

**PRELIMINARY  
DRAINAGE REPORT  
FOR THE**

**SETTERINGTON LANE  
DRAIN**

**MUNICIPALITY OF LEAMINGTON**



7 MARCH 2011  
ADAM C. SULLO, P.ENG.  
FILE No. 10-3208



File No. 10-3208

Members of Council  
Municipality of Leamington  
38 Erie Street North  
Leamington, Ontario  
N8H 2Z3

**Preliminary Drainage Report for the  
SETTINGINGTON LANE DRAIN  
Municipality of Leamington**

Members of Council:

**Instructions**

The Municipality received a petition from landowners on Lots 1 & 2, Concession 3 for the evaluation and recommendation of installing drainage works located on private lands. As the petition is signed by the majority in number of the owners, as shown on the last revised assessment roll of lands in the area, it is valid under Section 4(1)(a) and the Municipality has authority to proceed under the Act. Council accepted the valid petition under Section 4 of the Drainage Act and on 12 March 2010 appointed Dillon Consulting Limited to prepare a report.

**Area Requiring Drainage**

The area requiring drainage, as intended by the petition, is in and around the vicinity of Lots 1 & 2, Concession 3. This area is further identified as property Roll No's 650-05100, 650-05400, 650-04700, 650-04710, 650-04600, 650-04900 and 650-04800 respectively. Other residential and agricultural properties contribute surface water runoff, as shown on the attached drawings.

**Watershed Description**

The watershed area is approximately 24.45 hectares. A majority of the lands comprising the watershed are under intense agricultural production including greenhouse production. The soils are predominantly sandy loam.

**On-Site Meeting**

We conducted on-site meetings on 19 April 2010 and 17 May 2010. Records of the meetings are provided in Schedules 'A' and 'A-1', which is appended hereto.

**Survey**

Our survey and examination of the surrounding lands was carried out in August 2010. The survey comprised the recording of topographic data and examining the area for available options to provide sufficient drainage. We commenced the survey at the outlet of the proposed drain to Sturgeon Creek. We then proceeded upstream along Settingington Lane and the north limit of Roll No. 650-04710.

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A topographical survey along the MTO ditch in conjunction with Alternative No. 2 has not been completed at this time.

### **Existing Conditions**

Based on information obtained from the survey and our review, we found the following:

- Due to complaints of water running onto the neighbouring property, Mr. Sabelli (Roll No. 650-05100) has installed ditches along the east and north lines of the property conveying the water into a retention pond located in the northwest corner of the property.
- Large amounts of fill have been observed on the Sabelli property (Roll No. 650-05100).
- There is an outlet into the MTO ditch for Brunato's pond (Roll No. 650-04600).
- There is no outlet for Cristofari's pond and it drains by infiltration (Roll No. 650-05400).
- Extreme grade differential exists between most properties within the area requiring drainage.
- There is no current drainage system for Settingington Lane.
- There is no means of legal outlet for these properties.

### **Drainage Capacities and Design**

The Drainage Guide for Ontario, as published by the Ministry of Agriculture and Food and Rural Affairs, establishes the standards to which tile drainage systems should be designed for agricultural purposes. They express the standard as "a drainage co-efficient" which is the rate at which water is to be removed from an area. The drainage co-efficient is expressed in mm/24 hours. The following drainage co-efficients are recommended for subsurface drainage in Ontario under normal surface drainage conditions and where no surface water is admitted directly into the subsurface drain.


- 9 mm/day (3/8 in./day) for improved forage and general grain crops
- 12 mm/day (1/2 in./day) for cash crops
- 20 mm/day (3/4 in./day) for high-value specialized crops

Where surface water is admitted into the subsurface drain, the flow design is based on:

- drainage coefficient from previous paragraph
- plus 25 mm/day (1 in./day) for the area drained to open inlets
- plus 15 mm/day (5/8 in./day) for the area drained to blind inlet

Based on this design criteria, the minimum level of service for cash crops assuming that surface water is permitted into the drain from open inlets, is 37 mm (1½").

In preparing our design for the proposed tile drain, we have considered the type of soil, topography and the use of the land. We recommend that the proposed new drainage works have a capacity to convey approximately 37 mm (1½") of run-off per acre per 24 hours from



the drainage area that it will serve. This runoff is consistent with current design standards, but it should be clearly understood that runoff generated from large storms or fast snow melt will sometimes exceed the capacity of any tile drainage system designed to any of these standards and will result in ponding around the catch basins for short periods of time.

### **Alternatives**

We have estimated the cost associated with two alternatives as described below. Our preliminary cost estimates for Alternatives 1 and 2 are itemized in the attached "Schedule 1" and "Schedule 2" respectively.

a) Alternative No. 1 – Sturgeon Creek Outlet via Settingington Lane

Alternative No. 1 involves the installation of a new tile drain entirely on the private lands. The drain shall commence at the property line between Roll No. 650-05100 and 650-04710 flowing northerly, then turning east along the property line between Roll No. 650-04710 and 650-04700 to the private lane known as Settingington Lane. The drain then runs northerly along Settingington Lane to its outlet into the Sturgeon Creek Drain, north of Highway No. 3.

The new drain will consist of a 175 m long, 250 mm diameter HDPE (perforated); a 400 m long, 300 mm diameter HDPE (perforated) and a 162 m long, 375 mm diameter HDPE (solid) tile system as well as three catch basins and two junction chambers. A swale over the 175 m long, 250 mm diameter HDPE shall be graded and seeded. Catch basins are to be installed at locations where the tile size changes and the direction changes, see attached Drawings.

