CORPORATION OF THE

TOWNSHIP OF EDWARDSBURGH CARDINAL

BY-LAW NO. 2020-32

"A BY-LAW TO AUTHORIZE THE EXECUTION OF A SITE PLAN CONTROL AGREEMENT"

WHEREAS: The Council of the Corporation of the Township of Edwardsburgh/Cardinal deems it advisable to enter into a Site Plan Control Agreement with Upper Canada District School Board respecting development of a property described as:

LT 56-60, 66-69, 73-74, 84, 89, 94 PL 40; PT LT 55, 75-76, 82-83, 90-91, 93 PL 40
AS IN PR16869; PT PARKLT D, E PL 40 PT 7, 15R9456, PT 2, 15R9632;
PRINCE ST PL 40; PT SOUTH ST, KING ST, VICTORIA ST PL 40 CLOSED BY
PR17985, PR155279, AS IN PR17986, PT 1, 15R9626 & PT 6, 15R9456;
EDWARDSBURGH/CARDINAL
ROLL #0701 701 040 04602 0000
PIN 68141-0403

AND WHEREAS: Authority is granted under Section 41 of the Planning Act, RSO 1990, c.P. 13, as amended to the Council of the Corporation of the Township of Edwardsburgh/Cardinal to enter into such agreement;

NOW THEREFORE: The Council of the Corporation of the Township of Edwardsburgh/Cardinal enacts as follows:

1. That the Mayor and Clerk are hereby authorized to execute an agreement with Upper Canada District School Board and that a signed copy of said agreement is attached hereto as Schedule "A".

2. This by-law comes into effect upon passing.

Read a first and second time in open Council this 25 day of May, 2020.

Read a third and final time, passed, signed and sealed in open Council this 25 day of May, 2020.

Mayor **Clerk**

THE CORPORATION OF THE
TOWNSHIP OF EDWARDSBURGH CARDINAL
SITE PLAN CONTROL AGREEMENT
AS AUTHORIZED BY BYLAW 2020-32

THIS AGREEMENT made in triplicate this 28 day of May, 2020

BETWEEN: UPPER CANADA DISTRICT SCHOOL BOARD.

Hereinafter called the "Owner" of the first part

AND: THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL

Hereinafter called the "Township" of the second part

WHEREAS the Owner has applied to the Township in accordance with the Site Plan Control provisions of Bylaw No. 2002-31, to permit the development of the lands described in Schedule "A" attached hereto;

AND WHEREAS the Owner has agreed with the Township to undertake, furnish and perform the works, material, matter and things required to be done, furnished and performed in the manner hereafter described in connection with the proposed use of the land and in conformity with the Zoning Bylaw;

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT in consideration of other good and valuable consideration and the sum of two dollars ($2.00) of lawful money of Canada now paid by the Owner to the Municipality, the receipt of which is hereby acknowledged, the Parties hereby agree as follows:

1. Statutes, Bylaws, Licenses, Permits and Regulations

The Owner undertakes and agrees that prior to the commencement of any development, redevelopment, site alteration, construction or other works, the Owner shall obtain all necessary permits and approvals required by the Government of Canada, the Province of Ontario or any agency thereof, the Township and any other affected agency. The Owner undertakes and agrees to comply with the requirements of all relevant municipal bylaws, provincial and federal statutes and regulations, permits, approvals or licenses in addition to the terms of this agreement.

2. Schedules

The Owner hereby agrees that prior written approval by the Township and/or an amendment to a Schedule shall be required for any departure, change or modification from the Schedules.

The following list of schedules attached hereto are deemed to be and form part of this Agreement:

2.1 Schedule "A" -Legal Description of the Land to which this Agreement applies.

2.2 Schedule "B" -Conceptual Plan / Site Plan.

2.3 Schedule “C” -Storm Water Management, Sediment & Erosion Control Plan

2.4 Schedule "D" -Special Conditions.

3. Land to Which this Agreement Applies

This Agreement is deemed to apply to the lands described in Schedule "A".

4. Registration of Agreement and Commencement of Work

The Owner covenants that he/she/they shall not commence any development or site alteration whatsoever until this Agreement is registered on title against the land at the expense of the Owner.

