



February 1, 2018

File: 160622595

**Reference: Caledon Townhouse Development, Stormwater Management Conformance**

**Attention: Mr. John Spina**

Chateaux of Caledon Corporation  
55 Blue Willow Drive  
Woodbridge, ON

Dear John,

## INTRODUCTION & BACKGROUND

Stantec Consulting Ltd. (Stantec) has been retained by The Chateaux of Caledon Corporation (the "Owner") to prepare this Functional Servicing Brief, for the proposed townhouse development (the "Site") in accordance with the Town of Caledon (the "Town"), The Region of Peel (the "Region") and the Toronto and Regional Conservation Authority (the "TRCA") development guidelines. The site is located in the Town of Caledon, as shown on the Site Plan B101 prepared by Architecture Unfolded dated November 22, 2017 included in **Appendix A**.

The site is located between McElroy Court and Fallis Court in the Town of Caledon, Regional Municipality of York. The site is bounded by existing residential to the north and south, McElroy Court to the east and Fallis Court to the west. See **Figure 1** for the Site Location Plan.

The Subject site is approximately 0.29 hectares (0.71 acres) in size and currently it is a vacant land. Fourteen Town houses are proposed. Seven townhouse are facing McElroy Court and remaining seven are facing Fallis Court.

This report examines the existing boundary servicing (Storm, Sanitary and Water) grading conditions and outlines the serviceability of the site with respect to storm drainage, sanitary servicing, water supply and grading.

The following documents were referenced in the preparation of this report:

- Preliminary Engineering Servicing Report, Chateaux of Caledon Residential Development, Old Church Road and Innis Lake Road, Town of Caledon, Region of Peel, prepared by UMA Engineering Ltd., dated November 9, 2007 [UMA Report];
- Stormwater Management Report, Chateaux of Caledon Corporation, Town of Caledon, prepared by Cole Engineering, dated August 6, 2010 [SWM Report];
- As-Constructed Drawings, prepared by Cole Engineering, dated Dec 07, 2017;
- Policies and Guidelines, Version 4, dated January 2009;
- Sit Plan Control Manual, Town of Caledon, dated September 2013; and,

Reference: **Caledon Townhouse Development, Stormwater Management Conformance**

- Stormwater Management Criteria, Toronto and Regional Conservation Authority dated August 2012.
- Drawing GR6 – Grading Plan (South Commercial Quadrant), Proposed Residential Development, Chateaux of Caledon Phase 2, Part of Lot 21, Concession 1 (Albion), prepared by Cole Engineering, dated July 25, 2012 (Townhouse Block Approval) [Grading Plan];

## SITE GRADING

Topographic survey was completed by BMC Construction Layout Services Ltd., on September 07, 2017. The site will be graded to suite the townhouse blocks as per approved grading plan prepared by Cole Engineering. Both Townhouse Blocks are designed to have split drainage. There is an existing rear lot catchbasin provided to capture the backyard flows and directed to the subdivision storm sewer system. Grades around the perimeter of the site will be set so that existing grades can be matched at the property line. Swales grade are maintained between 2.0% and 5.0%. Our client owns the land in the south-east corner of the development. Therefore 4:1 grading is proposed in this property. The second and third property south of the development are owned by other owners and due to grading constraints, a retaining wall is proposed at the south side of the development. Due to limited space, available along the footprint of the building, a cast in place retaining wall is proposed and after that armor stone retaining wall can be provided. For the retaining wall layout and sections please refer to the Grading Plan **Drawing SG-1**.

## SANITARY SERVICING

The sanitary area was approved under the Chateaux of Caledon Residential Development. Subject site was part of Blok 122. The total area of the Block 122 was 0.84ha and the approved flow from the block for a total population of 146 persons is 0.0025 m<sup>3</sup>/sec. the sanitary flow for was calculated based on a 175 persons/hectare for row dwellings as per Region Peel Standard. There is an existing 250mm diameter sanitary sewer on Fallis Court and an existing 200mm diameter sanitary sewer on McElroy Court. Each townhouse will have a single sanitary service lateral connected to the existing sanitary sewers as shown on the Servicing Plan **Drawing SS-1**.

## STORM SERVICING

The storm area was approved under the Chateaux of Caledon Residential Development. Subject site was part of Blok 122. Both Townhouse Blocks are designed to have split drainage. There is an existing rear lot catchbasin provided to capture the backyard flows and directed to the subdivision storm sewer system. There is an existing 600mm diameter storm sewer on Fallis Court and an existing 450mm diameter storm sewer on McElroy Court. Each townhouse will have a single storm service lateral connected to the existing sanitary sewers.

Townhouse 122 will send overland flows to the McElroy Court from the high point along the side of the townhouse blocks. Remaining overland flows will be directed towards the Fallis Court. Due to grading

Reference: **Caledon Townhouse Development, Stormwater Management Conformance**

constraints, a swale along the side of the townhouse block 166 is proposed so that due to blockage or larger storm events, the water can convey to Fallis court as shown on the Servicing Plan **Drawing SS-1**.

## **WATER SUPPLY**

There is an existing 200mm diameter PVC watermain on the east Fallis Court and an existing 200mm diameter PVC watermain on McElroy Court. Each proposed townhouse will have a single watermain service lateral connected to the existing sanitary sewers as shown on the Site Servicing Plan **Drawing SS-1**.

## **STORMWATER MANAGEMENT**

Based on the SWM Report (specifically Figure DAP2 Post-Development Storm Drainage Area), the Site will drain to the existing SWM Pond located south of Street B, east of Existing Houses, west of Special Use Area, north of Old Church Road. The Site is part of Catchment "A2POST", 5.92 ha at 54% imperviousness.

The SWM criteria were:

- Control post-development peak flows for all storm events up to the 100-year frequency design storm to unit flows resulting from the Humber River Watershed unit rate equations, provided by TRCA;
- Enhanced (80% TSS Removal) Quality Control;
- Erosion potential to be mitigated through maximizing infiltration through the site. In addition, detain runoff from 25 mm event for 24 hours; and,
- Existing water balance conditions are to be maintained, as required by TRCA.
- The SWM Report's Plan was to provide for criteria 1-3 in the SWM Pond, and 4 via a combination of soakaway pits, downspout disconnect, and infiltration trenches along some rear-lots. No measures were proposed in the Site.

Therefore, the SWM requirements for the Site are achieved by the SWM pond and water balance measures located elsewhere in the overall development.

## **EROSION AND SEDIMENTATION CONTROL**

Prior to the initiation of any construction within the site, a comprehensive Erosion and Sediment Control program acceptable to the Town of Caledon (Town), The Region of Peel(Region), and the Toronto and Regional

Reference: **Caledon Townhouse Development, Stormwater Management Conformance**

Conservation Authority (TRCA) will be implemented. Appropriate drawings will be prepared at the detailed design stage and submitted to the Agencies for review and approval.

The future ESC plans will include all necessary siltation control facilities and will be designed in accordance with current Town and TRCA guidelines. Below is a list of recommended erosion and sediment control measures that will be outlined during the construction of the subject property:

- Temporary sediment control fences shall be installed prior to commencing grading activities.
- Temporary mud tracking and dust control measures at construction entrance.
- Install temporary swales with rock check dams as required.
- All proposed open space areas will be restored with topsoil and vegetation as per the landscape plan.

All temporary erosion and sediment control measures will be routinely inspected and repaired during construction. Temporary controls will not be removed until the areas they serve are restored and stable.

## CONCLUSION

Based on the findings of this servicing brief, the conclusions and recommendations are as follows:

- The proposed overall grading design for the site can be achieved using conventional design standards and compliance to the proposed Stormwater Management strategy.
- The SWM requirements for the Site are achieved by the SWM pond and water balance measures located elsewhere in the overall development.
- Major and minor system drainage will mimic existing conditions.
- Adequate provision has been made for conveyance of the sanitary and storm sewer drainage in the Chateaux of Caledon Residential development.
- The proposed development can be serviced with municipal water supply by connecting service connection to the existing watermain on McElroy Court and Fallis Court.



Page 5 of 5

Mr. John Spina

February 1, 2018

Reference: **Caledon Townhouse Development, Stormwater Management Conformance**

Regards,

A handwritten signature in blue ink, appearing to read "Roy Johnson".

**Roy Johnson, B. Eng., M. A. Sc., P. Eng.**

Senior Water Resources Engineer

Direct: (905) 415-6372

Fax: (905) 474-9889

Roy.Johnson2@stantec.com

A handwritten signature in blue ink, appearing to read "Shafqat Ali Khan".

**Shafqat Ali Khan, P.Eng, PMP**

Senior Project Manager

Phone: 905-858-4424 ext 312

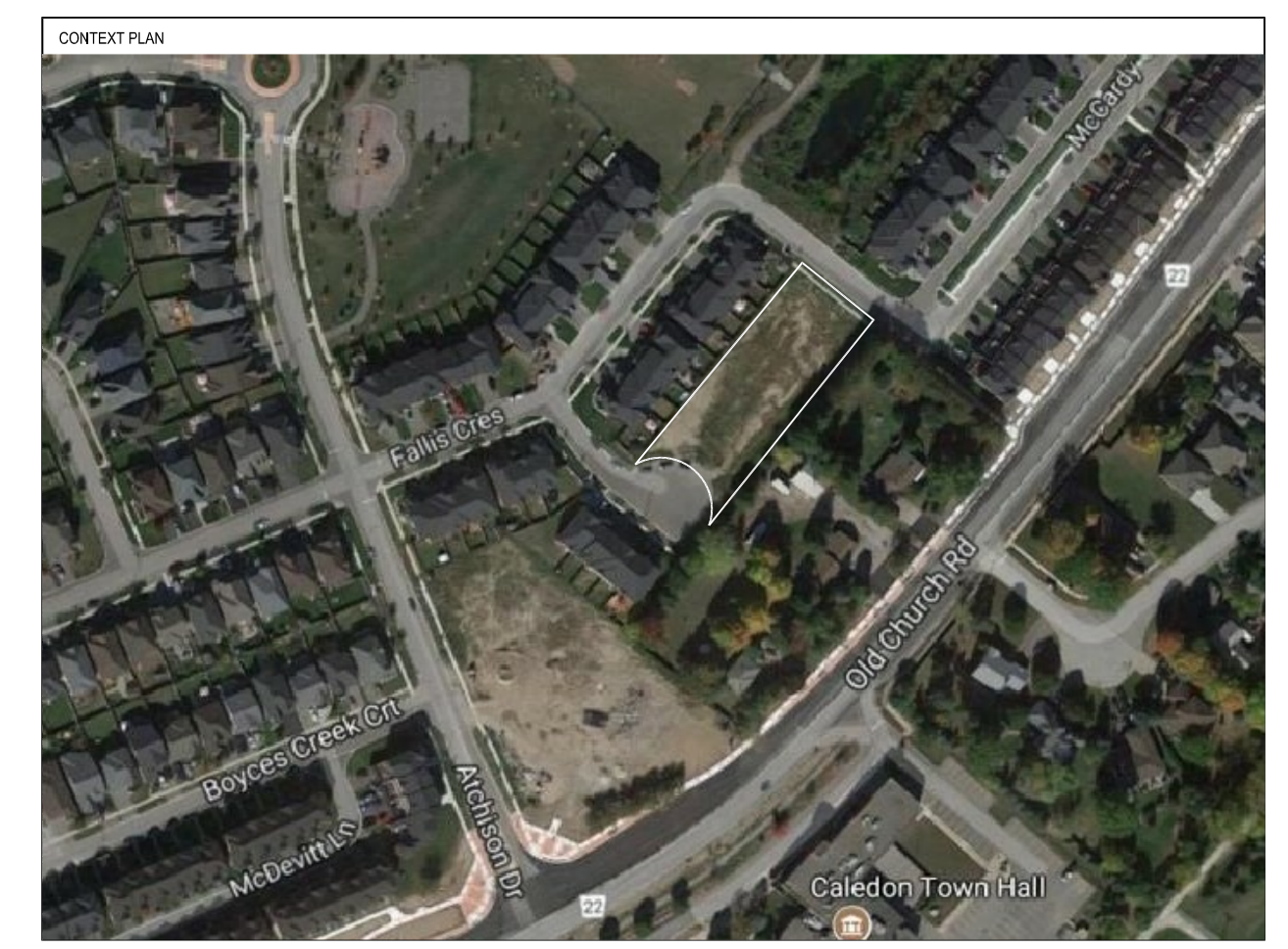
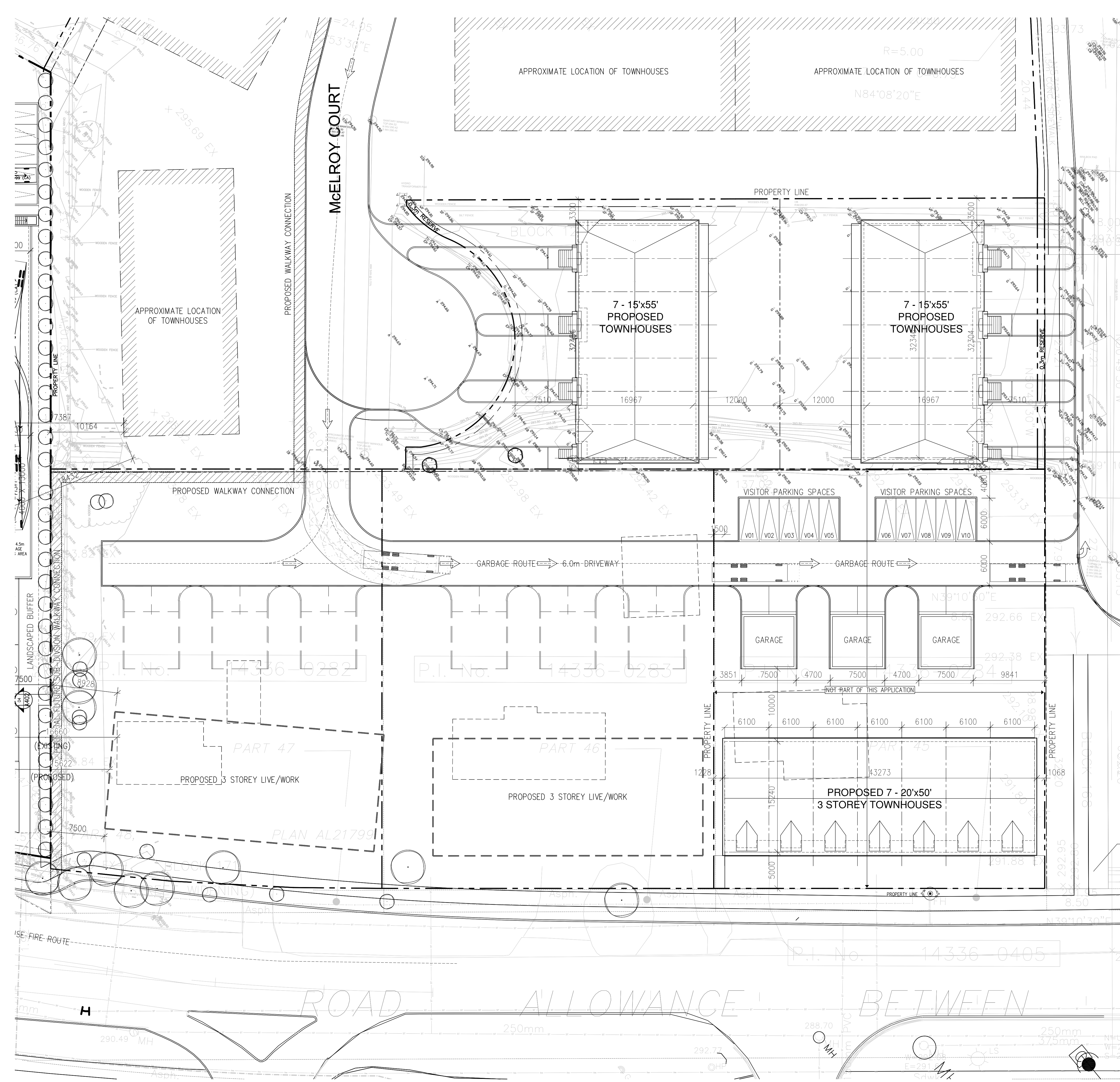
Fax: 905-858-4426

Ali.Khan@Stantec.com

Attachment:           Appendix A: Site Plan  
                          Appendix B: Figures  
                          Appendix C: Existing Information

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# **APPENDIX A: SITE PLAN**



LEGEND	TYPICAL PARKING SPACE	SURVEY DATA
<ul style="list-style-type: none"> <li>MAN ENTRANCE</li> <li>EXIT</li> <li>SEWER</li> <li>EXISTING ELEVATION</li> <li>PROPOSED ELEVATION</li> <li>FINISH</li> </ul>		<p>TOPOGRAPHY OF SITE PROVIDED BY: PART OF PLAN OF SUBDIVISION PART OF LOTS 1, 2, 3 AND 4 REGISTERED PLAN CITY OF MARKHAM REGIONAL MUNICIPALITY OF YORK</p> <p>PREPARED BY: SAUL SHAPIRO, ONSHORE LAND SURVEYORS 14 INDUSTRIAL ROAD, SCARBOROUGH, ONTARIO, L4C 2Y1 (REG. 86625) M.S.M.</p>

ZONING MATRIX			
ZONING DESIGNATION	CALEDON ZONING BY-LAW 2011-27 RT-538-H18	PROPOSED	
LOT AREA (TOTAL)	n/a	2,912.69 m <sup>2</sup>	
GFA	n/a	1536.1 m <sup>2</sup> (per building)	511+519.4+505.7=1536.1 x 2 = 3072.2
GFA (TOTAL)	n/a	3072.2	3072.2 / 2912.69=1
FSI (TOTAL)	n/a	1	
UNITS	n/a	7 units (per building)	
TOTAL		14 units	7+7=14
BUILDING HEIGHT (maximum)	10.50 m	10.40 m (to decline)	
PARKING SPACES			
RESIDENTIAL	2.00 space/unit = 14	2.00 space/unit = 14	
VISITOR	0.25 space/unit = 4	4	
TOTAL	18	18	

Copyright of this drawing and design is reserved by the Designer. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the Designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the responsibility of these documents by the Contractor. Upon written application the architect will provide written graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

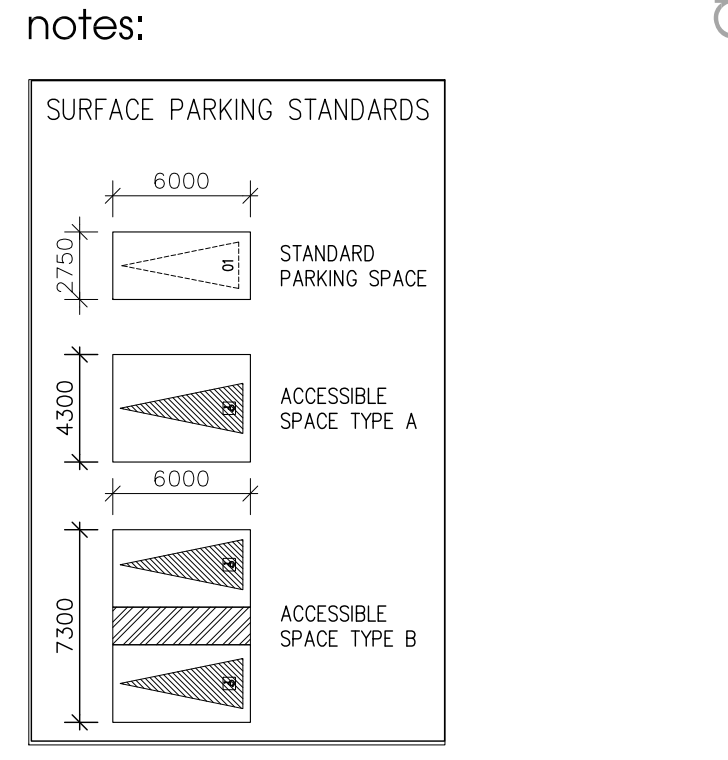
Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Locations of exposed or buried mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented work. All contractors or subcontractors must verify themselves when bidding and at all times that they can properly construct the work represented by these plans.



1 issued for client review  
revisions: 11-22-17

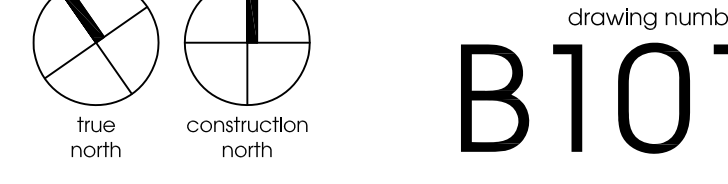
architectural team :  
mark zwicker  
bonnie douthright  
michelle friesen

- planning:
- structural:
- electrical:
- mechanical:
- landscaper:
- lect:
- site services:

project:  
chateaux towns  
caledon, ontario

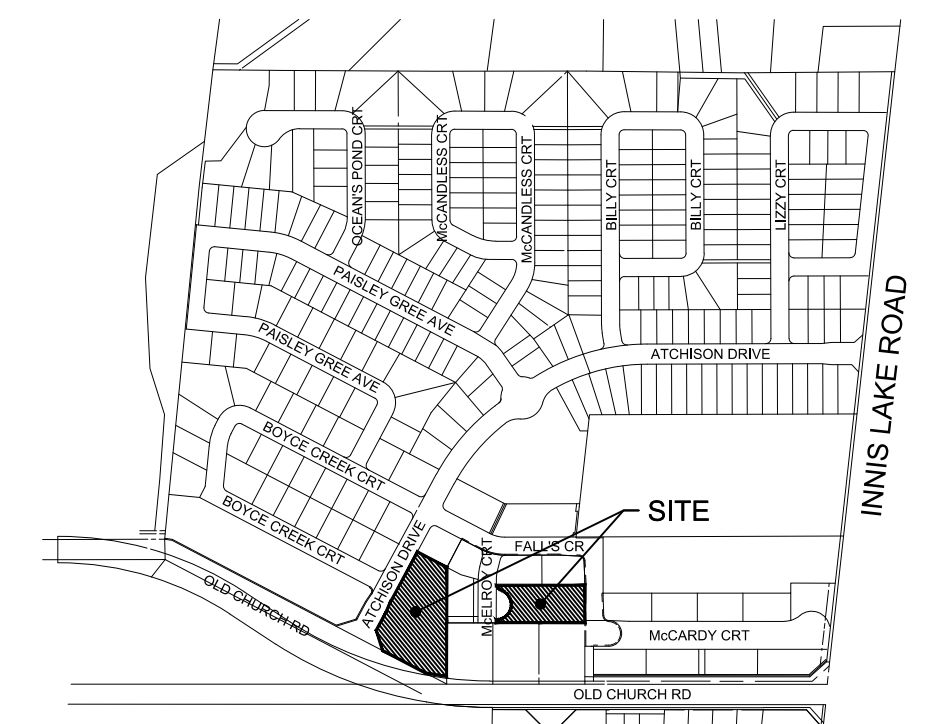
context plan & statistics

november 22, 2017  
1:250  
17-50  
mf



## **APPENDIX B: FIGURES**





KEY PLAN SCALE 1:7500

**LEGEND**

- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING SINGLE CATCHBASIN
- EXISTING DOUBLE CATCHBASIN
- EXISTING VALVE & BOX
- EXISTING VALVE & CHAMBER
- EXISTING HYDRANT & VALVE
- EXISTING WATER SERVICE BOX LOCATION
- EXISTING UTILITY LAMP
- EXISTING CONTOUR AND ELEVATION
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPES
- EXISTING SLOPES
- OVERLAND FLOW
- SUBJECT SITE
- LIMIT OF CONSTRUCTION
- EXISTING ROAD GRADES
- EXISTING HIGH/LOW POINT

No.	DESCRIPTION	DATE	BY	APPROVED
4.				
3.				
2.				
1.				

**APPROVED FOR CONSTRUCTION**

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO

DATE: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

**BENCH MARK:**  
ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25, ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST. ELEVATION = 310.640

**Stantec Consulting Ltd.**  
675 COCHRANE DRIVE, WEST TOWER SUITE 300  
MARKHAM, ONTARIO L3R 0B8  
TELEPHONE: (905) 944-7777  
FAX: (905) 474-9889

**PROFESSIONAL ENGINEER**  
S.A. KHAN  
100085491  
Feb 2, 2018  
PROVINCE OF ONTARIO

PROJECT NAME  
**PROPOSED TOWNHOUSE DEVELOPMENT**  
CHATEAUX OF CALEDON CORPORATION

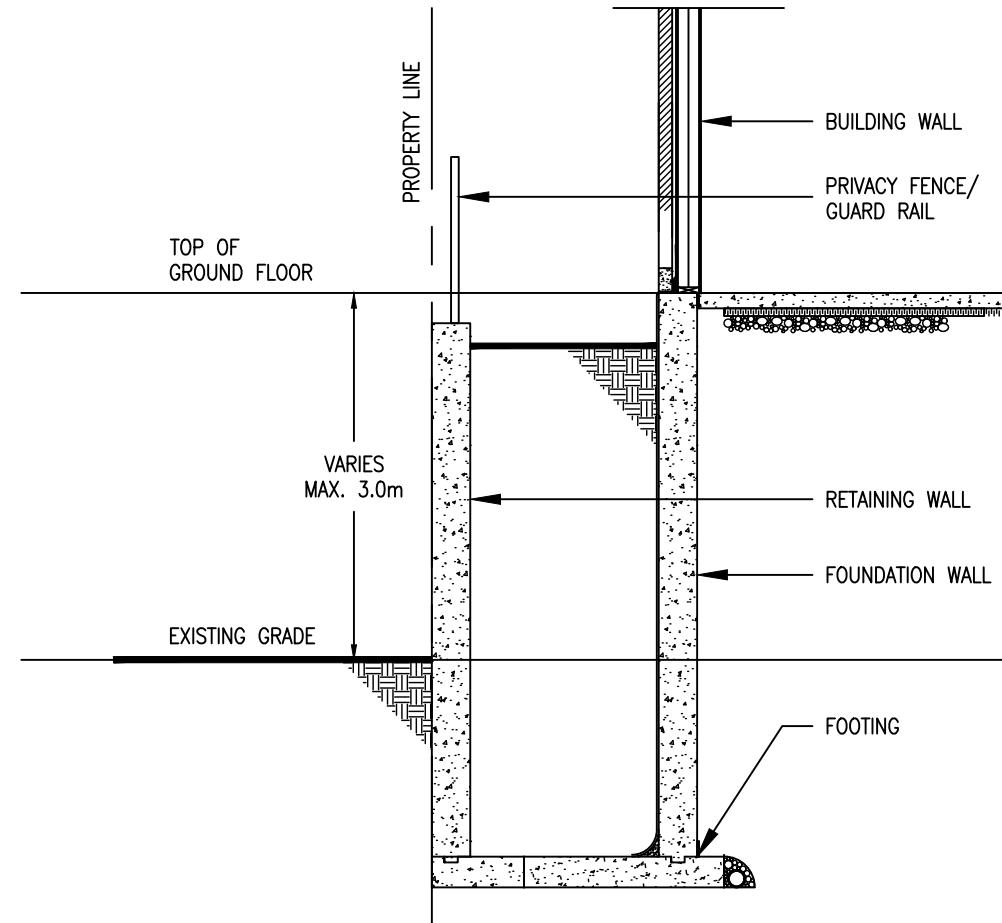
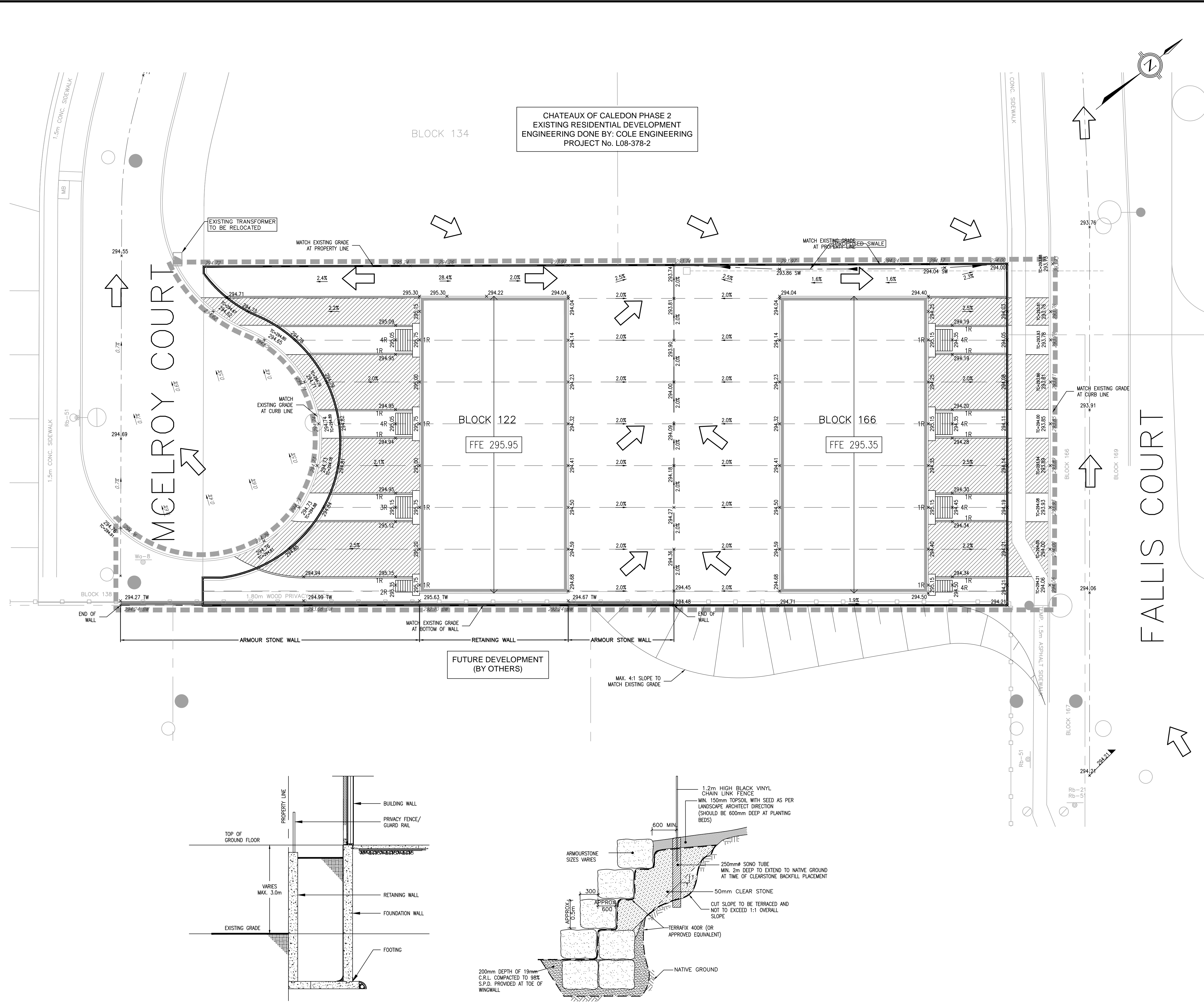
**Region of Peel**