The attached "Schedule 1" shows a detailed cost estimate of the various items of the work. The total estimated cost for Alternative No. 1 is **\$121,850**.

b) Alternative No. 2 – Sturgeon Creek Outlet via MTO Ditch

Alternative No. 2 is similar to Alternative No. 1, but the outlet to Sturgeon Creek Drain would be via the MTO ditch along the south side of Highway No. 3. This will be achieved by omitting 162 metres of 375 mm diameter HDPE (solid) pipe and instead brushing and excavating 1,008 m of the MTO ditch along the south side of Highway No. 3 with outlet to the Sturgeon Creek Drain. Catch basins are to be installed at locations where the tile size changes and the direction changes, see attached Drawings.

In all other respects, Alternative No. 2 would be similar to Alternative No. 1.

The attached "Schedule 2" shows a detailed cost estimate of the various items of the work. The total estimated cost for Alternative No. 2 is **\$107,930**.

### **Allowances**

For Alternative No. 1 and Alternative No. 2, land having a width from 6.0 m to 10.0 m would be required to install and maintain the new municipal drain. The total area required for Alternative No. 1 is 0.55 ha (1.36 acres), and the total area required for Alternative No. 2 is 0.48 ha (1.19 acres). We recommend that an allowance of \$15,000 per acre be provided for this land.

For Alternative No. 1 and Alternative No. 2, allowances shall include the incorporation of the existing open drain as part of the drainage works. We recommend that an allowance of \$4/ m<sup>3</sup> be applied to the allowances for property Roll No. 650-05100.

For Alternative No. 2, all excavated material originating from the Highway No. 3 cleaning will be placed and spread on the adjoining farmlands. A 10 m wide working corridor would be provided on the southern adjoining farmlands and damage allowances provided to owners of these lands totaling \$3,800.

The following tables show the allowances for land and construction that would be provided to the adjoining private properties for each alternative.

**Alternative No. 1 – Allowances**

<b>Roll No.</b>	<b>Con</b>	<b>Lot or Part</b>	<b>Owner</b>	<b>Land, Damages &amp; Construction</b>
650-05900	3	Pt Lot 1	Erie Sand & Gravel	\$ 2,550
650-04700	3	S Pt Lot 1	Antonio & Maria Bernardes	6,000
650-04710	3	Pt Lot 1 RP 12R-5122 Parts 1,2,5,7 & 8	Brunato Farms Limited c/o Peter Brunato	5,400
650-05100	3	Pt Lot 1 RP 12R-16879 Part 1	Sabelli Boiler Works Inc.	11,250
			<b>TOTAL</b>	<b>\$ 25,200</b>

**Alternative No. 2 - Allowances**

<b>Roll No.</b>	<b>Con</b>	<b>Lot or Part</b>	<b>Owner</b>	<b>Land, Damages &amp; Construction</b>
650-04700	3	S Pt Lot 1	Antonio & Maria Bernardes	\$ 6,000
650-04710	3	Pt Lot 1 RP 12R-5122 Parts 1,2,5,7 & 8	Brunato Farms Limited c/o Peter Brunato	5,400
650-05100	3	Pt Lot 1 RP 12R-16879 Part 1	Sabelli Boiler Works Inc.	11,250
			<b>SUB-TOTAL</b>	<b>\$ 22,650</b>
			Damages	\$ 3,800
			<b>TOTAL</b>	<b>\$ 26,450</b>

**Consideration of Alternatives**

Alternate No.1 offers the shortest and most direct means of legal outlet into the Sturgeon Creek Drain. It includes the installation of a new tile drain along Settingington Lane and provides relief to private lands within the area requiring drainage. The cost for Alternative No. 1 to the landowners is actually less than Alternative No. 2 due to Section 26 costs. This is considered to be the preferred option.

Alternate No.2 is the more expensive of the two alternatives. It consists of adopting a portion of the existing Highway No. 3 ditch to provide outlet into the Sturgeon Creek Drain, followed by the installation of a new tile drain along Settrington Lane. The Ministry of Transportation of Ontario (MTO) would need to be consulted for either option and has not typically allowed municipal drains in their right of way. Also, this alternative would require more maintenance than Alternative No. 1.

### Assessment of Costs

The watershed in general is assessed "Benefit" and "Outlet" assessments. The property owners would be assessed for the cost of installing the new tile drain with the exception of the portion under Highway No. 3 which will be assessed to the Ministry of Transportation Ontario (MTO) under Section 26 of the Drainage Act. This would amount to approximately \$28,000, less allowances and less 1/3 subsidy ADIP grant to eligible properties for Alternative No. 1.

For Alternative No. 2, a portion of the earthworks costs will be assessed against the watershed in general as the portion of existing drain along Highway No. 3 would be cleaned of sediment. Brushing costs and some damage allowances have been included in the cost assessed for drainage improvements.

Property Roll No. 650-04600 (Brunato) currently uses storm water management and discharges into the roadside MTO ditch. This property will be assessed at a regular rate unless there is an agreement for this outlet with the Road Authority.

Due to the use of an infiltration storm water management pond on property Roll No. 650-05400 (Cristofari) the assessment of this property will be done at a 1/3 rate. While the property currently has no physical outlet it still raises the water table due to the use of infiltration and still may connect to the new drain in the future if needed. All other properties will be assessed at a full rate.

These assessments will be assessed proportionally amongst the property owners based on land usage and property size.

### Conclusions

This preliminary report is provided to Council and ratepayers to indicate the general magnitude of the costs involved with the installation of the Settrington Lane Drain. We recommend that the Members of Council review the recommendations and hold a meeting with the ratepayers to discuss the proposed work and the costs involved. The Members of Council can then decide whether or not to proceed with a final report under Section 4. We would be pleased to attend the meetings and answer any questions and hear any concerns, comments and suggestions of the Members of Council and the ratepayers.