5. Completion Date

The owner agrees to complete the work required under this Agreement within two (2) years of the date of the commencement of works. Notwithstanding, if exceptional circumstances prevent the owner from complying with the requirements, the Township may extend the completion date.

6. Default

In the event the Owner defaults in the performance of an obligation under this agreement or for reasons of public safety as determined by the Chief Building Official under the Building Code Act of Ontario or the Fire Marshall under the Fire Protection & Prevention Act of Ontario, the Township may, at the expense of the Owner, enter upon the lands and do all such matters and things as may be required to comply with any Order of the Chief Building Official or Assistant to the Fire Marshall (local Fire Chief). Such actual costs incurred by the Township plus an overhead charge of 15%, shall be deemed to be recoverable from the Owner by invoice and may be recovered in like manner as municipal taxes pursuant to the Municipal Act.

7. Facilities and Work to be Provided and Maintained

The Owner covenants and agrees to provide and maintain, at his/her/their sole expense each and every facility, work or other matter illustrated on the Schedules to the satisfaction of the Township, acting in a commercially reasonable manner, and to engage qualified professionals, where required, to design and carry forth any of the work undertaken under this Agreement. This shall include the restoration of any faulty workmanship or materials.

8. Certificate of Compliance

Upon the satisfactory completion of all matters and things to be provided and maintained by the Owner pursuant to this Agreement, the Owner shall be entitled to obtain a Certificate of Compliance from the Township confirming that all provisions of this Agreement have been complied with in full to the date of such Certificate.

9. Notice to Parties

Any Notice by any party to this agreement to another shall be given in writing and mailed or delivered to the Party:

9.1 In the case of the Municipality:

To the Clerk of the Township of Edwardsburgh/Cardinal
18 Centre Street
P.O. Box 129
Spencerville, ON KOE 1XO

9.2 In the case of the Owner(s):

Upper Canada District School Board
C/O Jeremy Hobbs
225 Central Ave West
Brockville, ON K6V 5X1

10. Severability

The terms of this agreement are severable, and the unenforceability of any part hereof shall not render the whole unenforceable. No forbearance or failure by the Township to strictly enforce any term or covenant herein shall prevent the Township from insisting upon strict compliance by the Owner subsequent to such forbearance or failure to strictly enforce its terms. The terms of this agreement may not be altered except by a subsequent agreement in writing between the parties.

11. Successors and Assigns

This Agreement shall ensure to the benefit of and be binding upon the respective heirs, personal representatives, successors and assigns of each of the parties hereto.

12. Force and Effect

This Agreement comes into force after it has been executed by all parties hereto and registered against the title to the lands described in Schedule "A".

IN WITNESS WHEREOF the Parties have hereunto set their hands and seals, corporate parties over the hand(s) of their duly authorized signing officers in that regard.

THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH CARDINAL

)____________________
) Mayor
)
)____________________
)Clerk
We have authority to bind the Corporation.

UPPER CANADA DISTRICT SCHOOL BOARD

)____________________
)
I/We have authority to bind the Corporation.

DATED AT Spencerville, ON this 28 day of May, 2020.

SCHEDULE “A”

Site Plan Control Agreement

DESCRIPTION OF THE PROPERTY

LT 56-60, 66-69, 73-74, 84, 89, 94 PL 40; PT LT 55, 75-76, 82-83, 90-91, 93 PL 40 AS IN PR16869; PT PARKLT D, E PL 40 PT 7, 15R9456, PT 2, 15R9632; PRINCE ST PL 40; PT SOUTH ST, KING ST, VICTORIA ST PL 40 CLOSED BY PR17985, PR155279, AS IN PR17986, PT 1, 15R9626 & PT 6, 15R9456; EDWARDSBURGH/CARDINAL

PIN: 68141-0430

SCHEDULE “B”