**TOWN OF CALEDON**

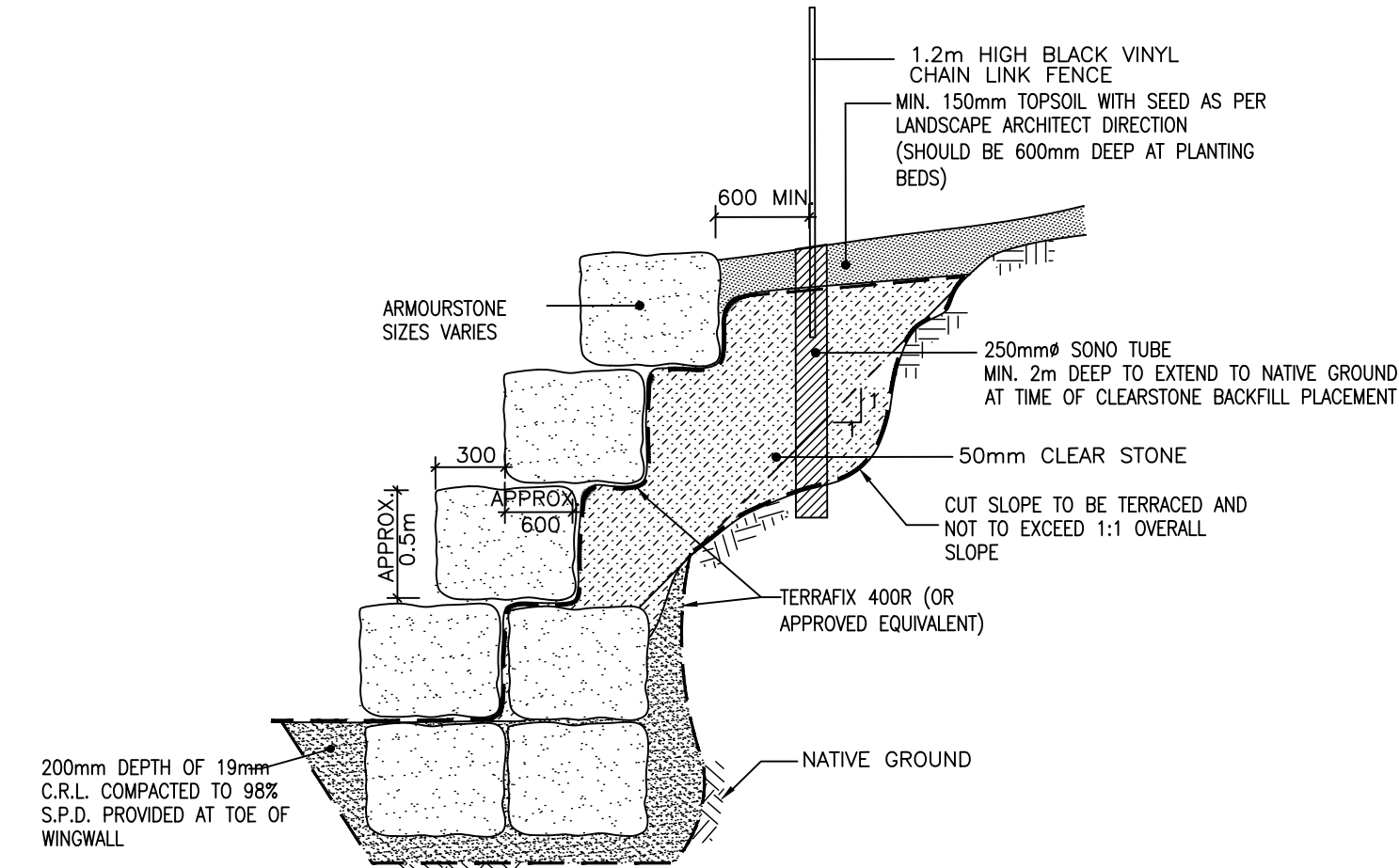
**GRADING PLAN**

SCALE : 1:200	PROJECT No. <b>160622596</b>
DESIGN BY: MG/JL	CHECKED BY: SK
DRAWN BY: MG/JL	DATE: JANUARY 2018
	DRAWING No. <b>SG-1</b>

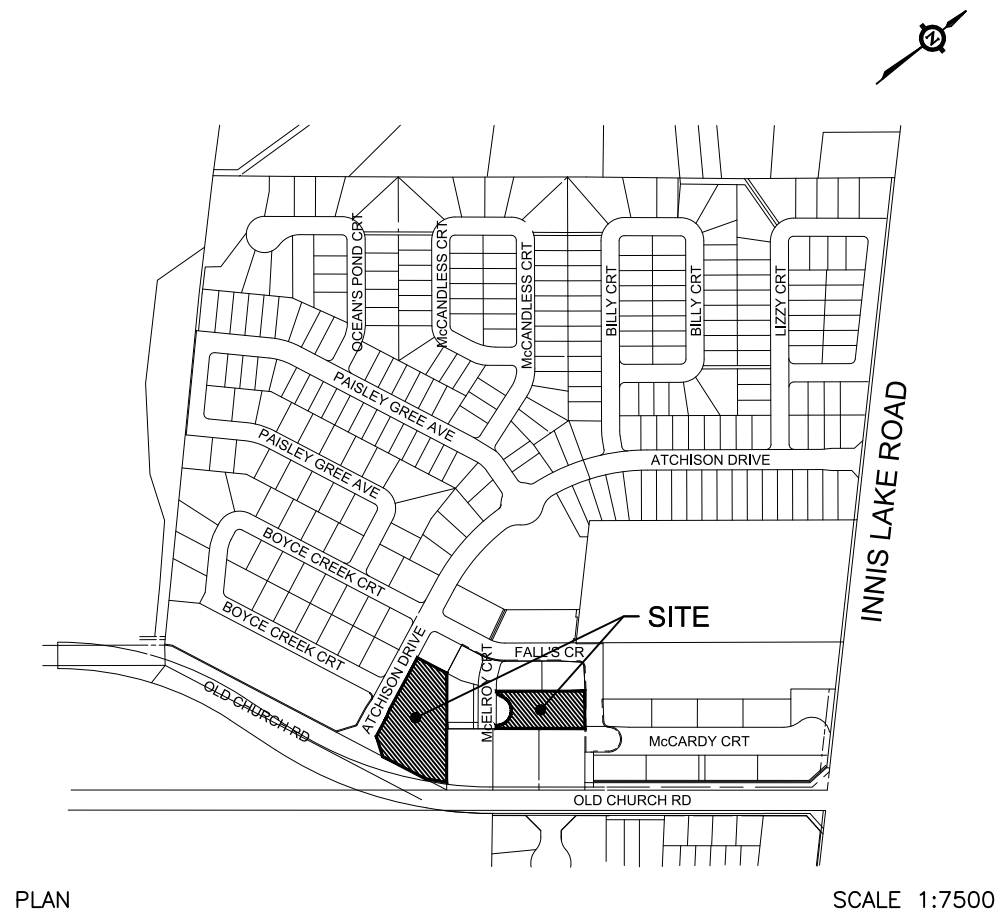
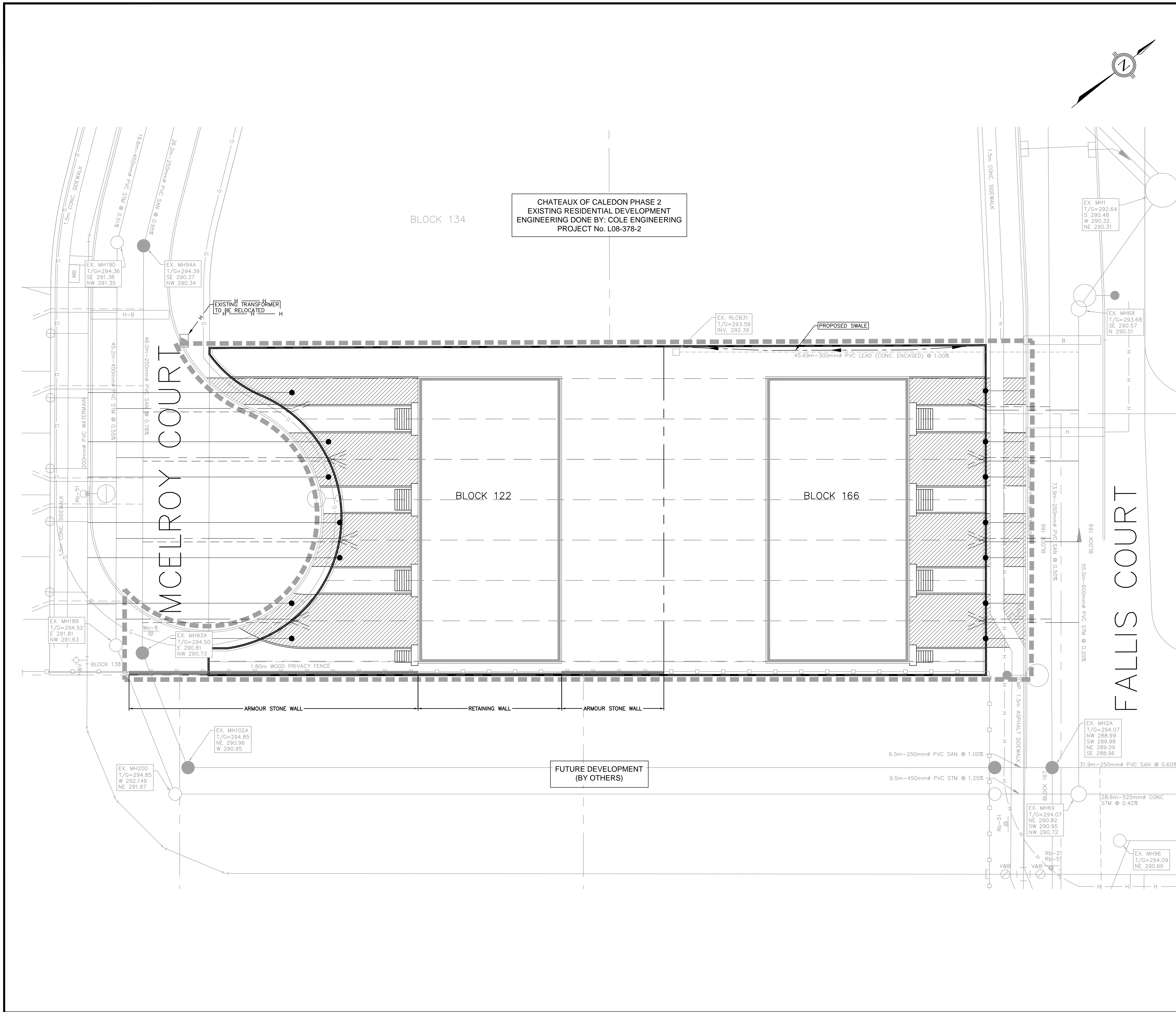
CHATEAUX OF CALEDON PHASE 2  
EXISTING RESIDENTIAL DEVELOPMENT  
ENGINEERING DONE BY: COLE ENGINEERING  
PROJECT No. L08-378-2



TYPICAL RETAINING WALL SECTION  
SCALE 1:50



TYPICAL ARMOURSTONE WALL SECTION  
SCALE 1:50



- LEGEND**
- EXISTING STORM MANHOLE
  - EXISTING SANITARY MANHOLE
  - EXISTING SINGLE CATCHBASIN
  - EXISTING DOUBLE CATCHBASIN
  - DRIVEWAY LOCATION
  - ⊕ EXISTING HYDRANT & VALVE
  - ⊕ EXISTING VALVE & CHAMBER
  - ⊕ EXISTING VALVE & BOX
  - EXISTING WATER SERVICE BOX LOCATION
  - PROPOSED WATER SERVICE BOX LOCATION
  - EXISTING WATERMAIN
  - EXISTING SINGLE WATER SERVICE CONNECTION
  - PROPOSED SINGLE WATER SERVICE CONNECTION
  - EXISTING SINGLE SAN/STM SERVICE CONNECTION
  - PROPOSED SINGLE SAN/STM SERVICE CONNECTION
  - EXISTING UTILITY LAMP
  - SUBJECT SITE
  - LIMIT OF CONSTRUCTION

No.	DESCRIPTION	DATE	BY	APPROVED
4.				
3.				
2.				
1.				

**REVISIONS**

**APPROVED FOR CONSTRUCTION**

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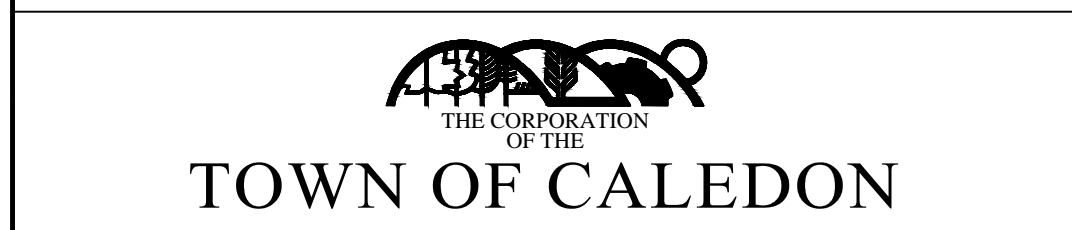
DATE: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

**BENCH MARK:**  
ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25, ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST.  
ELEVATION = 310.640

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**PROFESSIONAL ENGINEER**  
S.A. KHAN  
100085491  
Feb 2, 2018  
PROVINCE OF ONTARIO

PROJECT NAME  
**PROPOSED TOWNHOUSE DEVELOPMENT  
CHATEAUX OF CALEDON CORPORATION**



**SERVICING PLAN**

SCALE : 1:200	PROJECT No. <b>160622596</b>
DESIGN BY: MG/JL	CHECKED BY: SK
DRAWN BY: MG/JL	DATE: JANUARY 2018
	DRAWING No. <b>SS-1</b>

GENERAL NOTES

- CONSTRUCTION FOR THIS PROJECT TO COMPLY WITH THE MOST CURRENT VERSION OF THE DEVELOPMENT STANDARDS, POLICIES AND GUIDELINES, PREPARED BY THE TOWN OF CALEDON, PUBLIC WORKS DEPARTMENT AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
- ALL PROPOSED CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
- WITHIN A MINIMUM OF FORTY-EIGHT HOURS PRIOR TO COMMENCING CONSTRUCTION WITHIN THE MUNICIPAL RIGHT-OF-WAY, THE CONTRACTOR MUST CONTACT THE FOLLOWING:

THE TOWN OF CALEDON PUBLIC WORKS DEPARTMENT  
905-584-2272

THE REGION OF PEEL 905-791-7800

ENBRIDGE CONSUMERS GAS 905-758-7924

HYDRO ONE 519-941-1211

BELL CANADA 416-296-6929

ROGERS CABLE 905-897-3914

GRADING AND DRAINAGE

- ALL DRAINAGE TO BE SELF-CONTAINED AND DISCHARGED TO A LOCATION APPROVED BY THE PUBLIC WORKS AND ENGINEERING DEPARTMENT.
- SEDIMENT CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO ANY CONSTRUCTION ON THE SITE AND SHALL BE INSPECTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD TO THE SATISFACTION OF THE TOWN OF CALEDON AND THE APPLICABLE CONSERVATION AUTHORITY.
- A MINIMUM OF 1.5M CLEARANCE IS TO BE PROVIDED FROM THE LIMITS OF ALL SIDEWALKS AND DRIVEWAYS TO EXISTING UTILITY STRUCTURES WITHIN THE MUNICIPAL RIGHT-OF-WAY. IF THIS CLEARANCE IS NOT MAINTAINED, THE STRUCTURES SHALL BE RELOCATED AT THE APPLICANT'S EXPENSE.
- STREET CURBS ARE TO BE CONTINUOUS WITHIN THE PROPOSED ENTRANCE.
- ANY CHANGES TO GRADES OR SERVICING FROM THE ORIGINALLY APPROVED SITE PLAN MUST BE APPROVED BY THE TOWN OF CALEDON PUBLIC WORKS DEPARTMENT.
- STRUCTURAL DESIGN OF THE FIRE ROUTE IS REQUIRED TO SUPPORT AN 18-TON VEHICLE. AS SUCH THE DRAWING IS TO SHOW AREAS OF HEAVY ASPHALT AND LIGHT ASPHALT AND IS TO PROVIDE DESIGN INFORMATION.
- ALL BOULEVARDS TO BE RESTORED WITH 150MM MINIMUM OF TOPSOIL AND SOD TO THE SATISFACTION OF THE TOWN OF CALEDON PUBLIC WORKS DEPARTMENT.
- THE MINIMUM PAVEMENT DESIGN FOR THE ASPHALT DRIVEWAY APRON WITHIN THE MUNICIPAL ROAD ALLOWANCE SHALL BE AS FOLLOWS:

40MM HL3 ASPHALT

50MM HL8 ASPHALT

150MM GRANULAR 'A'

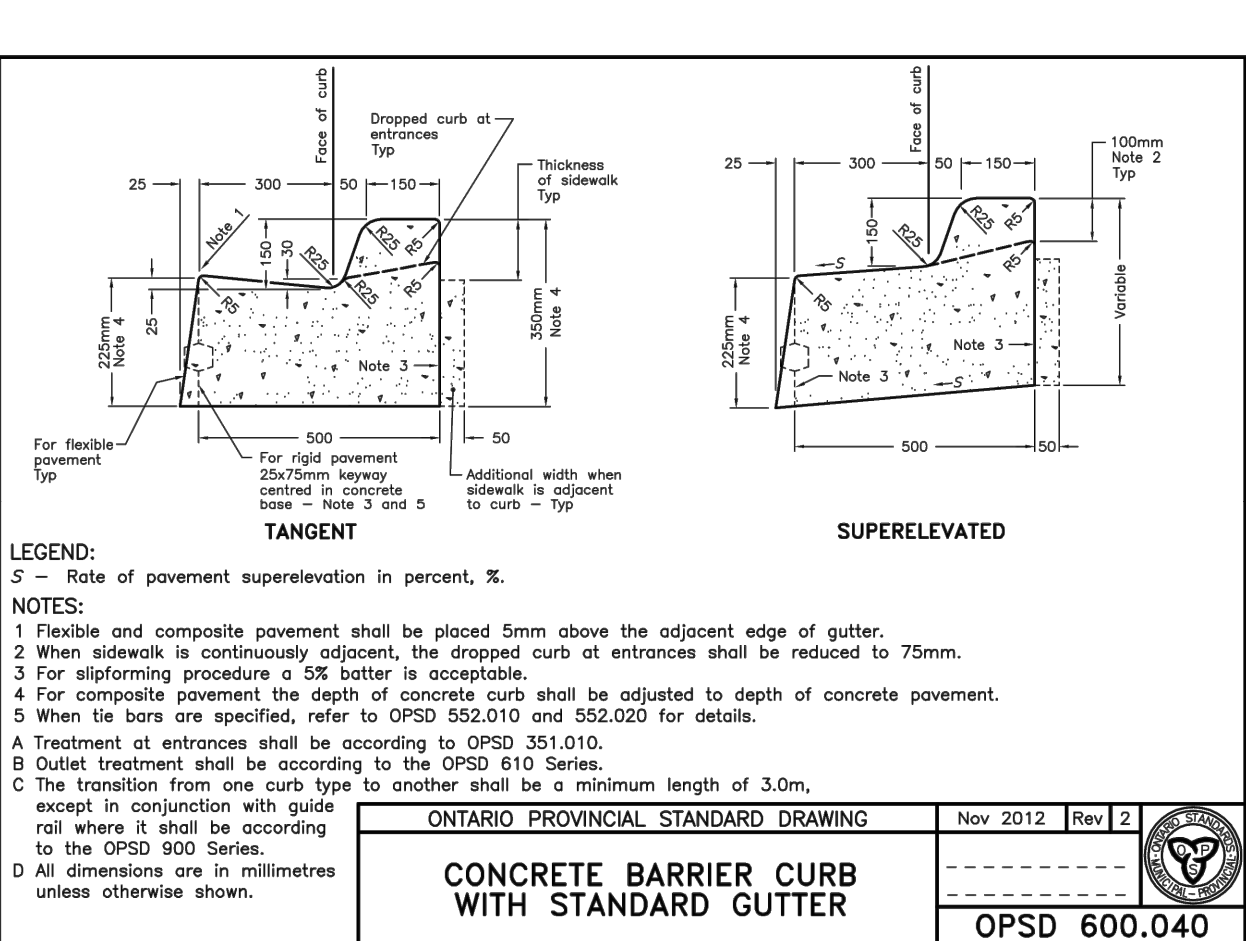
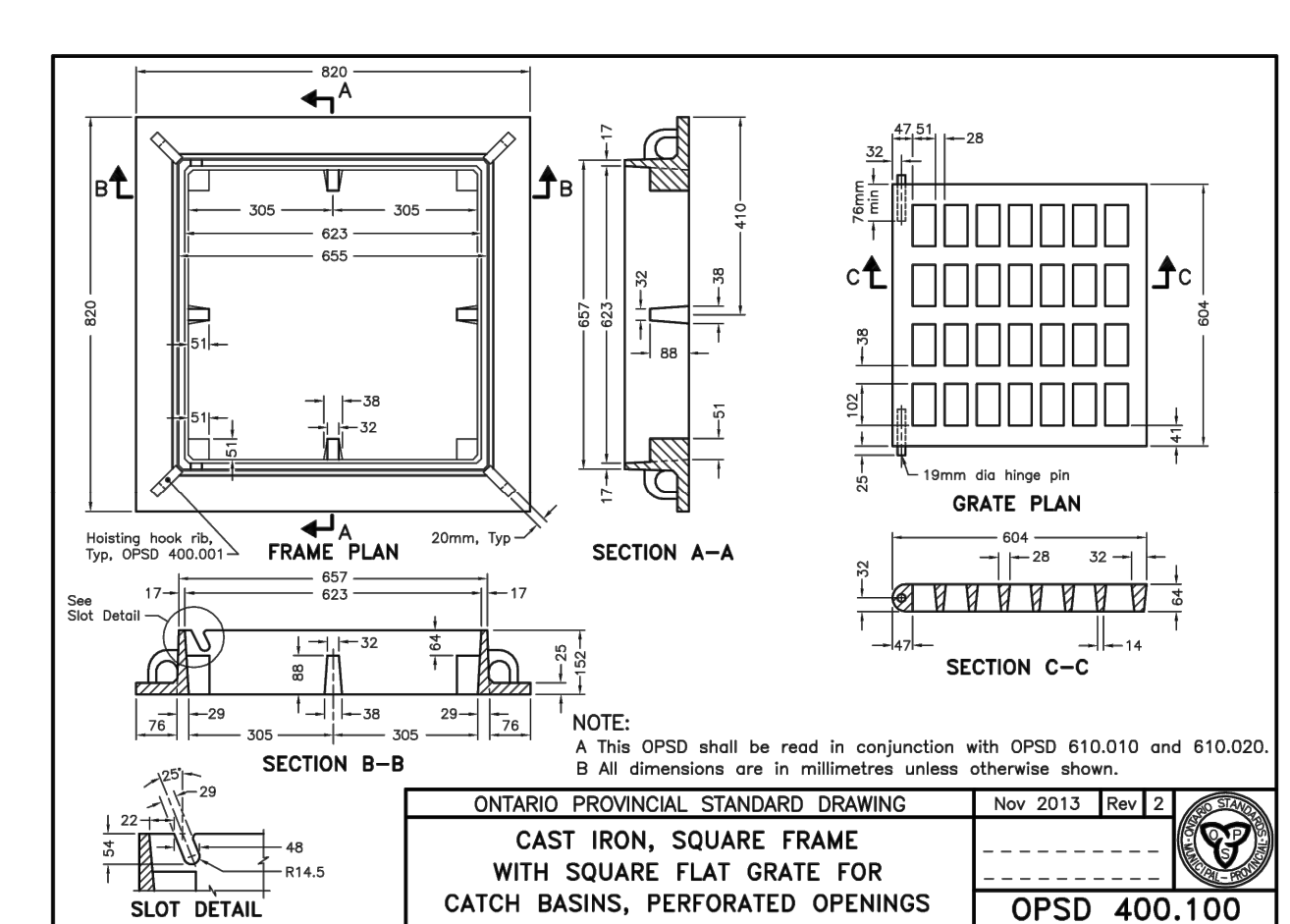
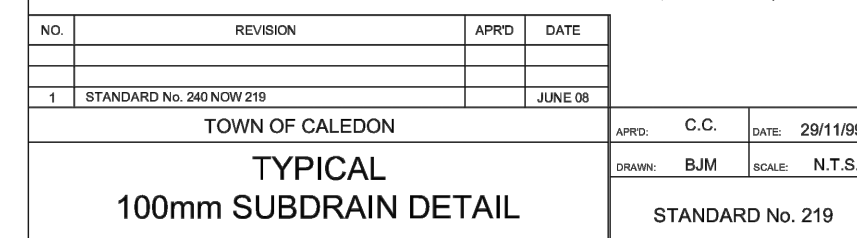
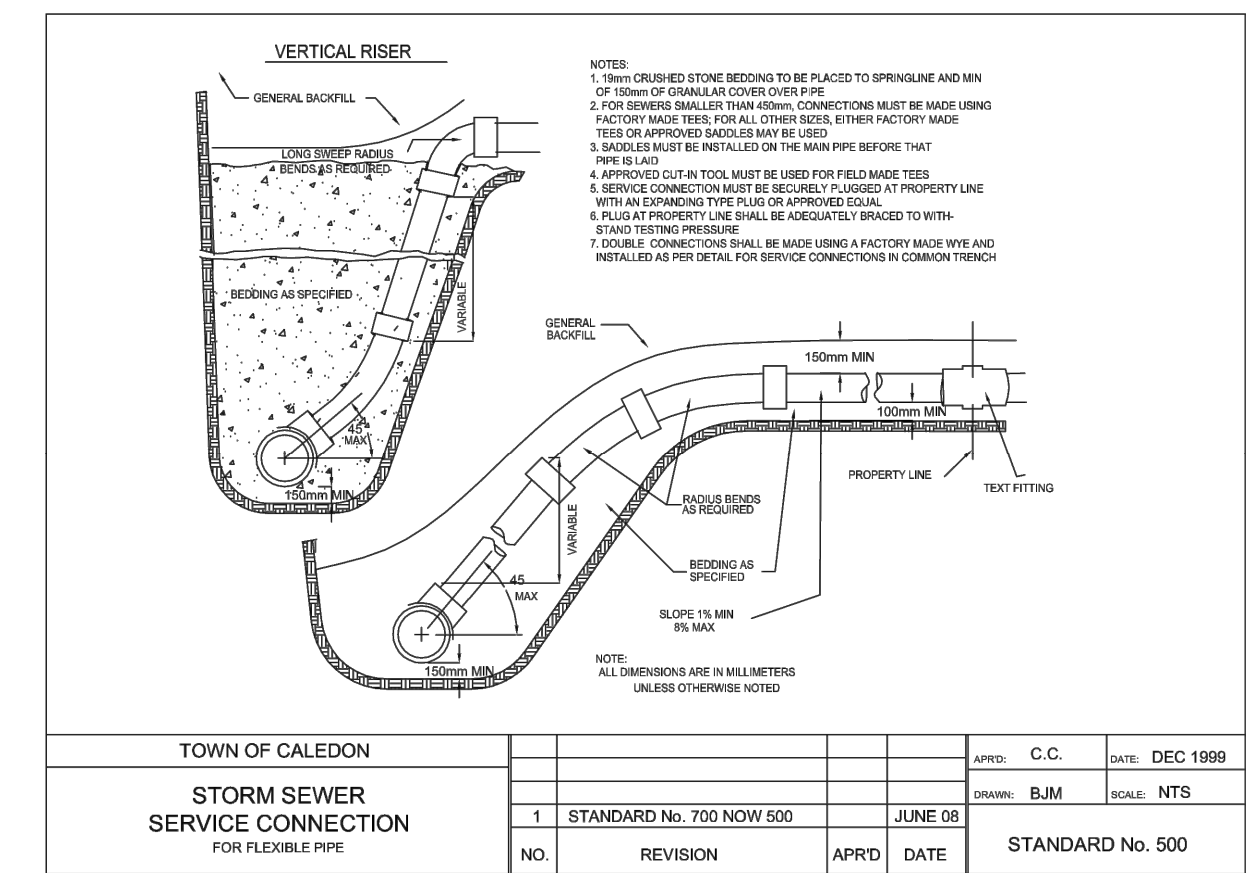
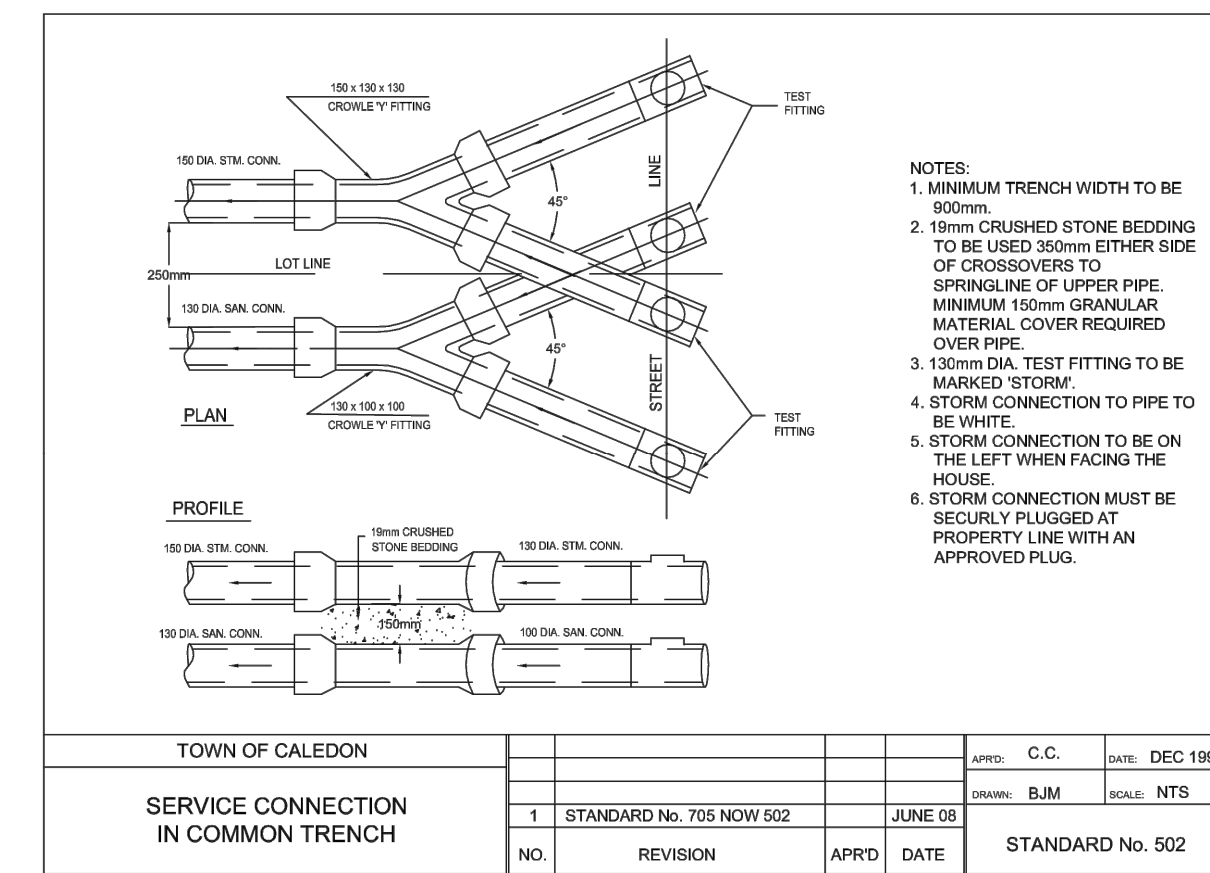
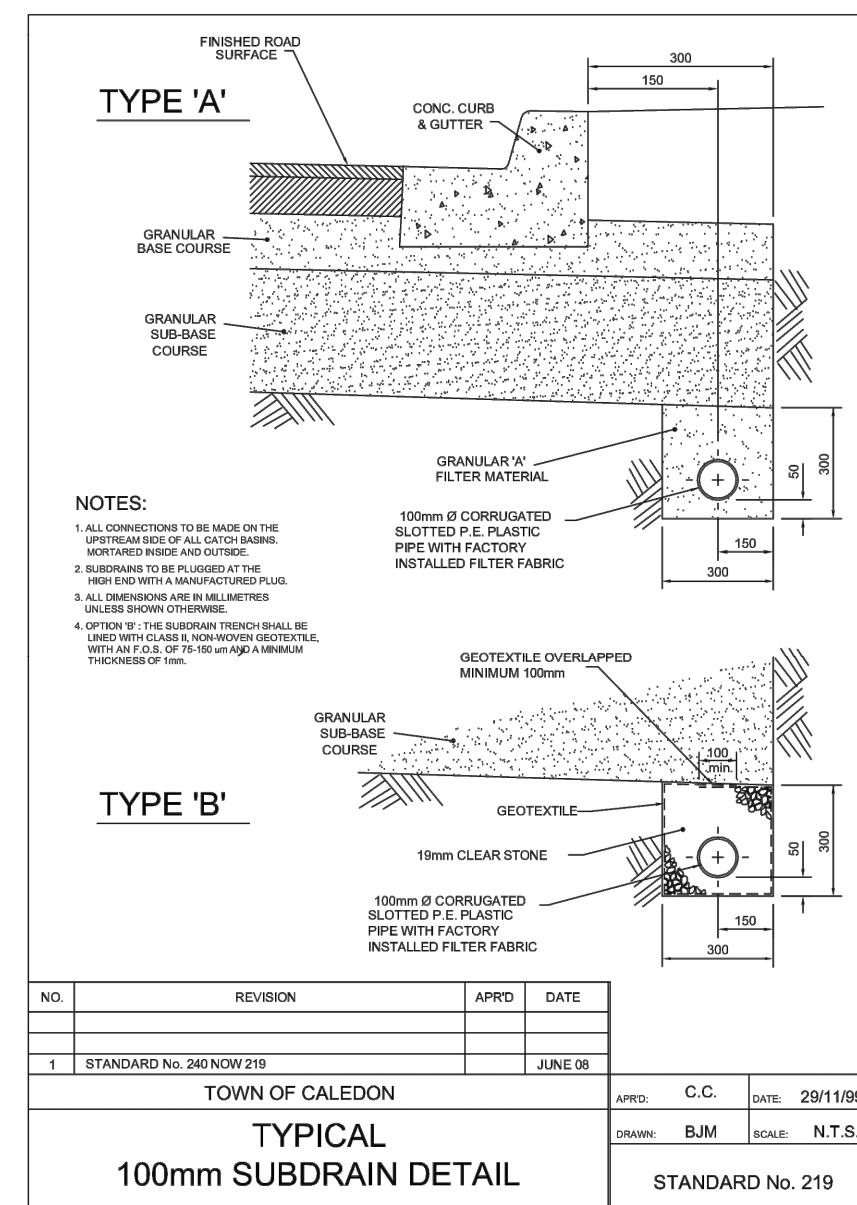
300MM GRANULAR 'B'