Respectfully submitted,



**DILLON CONSULTING LIMITED**

Adam C. Sullo, P.Eng.  
ACS:JJS:ges



**SCHEDULE 'A'**  
**RECORD OF ENGINEERING ON-SITE MEETING**  
**PETITION DRAIN**  
**LOTS 1 & 2, CONCESSION 3**  
**MUNICIPALITY OF LEAMINGTON**  
**MINUTES**

*Monday, April 19, 2010 @ 9:00 am at the north corner of Brunato & Sabelli properties*

**In Attendance**

Robert Hunt  
John Henderson  
Pete Brunato  
Chris Del Greco  
Giovanni Cristofari  
Argentina Cristofari  
Domenic Cristofari  
Anna Sabelli  
Adam Sullo, P.Eng.  
Jennifer Schultz  
Lu-Ann Barreto, Drainage Superintendent

**Representing**

Ministry of the Environment  
Essex Region Conservation Authority  
Landowner  
Landowner  
Landowner  
Landowner  
Landowner  
Landowner  
Dillon Consulting Limited  
Dillon Consulting Limited  
Municipality of Leamington

Lu-Ann Barreto introduced herself as the drainage superintendent for the Municipality of Leamington and Adam Sullo of Dillon Consulting as the appointed engineer. The municipality received a drain petition under Section 4 of the Ontario Drainage Act and appointed Dillon Consulting to prepare a preliminary report.

Adam Sullo thanked everyone for attending. He then listed several purposes of this on-site meeting. The first purpose being to gather information related to the petition and the second to confirm the petition's validity. Adam began by confirming the property locations and ownerships with those in attendance. Adam also confirmed with the attending landowners that Brunato Farms and Cristofari Farms are accepting water from the Sabelli property and that the petition was signed by Brunato and Cristofari Farms.

Adam continued to say that a couple of options will be investigated. In 2-3 weeks, a survey crew from Dillon Consulting will be conducting a topographic survey of the area and surrounding lands. The information collected will be used to analyze the area requiring drainage and offer some design options. A preliminary report shall be prepared and distributed to all affecting lands prior to a meeting to consider the report. The costs of the preliminary report and subsequently the final report and drainage works will be assessed to those properties that benefit and outlet, as well as some cut-off benefit. There are rights to appeal an assessment at the court of revision meeting which follows the meeting to consider the report.

Chris Del Greco asked what would happen if the topography was changed again throughout the process.

Adam stated that once it is a municipal drain it cannot be altered, but until then we can't control it.

Lu-Ann Barreto added that the Municipality of Leamington has implemented a mandatory 3.0 metre minimum buffer strip to be grassed and maintained along the drain banks.

Giovanni Cristofari stated that his water goes into his pond.

Adam Sullo precluded that some of Cristofari's frontage would be assessed and possibly given allowances if the drain is on their property.

Note: John Henderson and Argentina Cristofari arrive at this time.

Adam Sullo continued by asking if there were any other questions from the group.

John Henderson identified an issue regarding the quality of material (rotting vegetables) being detrimental to the aquatic species in Sturgeon Creek.

Adam Sullo inquired if E.R.C.A. would require testing.

John Henderson stated that if it was only run-off water then no testing would be required. However, if there is leachate tiles draining into Sturgeon Creek, testing would be necessary.

Lu-Ann Barreto identified her concerns regulating the water quality once the drain is installed.

Chris Del Greco inquired as to the future use of the Sabelli property.

Anna Sabelli stated that the intention is to farm.

John Henderson stated that these issues need to be considered during the design process.

Lu-Ann Barreto asked that the landowners would be contacted if/when testing takes place.

Adam Sullo confirmed that he had everyone's contact information and will send a letter of notification prior to testing.

Pete Brunato described the old drainage area and the locations where the M.T.O. gave permission to use the roadside drainage.

Lu-Ann Barreto concluded the meeting and welcomed any questions to be directed to Adam Sullo or her.

*Minutes recorded by Jennifer Schultz*

**SCHEDULE 'A-1'**  
**RECORD OF ENGINEERING ON-SITE MEETING**  
**PETITION DRAIN**  
**LOTS 1 & 2, CONCESSION 3**  
**MUNICIPALITY OF LEAMINGTON**  
**MINUTES**

*Friday, May 17, 2010 @ 9:00 am at Sabelli Boiler Works, 123 Mersea Road 3*

**In Attendance**

Robert Hunt  
John Henderson  
Anna Sabelli  
Frank Sabelli  
Adam Sullo, P.Eng.  
Jennifer Schultz  
Lu-Ann Barreto, Drainage Superintendent

**Representing**

Ministry of the Environment  
Essex Region Conservation Authority  
Landowner  
Landowner  
Dillon Consulting Limited  
Dillon Consulting Limited  
Municipality of Leamington

Lu-Ann Barreto introduced herself as the drainage superintendent for the Municipality of Leamington and Adam Sullo of Dillon Consulting as the appointed engineer. The municipality received a drain petition under Section 4 of the Ontario Drainage Act and appointed Dillon Consulting to prepare a preliminary report.

Adam Sullo explained that this meeting is being held as a follow-up from the last meeting which took place on April 19, 2010. He acknowledged that the petition received is indeed valid. Our research has shown that as part of a Ministry of the Environment (MOE) Work Order, a professional consultant experienced in the area of agricultural drainage management was to produce a written report recommending improvements to the land's drainage including a detailed schedule describing a timeline for implementing the recommendations of the Report. We would like to request a copy of said Report from Mr. Sabelli.

Robert Hunt confirmed that Dillon Consulting requested this information. In order for the MOE to release this information, a Request under Freedom of Information would be required.

Frank Sabelli asked if we needed the entire report and how would it benefit him to give us this information.

Adam Sullo explained that the information would be of great help in identifying the history and recent drainage works as well as for sampling and testing the quality of water.

Frank Sabelli identified his concerns releasing the information due to a current lawsuit.

Adam Sullo assured Mr. Sabelli that the information would remain private. He also stated that we still require proof of the agreements with MTO to use their roadside ditch along Highway 3 in order to outlet into the Sturgeon Creek.

