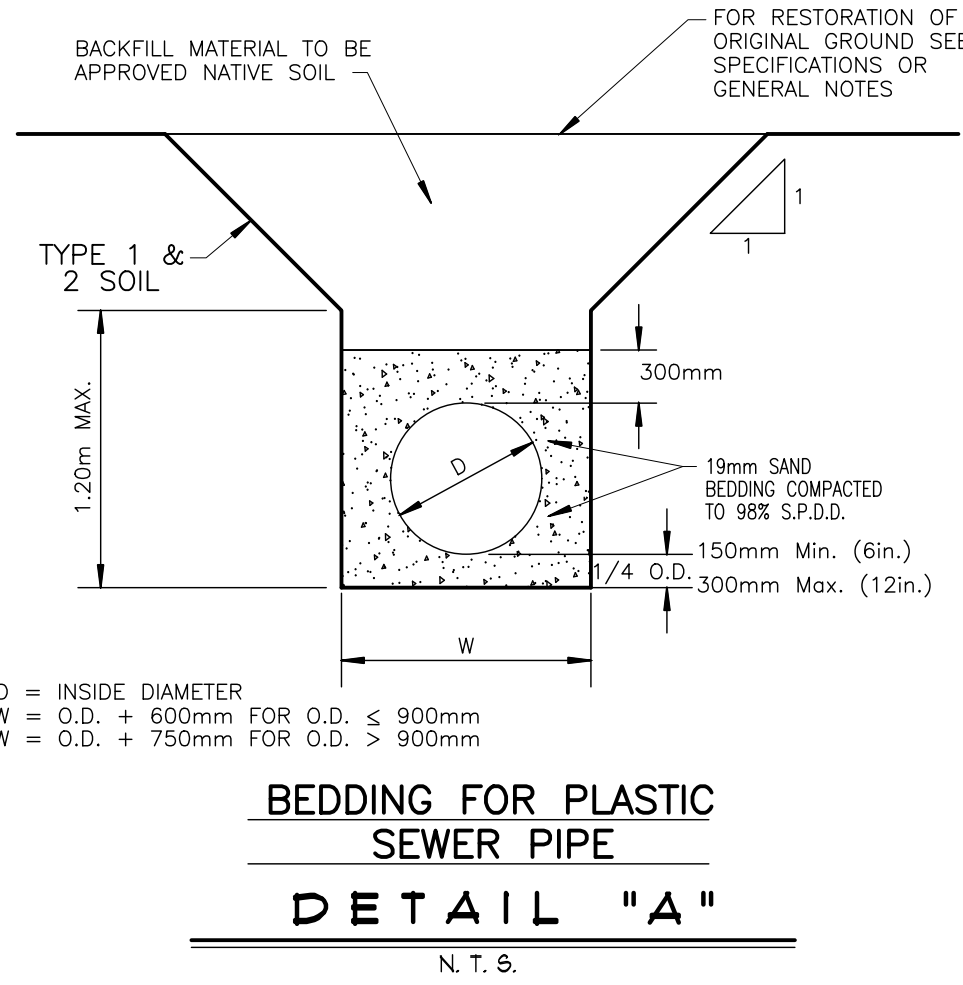
- OUR SPECIFICATIONS DATED JANUARY 2020 APPLY TO THIS PROJECT.
 - THE WORKING WIDTH AVAILABLE TO THE CONTRACTOR TO CONSTRUCT THE NEW DRAINS SHALL CONSIST OF THOSE LANDS IMMEDIATELY ADJACENT TO THE DRAIN AND CONNECTIONS AND SHALL NOT EXCEED THE FOLLOWING AVERAGE WIDTHS:
CLOSED PORTIONS 15 METERS
THE WORKING WIDTH FOR PURPOSES OF FUTURE MAINTENANCE SHALL BE 10M.
 - ALL OWNERS ALONG THE COURSE OF THE DRAIN SHALL MAKE AN ACCESS ROUTE FROM THE NEAREST ROAD TO THE DRAIN LOCATION AVAILABLE TO THE CONTRACTOR THE AVERAGE WIDTH OF THIS ROUTE SHALL NOT EXCEED 8 METERS. THE ACCESS ROUTE SHALL ALSO APPLY FOR FUTURE MAINTENANCE PURPOSES.
 - a) ALL UTILITIES TO BE LOCATED AND EXPOSED PRIOR TO CONSTRUCTION SO THAT THE NEW TILE GRADES CAN BE CONFIRMED. IF THERE IS A CONFLICT IN ELEVATION BETWEEN THE PROPOSED DRAIN AND THE UTILITY, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY.
b) CONTRACTOR TO NOTIFY ALL UTILITIES 72 HOURS PRIOR TO HIS SCHEDULED TIME FOR STARTING THE ABOVE WORK.
c) THE COST FOR THIS WORK SHALL BE INCLUDED IN THE ITEM ON THE EXTENT OF WORK AND NO EXTRA PAYMENT SHALL BE MADE TO THE CONTRACTOR, EXCEPT IF ROAD RESTORATION IS REQUIRED.
 - ALL TREES, SCRUB, BRUSH, ETC. TO BE CLEARED AND GRUBBED IN ACCORDANCE WITH "SECTION E.3 AND C.4" SPECIFICATIONS.
 - RIP-RAP TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH "SECTION A.28" IN THE SPECIFICATIONS.
 - CONTRACTOR TO ARRANGE A PRE-CONSTRUCTION MEETING WITH THE ENGINEER, DRAINAGE SUPERINTENDENT AND THE AFFECTED OWNERS. ALL PARTIES SHALL RECEIVE 48 HOURS NOTICE TO THE MEETING.
- CLOSED PORTIONS**
- ALL CONCRETE AND PLASTIC TILE AND PIPE TO CONFORM TO "SECTION C.1" IN THE SPECIFICATIONS.
a) SEWER PIPE TO BE CONCRETE, H. D. P. E. PLASTIC 370 KPA (BELL, 4 SPIGOT WITH RUBBER GASKETS, CONFORMING TO C.S.A. 1016-09), PVC ULTRA RIB OR FVC SDR 35