THE CONSULTANT SHOULD REVIEW THE ABOVE WITH RESPECT TO THE EXPECTED USAGE.

- SERVICE CONNECTION BACKFILL TO BE DISCUSSED WITH THE TOWN OF CALEDON

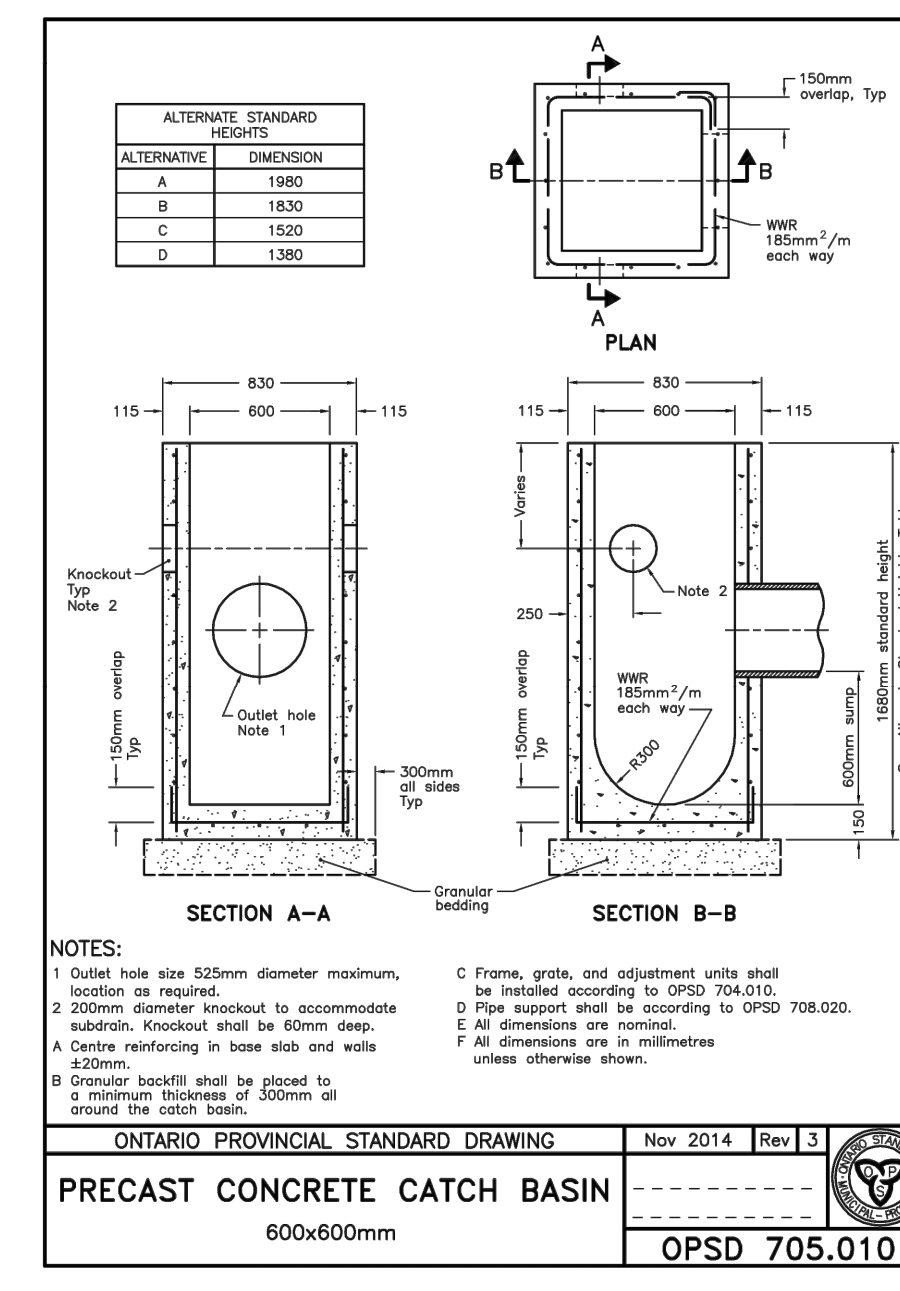
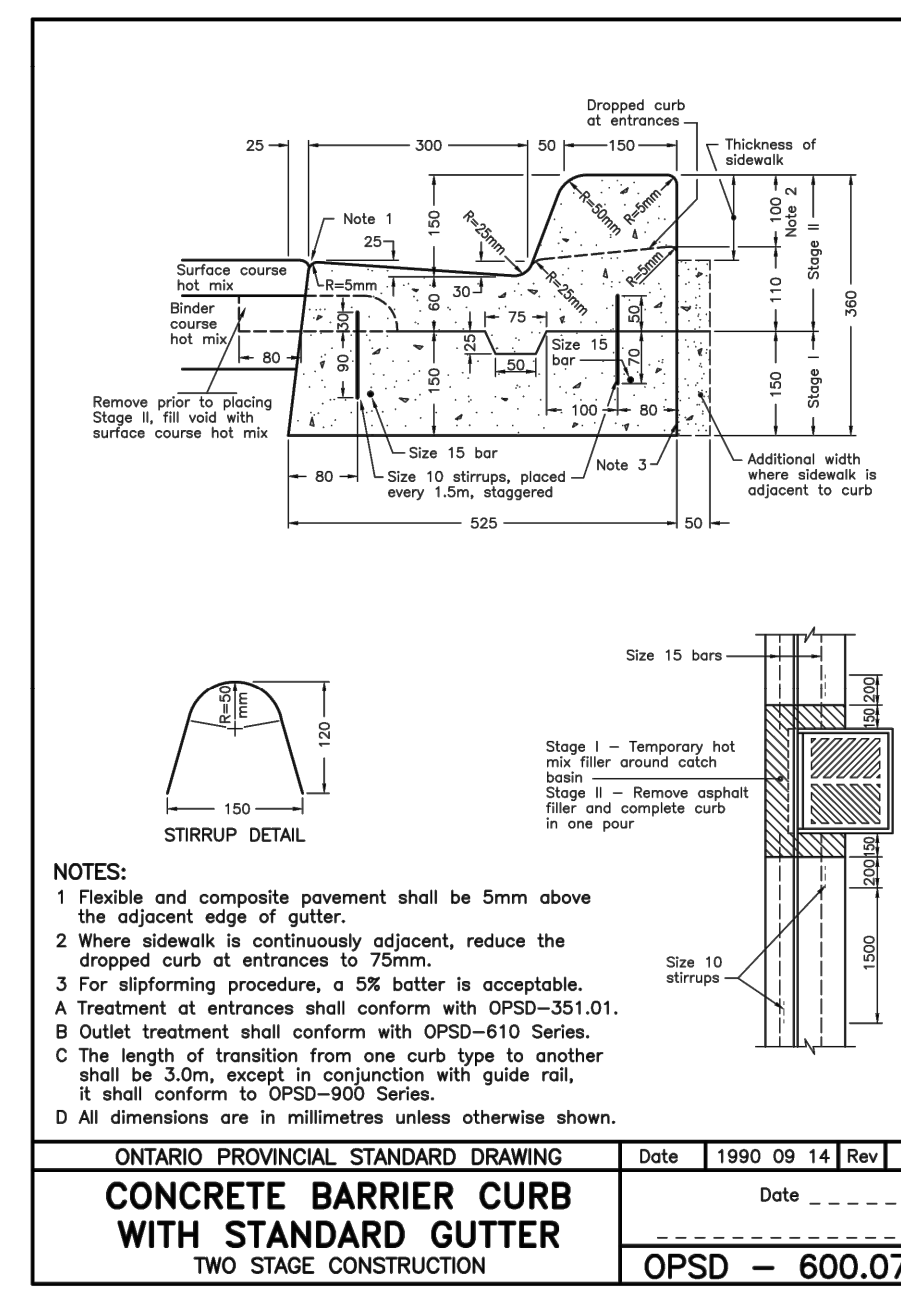
ROADWORKS

- SINGLE - STAGE CURB & GUTTER TO COMPLY WITH OPSD 600.040 COMPLETE WITH 2 - 15M BARS
- TWO - STAGE CURB & GUTTER TO COMPLY WITH OPSD 600.070
- SIDEWALKS TO COMPLY WITH OPSD-310.010 AND ARE TO BE 1.5 METRES WIDE ON A 150mm COMPACTED GRANULAR "A" BASE. MINIMUM THICKNESS AS FOLLOWS:  
  
NORMAL THICKNESS 125mm.  
  
RESIDENTIAL DRIVEWAY 150mm  
  
COMMERCIAL/INDUSTRIAL DRIVEWAY 200mm (REINFORCEMENT AS PER OPSS IF REQUIRED)
- NATIVE SUBGRADE SHALL HAVE A CROSSFALL OF 3 % AND THE MATERIAL SHALL BE APPROVED BY A SOILS CONSULTANT AND IS SUBJECT TO APPROVAL BY THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING.
- THE ROAD BASE SHALL INCORPORATE 100mm DIAMETER SUBDRAIN WITH FACTORY INSTALLED FILTER FABRIC AS PER TOWN OF CALEDON STANDARD NO. 240.
- ALL CURB RADII TO BE MINIMUM OF 10.0 METRES RESIDENTIAL AND 15.0 METRES INDUSTRIAL AT THE EDGE OF ASPHALT.
- NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95 % STANDARD PROCTOR MAXIMUM DRY DENSITY AND SHALL BE PROOF ROLLED.
- GRADE AND CROSS FALL ADJUSTMENT OF MAINTENANCE HOLE AND CATCH BASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE AS PER OPSD 704.010.
- NON-COMPRESSIBLE BACK FILL WILL BE USED DURING REBUILDING, ADJUSTING, OR ANY OTHER APPLICABLE CATCH BASIN OR MAINTENANCE HOLE WORKS.
- CURB AND SIDEWALK CONCRETE SHALL BE 30MPa AT 28 DAYS WITH 7% +/- 1.5% ENTRAINED AIR AND NOT LESS THAN 355 kg/m<sup>3</sup> OF CEMENT (PER OPSS 315 AND 353).



STORM SEWERS

- STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
- PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE, 300mm DIA. DOUBLE.
- STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.030 FOR RIGID PIPE OR OPSD 802.010 WITH GRANULAR 'A' FOR FLEXIBLE PIPE UNLESS APPROVED OTHERWISE BY THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING.
- MAINTENANCE HOLE TOPS (FRAMES) AND CATCHBASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED.
- STORM SEWER TO BE LOCATED OFFSET 1.5m SOUTH OR WEST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.
- ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD 708.01 OR 708.03.
- PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974 CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4 MAX. PVC PIPE DIA. IS 600mm BIC O BOSS 2000 POLYETHYLENE PIPE WITH GASKETED BELLAND SPIGOT JOINTS CERTIFIED C.S.A. 8182.6 FOR STORM SEWERS UP TO 900mm DIA. WHERE ONLY CONNECTION STD CATCHBASINS ARE CONSIDERED.
- STORM SEWER TO BE MINIMUM 300mm DIA. WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3
- ALL PIPE BEDDING MUST CONFORM TO OPSD MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH COVER GREATER THAN 6m UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING.
- ALL PIPE HANDLING INSTRUCTIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATION GUIDES AND THE OCPA OR UNIBELL GUIDELINES.



4.			
3.			
2.			
1.			
No.	DESCRIPTION	DATE	BY APPROVED
REVISIONS			
<b>APPROVED FOR CONSTRUCTION</b>			
THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.			
THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO			
DATE: _____		APPROVED BY: _____	
BENCH MARK: ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25, ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST. ELEVATION = 310.640			
PROJECT NAME <b>PROPOSED TOWNHOUSE DEVELOPMENT</b> CHATEAUX OF CALEDON CORPORATION			
GENERAL NOTES & DETAILS			
SCALE : N.T.S.		PROJECT No. 160622596	
DESIGN BY: MG/JL		DRAWING No. DET-1	
DRAWN BY: MG/JL		DATE: JANUARY 2018	





KEY PLAN SCALE 1:7500

- LEGEND**
- EXISTING SANITARY MANHOLE
  - EXISTING STORM MANHOLE
  - EXISTING SINGLE CATCHBASIN
  - EXISTING DOUBLE CATCHBASIN
  - EXISTING VALVE & BOX
  - EXISTING VALVE & CHAMBER
  - EXISTING HYDRANT & VALVE
  - EXISTING WATER SERVICE BOX LOCATION
  - EXISTING UTILITY LAMP
  - EXISTING CONTOUR AND ELEVATION
  - EXISTING SPOT ELEVATION
  - PROPOSED SPOT ELEVATION
  - PROPOSED SLOPES
  - EXISTING SLOPES
  - OVERLAND FLOW
  - SUBJECT SITE
  - LIMIT OF CONSTRUCTION

No.	DESCRIPTION	DATE	BY	APPROVED

**APPROVED FOR CONSTRUCTION**

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

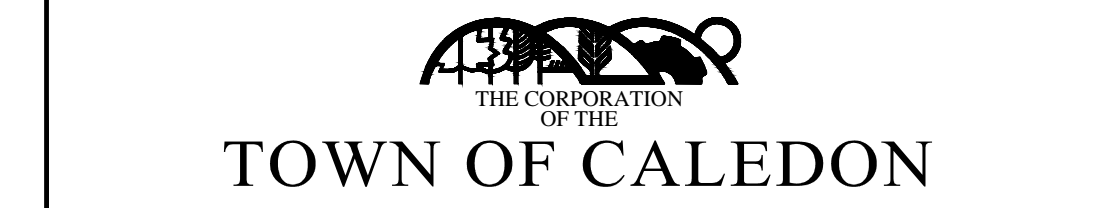
THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO

DATE: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

**BENCH MARK:**  
ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25, ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST. ELEVATION = 310.640

**Stantec Consulting Ltd.**  
675 COCHRANE DRIVE, WEST TOWER SUITE 300  
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FAX: (905) 474-9889

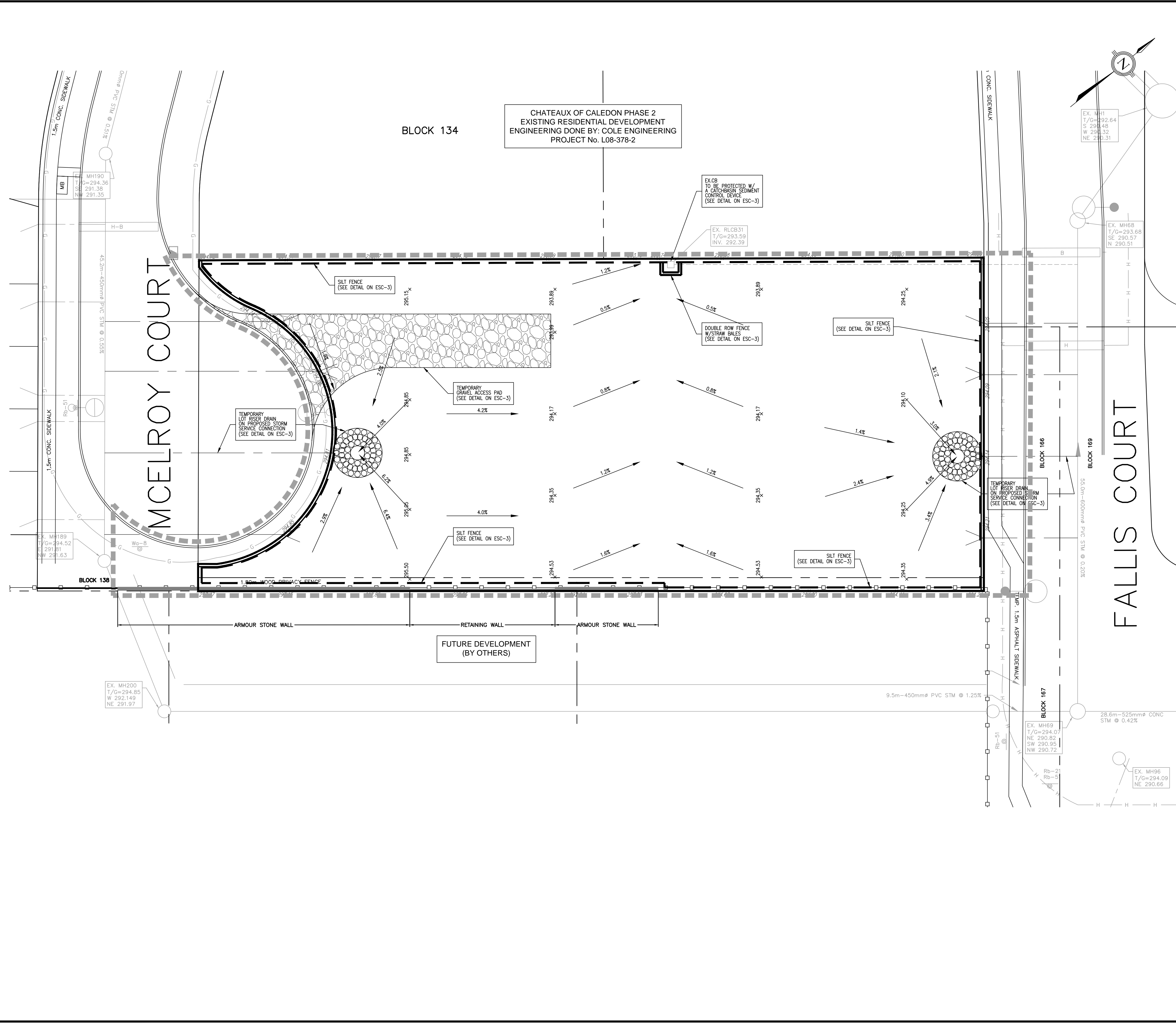
PROJECT NAME  
**PROPOSED TOWNHOUSE DEVELOPMENT**  
CHATEAUX OF CALEDON CORPORATION



**EROSION & SEDIMENT CONTROL PLAN**  
STAGE 2: POST SERVICING

SCALE : 1:200	PROJECT No. <b>160622596</b>
DESIGN BY: MG/JL	CHECKED BY: SK
DRAWN BY: MG/JL	DATE: JANUARY 2018
	DRAWING No. <b>ESC-2</b>

File: V:\0606\Active\160622596\Drawing\sheet\_files\160622596-PL-C-04-ESC.dwg - Revised by: tLuk, Jonej - Thu, Feb 01, 2018 - 2:09 PM



**GENERAL NOTES**

- ALL SEDIMENT CONTROLS AND TREE PROTECTION FACILITIES MUST BE IN PLACE PRIOR TO SITE DISTURBANCE.
- ALL SEDIMENTATION CONTROL MEASURES TO BE INSPECTED REGULARLY AND MAINTAINED BY CONTRACTOR IN PROPER WORKING ORDER DURING SITE GRADING AND TO REMAIN IN PLACE UNTIL COMPLETION OF RESTORATION MEASURES.
- UNLESS OTHERWISE NOTED SWALE DEPTHS ARE 0.35m MAX
- DURING CONSTRUCTION, IF CONCENTRATED FLOWS ARE EXPERIENCED AT SITE OUTLET LOCATIONS, ROCK CHECK DAMS AND/OR FILTER SOCK CHECK DAMS WILL BE PROVIDED TO PROTECT THE DOWNSTREAM LANDS FROM SEDIMENT TRANSPORT. IF DEEMED NECESSARY THE USE OF ADDITIONAL SEDIMENT BASINS WILL BE ACCEPTABLE.
- RESTORATIVE SEEDING AND PLANTING TO TAKE PLACE AS SOON AS POSSIBLE AFTER THE COMPLETION OF SITE GRADING.
- SEDIMENT CONTROL MEASURES ADJACENT TO CONSTRUCTION AREAS MAY REQUIRE REMOVAL/RELOCATION IN ORDER TO COMPLETE SPECIFIC CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ENSURE THAT ADEQUATE SEDIMENT CONTROL MEASURES ARE IN PLACE AT ALL TIMES.
- FIELD REPRESENTATIVE TO MONITOR THE CONTRACTORS SEDIMENT AND EROSION CONTROL MEASURES TO ENSURE THAT THE MEASURES ARE INSTALLED, MAINTAINED AND FUNCTIONING AS INTENDED, AND WILL BE RESPONSIBLE FOR THE FOLLOWING:
  - UNDERSTAND THE EROSION/SEDIMENT CONTROL PLANS AND CONSTRUCTION METHODS.
  - RECOGNIZE THE EFFECTIVENESS OF EROSION/SEDIMENT CONTROL MEASURES AND COMMUNICATES NON-COMPLIANCE CONCERNS AND/OR RECOMMENDATIONS TO THE ENGINEER AND CVC/CITY.
  - COMPLETE A WALK-THROUGH OF THE CONSTRUCTION SITE WITH THE FOLLOWING (MINIMUM) FREQUENCY DURING CONSTRUCTION:
    - ON A WEEKLY BASIS (HIGH RISK AREAS WILL REQUIRE GREATER FREQUENCY)
    - PRIOR TO AND AFTER EVERY RAINFALL EVENT
    - DURING EXTENDED RAIN OR SNOWMELT PERIODS
    - MONTHLY INSPECTIONS DURING PERIODS OF INACTIVITY
  - COMPLETE WEEKLY INSPECTION REPORTS IN ACCORDANCE WITH APPENDIX F OF THE "EROSION AND SEDIMENT CONTROL GUIDELINE FOR URBAN CONSTRUCTION" MANUAL (ESC/06). A SAMPLE OF THIS REPORT HAS BEEN PROVIDED ON THIS DRAWING. WEEKLY INSPECTION REPORTS TO BE FORWARDED TO THE ENGINEER AND CVC/CITY ON A WEEKLY BASIS.