Frank Sabelli indicated he would only provide the report if he is contributing water to the proposed municipal drain.

Adam Sullo asked Mr. Sabelli if his land is at final grade.

Frank Sabelli replied that it is not at final grade and that he doesn't know what his final grade will be in the future.

Note: John Henderson arrives.

Adam Sullo explained that Mr. Sabelli and his neighbours will have lands taken to form part of the drainage works, and it is for this reason that we need to know where his grade will be.

Frank Sabelli asked if it is his grade that will determine the design of the drain.

Adam Sullo stated that we want to incorporate future plans for the lands to best serve everyone's needs. We are still investigating the other properties and their future intent as well.

Frank Sabelli asked who pays for all of this work.

Adam Sullo explained that under the Drainage Act, all those using the drain will be assessed under outlet and benefit, and gave a brief explanation.

Frank Sabelli asked if he needed to consult anyone to change the grades on his property.

Adam Sullo replied that he does not, however, once the drain is installed it is a by-law and cannot change without a new engineer's report.

Frank Sabelli asked if he could be forced into the drainage works.

Adam Sullo replied that he has rights to appeal.

Frank Sabelli asked how the petition is valid.

Adam Sullo identified the properties that signed the petition on a map and that they make up more than 2/3 of the property owners.

Frank Sabelli asked if the drain would still be needed if there is a time frame where there aren't any complaints of water problems.

Adam Sullo stated that the only way this drain could not move forward is if petitioners removed their names making the petition no longer valid.

Frank Sabelli stated that Pete Brunato's property used to be a pond, which is shown on Plan 12R-16879. He also explained that Mr. Brunato was supposed to build a retaining wall along their property line. Mr. Sabelli asked how do you know whose water is draining where.

Lu-Ann Barreto stated that Mr. Sabelli is assessed for 3 acres into the Temple Drain.

Frank Sabelli asked if anyone had a problem with him building a big retaining pond with 20 foot banks to retain his water on his property.

Adam Sullo included that Mr. Sabelli would need to produce an engineer's report showing the design parameters and that it can function properly in order to remove his property from assessment into the new municipal drain.

Frank Sabelli explained that for 3 years he drained into a collection pond on the north west corner of his property through a tile that ran along the north property line. That tile has been crushed by the backfill and truck loading. Based on a complaint from the neighbour, Lee Bradshaw from MOE issued the Order and Mr. Sabelli dug a 6 foot ditch where the water would drain through a stone bed into the ground. Mr. Sabelli stated that for the last year and a half that the water has been draining this way and there hasn't been any problems since. Mr. Sabelli asked how long it would be until people don't have a problem with his drainage. He also stated that he would like to have a seepage pond similar to his neighbour Christofari, but he is concerned with ERCA and MOE involvement.

John Henderson replied that the reason ERCA is involved is only due to the Sturgeon Creek. If Mr. Sabelli does not outlet into the Sturgeon Creek, ERCA is no longer concerned.

Frank Sabelli stated that he is assessed into the Sturgeon Creek through ground water. Mr. Sabelli had a survey done of his old pond by Bruce D. Crozier. Mr. Sabelli asked Adam Sullo if he would like a copy of this report.

Adam Sullo replied that the report would be of help.

Frank Sabelli stated that he will not be bringing any more compost in from the Leamington Pollution Plant. All he would like to do is maintain his water on his property and not have to pay for someone else's drainage problem.

Adam Sullo explained that a survey would be completed after all supporting documents (ie. Neighbours storm water management reports, MTO agreements, MOE Report, Bruce D. Crozier Report, etc.) are reviewed. After such time, another meeting will be held for further discussion.

John Henderson asked Mr. Sabelli if his pond is still there today and if the damaged tile goes to the pond of the Temple Drain.

Frank Sabelli replied that the tile goes to the pond. The pond is still there and is drained through the gravel in the ground.

Lu-Ann Barreto concluded the meeting and welcomed any questions to be directed to Adam Sullo or her.

*Minutes recorded by Jennifer Schultz*

**“SCHEDULE 1”**

**COST ESTIMATE FOR ALTERNATIVE No. 1 -  
STURGEON CREEK OUTLET VIA SETTERINGTON LANE**

	<b>Item</b>	<b>Amount</b>
1.	Tile drain installation, as follows:	
	a) Station 0+008 to Station 0+120 - Supply and install 112 m of 375 mm diameter 320 kPa, non-perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe springline with filter fabric underlay (approximately 135 tonnes) and rodent grate.	\$9,200.00
	b) Station 0+170 to Station 0+442 - Supply and install 272 m of 300 mm diameter 320 kPa, perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe springline with filter fabric underlay (approximately 240 tonnes).	\$14,250.00
	c) Station 0+442 to Station 0+570 - Supply and install 128 m of 300 mm diameter 320 kPa, perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe springline with filter fabric underlay (approximately 115 tonnes).	\$6,700.00
	d) Station 0+570 to Station 0+745 - Supply and install 175 m of 250 mm diameter 320 kPa, perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe springline with filter fabric underlay (approximately 150 tonnes).	\$8,300.00
2.	Installation of catch basins, as follows:	
	a) <b>CB-1</b> – Station 0+442 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00
	b) <b>CB-2</b> – Station 0+570 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00
	c) <b>CB-3</b> – Station 0+745 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00
3.	Station 0+570 to Station 0+745 – Grading and seeding of existing private ditch.	\$2,000.00