b) CONCRETE TILE SHALL BE HEAVY DUTY (2000-D) WHERE NOTED)
 - EXISTING TILE DRAINS TO BE EXPOSED IN AS MANY LOCATIONS AS ARE NECESSARY TO CONFIRM THEIR EXACT LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. EXACT LOCATION OF NEW TILE DRAINS THEN TO BE CONFIRMED BY DRAINAGE SUPERINTENDENT OR ENGINEER.
 - a) INSTALLATION OF TILE AND TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH "SECTION C - TILE DRAIN" IN THE SPECIFICATIONS.
b) ALL CONCRETE TILE AND TILE-PIPE JOINTS TO BE WRAPPED WITH GEOTEXTILE IN ACCORDANCE WITH "SECTION C.8" IN THE SPECIFICATIONS.
c) NO CONSTRUCTION EQUIPMENT OR FARM MACHINERY SHALL CROSS OVER THE MOUND BACKFILLED TILE TRENCHES UNTIL SUFFICIENT SETTLEMENT HAS OCCURRED.
d) STRIP AND STOCKPILE TOPSOIL FROM CONSTRUCTION AREA (4 metre width) FOR ENTIRE LENGTH OF NEW DRAIN (EXCEPT LANEWAYS & ROADS). EXCESS SPOIL TO BE LEVELLED AND TOPSOIL RELEVELLED OVER SPOIL, MOUND TRENCH AND REMAINING CONSTRUCTION AREA.
 - a) IT SHALL BE NOTED THAT AREAS OF POOR SOIL CONDITION MAY BE ENCOUNTERED ALONG THE COURSE OF THE DRAIN. IF SUCH CONDITIONS ARE ENCOUNTERED AND IF THE TRENCH WALLS AND/OR TRENCH BOTTOM AND/OR TRENCH BOTTOM BECOME UNSTABLE, THEN THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE DRAINAGE SUPERINTENDENT OR ENGINEER.
b) IF SO ORDERED BY THE DRAINAGE SUPERINTENDENT OR ENGINEER, THE CONTRACTOR SHALL INSTALL THE TILE OR PIPE ON A BEDDING OF 19mm (3/4") CRUSHED STONE THROUGH THE AREA OF UNSTABLE TRENCH. THE CRUSHED STONE SHALL BE COMPLETELY WRAPPED IN GEOTEXTILE SUCH AS "TERRAFIX 360 R" OR APPROVED EQUAL. THE LIMITS OF THIS WORK SHALL BE DETERMINED BY THE DRAINAGE SUPERINTENDENT OR ENGINEER.
c) PAYMENT FOR THIS WORK SHALL BE IN ACCORDANCE WITH THE CONTINGENCY AMOUNTS SHOWN ON PAGE 3 OF THE "FORM OF TENDER".
d) ALL CONCRETE TILE AND TILE-PIPE JOINTS TO BE WRAPPED WITH GEOTEXTILE IN ACCORDANCE WITH "SECTION C.8" IN THE SPECIFICATIONS.