**SEDIMENT TRAP MAINTENANCE SCHEDULE**

- SEDIMENT TRAPS ARE TO BE INSPECTED AFTER EVERY RAINFALL AND MAINTAINED AS DIRECTED BY THE CONSULTANT AND TO THE SATISFACTION OF THE CITY/CVC.
- ANY SIGNS OF VISIBLE DAMAGE TO THE TRAP OUTLET SHALL BE REPAIRED IMMEDIATELY
- TRASH AND DEBRIS SHALL BE REMOVED FROM WITHIN THE AREAS AND INLET CHAMBER (WHERE PRESENT).
- THE TRAP SITUATION CONTROL FENCING AROUND TRAPS SHALL BE CLEANED PERIODICALLY AND REPLACED IF EXCESSIVE SEDIMENT BUILDUP IS EVIDENT.
- THE SEDIMENT TRAP SIDES AND DITCH SIDESLOPES SHALL BE INSPECTED TO ENSURE THAT THEY HAVE NOT ERODED OR SETTLED. REMEDIAL ACTION SHALL BE TAKEN IMMEDIATELY TO RESHAPE AND STABILIZE THE SLOPES.
- WHEN SEDIMENT ACCUMULATES TO HALF OF THE HEIGHT OF THE SEDIMENT BASIN DESIGN DEPTH, 0.5m (TRAP), THEN SEDIMENT REMOVAL IS REQUIRED. CARE MUST BE TAKEN TO AVOID DAMAGING THE TRAP AND INLET DURING THIS MAINTENANCE OPERATION. DISPOSAL OF THE SEDIMENT SHALL BE TO A CONTROLLED AREA AND STABILIZED (VEGETATED).
- ALL WORKS PERFORMED SHALL BE TO THE SATISFACTION OF THE CITY/CVC.

**SPILL RESPONSE PLAN**

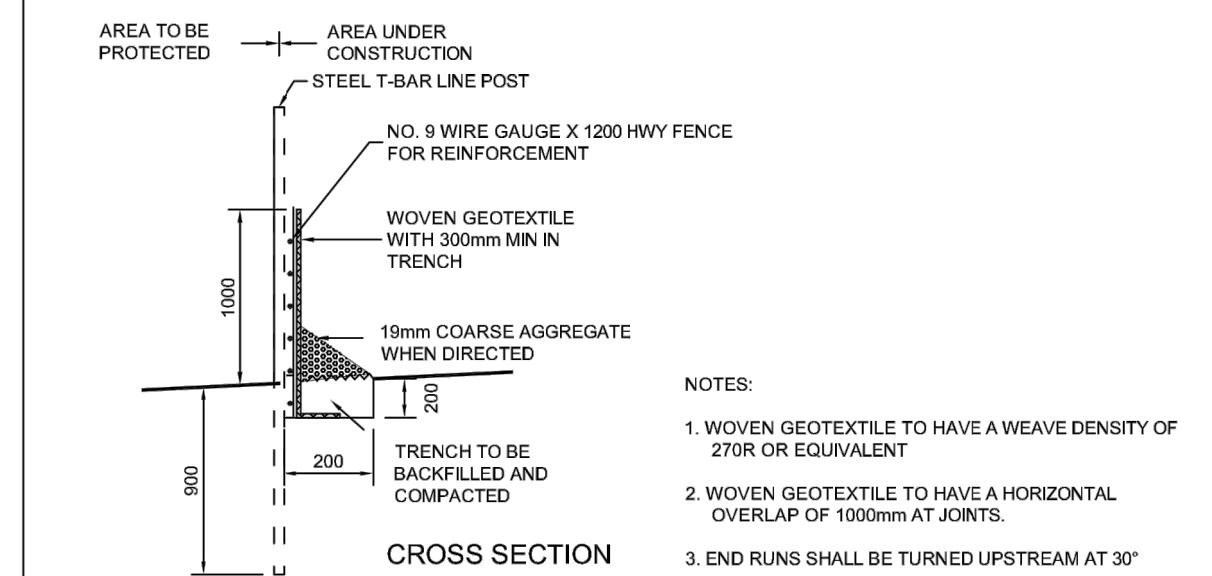
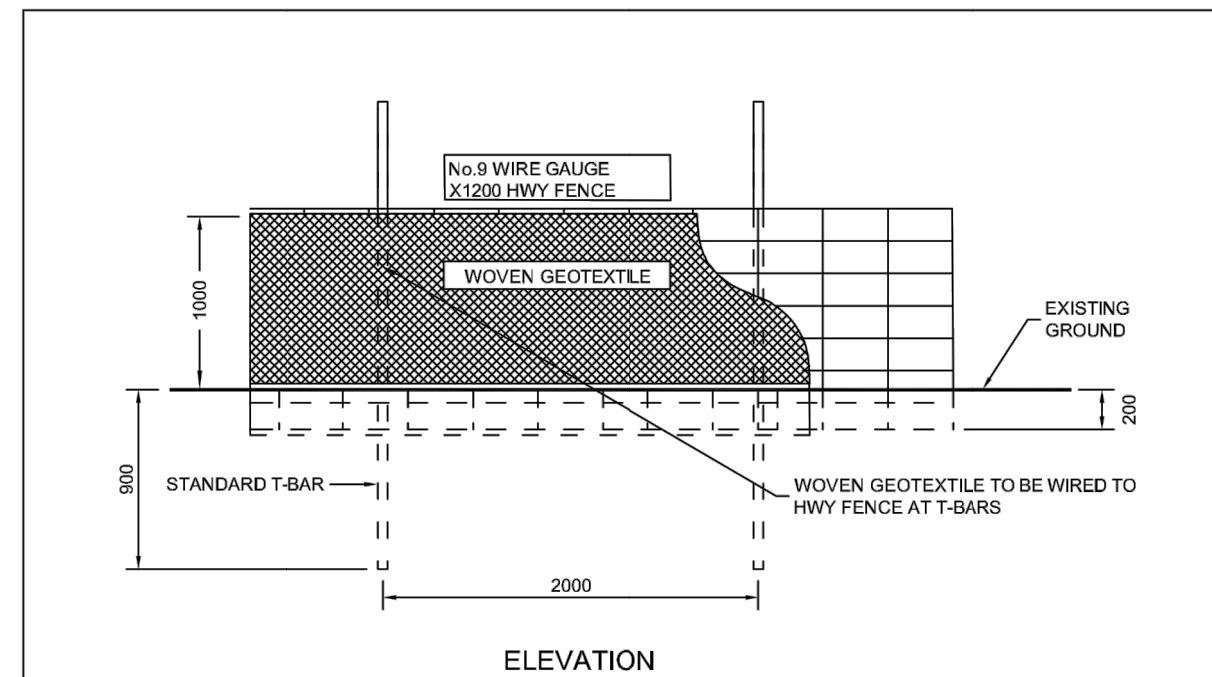
- A SPILL KIT SHALL BE KEPT ON SITE DURING CONSTRUCTION. THE SPILL KIT SHOULD INCLUDE, FOR EXAMPLE, SORBENT MATERIAL (E.G. SORBENT PADS, SORB ALL, VERMICULITE), SHOVEL, PORTABLE BROOMS, GEOTEXTILE FABRIC SAND BAGS, SEDIMENT FENCING, PLASTIC BAGS, PPE (E.G. GLOVES, BOOTS, RAIN GEAR), BUCKETS, STAKES, TARP/AULINS. IN THE CASE OF A SPILL THE WOECC SHOULD BE CALLED AT 1800-268-6080.
- DEBRIS, INCLUDING LARGE PIECES OF WOOD, GARBAGE, DEBRIS, EXCESS FILL, ETC., RESULTING FROM THE CONSTRUCTION SHALL BE DISPOSED OF AT AN APPROVED SITE(S) WHICH IS OUT OF THE FLOODPLAIN AREA AND ADJACENT SLOPES OR APPROVED LANDFILL SITES.
- AREAS WHERE VEGETATION HAS BEEN REDUCED AS A RESULT OF CONSTRUCTION ACTIVITIES MUST BE REVEGETATED WITH INS SODS AND SEEDS AND HYDROSEEDING AS SOON AS ON-PLANT AND COMPACTION IS COMPLETED.
- CLEANING AND REFUELING OF EQUIPMENT IS NOT PERMITTED WITHIN 30M OF ANY WATERCOURSE.

**RESTORATION**

WITHIN 30 DAYS AFTER AREA GRADING IS COMPLETE, THE DISTURBED AREAS INCLUDING TOPSOIL STOCKPILES AND TEMPORARY DRAINAGE SWALES SHALL BE RESTORED WITH GRASS VEGETATION USING HYDROSEED OR SODDING. THE ONLY EXCEPTION TO THIS REQUIREMENT WILL BE LOT OR BLOCK AREAS WHICH ARE UNDER AN ACTIVE BUILDING PERMIT APPLICATION. ALL HYDROSEEDING FOR RESTORATION SHALL BE COMPLETED PRIOR TO MID SEPTEMBER OR AT THE DISCRETION OF THE COMMISSIONER. THE METHOD OF HYDROSEEDING SHALL BE APPROVED BY THE COMMISSIONER. AREAS WHICH DO NOT ESTABLISH COVER SHALL BE HYDROSEEDED AGAIN AT THE DISCRETION OF THE COMMISSIONER.

**DUST CONTROL MEASURES**

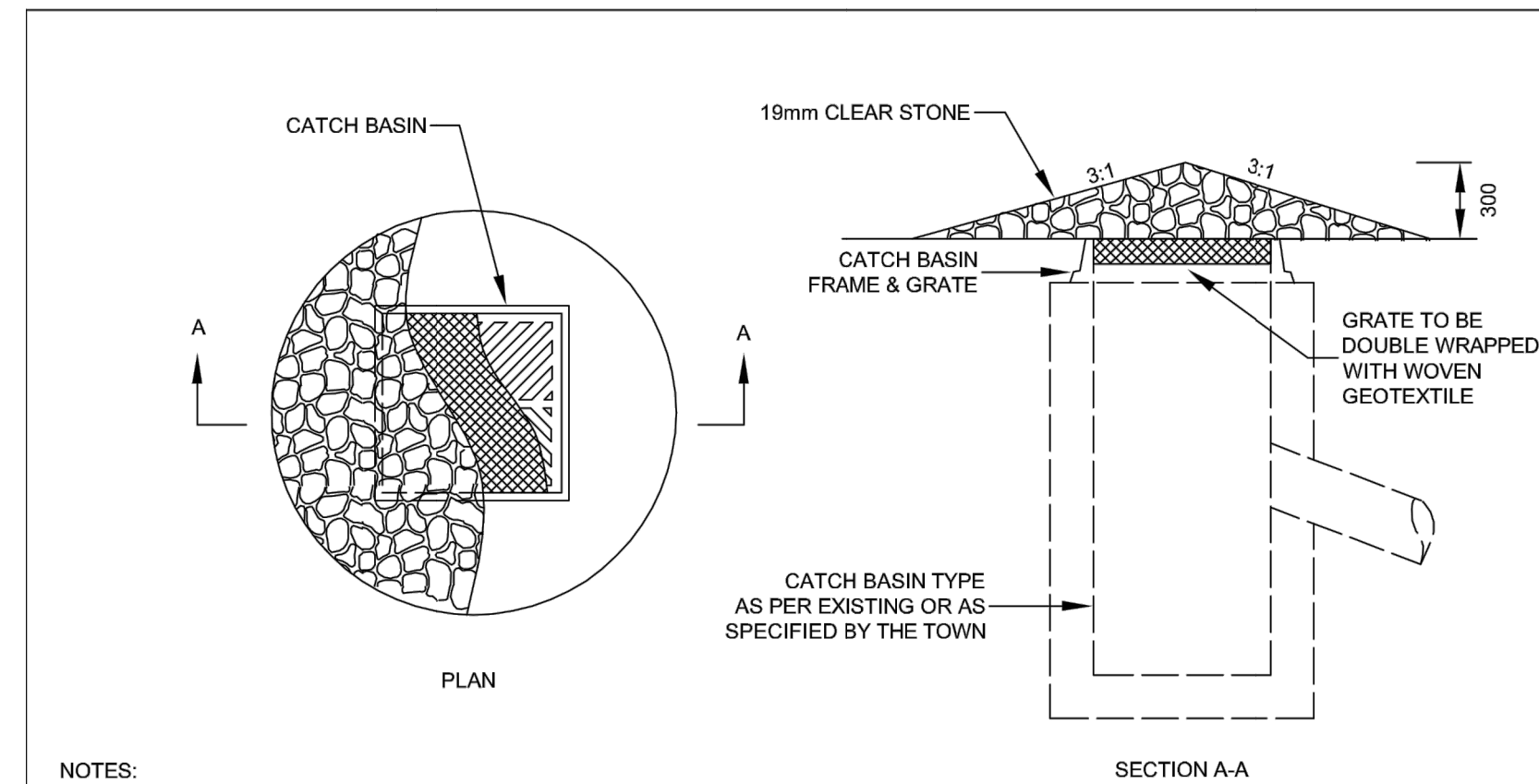
- A DUST CONTROL PLAN WILL INCLUDE:
- IDENTIFICATION OF ALL POTENTIAL DUST SOURCES;
  - A DESCRIPTION OF THE DUST CONTROL METHOD(S) TO BE USED FOR EACH SOURCE;
  - A SCHEDULE, RATE OF APPLICATION, CALCULATIONS OR SOME OTHER MEANS OF IDENTIFYING HOW OFTEN, HOW MUCH OR WHEN THE CONTROL METHOD IS TO BE USED;
  - PROVISIONS FOR MONITORING AND RECORD KEEPING;
  - A BACKUP PLAN IN CASE THE FIRST CONTROL PLAN DOES NOT WORK OR IS INSUFFICIENT.
- PRE-GRADING PLANNING:**
- TOPSOIL STRIPPING AND EARTHWORKS TO BE TIMED TO COINCIDE WITH EACH MUNICIPAL SERVICING AND/OR CONSTRUCTION PHASE; OR
  - STRIP TOPSOIL AND GRADE ENTIRE PROJECT AND APPLY VEGETATION GROUND COVER TO GRADED OR TOPSOIL STRIPPING OPERATIONS END.
- WATERING (POST-GRADING):**
- WITHIN ACTIVE TOPSOIL STRIPPING, EARTH MOVING OR UNDERGROUND/ABOVEGROUND MUNICIPAL SERVICING AREAS, WATER TO BE APPLIED AT SUFFICIENT FREQUENCY AND QUANTITY TO PREVENT VISIBLE EMISSIONS FROM EXTENDING MORE THAN 30m FROM POINT OF ORIGIN.
- TOPSOIL STOCKPILES:**
- CONTINUE LOAD IN/OUT PROCEDURES TO DOWNWIND SIDE OF THE MATERIAL. TOPSOIL PILE TO BE LOCATED DOWNWIND OF EXISTING RESIDENTIAL AREAS.
  - APPLY WATER TO HAIL ROADS AND STOCKPILE BY WAY OF WATER TRUCK.
  - GRADE AND VEGETATE TOPSOIL STOCKPILE TO PREVENT FUTURE WIND EROSION.
- WIND FENCING:**
- INSTALL 1.0m TO 1.5m HIGH BARRIERS WITH 50% OR LESS POROSITY LOCATED ADJACENT TO ROADWAYS OR URBAN AREAS TO REDUCE THE AMOUNT OF WINDBLOWN MATERIAL LEAVING THE SITE.
- REDUCE VEHICLE SPEED:**
- LIMIT VEHICLE SPEED TO 25km/hr. MAXIMUM. MAY NEED TO BE USED IN CONJUNCTION WITH WATERING TO PREVENT VISIBLE DUST EMISSIONS.
- MINIMIZE DISRUPTED SURFACE AREAS:**
- TO DISTURB ONLY THOSE AREAS ABSOLUTELY REQUIRED. VEGETATION LEFT IN PLACE DURING SITE WORK REDUCES THE AREA SUBJECT TO WIND EROSION.
- RESTRICT ACTIVITIES DURING HIGH WIND PERIODS:**
- RESCHEDULE WORK AROUND WINDY DAYS. THE HIGH VISIBILITY OF CERTAIN WORKS AND THE CLOSE PROXIMITY AND POPULATION IMPACTED SHOULD BE TAKEN INTO CONSIDERATION WHEN SCHEDULING DUST-PRODUCING WORK.
- ROAD CLEANING:**
- SPILLAGE, EROSION OR MATERIAL "TRACKED OUT" ON A ROAD TO BE CLEANED USING MECHANICAL STREET SWEEPERS OR FLUSHER TRUCK BY AT LEAST THE END OF THE WORK DAY AND IMMEDIATELY IF IT EXTENDS MORE THAN 15 METRES ALONG A PAVED PUBLIC ROADWAY.



NO.	REVISION	APPRD	DATE
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1	SUPPORT FENCING CHANGED TO HWY FENCE		OCT 02

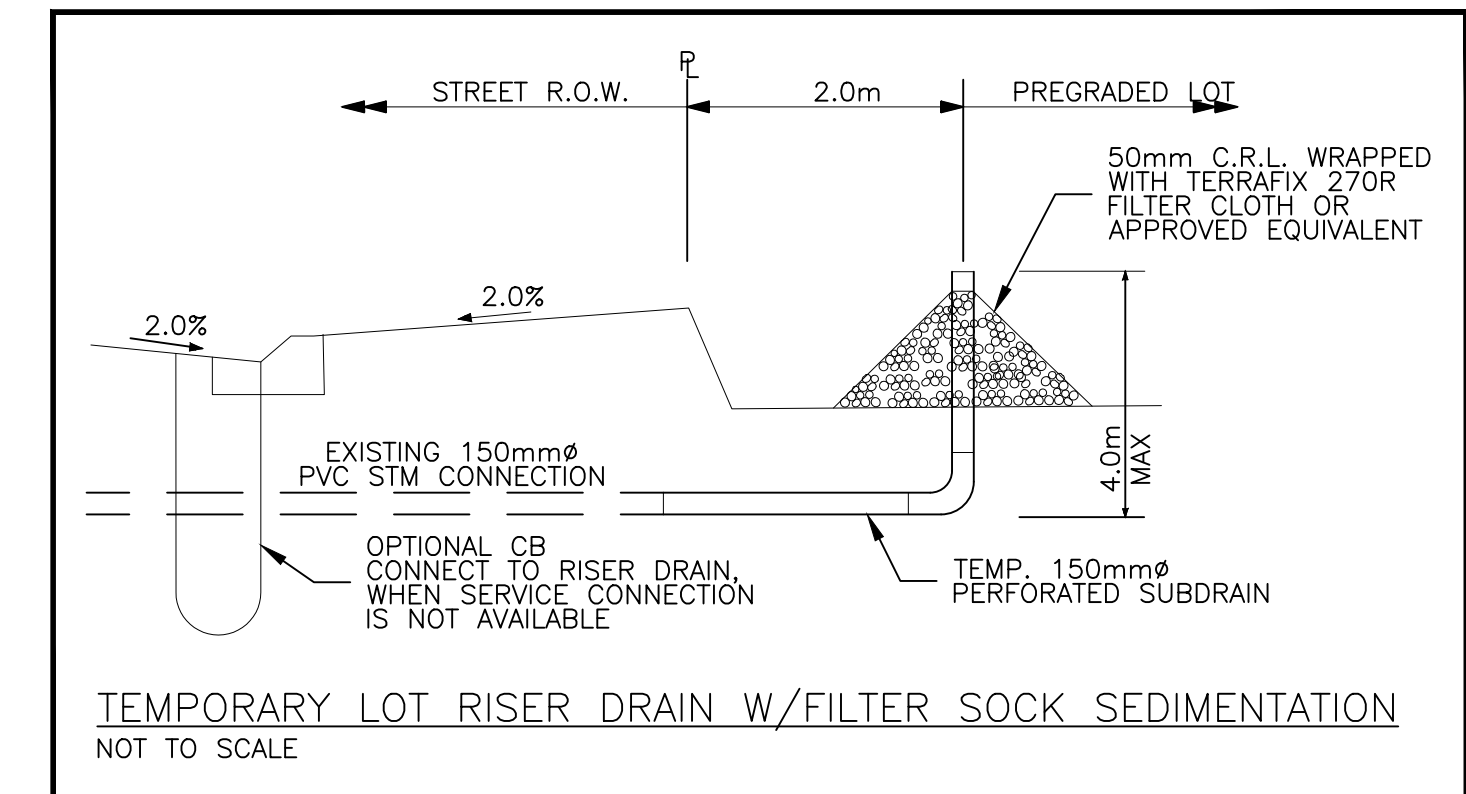
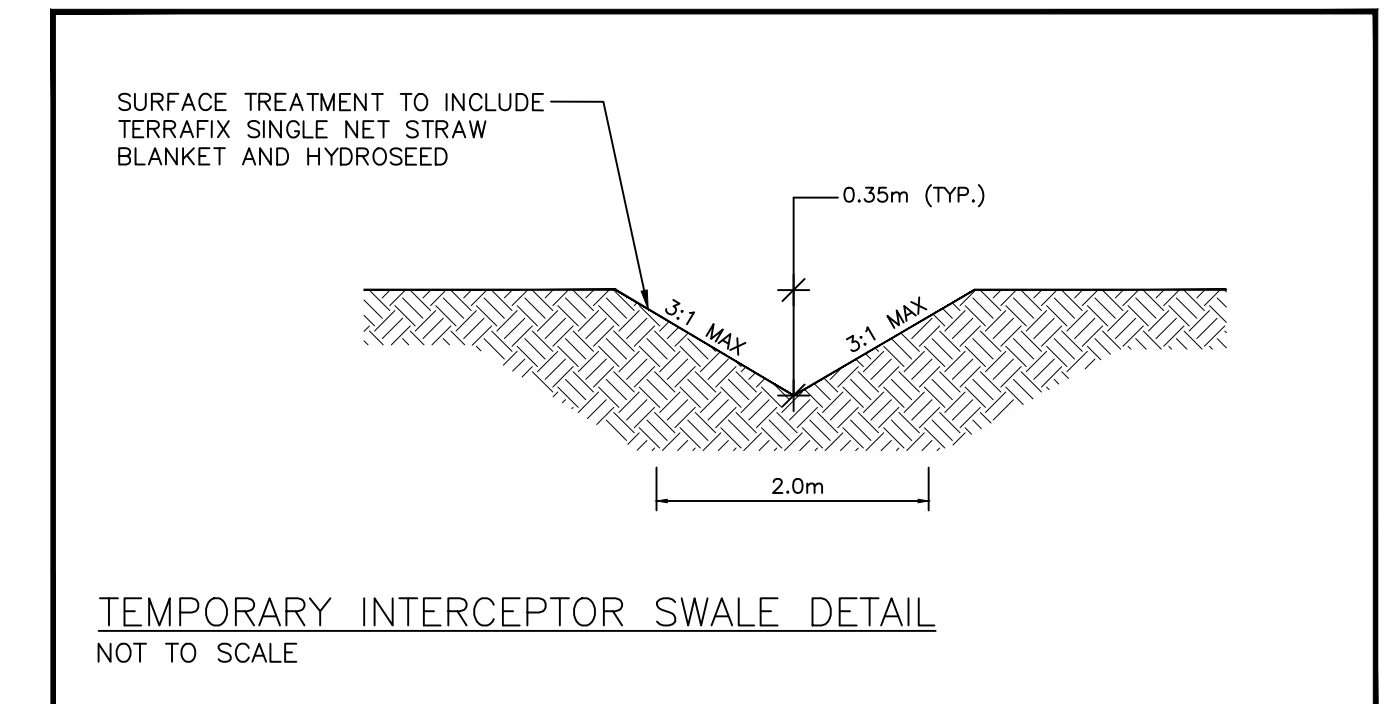
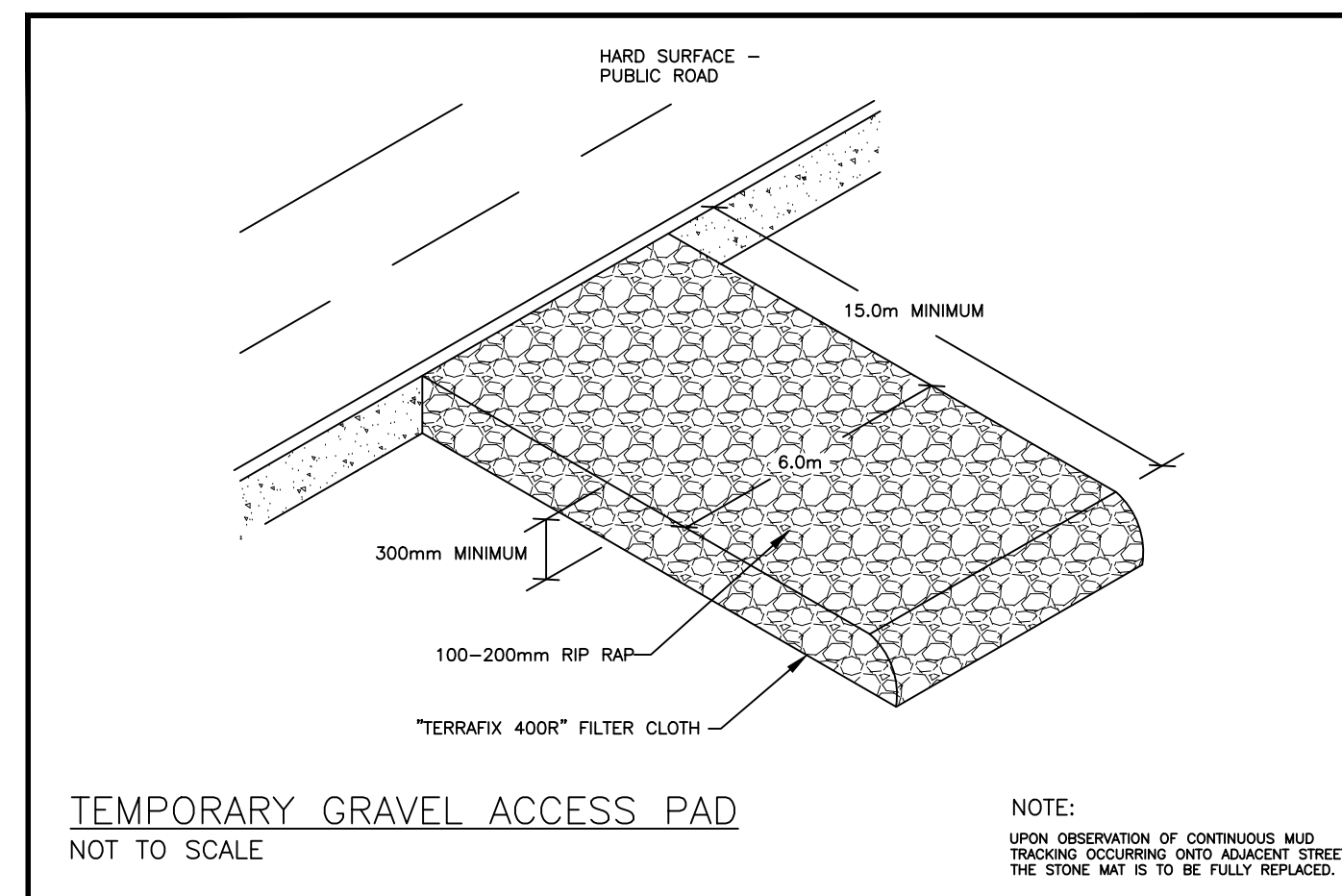
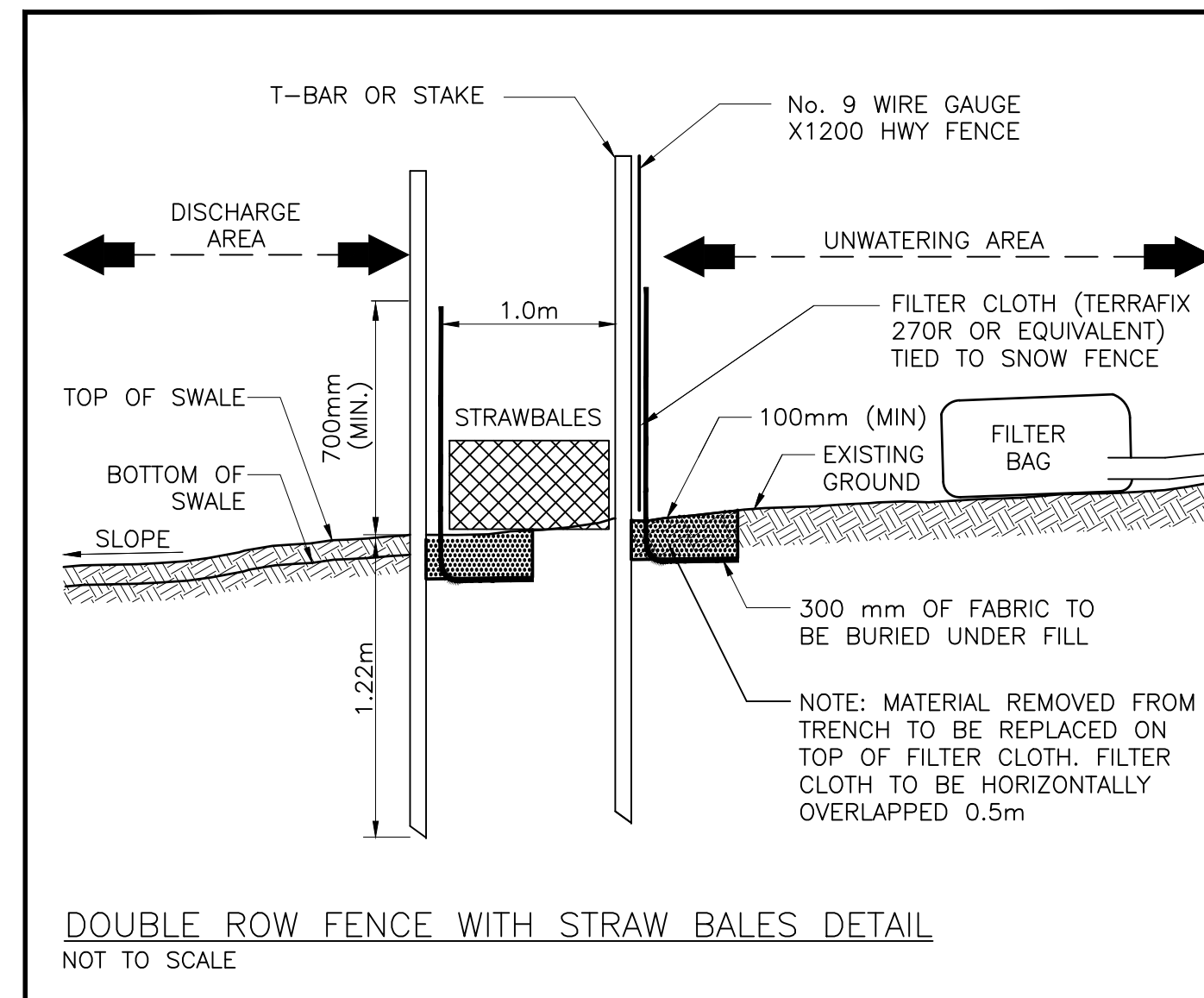
TOWN OF CALEDON		APRD: C.C.	DATE: APRIL 2000
SEDIMENT CONTROL FENCE		DRAWN: BJM	SCALE: N.T.S.
		STANDARD No. 304	



NOTES:

- CATCH BASIN LIFT HOLES TO BE PARGED WITH CONCRETE.
- WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM OPENING SIZE OF 0.25mm.