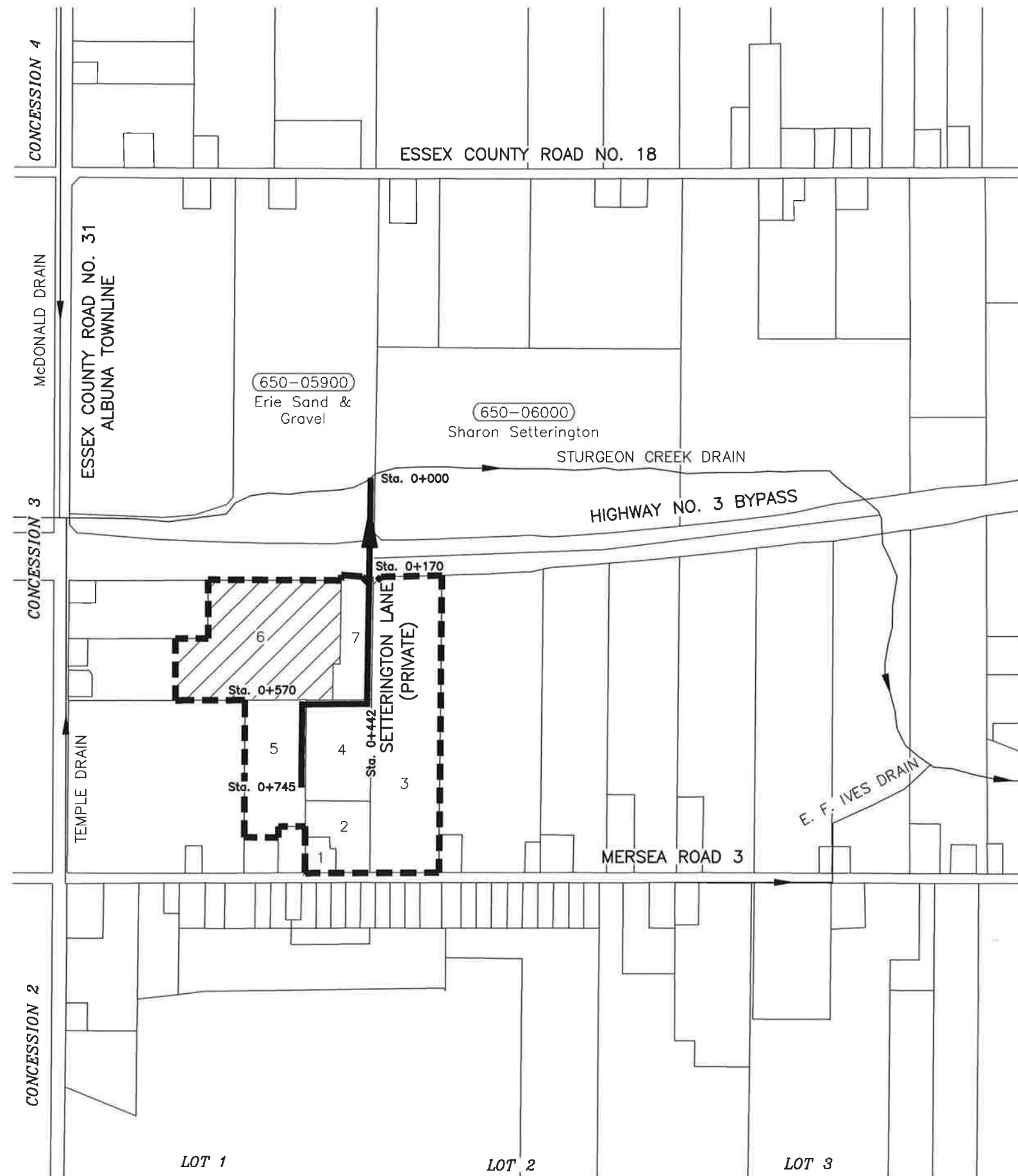
	<b>Item</b>	<b>Amount</b>
4.	Stone Erosion protection works as follows:	
	a) Station 0+005 – Station 0+010 - Supply and install 10 m <sup>2</sup> (300 mm thick) of stone erosion protection (SEP) including new filter fabric underlay around new 375 mm diameter H.D.P.E. on south drain bank of Sturgeon Creek.	\$500.00
5.	Restoration works, as follows:	
	a) Station 0+050 – Station 0+120 - Supply and placement of HL3 surface hot mix asphalt; minimum 80 mm thickness compacted to match existing driveway width (approximately 14 tonnes).	\$2,100.00
	b) Station 0+170 – Station 0+442 - Supply, placement and compaction of Granular 'A' (crushed limestone) driveway surface, minimum 200 mm thickness and 1.5 metres wide (approximately 196 tonnes).	\$5,100.00
	SUB-TOTAL	\$51,150.00
6.	Allowances under Sections 29 and 30	\$25,200.00
7.	Survey, report, assessment and final inspection (cost portion)	\$13,000.00
8.	Expenses and incidentals (cost portion)	\$1,000.00
	<b>TOTAL ESTIMATE (Excl. Section 26)</b>	<b>\$90,350.00</b>
	<b>INCREASED COSTS UNDER SECTION 26 (NON-PRORATABLE COSTS)</b>	
9.	Supply and installation of approximately 50.0 metres of 375 mm diameter (nominal OC) fused high density polyethylene pipe (H.D.P.E.) DR17 by means of directional drilling from the proposed junction chamber located at Station 0+120 on the north side of Highway No. 3 to the proposed junction chamber located at Station 0+170 on the south side of Highway No. 3. This work is to include all related work, pipe fusion sub-contractor, mobilization, pipe, pipe connections, pipe fittings and full restoration of all disturbed areas.	\$25,000.00
10.	Installation of junction chambers, as follows:	
	a) <b>JC-1</b> – Station 0+120 – Installation of one (1) 600 mm x 600 mm concrete junction chamber complete with concrete lid as supplied by manufacturer.	\$1,500.00
	b) <b>JC-2</b> – Station 0+170 – Installation of one (1) 600 mm x 600 mm concrete junction chamber complete with concrete lid as supplied by manufacturer.	\$1,500.00
	SUB-TOTAL (SECTION 26 NON-PRORATABLE)	\$28,000.00