DETAIL SCALE 1 : 500



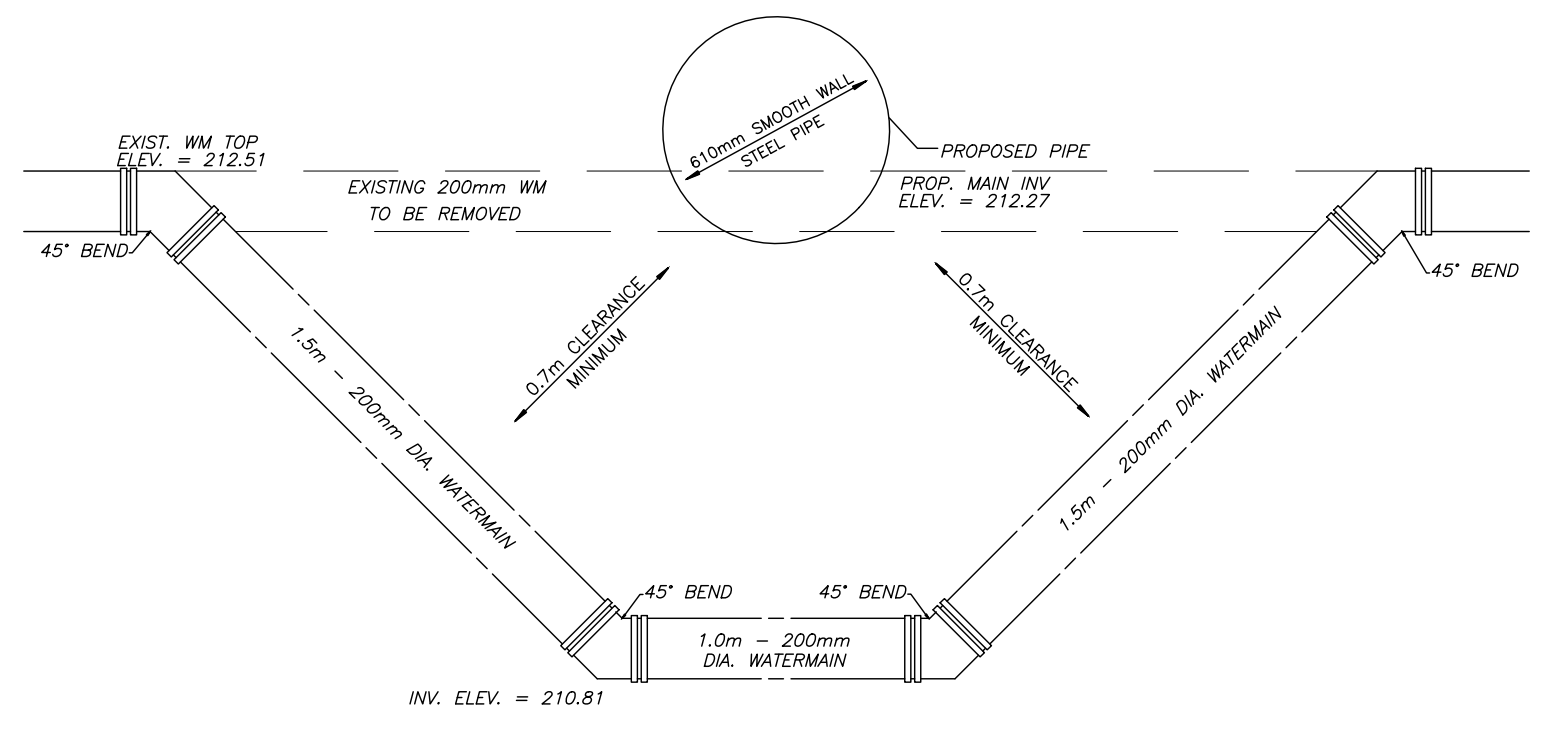
MAIN DRAIN SCALE: HOR 1 : 5,000 VERT. 1 : 50



BEDDING FOR PLASTIC SEWER PIPE
DETAIL "A"
N.T.S.

PLAN LEGEND

[Symbol]	LIMIT OF WATERSHED AREA
[Symbol]	PROPOSED DRAINAGE WORKS
[Symbol]	EXTERIOR OR INTERIOR WATERSHED
[Symbol]	TO BE TUNNED
[Symbol]	EXIST. MUNICIPAL DRAIN
[Symbol]	PRIVATE TILE OR SURFACE WATER RUN
[Symbol]	EXIST. WATERCOURSE OR PRIVATE DITCH
[Symbol]	ASSESSMENT ROLL NUMBER
[Symbol]	HECTARES OWNED



WATERMAIN OFFSET DETAIL SCALE 1 : 25

D.K. ANDREWS DRAIN
Municipality of West Elgin

Drainage Superintendent:
TOM MOHAN
519-785-0560

Drawn By: MJ 4 MM
Date: OCT. 13, 2022

Field Book: GFS
JOB No.: 2212.74
Drawing No.: 1 of 1

SPRIET ASSOCIATES
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