TOWN OF CALEDON		APRD: C.C.	DATE: APRIL 00
CATCH BASIN SEDIMENT BARRIER		DRAWN: BJM	SCALE: NTS
1	STANDARD No. 320.02 NOW 303	JUNE 08	
NO.	REVISION	APRD	DATE
		STANDARD No. 303	



No.	DESCRIPTION	DATE	BY	APPROVED
4.				
3.				
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APPROVED FOR CONSTRUCTION

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO

DATE: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

BENCH MARK: ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25, ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST. ELEVATION = 310.640

**Stantec Consulting Ltd.**  
 675 COCHRANE DRIVE, WEST TOWER SUITE 300  
 MARKHAM, ONTARIO L3R 0B8  
 TELEPHONE: (905) 944-7777  
 FAX: (905) 474-9889

**S.A. KHAN**  
 100085491  
 Feb 2, 2018  
 PROVINCE OF ONTARIO

PROJECT NAME  
**PROPOSED TOWNHOUSE DEVELOPMENT**  
 CHATEAUX OF CALEDON CORPORATION

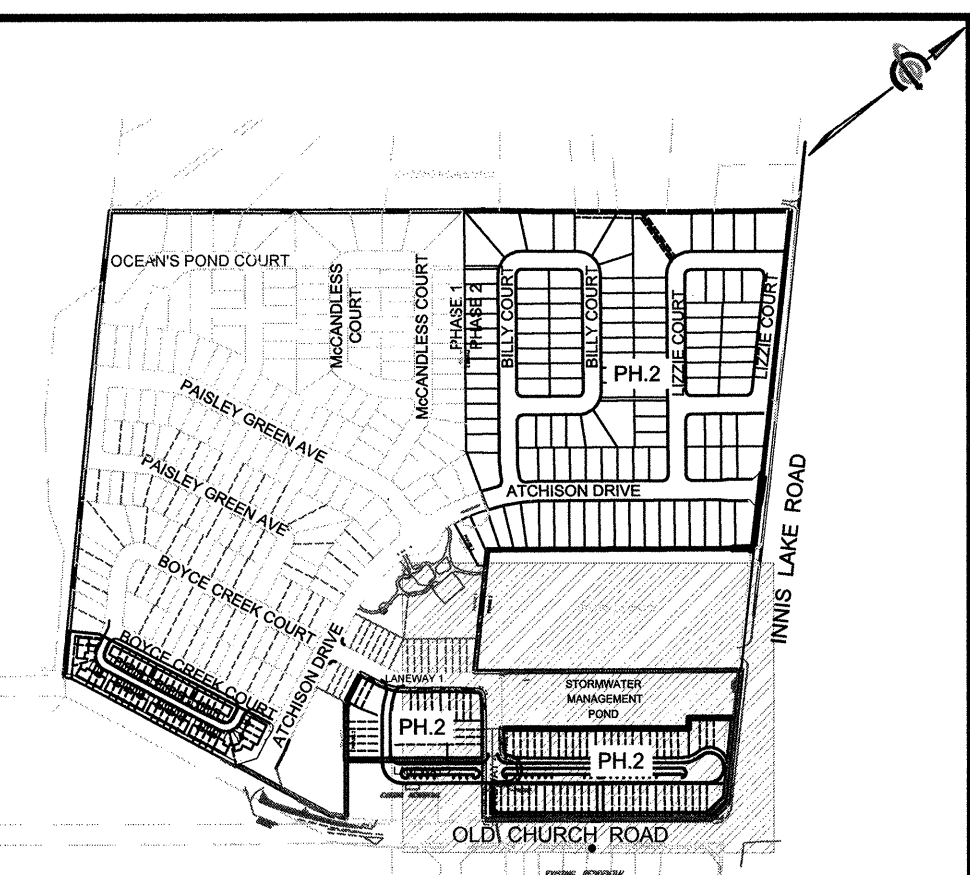
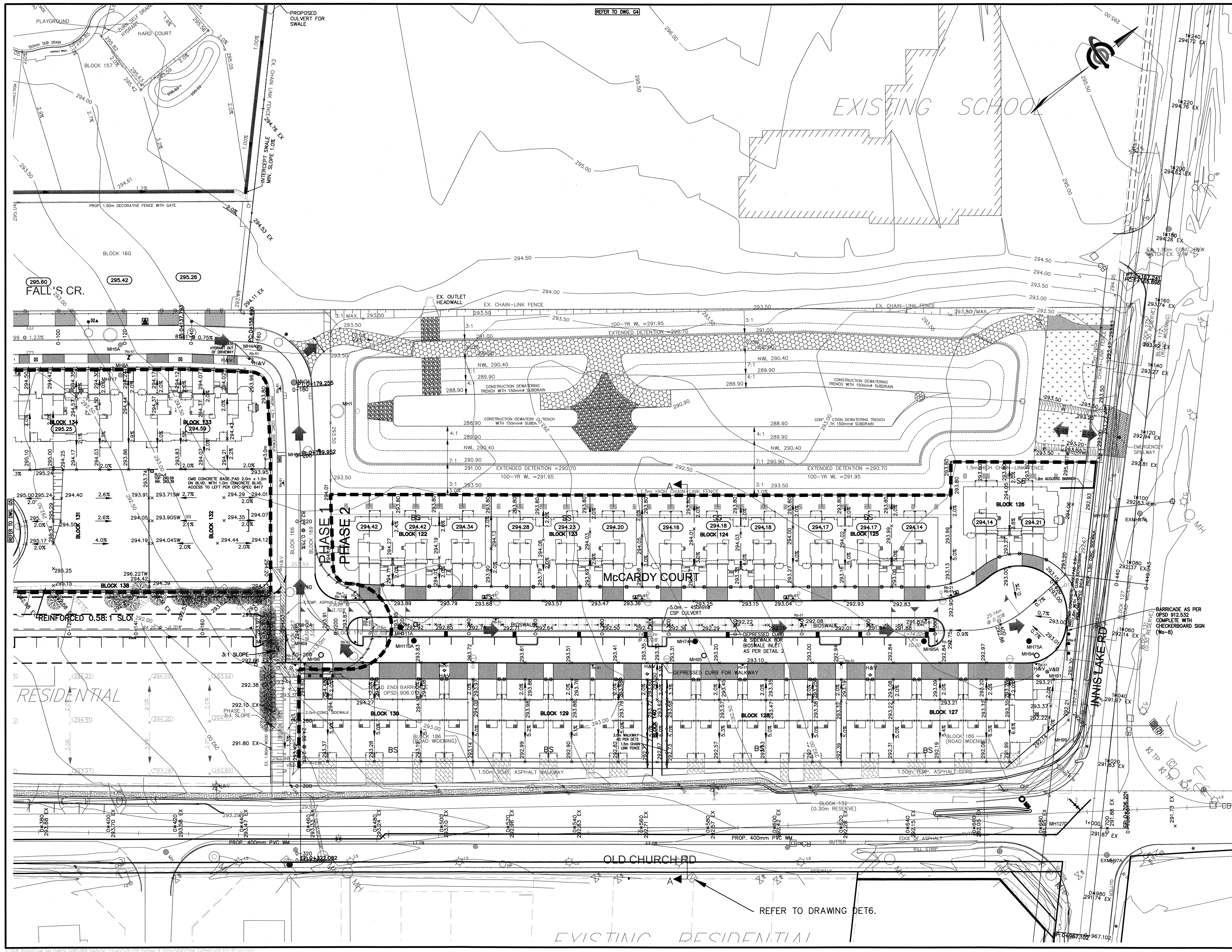
**Region of Peel**

**TOWN OF CALEDON**

**EROSION & SEDIMENT CONTROL DETAILS**

SCALE : N/A	PROJECT No.
DESIGN BY: MG/JL	160622596
CHECKED BY: SK	DRAWING No.
DRAWN BY: MG/JL	ESC-3
DATE: JANUARY 2018	

## **APPENDIX C: EXISTING INFORMATION**



KEY MAP SCALE: 1:7500

LEGEND

- EXISTING CONTOUR
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED APRON ELEVATION
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING SINGLE CATCH BASIN / DOUBLE CATCH BASIN
- EXISTING DITCH INLET CATCH BASIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED SINGLE CATCHBASIN / DOUBLE CATCHBASIN (CD 'B')
- PROPOSED DITCH INLET CATCH BASIN
- PROPOSED WATER VALVE / CURB STOP
- PROPOSED FIRE HYDRANT
- PROPOSED WATERMAIN CROSS / TEE
- PROPOSED WATERMAIN CAP / REDUCER
- PROPOSED DITCH OR SWALE
- PROPERTY LINE
- EASEMENT LINE
- PROPOSED FRONT-SPLIT DRAINAGE LOT TYPE
- PROPOSED SIDE-SPLIT DRAINAGE LOT TYPE
- PROPOSED BACK-SPLIT DRAINAGE LOT TYPE
- PROPOSED REAR WALKOUT BASEMENT LOT TYPE
- PROPOSED DRIVEWAY

OVERLAND FLOW ARROW

ENGINEERED FILL LOT

DENOTES LOTS WITH SUMP PUMP

PHASE LINE

INFILTRATION TRENCH

SOAKAWAY PITS

NOTE:  
ALL PROPOSED FENCING IS TO BE LOCATED ON PRIVATE PROPERTY

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPRO'D
1.	AR	OCT. 5, 11	ISSUED FOR 1ST SERVING SUBMISSION		
2.	AR	DEC. 5, 11	ISSUED FOR 2ND SERVING SUBMISSION		
3.	AR	DEC. 18, 11	ISSUED FOR 3RD SERVING SUBMISSION - REGION OF PEEL		
4.	AR	JAN. 16, 12	ISSUED FOR PRE-SERVING		
5.	AR	JUL. 10, 12	TOWNHOUSE BLOCK SUBMISSION		
6.	AR	JUL. 25, 12	TOWNHOUSE BLOCK APPROVAL		

**APPROVED FOR CONSTRUCTION**

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DATE: *Aug 1, 2012* APPROVED BY: *M. Hall*

BENCH MARK:  
ELEVATIONS ARE IN METRES AND ARE DERIVED FROM REGION OF PEEL BENCHMARK No. 25. ON THE NORTH FACE AT THE WEST CORNER OF A TWO STOREY CONCRETE BLOCK BUILDING LOCATED ON THE EAST SIDE OF AIRPORT ROAD APPROXIMATELY 0.32 KM NORTH OF THE NORTHERLY LIMIT OF CALEDON EAST.

CONSULTANT

**COLE ENGINEERING**

70 WALLSWOOD DRIVE, MARKHAM, ON L3R 4T5  
T: 416.961.9161 F: 905.940.5161 F: 905.940.2844

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REGISTERED PROFESSIONAL ENGINEER  
AL RABOYIA RABOYIA  
JUL 27, 2012  
PROVINCE OF ONTARIO

PROJECT NAME  
**PROPOSED RESIDENTIAL DEVELOPMENT**  
CHATEAUX OF CALEDON PHASE 2  
PART OF LOT 21, CONCESSION 1 (ALBION)

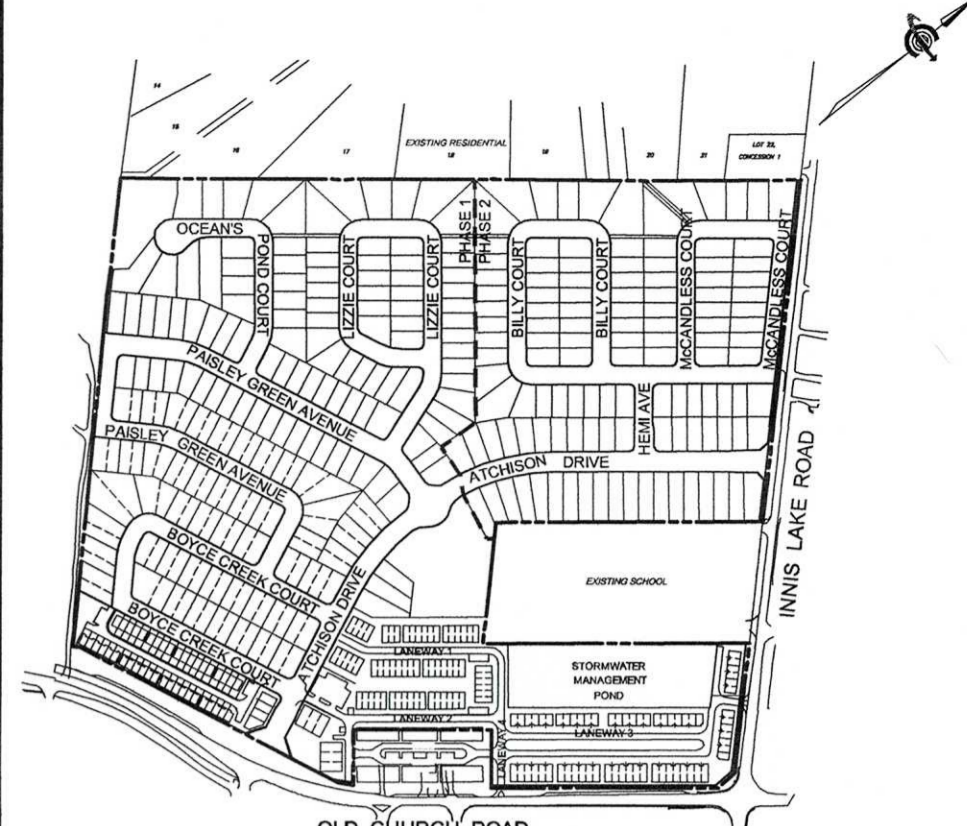
**Region of Peel**

**TOWN OF CALEDON**

21T-07003C  
**GRADING PLAN**  
(NORTH COMMERCIAL QUADRANT)

SCALE: 1:500	PROJECT No. L08-378-2
DESIGNED BY: AC	DRAWN BY: AL
CHECKED BY: AR	DATE: JUL. 22 2011
	DRAWING No. GR6





KEY MAP SCALE: 1:7500

- LEGEND
- EXISTING CONTOUR
  - EXISTING GRADE
  - PROPOSED GRADE
  - EXISTING STORM MANHOLE
  - EXISTING SANITARY MANHOLE
  - EXISTING SINGLE CATCH BASIN / DOUBLE CATCH BASIN
  - EXISTING DITCH INLET CATCH BASIN
  - PROPOSED SANITARY MANHOLE
  - PROPOSED SANITARY SEWER
  - PROPOSED SANITARY SERVICE
  - PROPOSED SANITARY DRAINAGE AREA
  - PROPERTY LINE
  - PROPERTY PHASE LINE



NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
1.	SG	AUG 7, 09	ISSUED FOR FIRST SUBMISSION REVIEW TO TOWN, REGION & TRCA		
2.	SG	FEB 17, 10	ISSUED FOR SECOND SUBMISSION REVIEW TO TOWN, REGION & TRCA		
3.	AR	AUG 06, 10	ISSUED FOR THIRD SUBMISSION REVIEW PHASE 1 APPROVAL		
4.	AR	SEPT 2, 10	PRE-SERVICING		

**APPROVED FOR CONSTRUCTION**

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DATE: Aug 10 2010 APPROVED BY: *[Signature]*

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CONSULTANT

70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5  
T: 905.947.1161 F: 905.947.1161 F: 905.947.0266

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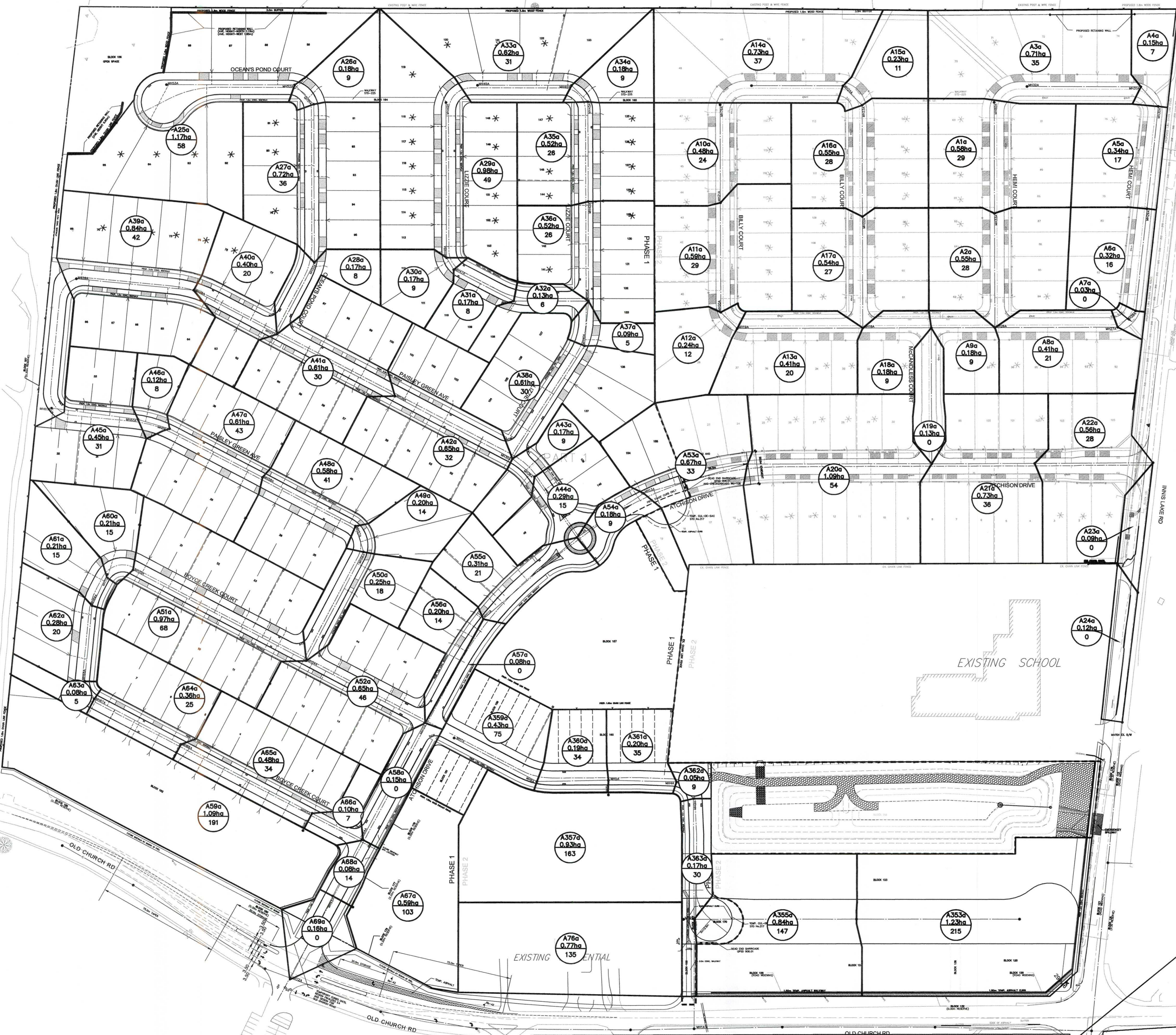
PROJECT NAME  
**PROPOSED RESIDENTIAL DEVELOPMENT  
CHATEAUX OF CALEDON PHASE 1  
PART OF LOT 21, CONCESSION 1 (ALBION)**

**Region of Peel**

**TOWN OF CALEDON**

21T-07003C  
**SANITARY DRAINAGE AREA PLAN**

SCALE: 1:1250	PROJECT No. L08-378
DESIGNED BY: DH	DRAWN BY: JM
CHECKED BY: AR	DATE: AUG. 10 2010
	DRAWING No. SAN1





70 Valleywood, Markham, ON L3R 4T5

Phone: (905) 940-6161, Fax: (905)940-2064

## Region of Peel Sanitary Design Sheet

Peaking Factor K =

$$\text{Average Flow} = \frac{1+}{4+P^{1/2}} \times 365 \text{ l/ca/day}$$

$$\text{Infiltration} = 0.2 \text{ l/s/ha}$$

$$\text{Minimum Velocity} = 0.75 \text{ m/s}$$

$$\text{Maximum Velocity} = 3.5 \text{ m/s}$$

P=Population in Thousands

PHASE 2

Project: Chateaux of Caledon

Project No: L08-378

Date: 13-Sep-11

Designed by: AC

Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
LIZZIE COURT	19A	18A	0.81	0.81	37	37	37	3.8	0.0006	0.0002	0.0008	80.6	5.0	250	0.133	2.70
LIZZIE COURT	18A	17A	0.35	1.16	20	20	57	3.8	0.0009	0.0002	0.0011	54.0	1.5	250	0.072	1.47
LIZZIE COURT	25A	24A	0.94	0.94	41	41	41	3.8	0.0007	0.0002	0.0008	69.9	#REF!	250	#REF!	#REF!
LIZZIE COURT	24A	23A	0.04	0.98	8	8	49	3.8	0.0008	0.0002	0.0010	17.5	3.0	250	0.103	2.11
LIZZIE COURT	23A	22A	0.35	1.33	15	15	64	3.8	0.0010	0.0003	0.0013	79.7	5.0	250	0.133	2.70
LIZZIE COURT	22A	21A	0.18	1.51	12	12	76	3.8	0.0012	0.0003	0.0015	49.2	1.2	250	0.064	1.30
LIZZIE COURT	21A	20A	0.02	1.53	0	0	76	3.8	0.0012	0.0003	0.0015	11.7	1.1	250	0.063	1.28
LIZZIE COURT	20A	17A	0.39	1.92	19	19	95	3.8	0.0015	0.0004	0.0019	76.5	0.8	250	0.051	1.05
LIZZIE COURT	17A	73A	0.30	3.38	15	15	167	3.8	0.0027	0.0007	0.0034	83.2	0.8	250	0.052	1.06
BILLY COURT	80A	79A	0.63	0.63	25	25	25	3.8	0.0004	0.0001	0.0005	56.1	2.2	250	0.088	1.79
BILLY COURT	79A	33A	0.15	0.78	15	15	40	3.8	0.0006	0.0002	0.0008	17.1	4.5	250	0.126	2.57
BILLY COURT	33A	32A	0.53	1.31	23	23	63	3.8	0.0010	0.0003	0.0013	55.4	4.6	250	0.127	2.59
BILLY COURT	32A	31A	0.58	1.89	32	32	95	3.8	0.0015	0.0004	0.0019	69.9	0.5	250	0.043	0.87
BILLY COURT	31A	30A	0.17	2.06	9	9	104	3.8	0.0017	0.0004	0.0021	15.9	0.6	250	0.047	0.96
BILLY COURT	30A	27A	0.43	2.49	21	21	125	3.8	0.0020	0.0005	0.0025	75.9	1.1	250	0.062	1.26
BILLY COURT	29A	28A	0.80	0.80	43	43	43	3.8	0.0007	0.0002	0.0009	86.2	4.9	250	0.132	2.69
BILLY COURT	28A	27A	0.46	1.26	20	20	63	3.8	0.0010	0.0003	0.0013	53.3	1.8	250	0.080	1.63
BILLY COURT	27A	26A	0.25	4.00	12	12	200	3.8	0.0032	0.0008	0.0040	59.9	0.5	250	0.041	0.83
BILLY COURT	26A	14A	0.00	4.00	0	0	200	3.8	0.0032	0.0008	0.0040	26.3	0.5	250	0.040	0.82
ATCHISON DRIVE	14A	15A	0.70	4.70	35	35	235	3.8	0.0038	0.0009	0.0047	73.4	0.6	250	0.044	0.90
ATCHISON DRIVE	15A	73A	0.91	5.61	45	45	280	3.8	0.0045	0.0011	0.0056	90.3	0.5	250	0.041	0.84
ATCHISON DRIVE	73A	16A	0.83	9.82	42	42	489	3.8	0.0079	0.0020	0.0098	87.3	0.5	250	0.042	0.86
INNIS LAKE ROAD	16A	87A	0.19	10.01	0	0	489	3.8	0.0079	0.0020	0.0099	12.1	1.0	250	0.059	1.21
INNIS LAKE ROAD	87A	86A	0.00	10.01	0	0	489	3.8	0.0079	0.0020	0.0099	72.9	0.5	250	0.041	0.84
INNIS LAKE ROAD	86A	EX203A	0.23	10.24	0	0	489	3.8	0.0079	0.0020	0.0099	79.4	0.5	250	0.043	0.87
OCEAN'S POND COURT	53A	52A	1.17	1.17	58	58	58	3.8	0.0009	0.0002	0.0012	78.6	1.0	250	0.059	1.21
OCEAN'S POND COURT	52A	51A	0.18	1.35	9	9	67	3.8	0.0011	0.0003	0.0013	16.7	1.0	250	0.059	1.21
OCEAN'S POND COURT	51A	50A	0.72	2.07	36	36	103	3.8	0.0017	0.0004	0.0021	97.0	2.0	250	0.084	1.71



70 Valleywood, Markham, ON L3R 4T5

Phone: (905) 940-6161, Fax: (905)940-2064

## Region of Peel Sanitary Design Sheet

Peaking Factor K =

$$\text{Average Flow} = \frac{1+}{4+P^{1/2}} \times \frac{14}{365} \text{ l/ca/day}$$

$$\text{Infiltration} = 0.2 \text{ l/s/ha}$$

$$\text{Minimum Velocity} = 0.75 \text{ m/s}$$

$$\text{Maximum Velocity} = 3.5 \text{ m/s}$$

P=Population in Thousands

PHASE 2

Project: Chateaux of Caledon

Project No: L08-378

Date: 13-Sep-11

Designed by: AC

Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
OCEAN'S POND COURT	50A	37A	0.17	2.24	8	8	111	3.8	0.0018	0.0004	0.0022	49.5	0.8	250	0.051	1.05
McCANDLESS COURT	49A	48A	0.98	0.98	49	49	49	3.8	0.0008	0.0002	0.0010	95.0	4.3	250	0.124	2.52
McCANDLESS COURT	48A	47A	0.17	1.15	9	9	58	3.8	0.0009	0.0002	0.0012	8.6	3.0	250	0.103	2.10
McCANDLESS COURT	47A	46A	0.17	1.32	8	8	66	3.8	0.0011	0.0003	0.0013	41.5	1.0	250	0.059	1.21
McCANDLESS COURT	46A	41A	0.13	1.45	6	6	72	3.8	0.0012	0.0003	0.0014	45.9	0.5	250	0.042	0.86
McCANDLESS COURT	45A	44A	0.62	0.62	31	31	31	3.8	0.0005	0.0001	0.0006	57.7	1.5	250	0.073	1.48
McCANDLESS COURT	44A	43A	0.18	0.80	9	9	40	3.8	0.0006	0.0002	0.0008	14.2	2.5	250	0.094	1.92
McCANDLESS COURT	43A	42A	0.52	1.32	26	26	66	3.8	0.0011	0.0003	0.0013	61.0	4.0	250	0.119	2.42
McCANDLESS COURT	42A	41A	0.52	1.84	26	26	92	3.8	0.0015	0.0004	0.0018	61.0	4.0	250	0.119	2.42
McCANDLESS COURT	41A	40A	0.09	3.38	5	5	169	3.8	0.0027	0.0007	0.0034	27.5	2.0	250	0.084	1.71
McCANDLESS COURT	40A	35A	0.61	3.99	30	30	199	3.8	0.0032	0.0008	0.0040	82.0	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	39A	38A	0.84	0.84	42	42	42	3.8	0.0007	0.0002	0.0008	71.6	1.9	250	0.083	1.69
PAISLEY GREEN AVENUE	38A	37A	0.40	1.24	20	20	62	3.8	0.0010	0.0002	0.0012	57.5	1.4	250	0.070	1.43
PAISLEY GREEN AVENUE	37A	36A	0.61	4.09	30	30	203	3.8	0.0033	0.0008	0.0041	81.6	1.2	250	0.065	1.33
PAISLEY GREEN AVENUE	36A	35A	0.65	4.74	32	32	235	3.8	0.0038	0.0009	0.0047	81.8	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	35A	34A	0.17	8.90	9	9	443	3.8	0.0071	0.0018	0.0089	17.8	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	34A	12A	0.29	9.19	15	15	458	3.8	0.0074	0.0018	0.0092	45.3	0.8	250	0.051	1.05
PAISLEY GREEN AVENUE	61A	60A	0.45	0.45	31	31	31	3.8	0.0005	0.0001	0.0006	53.0	1.1	250	0.061	1.24
PAISLEY GREEN AVENUE	60A	59A	0.12	0.57	8	8	39	3.8	0.0006	0.0001	0.0007	20.2	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	59A	58A	0.61	1.18	43	43	82	3.8	0.0013	0.0002	0.0016	64.3	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	58A	57A	0.58	1.76	41	41	123	3.8	0.0020	0.0004	0.0023	64.3	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	57A	56A	0.20	1.96	14	14	137	3.8	0.0022	0.0004	0.0026	16.6	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	56A	54A	0.25	2.21	18	18	155	3.8	0.0025	0.0004	0.0029	75.2	0.5	250	0.042	0.86
BOYCE CREEK COURT	55A	54A	0.97	0.97	68	68	68	3.8	0.0011	0.0002	0.0013	120.0	1.0	250	0.059	1.21
BOYCE CREEK COURT	54A	10A	0.65	3.83	46	46	269	3.8	0.0043	0.0008	0.0051	82.3	0.5	250	0.042	0.86
ATCHISON DRIVE	14A2	13A	0.67	0.67	33	33	33	3.8	0.0005	0.0001	0.0007	66.0	1.0	250	0.059	1.21
ATCHISON DRIVE	13A	12A	0.18	0.85	9	9	42	3.8	0.0007	0.0002	0.0008	49.0	0.5	250	0.042	0.86
ATCHISON DRIVE	12A	11A	0.31	10.35	21	21	521	3.8	0.0084	0.0021	0.0104	76.0	0.4	250	0.038	0.77