	<b>Item</b>	<b>Amount</b>
11.	Survey, report, assessment and final inspection (cost portion)	\$3,000.00
12.	Expenses and incidentals (cost portion)	\$500.00
	<b>TOTAL ESTIMATE (SECTION 26 NON-PRORATABLE)</b>	<b>\$31,500.00</b>
	<b>OVERALL TOTAL ESTIMATE</b>	<b>\$121,850.00</b>

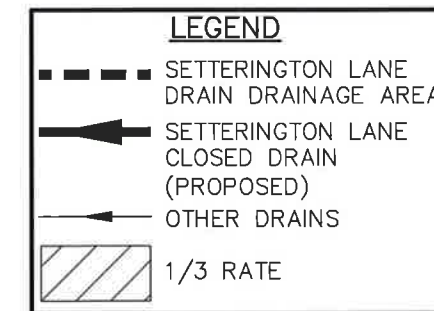
**“SCHEDULE 2”**  
**COST ESTIMATE FOR ALTERNATIVE No. 2 -**  
**STURGEON CREEK OUTLET VIA MTO DITCH**

Item	Amount
1. Brushing of the existing MTO ditch from Station 0+000 to Station 1+008 including the disposal by burning on-site or removal off-site with trimming and/or removal of existing trees as required to accommodate the drainage works.	\$10,080.00
2. Excavation of the drain bottom from Station 0+000 to Station 1+008, totalling approximately 1,008 lineal metres of drain and approximately 2,250 m <sup>3</sup> of material.	\$9,050.00
3. Levelling of excavated materials from Station 0+000 to Station 1+008, totalling approximately 1,008 lineal metres of drain and approximately 2,259 m <sup>3</sup> of material.	\$5,000.00
4. Tile drain installation, as follows:	
a) Station 1+008 to Station 1+292 - Supply and install 284 m of 300 mm diameter 320 kPa, non-perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe spring line with filter fabric underlay (approximately 250 tonnes).	\$14,500.00
b) Station 1+292 to Station 1+420 - Supply and install 128 m of 300 mm diameter 320 kPa, non-perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe spring line with filter fabric underlay (approximately 115 tonnes).	\$6,700.00
c) Station 1+420 to Station 1+595 - Supply and install 175 m of 250 mm diameter 320 kPa, perforated high density polyethylene (H.D.P.E.) pipe (Boss 2000 or approved equal) complete with wrapped split coupler joints. Pipe installation is to include Class ‘B’ bedding up to pipe springline with filter fabric underlay (approximately 150 tonnes).	\$8,300.00
5. Installation of catch basins, as follows:	
a) <b>CB-1</b> – Station 1+292 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00
b) <b>CB-2</b> – Station 1+420 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00

	<b>Item</b>	<b>Amount</b>
	c) <b>CB-3</b> – Station 1+595 – Installation of one (1) 600 mm x 600 mm concrete catch basin complete with a 150 mm riser and flat top grate.	\$1,000.00
6.	Station 1+420 to Station 1+595 – Grading and seeding of existing private ditch.	\$2,000.00
7.	Restoration works, as follows:	
	b) Station 1+008 – Station 1+292 - Supply, placement and compaction of Granular 'A' (crushed limestone) driveway surface, minimum 200 mm thickness and 1.5 metres wide (approximately 205 tonnes).	\$5,350.00
	SUB-TOTAL	\$63,980.00
8.	Allowances under Sections 29 and 30	\$26,450.00
9.	Survey, report, assessment and final inspection (cost portion)	\$16,000.00
10.	Expenses and incidentals (cost portion)	\$1,500.00
	<b>TOTAL ESTIMATE</b>	<b>\$107,930.00</b>



REF. #	ROLL #	OWNER NAMES
1	650-04900	CHRISTOPHER DEL GRECO
2	650-04800	BRUNATO FARMS LIMITED
3	650-04600	BRUNATO FARMS LIMITED
4	650-04710	BRUNATO FARMS LIMITED
5	650-05100	SABELLI BOILER WORKS INC.
6	650-05400	CRISTOFARI FARMS INC.
7	650-04700	ANTONIO P. & MARIA BERNARDES



ALTERNATIVE No. 1

SCHEDULE 'G'