70 Valleywood, Markham, ON L3R 4T5

Phone: (905) 940-6161, Fax: (905)940-2064

## Region of Peel Sanitary Design Sheet

Peaking Factor K =

$$\text{Average Flow} = \frac{1+}{4+P^{1/2}} \times 365 \text{ l/ca/day}$$

$$\text{Infiltration} = 0.2 \text{ l/s/ha}$$

$$\text{Minimum Velocity} = 0.75 \text{ m/s}$$

$$\text{Maximum Velocity} = 3.5 \text{ m/s}$$

P=Population in Thousands

PHASE 2

Project: Chateaux of Caledon

Project No: L08-378

Date: 13-Sep-11

Designed by: AC

Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
ATCHISON DRIVE	11A	10A	0.51	10.86	30	30	551	3.8	0.0088	0.0022	0.0110	73.0	0.4	250	0.038	0.77
ATCHISON DRIVE	10A	64A	0.15	14.84	0	0	820	3.8	0.0132	0.0030	0.0161	81.0	0.4	250	0.038	0.77
Southwest Condo Block	81A	65A	0.00	0.00	0	0	0	3.8	0.0000	0.0000	0.0000	12.0	0.8	250	0.051	1.05
BOYCE CREEK COURT	70A	69A	0.42	0.42	30	30	30	3.8	0.0005	0.0001	0.0006	21.2	1.0	250	0.059	1.21
BOYCE CREEK COURT	69A	68A	0.28	0.70	20	20	50	3.8	0.0008	0.0001	0.0009	46.5	0.5	250	0.042	0.86
BOYCE CREEK COURT	68A	67A	0.08	0.78	5	5	55	3.8	0.0009	0.0002	0.0010	12.3	0.5	250	0.042	0.86
BLOCK 162	212A	211A	0.18	0.18	31	31	31	3.8	0.0005	0.0000	0.0005	25.1	1.2	250	0.065	1.32
BLOCK 162	211A	67A	0.00	0.18	0	0	31	3.8	0.0005	0.0000	0.0005	12.5	0.7	250	0.050	1.03
BOYCE CREEK COURT	67A	66A	0.54	1.50	57	57	143	3.8	0.0023	0.0003	0.0026	60.0	0.5	250	0.042	0.86
BOYCE CREEK COURT	66A	65A	0.68	2.18	69	69	212	3.8	0.0034	0.0004	0.0038	90.8	0.5	250	0.042	0.86
BOYCE CREEK COURT	65A	64A	0.10	2.28	7	7	219	3.8	0.0035	0.0005	0.0040	35.6	0.4	250	0.038	0.77
ATCHISON DRIVE	64A	EX93A	0.23	17.35	25	25	1064	3.8	0.0170	0.0035	0.0205	39.0	0.4	250	0.038	0.77
Block 163	9A	EX93A	0.59	0.59	103	103	103	3.8	0.0017	0.0001	0.0018	14.0	1.0	250	0.059	1.21
ATCHISON DRIVE	EX93A	208A	0.16	18.10	0	0	1167	3.8	0.0185	0.0036	0.0221	32.3	0.4	250	0.038	
OLD CHURCH ROAD BLVD	210A	209A	0.16	0.16	28	28	28	3.8	0.0004	0.0000	0.0005	72.1	1.0	250	0.060	
OLD CHURCH ROAD BLVD	209A	208A	0.22	0.38	39	39	67	3.8	0.0011	0.0001	0.0012	119.5	0.4	250	0.039	
ATCHISON DRIVE	208A	72A	0.00	18.48	0	0	1234	3.7	0.0195	0.0037	0.0232	24.2	0.4	250	0.038	
FALLIS CR.	7A	6A	0.43	0.43	75	75	75	3.8	0.0012	0.0001	0.0013	57.3	1.0	250	0.059	1.21
STREET 'A'	PLUG4	93A	0.93	163.00	163	163	163	3.8	0.0026	0.0326	0.0352	43.7	0.5	300	0.068	0.97
STREET 'A'	93A	94A	0.00	0.00	0	0	163	3.8	0.0026	0.0000	0.0026	46.0	0.8	300	0.085	1.21
STREET 'A'	94A	6A	0.00	0.00	0	0	163	3.8	0.0026	0.0000	0.0026	43.7	0.5	300	0.068	0.97
FALLIS CR.	6A	5A	0.19	0.62	34	34	272	3.8	0.0044	0.0001	0.0045	43.7	0.5	300	0.068	0.97
Block 122	8A	5A	0.00	0.00	0	0	0	3.8	0.0000	0.0000	0.0000	9.0	1.0	250	0.059	1.21
FALLIS CR.	5A	4A	0.20	0.82	35	35	307	3.8	0.0049	0.0002	0.0051	41.7	0.5	300	0.068	0.97
FALLIS CR.	4A	3A	0.05	0.87	0	0	307	3.8	0.0049	0.0002	0.0051	14.5	0.5	300	0.068	0.97
FALLIS CR.	3A	2A	0.17	1.04	0	0	307	3.8	0.0049	0.0002	0.0051	73.9	0.5	300	0.068	0.97



70 Valleywood, Markham, ON L3R 4T5

Phone: (905) 940-6161, Fax: (905)940-2064

## Region of Peel Sanitary Design Sheet

Peaking Factor K =

$$\text{Average Flow} = \frac{1+}{4+P^{1/2}} \times 365 \text{ l/ca/day}$$

$$\text{Infiltration} = 0.2 \text{ l/s/ha}$$

$$\text{Minimum Velocity} = 0.75 \text{ m/s}$$

$$\text{Maximum Velocity} = 3.5 \text{ m/s}$$

P=Population in Thousands

PHASE 2

Project: Chateaux of Caledon

Project No: L08-378

Date: 13-Sep-11

Designed by: AC

Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
Fut. Development	92A	2A	0.00	0.00	0	0	0	3.8	0.0000	0.0000	0.0000	6.5	1.0	250	0.059	1.21
MACCARDY COURT	75A	95A	0.48	0.48	85	85	85	3.8	0.0014	0.0001	0.0015	31.4	1.0	250	0.059	1.21
MACCARDY COURT	95A	74A	0.56	1.04	97	97	182	3.8	0.0029	0.0002	0.0031	68.8	0.5	250	0.041	0.84
MACCARDY COURT	74A	110A	0.79	1.83	137	137	319	3.8	0.0051	0.0004	0.0055	84.8	0.5	250	0.041	0.84
MACCARDY COURT	110A	111A	0.00	1.83	0	0	319	3.8	0.0051	0.0004	0.0055	5.6	1.1	250	0.062	1.26
MACCARDY COURT	111A	2A	0.25	2.08	43	43	362	3.8	0.0058	0.0004	0.0062	31.9	0.6	250	0.046	0.94
OUTLET	2A	1A	0.00	3.12	0	0	669	3.8	0.0107	0.0006	0.0114	66.9	0.5	300	0.068	0.97
Exist. Old Church Road	94	1A	6.70	6.70	335	335	335	3.8	0.0054	0.0013	0.0067	20.0	0.5	250	0.042	0.86
Exist. Old Church Road	1A	95	0.00	9.82	0	0	1004	3.8	0.0161	0.0020	0.0181	73.0	0.5	300	0.068	0.97
Exist. Old Church Road	95	96	1.34	11.16	52	52	1056	3.8	0.0169	0.0022	0.0191	93.6	0.5	300	0.068	0.97
Exist. Old Church Road	96	97	0.00	11.16	0	0	1056	3.8	0.0169	0.0022	0.0191	95.0	0.5	300	0.068	0.97



## Region of Peel Sanitary Design Sheet

70 Valleywood, Markham, ON L3R 4T5  
Phone: (905) 940-6161, Fax: (905)940-2064

Peaking Factor K =  $1 + \frac{14}{4+P^{1/2}}$  P=Population in Thousands  
 Average Flow = 365 l/ca/day  
 Infiltration = 0.2 l/s/ha  
 Minimum Velocity= 0.75 m/s  
 Maximum Velocity= 3.5 m/s

Project: Chateaux of Caledon  
 Project No: L08-378  
 Date: 22-Dec-17  
 Designed by: RM  
 Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
McCANDLESS COURT	80A	33A	0.58	0.58	29	29	29	3.8	0.0005	0.0001	0.0006	67.9	3.5	250	0.111	2.27
McCANDLESS COURT	33A	26A	0.55	1.13	28	28	57	3.8	0.0009	0.0002	0.0011	70.0	2.0	250	0.084	1.71
McCANDLESS COURT	32A	31A	0.71	0.71	35	35	35	3.8	0.0006	0.0001	0.0007	69.8	2.5	250	0.094	1.92
McCANDLESS COURT	31A	30A	0.15	0.86	7	7	42	3.8	0.0007	0.0002	0.0008	16.0	2.5	250	0.094	1.92
McCANDLESS COURT	30A	29A	0.34	1.20	17	17	59	3.8	0.0009	0.0002	0.0012	63.0	3.0	250	0.103	2.10
McCANDLESS COURT	29A	28A	0.32	1.52	16	16	75	3.8	0.0012	0.0003	0.0015	63.0	3.0	250	0.103	2.10
McCANDLESS COURT	28A	27A	0.03	1.55	0	0	75	3.8	0.0012	0.0003	0.0015	14.9	0.5	250	0.042	0.86
McCANDLESS COURT	27A	26A	0.41	1.96	21	21	96	3.8	0.0015	0.0004	0.0019	75.3	0.5	250	0.042	0.86
McCANDLESS COURT	26A	17A	0.18	3.27	9	9	162	3.8	0.0026	0.0007	0.0033	39.0	0.5	250	0.042	0.86
BILLY COURT	25A	24A	0.73	0.73	37	37	37	3.8	0.0006	0.0001	0.0007	56.0	2.5	250	0.094	1.92
BILLY COURT	24A	23A	0.23	0.96	11	11	48	3.8	0.0008	0.0002	0.0010	16.7	4.0	250	0.119	2.42
BILLY COURT	23A	22A	0.55	1.51	28	28	76	3.8	0.0012	0.0003	0.0015	68.2	2.7	250	0.098	1.99
BILLY COURT	22A	18A	0.54	2.05	27	27	103	3.8	0.0017	0.0004	0.0021	68.2	1.5	250	0.073	1.48
BILLY COURT	79A	21A	0.48	0.48	24	24	24	3.8	0.0004	0.0001	0.0005	59.9	4.5	250	0.126	2.57
BILLY COURT	21A	20A	0.59	1.07	30	30	54	3.8	0.0009	0.0002	0.0011	67.1	1.0	250	0.059	1.21
BILLY COURT	20A	19A	0.24	1.31	12	12	66	3.8	0.0011	0.0003	0.0013	14.1	1.5	250	0.073	1.48
BILLY COURT	19A	18A	0.41	1.72	20	20	86	3.8	0.0014	0.0003	0.0017	77.0	2.0	250	0.084	1.71
BILLY COURT	18A	17A	0.18	3.95	9	9	198	3.8	0.0032	0.0008	0.0040	42.0	0.5	250	0.042	0.86
HEMI AVENUE	17A	15A	0.13	7.35	0	0	360	3.8	0.0058	0.0015	0.0072	83.3	0.5	250	0.042	0.86
ATCHISON DRIVE	14A	15A	1.09	1.09	54	54	54	3.8	0.0009	0.0002	0.0011	113.0	1.0	250	0.059	1.21
ATCHISON DRIVE	15A	73A	0.73	9.17	36	36	450	3.8	0.0072	0.0018	0.0091	63.1	0.5	250	0.042	0.86
ATCHISON DRIVE	73A	16A	0.56	9.73	28	28	478	3.8	0.0077	0.0019	0.0096	72.5	0.5	250	0.042	0.86
Innis Lake Road	16A	86A	0.09	9.82	0	0	478	3.8	0.0077	0.0020	0.0096	80.0	0.5	250	0.042	0.86
Innis Lake Road	86A	EX203A	0.12	9.94	0	0	478	3.8	0.0077	0.0020	0.0097	80.1	0.5	250	0.042	0.86
OCEAN'S POND COURT	53A	52A	1.17	1.17	58	58	58	3.8	0.0009	0.0002	0.0012	78.2	0.9	250	0.058	1.17
OCEAN'S POND COURT	52A	51A	0.18	1.35	9	9	67	3.8	0.0011	0.0003	0.0013	16.5	0.5	250	0.044	0.89
OCEAN'S POND COURT	51A	50A	0.72	2.07	36	36	103	3.8	0.0017	0.0004	0.0021	97.0	1.0	250	0.060	1.23



## Region of Peel Sanitary Design Sheet

70 Valleywood, Markham, ON L3R 4T5  
Phone: (905) 940-6161, Fax: (905)940-2064

Peaking Factor K =  $1 + \frac{14}{4+P^{1/2}}$  P=Population in Thousands  
 Average Flow = 365 l/ca/day  
 Infiltration = 0.2 l/s/ha  
 Minimum Velocity= 0.75 m/s  
 Maximum Velocity= 3.5 m/s

Project: Chateaux of Caledon  
 Project No: L08-378  
 Date: 22-Dec-17  
 Designed by: RM  
 Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
OCEAN'S POND COURT	50A	37A	0.17	2.24	8	8	111	3.8	0.0018	0.0004	0.0022	49.2	1.0	250	0.059	1.21
LIZZIE COURT	49A	48A	0.98	0.98	49	49	49	3.8	0.0008	0.0002	0.0010	95.0	4.3	250	0.124	2.52
LIZZIE COURT	48A	47A	0.17	1.15	9	9	58	3.8	0.0009	0.0002	0.0012	8.2	4.0	250	0.119	2.42
LIZZIE COURT	47A	46A	0.17	1.32	8	8	66	3.8	0.0011	0.0003	0.0013	41.3	1.0	250	0.060	1.22
LIZZIE COURT	46A	41A	0.13	1.45	6	6	72	3.8	0.0012	0.0003	0.0014	45.8	0.6	250	0.046	0.93
LIZZIE COURT	45A	44A	0.62	0.62	31	31	31	3.8	0.0005	0.0001	0.0006	56.5	1.6	250	0.076	1.55
LIZZIE COURT	44A	43A	0.18	0.80	9	9	40	3.8	0.0006	0.0002	0.0008	13.7	2.6	250	0.095	1.93
LIZZIE COURT	43A	42A	0.52	1.32	26	26	66	3.8	0.0011	0.0003	0.0013	60.8	3.9	250	0.117	2.38
LIZZIE COURT	42A	41A	0.52	1.84	26	26	92	3.8	0.0015	0.0004	0.0018	61.0	3.9	250	0.117	2.38
LIZZIE COURT	41A	40A	0.09	3.38	5	5	169	3.8	0.0027	0.0007	0.0034	28.0	2.4	250	0.093	1.89
LIZZIE COURT	40A	35A	0.61	3.99	30	30	199	3.8	0.0032	0.0008	0.0040	81.0	0.5	250	0.042	0.85
PAISLEY GREEN AVENUE	39A	38A	0.84	0.84	42	42	42	3.8	0.0007	0.0002	0.0008	71.6	1.9	250	0.083	1.69
PAISLEY GREEN AVENUE	38A	37A	0.40	1.24	20	20	62	3.8	0.0010	0.0002	0.0012	57.5	1.4	250	0.070	1.43
PAISLEY GREEN AVENUE	37A	36A	0.61	4.09	30	30	203	3.8	0.0033	0.0008	0.0041	81.6	1.2	250	0.065	1.33
PAISLEY GREEN AVENUE	36A	35A	0.65	4.74	32	32	235	3.8	0.0038	0.0009	0.0047	81.8	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	35A	34A	0.17	8.90	9	9	443	3.8	0.0071	0.0018	0.0089	17.8	0.5	250	0.042	0.86
PAISLEY GREEN AVENUE	34A	12A	0.29	9.19	15	15	458	3.8	0.0074	0.0018	0.0092	45.3	0.8	250	0.051	1.05
PAISLEY GREEN AVENUE	61A	60A	0.45	0.45	31	31	31	3.8	0.0005	0.0001	0.0006	53.0	1.1	250	0.061	1.24
PAISLEY GREEN AVENUE	60A	59A	0.12	0.57	8	8	39	3.8	0.0006	0.0001	0.0007	20.4	0.5	250	0.043	0.88
PAISLEY GREEN AVENUE	59A	58A	0.61	1.18	43	43	82	3.8	0.0013	0.0002	0.0016	64.5	0.5	250	0.042	0.87
PAISLEY GREEN AVENUE	58A	57A	0.58	1.76	41	41	123	3.8	0.0020	0.0004	0.0023	64.0	0.6	250	0.044	0.91
PAISLEY GREEN AVENUE	57A	56A	0.20	1.96	14	14	137	3.8	0.0022	0.0004	0.0026	16.4	0.5	250	0.041	0.84
PAISLEY GREEN AVENUE	56A	54A	0.25	2.21	18	18	155	3.8	0.0025	0.0004	0.0029	75.1	0.5	250	0.042	0.85
BOYCE CREEK COURT	55A	54A	0.97	0.97	68	68	68	3.8	0.0011	0.0002	0.0013	119.5	1.0	250	0.059	1.21
BOYCE CREEK COURT	54A	10A	0.65	3.83	46	46	269	3.8	0.0043	0.0008	0.0051	80.9	0.5	250	0.043	0.87
ATCHISON DRIVE	14A2	13A	0.67	0.67	33	33	33	3.8	0.0005	0.0001	0.0007	65.7	1.0	250	0.060	
ATCHISON DRIVE	13A	12A	0.18	0.85	9	9	42	3.8	0.0007	0.0002	0.0008	49.3	0.5	250	0.042	0.87
ATCHISON DRIVE	12A	11A	0.31	10.35	21	21	521	3.8	0.0084	0.0021	0.0104	76.1	0.4	250	0.038	0.78



## Region of Peel Sanitary Design Sheet

70 Valleywood, Markham, ON L3R 4T5  
Phone: (905) 940-6161, Fax: (905)940-2064

Peaking Factor K =  $1 + \frac{14}{4+P^{1/2}}$  P=Population in Thousands  
 Average Flow = 365 l/ca/day  
 Infiltration = 0.2 l/s/ha  
 Minimum Velocity= 0.75 m/s  
 Maximum Velocity= 3.5 m/s

Project: Chateaux of Caledon  
 Project No: L08-378  
 Date: 22-Dec-17  
 Designed by: RM  
 Checked by: AR

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
ATCHISON DRIVE	11A	10A	0.51	10.86	30	30	551	3.8	0.0088	0.0022	0.0110	73.0	0.4	250	0.037	0.76
ATCHISON DRIVE	10A	64A	0.15	14.84	0	0	820	3.8	0.0132	0.0030	0.0161	80.9	0.4	250	0.039	0.79
Southwest Condo Block	81A	65A	1.91	1.91	191	191	191	3.8	0.0031	0.0004	0.0034	12.0	0.8	250	0.051	1.05
BOYCE CREEK COURT	70A	69A	0.42	0.42	30	30	30	3.8	0.0005	0.0001	0.0006	21.7	0.9	250	0.057	1.16
BOYCE CREEK COURT	69A	68A	0.28	0.70	20	20	50	3.8	0.0008	0.0001	0.0009	46.7	0.5	250	0.041	0.83
BOYCE CREEK COURT	68A	67A	0.08	0.78	5	5	55	3.8	0.0009	0.0002	0.0010	12.6	0.6	250	0.044	0.90
BOYCE CREEK COURT	67A	66A	0.36	1.14	25	25	80	3.8	0.0013	0.0002	0.0015	60.0	0.5	250	0.043	0.87
BOYCE CREEK COURT	66A	65A	0.48	1.62	34	34	114	3.8	0.0018	0.0003	0.0022	91.3	0.5	250	0.042	0.86
BOYCE CREEK COURT	65A	64A	0.10	3.63	7	7	312	3.8	0.0050	0.0007	0.0057	34.3	0.5	250	0.042	0.85
ATCHISON DRIVE	64A	93A	0.08	18.55	0	0	1132	3.8	0.0180	0.0037	0.0217	38.8	0.4	250	0.038	0.78
Block 163	9A	93A	0.59	0.59	103	103	103	3.8	0.0017	0.0001	0.0018	14.0	1.0	250	0.059	
ATCHISON DRIVE	93A	72A	0.16	19.30	0	0	1235	3.7	0.0195	0.0039	0.0234	39.0	0.4	250	0.038	0.77
FALLIS CR.	7A	6A	0.43	0.43	75	75	75	3.8	0.0012	0.0001	0.0013	60.9	1.0	250	0.059	
FALLIS CR.	6A	5A	0.19	0.62	34	34	109	3.8	0.0017	0.0001	0.0019	44.9	0.5	250	0.042	0.87
Block 122	8A	5A	0.84	0.84	146	146	146	3.8	0.0023	0.0002	0.0025	9.0	1.0	250	0.059	1.21
FALLIS CR.	5A	4A	0.20	1.66	35	35	290	3.8	0.0047	0.0003	0.0050	41.2	0.4	250	0.039	0.80
FALLIS CR.	4A	3A	0.05	1.71	0	0	290	3.8	0.0047	0.0003	0.0050	14.8	0.7	250	0.050	1.03
FALLIS CR.	3A	2A	0.17	1.88	0	0	290	3.8	0.0047	0.0004	0.0050	73.9	0.5	250	0.042	0.85
Fut. Development	92A	2A	0.93	0.93	163	163	163	3.8	0.0026	0.0002	0.0028	6.5	1.0	250	0.059	1.21
MACCARDY COURT	75A	74A	1.23	1.23	215	215	215	3.8	0.0035	0.0002	0.0037	99.9	0.5	250	0.042	0.86
MACCARDY COURT	74A	PLUG2	0.84	2.07	147	147	362	3.8	0.0058	0.0004	0.0062	67.9	0.5	250	0.042	0.86
MACCARDY COURT	PLUG2	2A	0.00	2.07	0	0	362	3.8	0.0058	0.0004	0.0062	31.5	0.5	250	0.042	0.86
OUTLET	2A	1A	0.00	4.88	0	0	815	3.8	0.0131	0.0010	0.0141	67.4	0.5	250	0.042	0.85





## Region of Peel Sanitary Design Sheet

70 Valleywood, Markham, ON L3R 4T5  
Phone: (905) 940-6161, Fax: (905)940-2064

Peaking Factor K =  $1 + \frac{14}{4+P^{1/2}}$  P=Population in Thousands  
 Average Flow = 365 l/ca/day  
 Infiltration = 0.2 l/s/ha  
 Minimum Velocity= 0.75 m/s  
 Maximum Velocity= 3.5 m/s

Project: Chateaux of Caledon  
 Project No: L08-378  
 Date: 22-Dec-17  
 Designed by: RM  
 Checked by: AR

PHASE 2

STREET	MANHOLE		A AREA (ha)	TOTAL AREA (ha)	POPULATION PER	SECTION POPULATION	ACCUM. POPULATION	Peaking Factor K	Pop. Flow (m3/s)	Infil. Flow (m3/s)	Peak FLOW (m3/s)	SANITARY SEWER DESIGN INFORMATION				
	FROM	TO										LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)
Exist. Old Church Road	94	1A	6.70	6.70	335	335	335	3.8	0.0054	0.0013	0.0067	20.0	0.5	250	0.042	0.86
Exist. Old Church Road	1A	95	0.00	11.58	0	0	1150	3.8	0.0183	0.0023	0.0206	73.0	0.5	250	0.042	0.86
Exist. Old Church Road	95	96	1.34	12.92	52	52	1202	3.7	0.0190	0.0026	0.0216	93.6	0.5	250	0.042	0.86
Exist. Old Church Road	96	97	0.00	12.92	0	0	1202	3.7	0.0190	0.0026	0.0216	95.0	0.5	250	0.042	0.86



70 Valleywood Drive, Markham, ON L3R 4T5  
 Phone: (905) 940-6161, Fax: (905)940-2064

**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
 STORM DRAINAGE DESIGN CHART  
 FOR CIRCULAR DRAINS FLOWING FULL**

Date: December 22, 2017  
 Project: Chateaux of Caledon  
 Project No: L08-378  
 Designed by: AR/NL  
 Checked by: AR

Rainfall Intensity =  $\frac{A}{(Tc+B)^c}$

5-Year  
 A= 1593  
 B= 11  
 C= 0.8789  
 Starting Tc = 15 min

PHASE 1   
 PHASE 2

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION						DRAINAGE AREA					RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	SECTION CONCENTRATION TIME (min)	TIME OF CONCENTRATION (min)
STREET	AREA ID	FROM		TO		COEFFICIENT			"AR" CUMUL. A°C	AREA CUMUL. A									
		MH	Sta.	MH	Sta.	A (ha)	C	A°C											
OCEAN'S POND COURT		49	0+241.736	48	0+159.397	0.88	0.4	0.35	0.35	0.88	90.91	0.09	84.68	1.00	375.00	0.18	1.60	0.88	15.88
EXTERNAL	DINL2		0+159.397	48	0+142.852	1.06	0.4	0.42	0.42	1.06	90.91	0.11	70.50	5.00	300.00	0.23	3.09	0.38	15.38
OCEAN'S POND COURT		48	0+159.397	47	0+047.454	0.27	0.4	0.11	0.88	2.21	88.29	0.22	14.40	1.20	450.00	0.33	1.98	0.12	16.00
OCEAN'S POND COURT		47	0+142.852	46	0+047.454	0.97	0.4	0.39	1.27	3.18	87.94	0.31	94.20	1.00	525.00	0.45	2.01	0.78	16.78
OCEAN'S POND COURT		46	0+047.454	34	0+001.5	0.18	0.4	0.07	1.34	3.36	85.76	0.32	45.78	1.00	525.00	0.45	2.01	0.38	17.16
McCANDLESS COURT		45	0+316.96	44	0+412.559	0.35	0.4	0.14	0.14	0.35	109.68	0.04	95.00	5.00	300.00	0.23	3.09	0.51	10.51
McCANDLESS COURT		44	0+412.559	43	0+420.084	0.03	0.4	0.01	0.15	0.38	107.38	0.05	6.90	4.50	300.00	0.21	2.93	0.04	10.55
McCANDLESS COURT		43	0+420.084	42	0+460.424	0.09	0.4	0.04	0.19	0.47	107.21	0.06	39.93	1.00	300.00	0.10	1.38	0.48	11.03
McCANDLESS COURT		42	0+460.424	38	0+109.551	0.27	0.4	0.11	0.30	0.74	105.15	0.09	42.13	0.50	375.00	0.13	1.13	0.62	11.65
EXTERNAL	RLCB24		0	41	0+297.282	0.17	0.4	0.07	0.07	0.17	90.91	0.02	39.07	1.00	250.00	0.06	1.22	0.53	15.53
McCANDLESS COURT		41	0+297.282	40	0+240.532	0.57	0.4	0.23	0.30	0.74	89.30	0.07	56.41	1.50	300.00	0.12	1.69	0.56	16.09
McCANDLESS COURT		40	0+240.532	39	0+227.636	0.17	0.4	0.07	0.36	0.91	87.69	0.09	11.71	3.50	300.00	0.19	2.59	0.08	16.16
RLCB	RLCB19		0	39	0+227.636	0.3	0.4	0.12	0.12	0.30	90.91	0.03	39.07	1.00	250.00	0.06	1.22	0.53	15.53
McCANDLESS COURT		39	0+227.636	38	0+109.551	0.5	0.4	0.20	0.68	1.71	87.48	0.17	117.75	4.00	300.00	0.20	2.77	0.71	16.87
McCANDLESS COURT		38	0+109.551	37	0+079.420	0.1	0.4	0.04	1.02	2.55	85.52	0.24	29.48	2.50	375.00	0.29	2.54	0.19	17.07
McCANDLESS COURT		37	0+079.420	32	0+001.374	0.53	0.4	0.21	1.23	3.08	85.00	0.29	77.85	1.00	525.00	0.45	1.82	0.71	17.78
RLCB	RLCB20		0	16	0+225.65	0.1	0.4	0.04	0.04	0.10	90.91	0.01	42.20	2.50	250.00	0.10	1.94	0.36	15.36
BILLY COURT		16	0+225.65	15	0+133.31	0.8	0.4	0.32	0.36	0.90	89.80	0.09	91.85	4.89	300.00	0.22	3.06	0.50	15.86
RLCB	RLCB21		0	15	0+133.31	0.15	0.4	0.06	0.06	0.15	90.91	0.02	42.25	3.00	250.00	0.11	2.12	0.33	15.33
BILLY COURT		15	0+133.31	14	0+91.29	0	0	0.00	0.42	1.05	88.33	0.10	42.24	1.37	375.00	0.21	1.88	0.37	16.24
BILLY COURT		22	0+246.51	21	0+301.52	0	0	0.00	0.00	0.00	90.91	0.00	54.52	2.07	300.00	0.15	1.99	0.46	15.46
BILLY COURT		21	0+301.52	20	0+318.13	0.21	0.4	0.08	0.08	0.21	89.53	0.02	14.87	5.25	300.00	0.23	3.17	0.08	15.54
RLCB	RLCB23		0	20	0+318.13	0.53	0.4	0.21	0.21	0.53	90.91	0.05	42.51	2.00	250.00	0.09	1.73	0.41	15.41
BILLY COURT		20	0+318.13	19	0+372.97	0.42	0.4	0.17	0.46	1.16	89.29	0.12	54.69	4.64	300.00	0.22	2.98	0.31	15.84
RLCB	RLCB25		0	19	0+372.97	0.16	0.4	0.06	0.06	0.16	90.91	0.02	41.01	2.00	250.00	0.09	1.73	0.39	15.39
RLCB	RLCB29		0	19	0+372.97	0.18	0.4	0.07	0.07	0.18	90.91	0.02	42.49	2.00	250.00	0.09	1.73	0.41	15.41
BILLY COURT		19	0+372.97	18	0+441.39	0.37	0.4	0.15	0.75	1.87	88.40	0.18	68.06	0.66	450.00	0.24	1.47	0.77	16.61
BILLY COURT		18	0+441.39	17	0+456.7	0	0.4	0.00	0.75	1.87	86.23	0.18	13.38	1.05	450.00	0.30	1.86	0.12	16.73
RLCB	RLCB24		0	17	0+456.7	0.27	0.4	0.11	0.11	0.27	90.91	0.03	26.54	1.00	250.00	0.06	1.22	0.36	15.36
BILLY COURT		17	0+456.7	14	0+91.29	0.41	0.4	0.16	1.02	2.55	85.90	0.24	71.65	0.61	525.00	0.35	1.57	0.76	17.49
RLCB	RLCB30		0	14	0+91.29	0.26	0.4	0.10	0.10	0.26	90.91	0.03	29.52	1.50	250.00	0.08	1.50	0.33	15.33
BILLY COURT		14	0+91.29	13	0+30.56	0.42	0.4	0.17	1.71	4.28	83.88	0.40	61.20	0.92	600.00	0.61	2.11	0.48	17.98
BILLY COURT		13	0+30.56	9	0+425.33	0.43	0.4	0.17	1.88	4.71	82.64	0.43	31.48	0.51	675.00	0.63	1.70	0.31	18.29



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**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
 STORM DRAINAGE DESIGN CHART  
 FOR CIRCULAR DRAINS FLOWING FULL**

Date: December 22, 2017  
 Project: Chateaux of Caledon  
 Project No: L08-378  
 Designed by: AR/NL  
 Checked by: AR

Rainfall Intensity =  $\frac{A}{(Tc+B)^c}$

5-Year  
 A= 1593  
 B= 11  
 C= 0.8789

PHASE 1   
 PHASE 2

Starting Tc = 15 min

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION	DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW	SECTION CONCENTRATION	TIME OF CONCENTRATION				
	COEFFICIENT	"AR"	AREA															
LIZZIE COURT	25	0+218.97	24	0+136.77	0.63	0.4	0.25	0.25	0.63	90.91	0.06	82.01	4.94	300.00	0.22	3.07	0.44	15.44
LIZZIE COURT	24	0+136.77	23	0+87.75	0.35	0.4	0.14	0.39	0.98	89.56	0.10	49.32	1.58	300.00	0.13	1.74	0.47	15.92
RLCB	RLCB28	0	29	0+335.75	0.25	0.4	0.10	0.10	0.25	90.91	0.03	44.32	2.50	250.00	0.10	1.94	0.38	15.38
LIZZIE COURT	29	0+335.75	28	0+405.75	0.66	0.4	0.26	0.36	0.91	89.75	0.09	69.50	4.50	300.00	0.21	2.93	0.39	15.78
LIZZIE COURT	28	0+405.75	27	0+453.74	0	0	0.00	0.36	0.91	88.59	0.09	47.58	1.11	300.00	0.11	1.46	0.54	16.32
LIZZIE COURT	27	0+453.74	26	0+464.55	0.32	0.4	0.13	0.49	1.23	87.03	0.12	9.49	0.84	375.00	0.17	1.47	0.11	16.43
RLCB	RLCB26	0	26	0+464.55	0.27	0.4	0.11	0.11	0.27	90.91	0.03	26.35	2.00	250.00	0.09	1.73	0.25	15.25
LIZZIE COURT	26	0+464.55	23	0+87.75	0.1	0.4	0.04	0.64	1.60	86.73	0.15	73.38	0.53	450.00	0.22	1.32	0.93	17.36
LIZZIE COURT	23	0+87.75	11	0+588.89	0.19	0.4	0.08	1.11	2.77	84.23	0.26	89.35	0.47	525.00	0.31	1.38	1.08	18.44
PAISLEY GREEN AVENUE	36	0+357.134	35	0+286.576	0.87	0.4	0.35	0.35	0.87	90.91	0.09	71.67	2.00	300.00	0.14	1.96	0.61	15.61
RLCB	RLCB8	0	35	0+286.576	0.28	0.4	0.11	0.11	0.28	90.91	0.03	43.25	0.50	250.00	0.04	0.87	0.83	15.83
RLCB	RLCB9	0	35	0+286.576	0.23	0.4	0.09	0.09	0.23	90.91	0.02	43.25	0.50	250.00	0.04	0.87	0.83	15.83
PAISLEY GREEN AVENUE	35	0+286.576	34	0+231.764	0.35	0.4	0.14	0.69	1.73	88.42	0.17	55.28	1.46	375.00	0.22	1.94	0.48	16.31
RLCB	RLCB10	0	34	0+231.764	0.15	0.4	0.06	0.06	0.15	90.91	0.02	43.25	0.61	250.00	0.05	0.96	0.75	15.75
RLCB	RLCB11	0	34	0+231.764	0.13	0.4	0.05	0.05	0.13	90.91	0.01	43.25	0.61	250.00	0.05	0.96	0.75	15.75
PAISLEY GREEN AVENUE	34	0+231.764	33	0+149.934	0.6	0.4	0.24	2.39	5.97	84.74	0.56	81.24	0.98	600.00	0.63	2.17	0.62	17.79
RLCB	RLCB12	0	33	0+149.934	0.16	0.4	0.06	0.06	0.16	90.91	0.02	43.25	1.10	250.00	0.07	1.28	0.56	15.56
RLCB	RLCB13	0	33	0+149.934	0.2	0.4	0.08	0.08	0.20	90.91	0.02	42.25	1.00	250.00	0.06	1.22	0.58	15.58
PAISLEY GREEN AVENUE	33	0+149.934	32	0+068.126	0.48	0.4	0.19	2.72	6.81	83.13	0.63	82.09	1.09	675.00	0.92	2.48	0.55	18.34
PAISLEY GREEN AVENUE	32	0+149.934	31	1.188	0.16	0.4	0.06	4.02	10.05	81.75	0.91	22.10	1.27	750.00	1.31	2.87	0.13	18.47
PAISLEY GREEN AVENUE	31	0+068.126	7	1.188	0.2	0.4	0.08	4.10	10.25	81.44	0.93	47.91	0.65	825.00	1.21	2.19	0.36	18.83
RLCB	RLCB5	0	57	0+446.454	0.26	0.5	0.13	0.13	0.26	90.91	0.03	40.13	1.00	250.00	0.06	1.22	0.55	15.55
PAISLEY GREEN AVENUE	57	0+446.454	56	0+495.154	0.43	0.5	0.22	0.35	0.69	89.26	0.09	49.57	1.00	300.00	0.10	1.38	0.60	16.14
PAISLEY GREEN AVENUE	56	0+495.154	55	0+515.271	0.09	0.5	0.05	0.39	0.78	87.53	0.09	19.63	0.50	375.00	0.13	1.13	0.29	16.43
PAISLEY GREEN AVENUE	55	0+515.271	54	0+578.911	0.21	0.5	0.11	0.50	0.99	86.72	0.12	63.57	0.50	450.00	0.21	1.28	0.83	17.26
PAISLEY GREEN AVENUE	54	0+578.911	53	0+642.749	0.3	0.5	0.15	0.65	1.29	84.49	0.15	63.57	0.50	450.00	0.21	1.28	0.83	18.09
PAISLEY GREEN AVENUE	53	0+642.749	52	0+659.183	0.13	0.5	0.07	0.71	1.42	82.37	0.16	14.13	0.50	450.00	0.21	1.28	0.18	18.27
PAISLEY GREEN AVENUE	52	0+659.183	50	0+730.449	0.24	0.5	0.12	0.83	1.66	81.92	0.19	71.00	0.50	450.00	0.21	1.28	0.92	19.19
RLCB	RLCB4	0	51	0+286.806	0.42	0.55	0.23	0.23	0.42	90.91	0.06	39.08	1.00	250.00	0.06	1.22	0.53	15.53
RLCB	RLCB3	0	51	0+286.806	0.17	0.5	0.09	0.09	0.17	90.91	0.02	39.08	1.00	250.00	0.06	1.22	0.53	15.53
RLCB	RLCB26	0	51	0+286.806	0.19	0.5	0.10	0.10	0.19	90.91	0.02	42.02	1.93	250.00	0.09	1.70	0.41	15.41
RLCB	RLCB25	0	51	0+286.806	0.16	0.5	0.08	0.08	0.16	90.91	0.02	42.02	1.74	250.00	0.08	1.62	0.43	15.43
BOYCE CREEK COURT	51	0+286.806	50	0+406.367	0.39	0.5	0.20	0.69	1.33	89.30	0.17	119.82	1.00	450.00	0.30	1.81	1.10	16.63



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 FOR CIRCULAR DRAINS FLOWING FULL**

Date: December 22, 2017  
 Project: Chateaux of Caledon  
 Project No: L08-378  
 Designed by: AR/NL  
 Checked by: AR

Rainfall Intensity =  $\frac{A}{(Tc+B)^c}$

5-Year  
 A= 1593  
 B= 11  
 C= 0.8789

PHASE 1   
 PHASE 2

Starting Tc = 15 min

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION	DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW	SECTION CONCENTRATION	TIME OF CONCENTRATION				
	COEFFICIENT	"AR"	AREA															
RLCB	RLCB23	0	50	0+406.367	0.21	0.5	0.11	0.11	0.21	90.91	0.03	42.08	2.24	250.00	0.09	1.83	0.38	15.38
BOYCE CREEK COURT	50	0+406.367	5	0+175.181	0.36	0.5	0.18	1.80	3.56	79.71	0.40	96.68	0.40	675.00	0.55	1.50	1.07	20.27
ATCHISON DRIVE	82W	0+665.79	12	0+646.9	0.36	0.4	0.14	0.14	0.36	90.91	0.04	19.48	1.18	375.00	0.20	1.74	0.19	15.19
ATCHISON DRIVE	12	0+646.9	11	0+588.89	0.11	0.4	0.04	0.19	0.47	90.34	0.05	57.96	0.47	375.00	0.13	1.10	0.88	16.06
RLCB	RLCB16	0	11	0+588.89	0.22	0.4	0.09	0.09	0.22	90.91	0.02	44.65	2.50	250.00	0.10	1.94	0.38	15.38
ATCHISON DRIVE	11	0+588.89	10	0+497.14	0.2	0.4	0.08	1.46	3.66	81.51	0.33	90.98	0.32	675.00	0.50	1.34	1.13	19.57
RLCB	RLCB17	0	10	0+497.14	0.2	0.4	0.08	0.08	0.20	90.91	0.02	44.08	2.25	250.00	0.09	1.84	0.40	15.40
ATCHISON DRIVE	10	0+497.14	9	0+425.33	0.25	0.4	0.10	1.64	4.11	78.86	0.36	72.03	0.33	675.00	0.50	1.36	0.88	20.45
RLCB	RLCB14	0	9	0+425.33	0.17	0.4	0.07	0.07	0.17	90.91	0.02	53.02	2.00	250.00	0.09	1.73	0.51	15.51
ATCHISON DRIVE	9	0+425.33	8	0	0.34	0.4	0.14	3.73	9.33	76.91	0.80	56.07	0.25	825.00	0.75	1.36	0.69	21.14
RLCB	RLCB13	0	8	0	0.03	0.4	0.01	0.01	0.03	90.91	0.00	42.92	2.50	250.00	0.10	1.94	0.37	15.37
ATCHISON DRIVE	8	0	7	0+323.15	0.14	0.4	0.06	3.80	9.50	75.46	0.80	45.45	0.33	825.00	0.86	1.55	0.49	21.62
RLCB	RLCB2	0	7	0+323.15	0.17	0.5	0.09	0.09	0.17	90.91	0.02	50.00	1.00	250.00	0.06	1.22	0.68	15.68
ATCHISON DRIVE (HE 975x1535)	7	0+323.15	6	0+244.602	0.27	0.5	0.14	8.12	20.19	74.47	1.68	78.16	0.22	1200.00	1.89	1.62	0.80	22.43
RLCB	RLCB6	0	6	0+244.602	0.1	0.5	0.05	0.05	0.10	90.91	0.01	47.47	1.00	250.00	0.06	1.22	0.65	15.65
RLCB	RLCB7	0	6	0+244.602	0.22	0.5	0.11	0.11	0.22	90.91	0.03	44.40	1.00	250.00	0.06	1.22	0.60	15.60
ATCHISON DRIVE (HE 975x1535)	6	0+244.602	5X	0+183.186	0	0.5	0.00	8.28	20.51	72.89	1.68	61.24	0.23	1200.00	1.94	1.66	0.61	23.04
ATCHISON DRIVE (HE 975x1535)	5X	0+183.186	5	0+175.181	0	0.5	0.00	8.28	20.51	71.74	1.65	11.30	0.46	1200.00	2.74	2.35	0.08	23.12
BOYCE CREEK COURT	67	0+271.081	66	0+249.277	0.17	0.5	0.09	0.09	0.17	109.68	0.03	22.58	1.00	300.00	0.10	1.38	0.27	10.27
BOYCE CREEK COURT	66	0+249.277	65	0+201.853	0.15	0.5	0.08	0.16	0.32	108.44	0.05	48.01	0.50	300.00	0.07	0.98	0.82	11.09
BOYCE CREEK COURT	65	0+201.853	64	0+188.680	0.06	0.5	0.03	0.19	0.38	104.90	0.06	14.16	0.50	300.00	0.07	0.98	0.24	11.33
BOYCE CREEK COURT	64	0+188.680	63	0+124.975	0.43	0.5	0.22	0.41	0.81	103.91	0.12	63.90	0.50	450.00	0.21	1.28	0.83	12.16
BOYCE CREEK COURT	63	0	62	0+040.133	0.4	0.5	0.20	0.61	1.21	100.62	0.17	84.84	0.50	450.00	0.21	1.28	1.10	13.27
BLOCK 162	203	0+201.853	202	0+040.133	0	0.7	0.00	0.24	0.34	84.72	0.06	12.97	0.77	375.00	0.16	1.41	0.15	17.32
BLOCK 162	202	0+188.680	201	0+040.133	0.26	0.7	0.18	0.42	0.60	84.32	0.10	15.05	0.66	375.00	0.15	1.30	0.19	17.52
BLOCK 162	201	0+124.975	62	0+040.133	0	0.7	0.00	0.42	0.60	83.82	0.10	11.29	0.62	375.00	0.14	1.26	0.15	17.67
BLOCK 162 (ABANDONED)	75	0	62	0+040.133	0	0.7	0.00	0.00	0.00	139.29	0.00	9.00	1.00	525.00	0.45	2.01	0.07	5.07
BOYCE CREEK COURT	62	0+040.133	61	0+001.497	0.18	0.5	0.09	1.12	1.99	83.43	0.26	40.50	0.51	525.00	0.32	1.43	0.47	18.14
ATCHISON DRIVE	74	0+048.714	61	0+087.866	0.2	0.7	0.14	0.14	0.20	90.91	0.04	39.14	1.00	300.00	0.10	1.38	0.47	15.47



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Date: December 22, 2017  
 Project: Chateaux of Caledon  
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Rainfall Intensity =  $\frac{A}{(Tc+B)^c}$

5-Year  
 A= 1593  
 B= 11  
 C= 0.8789

PHASE 1   
 PHASE 2

Starting Tc = 15 min

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION	DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW	SECTION CONCENTRATION	TIME OF CONCENTRATION				
	COEFFICIENT	"AR"	AREA															
BLOCK 163	116	0+001.496	61	0+059.519	0.59	0.7	0.41	0.41	0.59	139.29	0.16	10.80	1.00	375.00	0.18	1.60	0.11	5.11
ATCHISON DRIVE (HE 975x1535)	61	0	61X	0	0.25	0.5	0.13	1.79	3.03	82.25	0.41	79.40	0.20	1200.00	1.82	1.56	0.85	18.99
ATCHISON DRIVE (HE 975x1535)	61X	0	5	0+059.519	0	0.5	0.00	1.79	3.03	80.20	0.40	11.20	0.20	1200.00	1.82	1.56	0.12	19.11
FALLIS CRESCENT	5	0+175.181	4	0+230.980	0.44	0.7	0.31	12.18	27.54	71.59	2.42	64.17	0.27	1650.00	4.94	2.24	0.48	23.60
STREET 'A'	PLUG3	0+175.927	189	0+097.540	0	0	0.00	0.00	0.00	90.91	0.00	4.90	1.00	300.00	0.10	1.38	0.06	15.06
STREET 'A'	189	0+175.927	190	0+097.540	0.04	0.7	0.03	0.03	0.04	90.73	0.01	45.63	0.50	300.00	0.07	0.98	0.78	15.84
STREET 'A'	190	0+175.927	191	0+097.540	0.37	0.7	0.26	0.29	0.41	88.41	0.07	22.38	0.50	375.00	0.13	1.13	0.33	16.17
STREET 'A'	191	0+175.927	4	0+097.540	0	0	0.00	0.29	0.41	87.47	0.07	7.79	0.50	375.00	0.13	1.13	0.11	16.28
FALLIS CRESCENT	4	0+175.927	3	0+097.540	0.27	0.7	0.19	12.66	28.22	70.72	2.49	41.11	0.18	1650.00	4.05	1.84	0.37	23.97
RLCB	RLCB1	0	3	0+266.217	0.98	0.25	0.25	0.25	0.98	90.91	0.06	38.89	2.00	250.00	0.09	1.73	0.37	15.37
BLOCK 122	117	0	3	0+266.217	0	0.7	0.00	0.00	0.00	139.29	0.00	12.00	1.00	450.00	0.30	1.81	0.11	5.11
FALLIS CRESCENT	3	0+115.697	2	0+266.217	0	0	0.00	12.90	29.20	70.06	2.51	44.95	0.28	1650.00	4.99	2.26	0.33	24.30
FALLIS CRESCENT	2	0+266.217	1	0+211.90	0.72	0.7	0.50	13.41	29.92	69.48	2.59	32.60	0.22	1650.00	4.45	2.02	0.27	24.57
McCARDY COURT	DICB4	0+266.217	71	0	1.11	0.7	0.78	0.78	1.11	37.60	0.08	5.14	0.97	300.00	0.10	1.36	0.06	60.06
McCARDY COURT	71	0+266.217	PLUG2	0	0.48	0.7	0.34	1.11	1.59	37.57	0.12	91.57	0.40	450.00	0.19	1.15	1.33	61.39
McCARDY COURT	PLUG2	0+266.217	69	0	0	0	0.00	1.11	1.59	36.96	0.11	78.20	0.40	525.00	0.28	1.27	1.03	62.42
FUTURE BLOCK	100D	0+266.217	69	0	0.85	0.7	0.60	0.60	0.85	139.29	0.23	9.50	1.25	450.00	0.33	2.03	0.08	5.08
RLCB	RLCB31	0+266.217	69	0	0.25	0.7	0.18	0.18	0.25	90.91	0.04	45.70	1.00	250.00	0.06	1.22	0.62	15.62
FALLIS CRESCENT	69	0+266.217	68	0	0	0.7	0.00	1.88	2.69	36.50	0.19	55.00	0.40	525.00	0.28	1.27	0.72	63.14
FALLIS CRESCENT	68	0+266.217	1	0	0	0.7	0.00	1.88	2.69	36.19	0.19	16.40	0.20	600.00	0.29	0.98	0.28	63.42
FALLIS CRESCENT	1	0+211.90	HW1	0	0	0.7	0.00	15.29	32.61	36.07	1.53	6.11	0.37	1650.00	5.78	2.62	0.04	63.46
EASEMENT	HW4	0	DICBMH1	0	34.88	0.201050014	7.01	7.01	34.88	16.52	0.32	14.92	11.06	375.00	0.61	5.34	0.05	170.03
EASEMENT	DICBMH1	0	MH86	0	0	0.201050014	0.00	7.01	34.88	16.52	0.32	44.37	0.54	600.00	0.47	1.61	0.46	170.49
EASEMENT	MH86	0	85	0	0	0	0.00	7.01	34.88	16.48	0.32	51.47	0.54	600.00	0.47	1.61	0.53	171.02
LIZZIE COURT	85	0	180	0+238.98	0	0	0.00	7.01	34.88	16.44	0.32	18.41	1.09	600.00	0.67	2.29	0.13	171.15
LIZZIE COURT	180	0+238.98	84	0+313.17	0	0.4	0.00	7.01	34.88	16.43	0.32	72.63	1.47	600.00	0.78	2.66	0.45	171.61
LIZZIE COURT	84	0+313.17	182	0	0	0	0.00	7.01	34.88	16.39	0.32	22.22	1.71	600.00	0.84	2.87	0.13	171.73
LIZZIE COURT	182	0	83	0+1418.47	0	0	0.00	7.01	34.88	16.38	0.32	135.46	2.02	600.00	0.91	3.12	0.72	172.46
RLCB	RLCB18	0	83	0+1418.47	0.35	0.4	0.14	0.14	0.35	90.91	0.04	24.02	2.00	250.00	0.09	1.73	0.23	15.23
INNIS LAKE ROAD (DICB)	83	0+1418.47	82SE	0+665.79	1.32	0.7	0.92	8.08	36.55	16.32	0.37	50.56	1.48	600.00	0.78	2.67	0.32	172.77
INNIS LAKE ROAD	82SE	0+665.79	81	0+1319.18	0	0	0.00	8.08	36.55	16.30	0.37	14.21	2.89	600.00	1.09	3.73	0.06	172.84
INNIS LAKE ROAD	81	0+1319.18	80	0+1281.02	0	0	0.00	8.08	36.55	16.29	0.37	41.27	0.85	600.00	0.59	2.02	0.34	173.18
RLCB	RLCB27	0	CBMH89	0	0.31	0.4	0.12	0.12	0.31	90.91	0.03	58.84	1.00	250.00	0.06	1.22	0.80	15.80
SOUTH EASEMENT	CBMH89	0	80	0+1281.02	0.33	0.4	0.13	0.26	0.64	88.51	0.06	25.93	1.00	300.00	0.10	1.38	0.31	16.11
INNIS LAKE ROAD	80	0+1281.02	EX. CSP	0	0	0	0.00	8.33	37.19	16.27	0.38	13.29	0.50	1200.00	2.87	2.46	0.09	173.27



70 Valleywood Drive, Markham, ON L3R 4T5  
 Phone: (905) 940-6161, Fax: (905)940-2064

**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
 STORM DRAINAGE DESIGN CHART  
 FOR CIRCULAR DRAINS FLOWING FULL**

Date: December 22, 2017  
 Project: Chateaux of Caledon  
 Project No: L08-378  
 Designed by: AR/NL  
 Checked by: AR

$$\text{Rainfall Intensity} = \frac{A}{(Tc+B)^c}$$

5-Year  
 A= 1593  
 B= 11  
 C= 0.8789  
 Starting Tc = 15 min

PHASE 1   
 PHASE 2

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION	DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW	SECTION CONCENTRATION	TIME OF CONCENTRATION				
	COEFFICIENT	"AR"	AREA															
POND OUTLET (4hr TC)	93	0+559.686	92	0+662.48	0	0.4	0.00	0.00	0.00	42.96	0.33	43.18	0.81	525.00	0.40	1.81	0.40	50.40
EASEMENT POND OUTLET	92	0+662.48	91	0+668.480	0	0.4	0.00	0.00	0.00	42.72	0.33	82.13	0.40	750.00	0.73	1.61	0.85	51.25
EASEMENT POND OUTLET	91	1+568.747	90	1+418.747	0	0	0.00	0.00	0.00	42.20	0.33	60.20	0.40	750.00	0.73	1.61	0.62	51.87
OUTFALL	90	1+418.747	89	1+668.480	0	0	0.00	0.00	0.00	41.84	0.33	9.10	0.40	750.00	0.73	1.61	0.09	51.97
OUTFALL	89	1+668.480	88	1+286.062	0	0	0.00	0.00	0.00	41.78	0.33	140.00	0.40	750.00	0.73	1.61	1.45	53.41
OUTFALL	88	1+286.062	87	1+284.047	0	0	0.00	0.00	0.00	40.95	0.33	120.00	1.00	750.00	1.16	2.55	0.79	54.20
OUTFALL	87	0	HW3	88.416	0	0	0.00	0.00	0.00	40.52	0.33	20.00	1.50	750.00	1.42	3.12	0.11	54.31
EX. SCHOOL	DICB	88.416	101	0+053.277	1.06	0.75	0.80	7.81	35.94	109.68	2.38	14.50	0.45	1350.00	3.73	2.53	0.10	10.10
INNIS LAKE	101	88.416	100	0+053.277	0.14	0.7	0.10	7.91	36.08	139.29	3.06	47.70	0.40	1350.00	3.52	2.38	0.33	5.33
EX. SCHOOL	CULVERT	1+668.480	100	0+053.277	0.43	0.75	0.32	0.32	0.43	90.91	0.08	22.80	0.83	525.00	0.41	1.83	0.21	15.21
INNIS LAKE	100	1+286.062	99	0+053.277	0	0	0.00	8.23	36.51	90.27	2.06	76.40	0.40	1350.00	3.52	2.38	0.53	15.74
OLD CHURCH	CB4	0	CBMH2	0+053.277	0.36	0.7	0.25	0.25	0.36	139.29	0.10	89.90	0.40	375.00	0.12	1.01	1.48	6.48
OLD CHURCH	CBMH2	0	98	0+053.277	0.35	0.7	0.25	0.50	0.71	128.89	0.18	29.10	0.40	525.00	0.28	1.27	0.38	6.86
INNIS LAKE	98	88.416	97	0+053.277	0	0	0.00	8.97	37.70	88.07	2.19	28.70	0.45	1350.00	3.73	2.53	0.19	16.14
INNIS LAKE	97	0	HW2	0+053.277	0	0	0.00	8.97	37.70	87.53	2.18	7.50	0.45	1350.00	3.73	2.53	0.05	16.19



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**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
STORM DRAINAGE DESIGN CHART  
FOR CIRCULAR DRAINS FLOWING FULL**

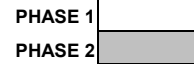
Date: 22-Dec-17

Rainfall Intensity =

A = 1593  
B = 11  
C = 0.8789

(Tc+B)^c

5yr Storm



Starting Tc = 15 min

Project: Chateaux of Caledon  
Project No: L08-378  
Designed by: AR/RM  
Checked by: AR