**DILLON CONSULTING**

**OVERALL PLAN**

SCALE: 1:10,000

**DRAINAGE REPORT FOR THE SETTERINGTON LANE DRAIN**

MUNICIPALITY OF LEAMINGTON

7 MARCH 2011

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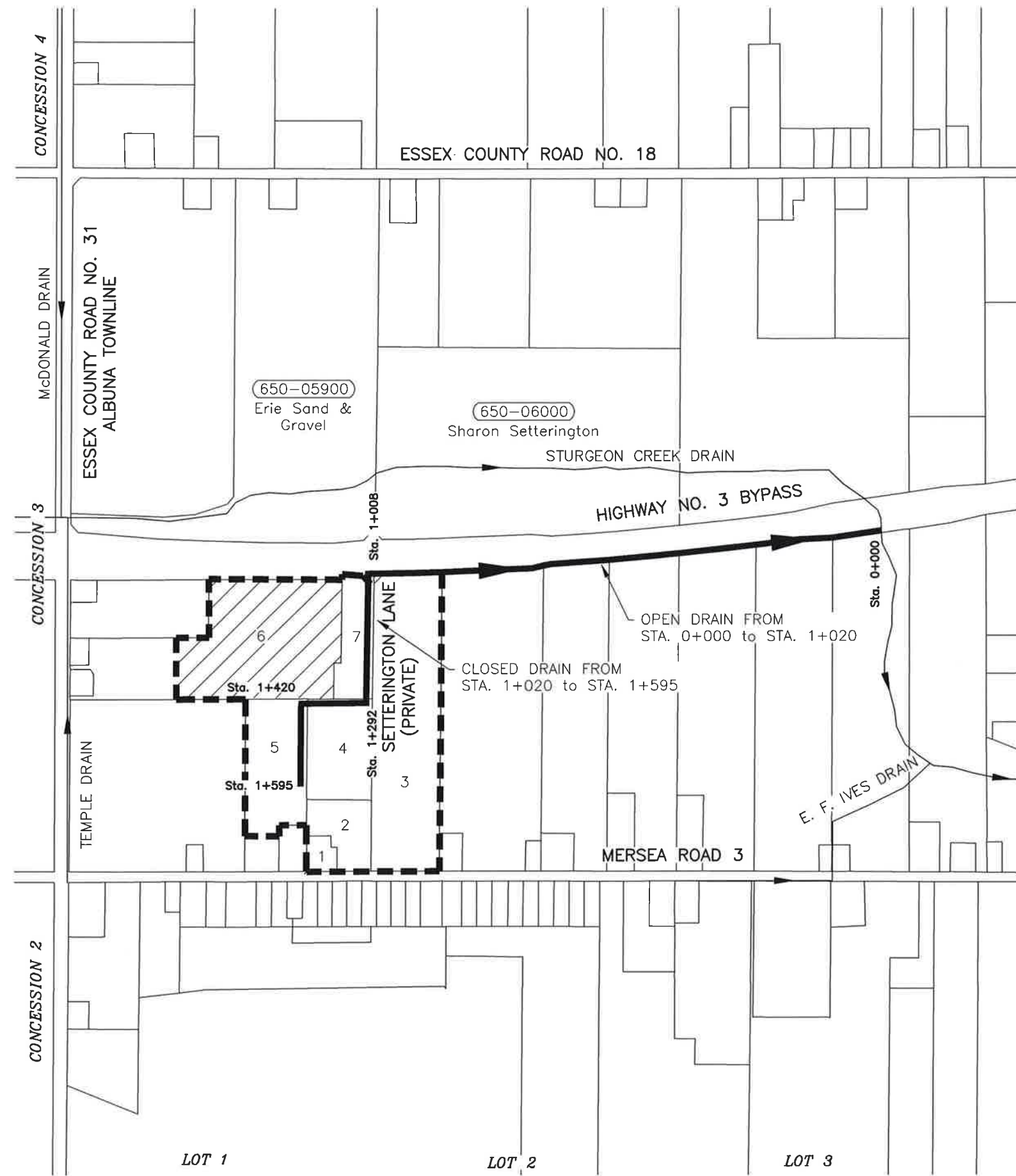


TABLE A		
REF. #	ROLL #	OWNER NAMES
1	650-04900	CHRISTOPHER DEL GRECO
2	650-04800	BRUNATO FARMS LIMITED
3	650-04600	BRUNATO FARMS LIMITED
4	650-04710	BRUNATO FARMS LIMITED
5	650-05100	SABELLI BOILER WORKS INC.
6	650-05400	CRISTOFARI FARMS INC.
7	650-04700	ANTONIO P. & MARIA BERNARDES

**LEGEND**

- SETTINGINGTON LANE DRAIN DRAINAGE AREA
- SETTINGINGTON LANE DRAIN (PROPOSED)
- OTHER DRAINS
- 1/3 RATE

ALTERNATIVE No. 2

SCHEDULE 'G'



**DILLON CONSULTING**

OVERALL PLAN

SCALE: 1:10,000

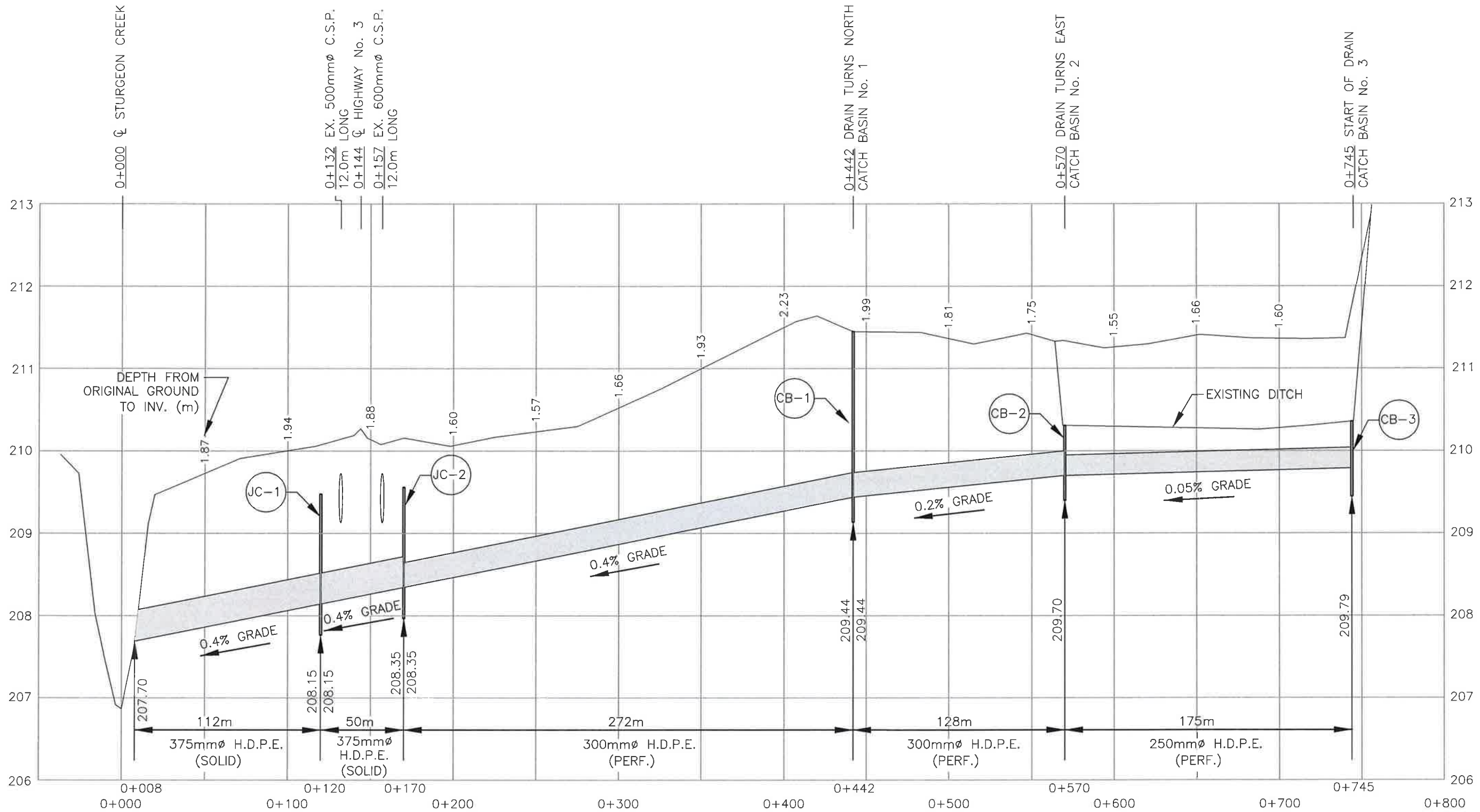
DRAINAGE REPORT FOR THE SETTINGINGTON LANE DRAIN

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**PROFILE**  
 SCALE: HOR 1:2500  
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ALTERNATIVE No. 1

SCHEDULE 'G'



**DILLON CONSULTING**

**PROFILE**

SCALE: 1:10,000

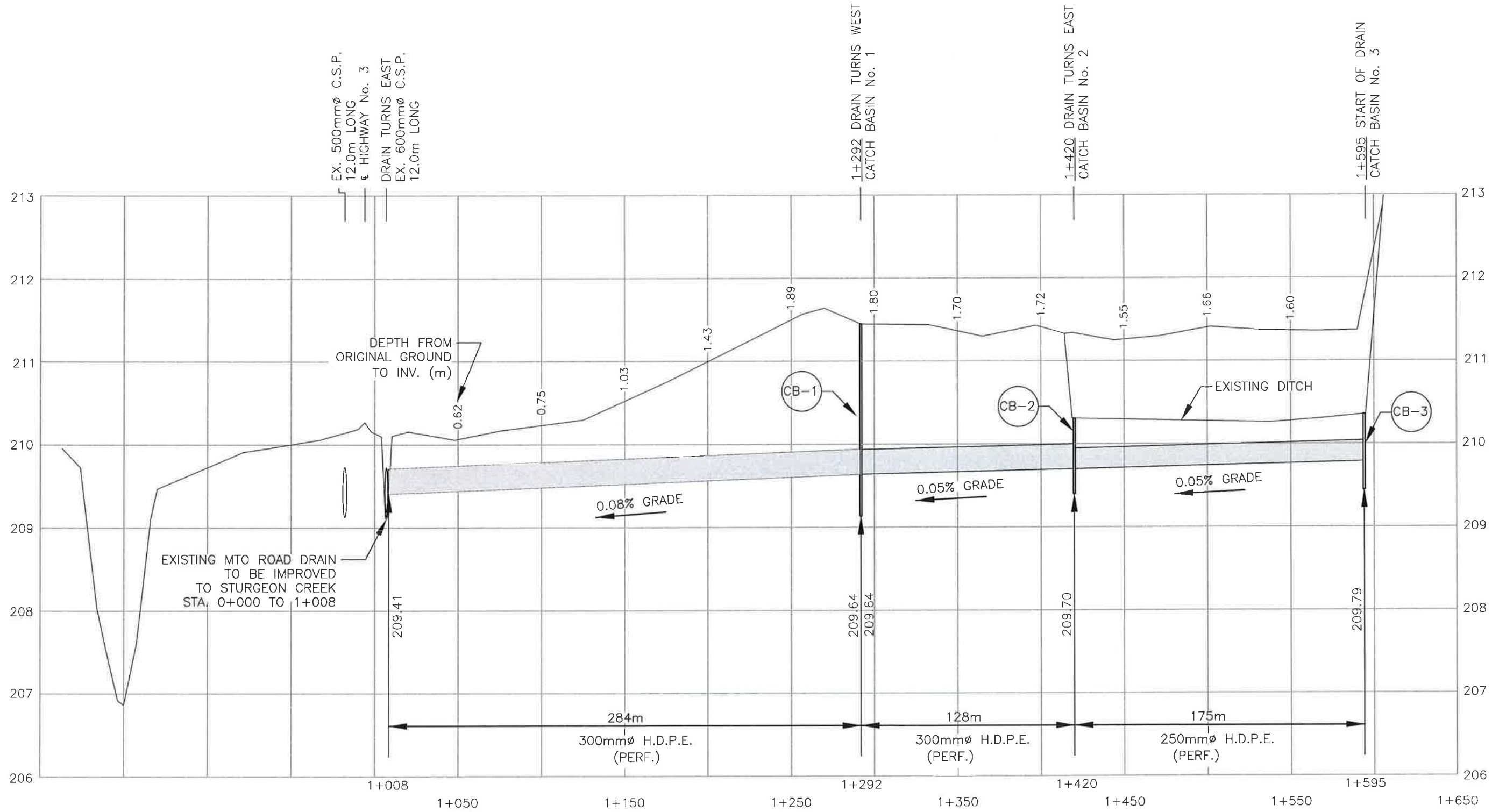
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**PROFILE**

SCALE: HOR 1:2500  
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**ALTERNATIVE No. 2**

SCHEDULE 'G'



**DILLON CONSULTING**

**PROFILE**

SCALE: 1:10,000

**DRAINAGE REPORT FOR THE SETTERINGTON LANE DRAIN**

MUNICIPALITY OF LEAMINGTON

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