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION						DRAINAGE AREA					RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	SECTION CONCENTRATION TIME (min)	TIME OF CONCENTRATION (min)
STREET	AREA ID	FROM		TO		COEFFICIENT			"AR" CUMUL. A°C	AREA CUMUL. A									
		MH	Sta.	MH	Sta.	A (ha)	C	A°C											
PHASE 1																			
OCEAN'S POND COURT	A1	49	0+241.736	48	0+159.397	0.88	0.4	0.352	0.352	0.88	90.907	0.0889	84.84	0.99	375	0.1819	1.60	0.89	15.89
EXTERNAL		DINL2	0+159.397	48	0+142.852	1.06	0.4	0.424	0.424	1.06	90.907	0.1071	70.50	5	300	0.2255	3.09	0.38	15.38
OCEAN'S POND COURT	A2	48	0+159.397	47	0+047.454	0.27	0.4	0.108	0.884	2.21	88.269	0.2167	14.31	1.18	450	0.3229	1.97	0.12	16.01
OCEAN'S POND COURT	A3	47	0+142.852	46	0+047.454	0.97	0.4	0.388	1.272	3.18	87.921	0.3107	95.19	1.07	525	0.4639	2.08	0.76	16.77
OCEAN'S POND COURT	A4	46	0+047.454	34	0+001.5	0.18	0.4	0.072	1.344	3.36	85.792	0.3203	45.35	1.19	525	0.4892	2.19	0.35	17.12
PAISLEY GREEN AVENUE																			
RLCB	A5	36	0+357.134	35	0+286.576	0.87	0.4	0.348	0.348	0.87	90.907	0.0879	71.59	1.94	300	0.1404	1.93	0.62	15.62
RLCB	A6	RLCB8	0	35	0+286.576	0.28	0.4	0.112	0.112	0.28	90.907	0.0283	43.25	0.5	250	0.0438	0.87	0.83	15.83
RLCB	A7	RLCB9	0	35	0+286.576	0.23	0.4	0.092	0.092	0.23	90.907	0.0232	43.25	0.5	250	0.0438	0.87	0.83	15.83
PAISLEY GREEN AVENUE	A8	35	0+286.576	34	0+231.764	0.35	0.4	0.14	0.692	1.73	88.423	0.1700	55.28	1.46	375	0.2209	1.94	0.48	16.31
RLCB	A9	RLCB10	0	34	0+231.764	0.15	0.4	0.06	0.06	0.15	90.907	0.0152	43.25	0.61	250	0.0484	0.96	0.75	15.75
PAISLEY GREEN AVENUE																			
RLCB	A10	RLCB11	0	34	0+231.764	0.13	0.4	0.052	0.052	0.13	90.907	0.0131	43.25	0.61	250	0.0484	0.96	0.75	15.75
PAISLEY GREEN AVENUE	A11	34	0+231.764	33	0+149.934	0.6	0.4	0.24	2.388	5.97	84.865	0.5629	81.24	0.98	600	0.6338	2.17	0.62	17.74
RLCB	A12	RLCB12	0	33	0+149.934	0.16	0.4	0.064	0.064	0.16	90.907	0.0162	43.25	1.1	250	0.0650	1.28	0.56	15.56
RLCB	A13	RLCB13	0	33	0+149.934	0.2	0.4	0.08	0.08	0.2	90.907	0.0202	42.25	1	250	0.0620	1.22	0.58	15.58
PAISLEY GREEN AVENUE	A14	33	0+149.934	32	0+068.126	0.48	0.4	0.192	2.724	6.81	83.246	0.6299	81.81	1	675	0.8765	2.37	0.57	18.31
LIZZIE COURT																			
LIZZIE COURT	A15	45	0+316.96	44	0+412.559	0.35	0.4	0.14	0.14	0.35	109.677	0.0427	94.87	5.03	300	0.2261	3.10	0.51	10.51
LIZZIE COURT	A16	44	0+412.559	43	0+420.084	0.03	0.4	0.012	0.152	0.38	107.389	0.0453	7.16	4.61	300	0.2165	2.97	0.04	10.55
LIZZIE COURT	A17	43	0+420.084	42	0+460.424	0.09	0.4	0.036	0.188	0.47	107.213	0.0560	39.90	1.03	300	0.1023	1.40	0.47	11.02
LIZZIE COURT	A18	42	0+460.424	38	0+109.551	0.27	0.4	0.108	0.296	0.74	105.183	0.0865	42.37	0.73	375	0.1562	1.37	0.52	11.54
EXTERNAL																			
EXTERNAL		RLCB24	0	41	0+297.282	0.17	0.4	0.068	0.068	0.17	90.907	0.0172	39.07	1	250	0.0620	1.22	0.53	15.53
LIZZIE COURT	A19	41	0+297.282	40	0+240.532	0.57	0.4	0.228	0.296	0.74	89.303	0.0734	57.60	1.6	300	0.1275	1.75	0.55	16.08
LIZZIE COURT	A20	40	0+240.532	39	0+227.636	0.17	0.4	0.068	0.364	0.91	87.710	0.0887	11.36	3.52	300	0.1892	2.59	0.07	16.15
RLCB	A21	RLCB19	0	39	0+227.636	0.3	0.4	0.12	0.12	0.3	90.907	0.0303	39.07	1	250	0.0620	1.22	0.53	15.53
LIZZIE COURT	A22	39	0+227.636	38	0+109.551	0.65	0.4	0.26	0.744	1.86	87.503	0.1808	118.22	3.99	375	0.3652	3.20	0.61	16.77
LIZZIE COURT	A23	38	0+109.551	37	0+079.420	0.12	0.4	0.048	1.088	2.72	85.798	0.2593	30.03	2.4	450	0.4605	2.81	0.18	16.95
LIZZIE COURT	A24	37	0+079.420	32	0+001.374	0.54	0.4	0.216	1.304	3.26	85.316	0.3090	77.73	0.49	600	0.4482	1.82	0.71	17.66
PAISLEY GREEN AVENUE																			
PAISLEY GREEN AVENUE	A25	32	0+149.934	31	1.188	0.16	0.4	0.064	4.092	10.23	81.811	0.9299	22.10	1.27	750	1.3082	2.87	0.13	18.44
PAISLEY GREEN AVENUE	A26	31	0+068.126	7	1.188	0.2	0.4	0.08	4.172	10.43	81.497	0.9445	47.91	0.65	825	1.2067	2.19	0.36	18.81
PHASE 2																			
RLCB	A27	RLCB20	0	26	0+261.094	0.1	0.4	0.04	0.04	0.1	90.907	0.0101	42.08	1	250	0.0620	1.22	0.57	15.57
BILLY COURT	A28	26	0+261.094	25	0+193.983	0.49	0.4	0.196	0.236	0.59	89.182	0.0585	67.66	4.5	300	0.2139	2.93	0.38	15.96
RLCB	A29	RLCB21	0	25	0+193.983	0.17	0.4	0.068	0.068	0.17	90.907	0.0172	42.08	1	250	0.0620	1.22	0.57	15.57
BILLY COURT	A30	25	0+193.983	24	0+129.395	0.28	0.4	0.112	0.416	1.04	88.063	0.1018	64.25	1	375	0.1828	1.60	0.67	16.62
BILLY COURT	A31	24	0+129.395	23	0+116.604	0.05	0.4	0.02	0.436	1.09	86.190	0.1044	11.65	1	375	0.1828	1.60	0.12	16.75
BILLY COURT	A32	23	0+116.604	22	0+043.5	0.19	0.4	0.076	0.512	1.28	85.860	0.1221	72.76	1.5	375	0.2239	1.96	0.62	17.36
BILLY COURT																			
BILLY COURT	A33	30	0+227.398	29	0+332.407	0.42	0.4	0.168	0.168	0.42	90.907	0.0424	54.75	2.5	300	0.1594	1.82	0.50	15.50
BILLY COURT	A34	29	0+332.407	28	0+348.945	0.06	0.4	0.024	0.192	0.48	89.393	0.0477	14.18	5	300	0.2255	1.82	0.13	15.63
BILLY COURT	A35	28	0+348.945	27	0+415.323	0.83	0.4	0.332	0.524	1.31	89.010	0.1296	66.12	3	300	0.1746	1.82	0.61	16.24
RLCB	A36	RLCB22	0	27	0+415.323	0.17	0.4	0.068	0.068	0.17	90.907	0.0172	42.08	1	250	0.0620	1.82	0.39	15.39
BILLY COURT	A37	27	0+415.323	22	0+043.5	0.59	0.4	0.236	0.828	2.07	87.269	0.2007	66.11	1.5	450	0.3641	2.22	0.50	16.73
BILLY COURT																			
BILLY COURT	A38	22	0+043.5	13	0+001.5	0.09	0.4	0.036	1.376	3.44	84.216	0.3219	42.00	0.5	600	0.4527	1.55	0.45	17.81



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STORM DRAINAGE DESIGN CHART  
FOR CIRCULAR DRAINS FLOWING FULL**

Rainfall Intensity = **A** 5yr Storm

$$(Tc+B)^c$$

A= 1593  
B= 11  
C= 0.8789

PHASE 1   
PHASE 2

Starting Tc = 15 min

Date: 22-Dec-17

Project: Chateaux of Caledon  
Project No: L08-378  
Designed by: AR/RM  
Checked by: AR

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION						DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	SECTION CONCENTRATION TIME	TIME OF CONCENTRATION
STREET	AREA ID	FROM		TO		COEFFICIENT			"AR" CUMUL.	AREA CUMUL.	INTENSITY (mm/hr)	(m <sup>3</sup> /s)	(m)	(%)	(mm)	(m <sup>3</sup> /s)	(m/s)	(min)	(min)
		MH	Sta.	MH	Sta.	A (ha)	C	A°C	A°C	A									
McCANDLESS COURT	A39	19	0+043.5	18	0+426.006	0.13	0.4	0.052	0.052	0.13	90.907	0.0131	10.26	1	300	0.1008	1.38	0.12	15.12
McCANDLESS COURT	A40	18	0+001.5	17	0+426.006	0.34	0.4	0.136	0.188	0.47	90.528	0.0473	65.99	3	300	0.1746	2.39	0.46	15.58
McCANDLESS COURT	A41	17	0	16	0+426.006	0.31	0.4	0.124	0.312	0.78	89.152	0.0773	57.47	3	300	0.1746	2.39	0.40	15.98
McCANDLESS COURT	A42	16	0+357.732	15	0+426.006	0.03	0.4	0.012	0.324	0.81	87.989	0.0792	12.85	0.5	375	0.1293	1.13	0.19	16.17
McCANDLESS COURT	A43	15	0+115.702	14	0+426.006	0.19	0.4	0.076	0.4	1	87.452	0.0972	70.98	0.5	375	0.1293	1.13	1.04	17.21
McCANDLESS COURT	A44	21	0+357.732	20	0+357.732	0.57	0.4	0.228	0.228	0.57	90.907	0.0576	65.00	3.5	300	0.1886	2.59	0.42	15.42
McCANDLESS COURT	A45	20	0+116.604	14	0+426.006	0.45	0.4	0.18	0.408	1.02	89.639	0.1016	70.00	2	300	0.1426	1.96	0.60	16.02
McCANDLESS COURT	A46	14	0+426.006	13	1.5	0.1	0.4	0.04	0.848	2.12	84.605	0.1993	45.00	0.5	525	0.3171	1.42	0.53	17.74
HEMI AVENUE	A47	13	0+087.75	10	1.5	0.14	0.4	0.056	2.28	5.7	83.056	0.5260	89.25	1.75	600	0.8470	2.90	0.51	18.33
ATCHISON DRIVE	A48	81A	0	12	0+668.683	0.05	0.4	0.02	0.02	0.05	90.907	0.0051	13.00	1	300	0.1008	1.38	0.16	15.16
RLCB	A49	RLCB18	0	12	0+655.722	0.33	0.4	0.132	0.132	0.33	90.907	0.0333	44.07	2	300	0.1426	1.96	0.38	15.38
ATCHISON DRIVE	A50	12	0+655.722	11	0+601.885	0.23	0.4	0.092	0.244	0.61	89.768	0.0608	53.80	0.4	450	0.1880	1.15	0.78	16.16
RLCB	A51	RLCB17	0	11	0+601.885	0.25	0.4	0.1	0.1	0.25	90.907	0.0253	44.26	2	250	0.0877	1.73	0.43	15.43
RLCB	A52	RLCB27	0	11	0+601.885	0.31	0.4	0.124	0.124	0.31	90.907	0.0313	56.89	1	250	0.0620	1.22	0.77	15.77
ATCHISON DRIVE	A53	11	0+601.885	10	0+543.885	0.18	0.4	0.072	0.54	1.35	87.490	0.1312	58.00	0.4	450	0.1880	1.15	0.84	17.00
RLCB	A54	RLCB16	0	10	0+543.885	0.38	0.4	0.152	0.152	0.38	90.907	0.0384	44.23	1.5	250	0.0759	1.50	0.49	15.49
RLCB	A55	RLCB15	0	10	0+543.885	0.26	0.4	0.104	0.104	0.26	90.907	0.0263	44.26	1	250	0.0620	1.22	0.60	15.60
ATCHISON DRIVE	A56	10	0+543.885	9	0+434.24	0.4	0.4	0.16	3.236	8.09	81.779	0.7351	109.60	0.3	825	0.8198	1.49	1.23	19.56
RLCB	A57	RLCB14	0	8	0+368.813	0.48	0.4	0.192	0.192	0.48	90.907	0.0485	53.02	2	250	0.0877	1.73	0.51	15.51
ATCHISON DRIVE	A58	9	0+434.24	8	0+368.813	0.36	0.4	0.144	3.38	8.45	78.881	0.7406	64.78	0.37	825	0.9104	1.65	0.65	20.21
RLCB	A59	RLCB13	0	8	0+368.813	0.03	0.4	0.012	0.012	0.03	90.907	0.0030	42.92	2.5	250	0.0980	1.94	0.37	15.37
ATCHISON DRIVE	A60	8	0+368.813	7	0+323.15	0.14	0.4	0.056	3.64	9.1	77.426	0.7829	45.72	0.33	825	0.8598	1.56	0.49	20.70
RLCB	A61	RLCB2	0	7	0+323.15	0.17	0.5	0.085	0.085	0.17	90.907	0.0215	50.00	1	250	0.0620	1.22	0.68	15.68
ATCHISON DRIVE (HE 975x1535)	A62	7	0+323.15	6	0+244.602	0.27	0.5	0.135	8.032	19.97	76.376	1.7040	78.38	0.21	1200	1.8629	1.60	0.82	21.52
RLCB	A63	RLCB6	0	6	0+244.602	0.1	0.5	0.05	0.05	0.1	90.907	0.0126	47.47	1	250	0.0620	1.22	0.65	15.65
RLCB	A64	RLCB7	0	6	0+244.602	0.22	0.5	0.11	0.11	0.22	90.907	0.0278	44.40	1	250	0.0620	1.22	0.60	15.60
ATCHISON DRIVE (HE 975x1535)	A65	6	0+244.602	5X	0+183.186	0	0.5	0	8.192	20.29	74.684	1.6995	61.14	0.2	1200	1.8180	1.56	0.65	22.17
ATCHISON DRIVE (HE 975x1535)	A65	5X	0+183.186	5	0+175.181	0	0.5	0	8.192	20.29	73.389	1.6700	11.30	0.2	1200	1.8180	1.56	0.12	22.29
RLCB	A66	RLCB5	0	57	0+446.454	0.26	0.5	0.13	0.13	0.26	90.907	0.0328	40.13	1	250	0.0620	1.22	0.55	15.55
PAISLEY GREEN AVENUE	A67+A68	57	0+446.454	56	0+495.154	0.43	0.5	0.215	0.345	0.69	89.260	0.0855	49.25	1.05	300	0.1033	1.42	0.58	16.13
PAISLEY GREEN AVENUE	A69	56	0+495.154	55	0+515.271	0.09	0.5	0.045	0.39	0.78	87.583	0.0949	20.37	0.49	375	0.1280	1.12	0.30	16.43
PAISLEY GREEN AVENUE	A70	55	0+515.271	54	0+578.911	0.21	0.5	0.105	0.495	0.99	86.734	0.1193	62.24	0.51	450	0.2123	1.29	0.80	17.23
PAISLEY GREEN AVENUE	A71	54	0+578.911	53	0+642.749	0.3	0.5	0.15	0.645	1.29	84.565	0.1515	64.43	0.49	450	0.2081	1.27	0.85	18.08
PAISLEY GREEN AVENUE	A72	53	0+642.749	52	0+659.183	0.13	0.5	0.065	0.71	1.42	82.397	0.1625	14.90	0.8	450	0.2659	1.62	0.15	18.23
PAISLEY GREEN AVENUE	A73	52	0+659.183	50	0+730.449	0.24	0.5	0.12	0.83	1.66	82.017	0.1891	70.88	0.52	450	0.2144	1.31	0.90	19.13
RLCB	A74	RLCB4	0	51	0+286.806	0.42	0.55	0.231	0.231	0.42	90.907	0.0583	39.08	1	250	0.0620	1.22	0.53	15.53
RLCB	A75	RLCB3	0	51	0+286.806	0.17	0.5	0.085	0.085	0.17	90.907	0.0215	39.08	1	250	0.0620	1.22	0.53	15.53





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**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
STORM DRAINAGE DESIGN CHART  
FOR CIRCULAR DRAINS FLOWING FULL**

Rainfall Intensity = **A** 5yr Storm

$$(Tc+B)^c$$

A= 1593  
B= 11  
C= 0.8789

PHASE 1   
PHASE 2

Starting Tc = 15 min

Date: 22-Dec-17

Project: Chateaux of Caledon  
Project No: L08-378  
Designed by: AR/RM  
Checked by: AR

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION						DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	SECTION CONCENTRATION TIME	TIME OF CONCENTRATION
STREET	AREA ID	FROM		TO		COEFFICIENT			"AR" CUMUL.	AREA CUMUL. A	INTENSITY (mm/hr)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
		MH	Sta.	MH	Sta.	A	C	A^C	A^C										
RLCB	A76	RLCB26	0	51	0+286.806	0.19	0.5	0.095	0.095	0.19	90.907	0.0240	42.02	1.93	250	0.0861	1.70	0.41	15.41
RLCB	A77	RLCB25	0	51	0+286.806	0.16	0.5	0.08	0.08	0.16	90.907	0.0202	42.02	1.74	250	0.0818	1.62	0.43	15.43
BOYCE CREEK COURT	A78	51	0+286.806	50	0+406.367	0.39	0.5	0.195	0.686	1.33	89.303	0.1702	119.49	0.99	450	0.2958	1.80	1.10	16.64
RLCB	A79	RLCB23	0	50	0+406.367	0.21	0.5	0.105	0.105	0.21	90.907	0.0265	42.08	2.24	250	0.0928	1.83	0.38	15.38
BOYCE CREEK COURT	A80	50	0+406.367	5	0+175.181	0.36	0.5	0.18	1.801	3.56	79.850	0.3995	92.95	0.52	600	0.4617	1.58	0.98	20.11
BLOCK 162	A81	75	0	62	0+040.133	0.6	0.7	0.42	0.42	0.6	139.288	0.1625	9.00	1	525	0.4484	2.01	0.07	5.07
BOYCE CREEK COURT	A82	67	0+271.081	66	0+249.277	0.17	0.5	0.085	0.085	0.17	109.677	0.0259	22.63	0.97	300	0.0993	1.36	0.28	10.28
BOYCE CREEK COURT	A83	66	0+249.277	65	0+201.853	0.15	0.5	0.075	0.16	0.32	108.422	0.0482	48.06	0.66	300	0.0819	1.12	0.71	10.99
BOYCE CREEK COURT	A84	65	0+201.853	64	0+188.680	0.06	0.5	0.03	0.19	0.38	105.325	0.0556	14.06	0.56	300	0.0755	1.03	0.23	11.22
BOYCE CREEK COURT	A85	64	0+188.680	63	0+124.975	0.43	0.5	0.215	0.405	0.81	104.381	0.1174	65.21	0.56	375	0.1368	1.20	0.91	12.12
BOYCE CREEK COURT	A86	63	0+124.975	62	0+040.133	0.4	0.5	0.2	0.605	1.21	100.780	0.1694	83.65	0.49	450	0.2081	1.27	1.10	13.22
BOYCE CREEK COURT	A87	62	0+040.133	61	0+001.497	0.18	0.5	0.09	1.115	1.99	96.749	0.2997	40.08	0.6	525	0.3474	1.56	0.43	13.65
ATCHISON DRIVE	A88	74	0+048.714	61	0+087.866	0.2	0.7	0.14	0.14	0.2	90.907	0.0354	38.27	0.98	300	0.0998	1.37	0.47	15.47
BLOCK 163	A89	116	0+001.496	61	0+059.519	0.59	0.7	0.413	0.413	0.59	139.288	0.1598	10.80	1	375	0.1828	1.60	0.11	5.11
ATCHISON DRIVE (HE 975x1535)	A90	61X	0	5	0+059.519	0	0.5	0	1.793	3.03	87.001	0.4333	11.20	0.2	1200	1.8180	1.56	0.12	16.45
STREET I	A91	5	0+175.181	4	0+230.980	0.44	0.7	0.308	12.094	27.32	73.154	2.4576	66.65	0.2	1650	4.2502	1.93	0.58	22.87
STREET I	A92	4	0+175.927	3	0+097.540	0.2	0.7	0.14	12.234	27.52	72.059	2.4488	43.72	0.18	1650	4.0321	1.83	0.40	23.27
RLCB	A93	RLCB1	0	3	0+266.217	0.98	0.25	0.245	0.245	0.98	90.907	0.0619	38.89	2	250	0.0877	1.73	0.37	15.37
BLOCK 122	A94	117	0	3	0+266.217	0.93	0.7	0.651	0.651	0.93	139.288	0.2519	12.00	1	450	0.2973	1.81	0.11	5.11
STREET I		3	0+115.697	2	0+266.217	0	0	0	13.13	29.43	71.321	2.6012	43.39	0.28	1650	5.0289	2.28	0.32	23.58
STREET I	A95+A96	2	0+266.217	1	0+211.90	0.4	0.7	0.28	13.41	29.83	70.746	2.6353	31.93	0.22	1650	4.4576	2.02	0.26	23.85
STREET K	A97	72	0+266.217	71	0	0.65	0.7	0.455	0.455	0.65	139.288	0.176	86.40	0.4	450	0.1880	1.15	1.26	6.26
STREET K	A98	71	0+266.217	PLUG2	0	0.44	0.7	0.308	0.763	1.09	130.333	0.276	106.65	0.4	525	0.2836	1.27	1.40	7.66
STREET K		PLUG2	0+266.217	69	0	0	0	0	0.763	1.09	121.697	0.258	78.20	0.4	525	0.2836	1.27	1.03	8.68
FUTURE BLOCK	A99	110D	0+266.217	69	0	0.77	0.7	0.539	0.539	0.77	139.288	0.209	9.50	1.25	450	0.3324	2.03	0.08	5.08
STREET I		69	0+266.217	68	0	0	0.7	0	1.302	1.86	116.102	0.420	54.50	0.27	750	0.6032	1.32	0.69	9.37
STREET I		68	0+266.217	1	0	0	0.7	0	1.302	1.86	112.656	0.407	17.68	0.17	750	0.4786	1.05	0.28	9.65
STREET I		1	0+211.90	HW1	0	0	0.7	0	14.712	31.69	70.276	2.872	6.11	0.2	1650	4.2502	1.93	0.05	23.90
EXTERNAL FLOW FROM NORTH TO INNISLAKE PHASE 2																			
EASEMENT LOT 213-214	A100+EXT.	DITCH1	0+009.439	85	0+064.834	36.32	0.2	7.264	7.264	36.32	21.946	0.443	39.10	1.38	675	1.0296	2.79	0.23	120.23
EASEMENT LOT 213-214	A101 (CBMH)	85	0+064.834	84	0+134.119	0.38	0.4	0.152	7.416	36.7	21.911	0.451	69.29	0.427	675	0.5727	1.55	0.74	120.98
McCANDLESS COURT	A102	84	0+343.662	83	0+257.496	0.42	0.4	0.168	7.584	37.12	21.803	0.459	94.59	1.64	675	1.1225	3.04	0.52	121.50
INNIS LAKE ROAD		83	0+265.287	82	0+253.485	0	0.4	0	7.584	37.12	21.728	0.458	150.00	2.5	675	1.3859	3.75	0.67	122.16
INNIS LAKE ROAD		82	0+253.485	81	0+187.158	0	0.4	0	7.584	37.12	21.632	0.456	81.45	0.5	675	0.6198	1.68	0.81	122.97
INNIS LAKE ROAD		81	0+187.158	80	0+122.123	0	0.4	0	7.584	37.12	21.517	0.453	46.70	0.3	750	0.6358	1.39	0.56	123.53
DITCH CSP	A103+A104	CSP1	0+253.485	80	0	0.43	0.7	0.301	0.301	0.43	90.907	0.076	4.30	3	600	1.1089	3.80	0.02	15.02
INNIS LAKE ROAD		80	0+187.158	79	0	0	0.4	0	7.885	37.55	21.439	0.470	4.40	0.3	750	0.6358	1.39	0.05	123.58
DITCH INLET	A105	DITCH2	0+187.158	EXCSP1	0	0.33	0.4	0.132	0.132	0.33	90.907	0.033	5.40	1	250	0.0620	1.22	0.07	15.07
INNIS LAKE ROAD		79	0+122.123	EXCSP1	0	0	0.4	0	7.885	37.55	21.431	0.469	23.80	0.05	1200	0.9090	0.78	0.51	124.09
POND OUTLET																			



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**PUBLIC WORKS AND ENGINEERING DEPARTMENT  
 STORM DRAINAGE DESIGN CHART  
 FOR CIRCULAR DRAINS FLOWING FULL**

Rainfall Intensity =  $\frac{A}{(Tc+B)^c}$  5yr Storm

A = 1593  
 B = 11  
 C = 0.8789

Starting Tc = 15 min

PHASE 1   
 PHASE 2

Project: Chateaux of Caledon  
 Project No: L08-378  
 Designed by: AR/RM  
 Checked by: AR

Date: 22-Dec-17

\*Equivalent circular pipe shown for elliptical pipe noted

LOCATION						DRAINAGE AREA					RAINFALL	FLOW	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	SECTION CONCENTRATION TIME	TIME OF CONCENTRATION
STREET	AREA ID	FROM		TO		COEFFICIENT			"AR" CUMUL.	AREA CUMUL.	INTENSITY (mm/hr)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
		MH	Sta.	MH	Sta.	A (ha)	C	A*C	A*C	A									
POND OUTLET (4hr TC)		93	0+559.686	92	0+662.48	0	0.4	0	0	0	42.962	0.330	20.76	0.82	525	0.4061	1.82	0.19	50.19
EASEMENT POND OUTLET		92	0+662.48	91	0+668.480	0	0.4	0	0	0	42.845	0.330	82.31	0.39	750	0.7249	1.59	0.86	51.05
EASEMENT POND OUTLET		91	1+568.747	90	1+418.747	0	0	0	0	0	42.321	0.331	21.35	1.03	750	1.1781	2.58	0.14	51.19
OUTFALL		90	1+418.747	89	1+668.480	0	0	0	0	0	42.239	0.331	9.10	0.4	750	0.7342	1.61	0.09	51.28
OUTFALL		89	1+668.480	88	1+286.062	0	0	0	0	0	42.183	0.331	140.00	0.4	750	0.7342	1.61	1.45	52.73
OUTFALL		88	1+286.062	87	1+284.047	0	0	0	0	0	41.339	0.331	120.82	1.03	750	1.1781	2.58	0.78	53.51
OUTFALL		87	0	HW3	88.416	0	0	0	0	0	40.900	0.000	20.00	1.5	750	1.4217	3.12	0.11	53.62
EXSITING SCHOOL ON INNIS LAKE ROAD																			
EX. SCHOOL	A106	DICB	88.416	101	0+053.277	1.06	0.75	0.795	0.795	1.06	109.677	0.242	14.5	0.45	525	0.3008	1.35	0.18	10.18
INNIS LAKE	A107	101	88.416	100	0+053.277	0.14	0.7	0.098	0.893	1.2	139.288	0.346	47.70	0.4	600	0.4049	1.39	0.57	5.57
EX. SCHOOL	EXT.	CULVERT	1+668.480	100	0+053.277	0.43	0.75	0.323	0.3225	0.43	90.907	0.081	22.80	0.83	525	0.4085	1.83	0.21	15.21
INNIS LAKE		100	1+286.062	99	0+053.277	0	0	0	1.2155	1.63	90.273	0.305	76.40	0.4	600	0.4049	1.39	0.92	16.13
INNISLAKE CB	A108	CB	1+284.047	99	0+053.277	0.17	0.7	0.119	0.119	0.17	90.907	0.030	4.60	1	300	0.1008	1.38	0.06	15.06
INNISLAKE		99	0	98	0+053.277	0	0	0	1.3345	1.8	87.584	0.325	14.20	0.4	600	0.4049	1.39	0.17	16.30
PROP. STORM CATCHBASINS ON OLD CHURCH																			
OLD CHURCH	A109	CB4	0	CBMH2	0+053.277	0.34	0.7	0.238	0.238	0.34	139.288	0.092	89.90	0.4	375	0.1156	1.01	1.48	6.48
OLD CHURCH	A110	CBMH2	0	98	0+053.277	0.31	0.7	0.217	0.455	0.65	128.890	0.163	29.10	0.4	450	0.1880	1.15	0.42	6.90
INNIS LAKE OUTLET HEADWALL 2																			
INNIS LAKE		98	88.416	97	0+053.277	0	0	0	1.7895	2.45	87.103	0.433	28.70	0.45	675	0.5880	1.59	0.30	16.60
INNIS LAKE		97	88.416	HW2	0+053.277	0	0	0	1.7895	2.45	86.269	0.429	7.50	0.45	675	0.5880	1.59	0.08	16.67