Site Plan Control Agreement

CONCEPTUAL PLAN / SITE PLAN

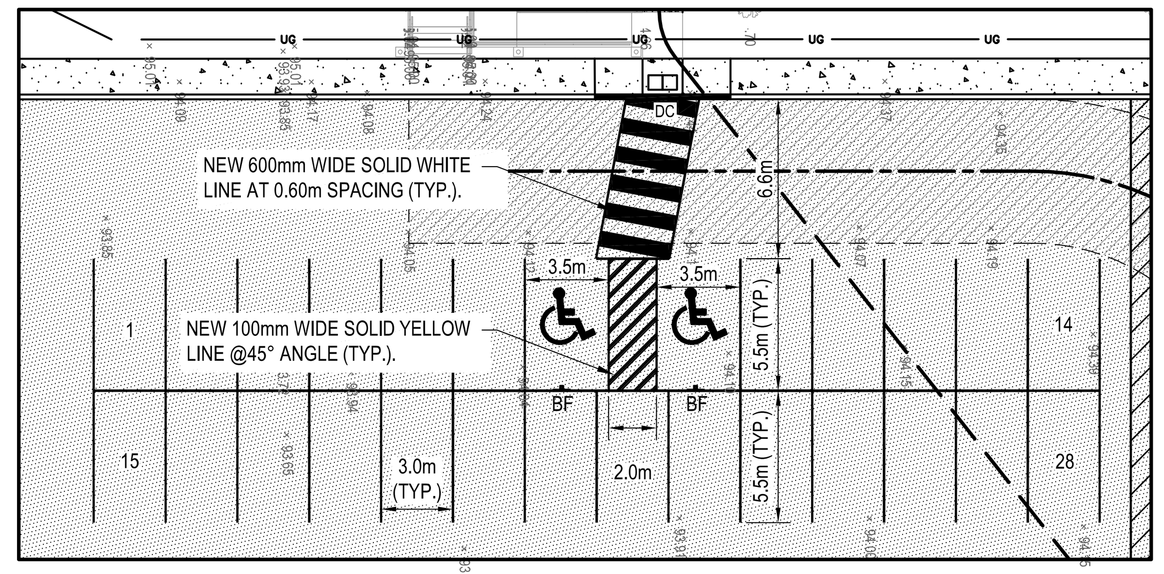
EXHIBITS: The following Exhibits attached hereto shall form part of this Schedule:

Exhibit 1- General Site Plan

Exhibit 2- Site Servicing Plan

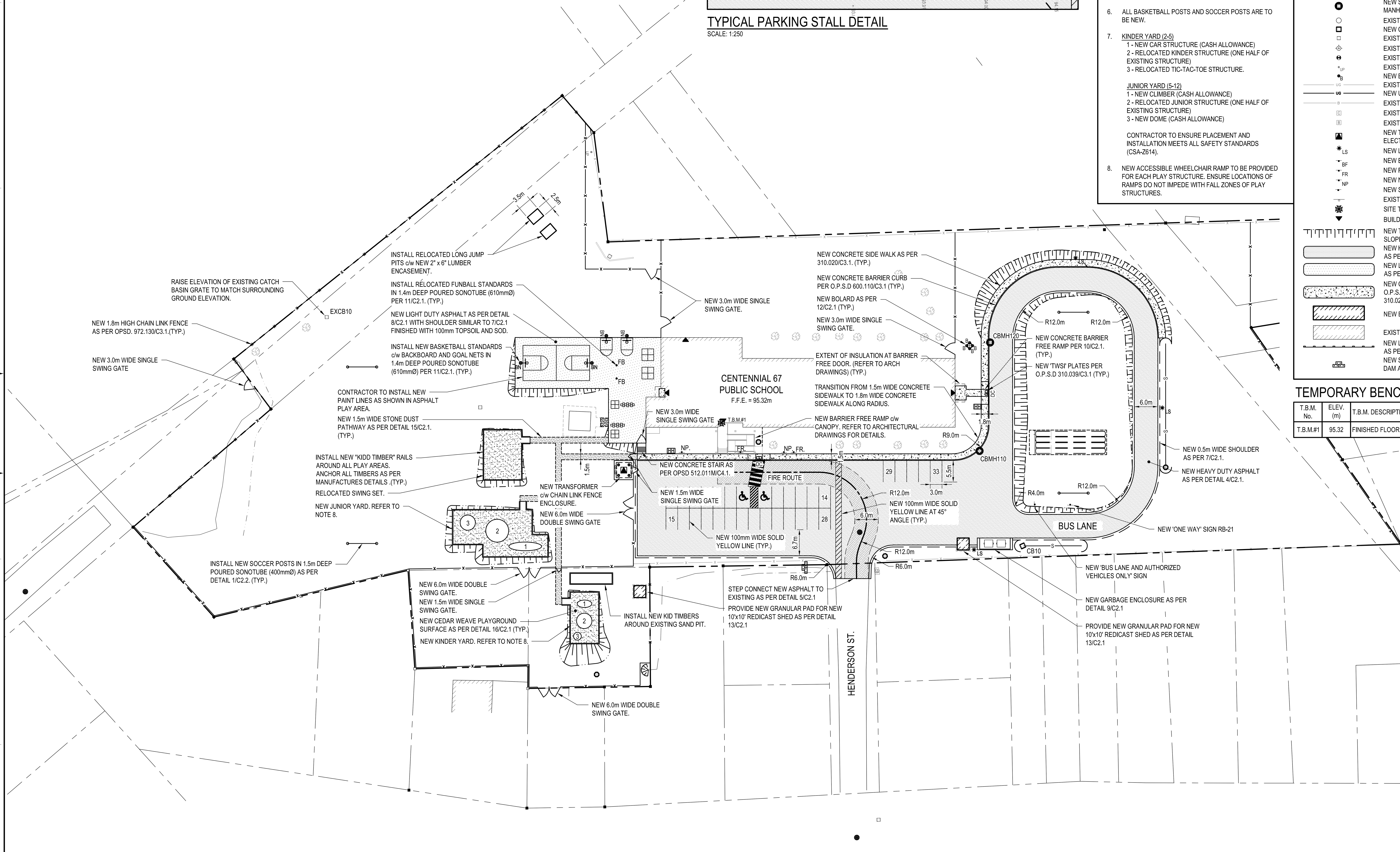
Exhibit 3- Site Grading Plan

Exhibit 4- Details



TYPICAL PARKING STALL DETAIL

SCALE: 1:250



NOTES:

1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY COLLETT SURVEYING LTD. ALL COORDINATES ARE IN METRES, ARE RELATED TO UTM ZONE 18 (75°W LONGITUDE) NAD83 CSRS AND HAVE A RELATIVE ACCURACY TO MEET THE REQUIREMENTS OF A REMOTE AREA AT A 95% CONFIDENCE LEVEL. OBSERVED REFERENCE POINT (ORP) OR SPECIFIED CONTROL POINT (SCP)
3. LEGAL BOUNDARIES PROVIDED BY COLLETT SURVEYING LTD.
4. ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC, DERIVED FROM GPS OBSERVATIONS.
5. ALL DISTURBED AREAS TO BE REINSTATED WITH TOPSOIL AND SOD UNLESS OTHERWISE NOTED.
6. ALL BASKETBALL POSTS AND SOCCER POSTS ARE TO BE NEW.
7. KINDER YARD (2-5)
   1 - NEW CAR STRUCTURE (CASH ALLOWANCE)
   2 - RELOCATED KINDER STRUCTURE (ONE HALF OF EXISTING STRUCTURE)
   3 - RELOCATED TIC-TAC-TOE STRUCTURE.

   JUNIOR YARD (5-12)
   1 - NEW CLIMBER (CASH ALLOWANCE)
   2 - RELOCATED JUNIOR STRUCTURE (ONE HALF OF EXISTING STRUCTURE)
   3 - NEW DOME (CASH ALLOWANCE)

   CONTRACTOR TO ENSURE PLACEMENT AND INSTALLATION MEETS ALL SAFETY STANDARDS (CSA-Z614).
8. NEW ACCESSIBLE WHEELCHAIR RAMP TO BE PROVIDED FOR EACH PLAY STRUCTURE. ENSURE LOCATIONS OF RAMPS DO NOT IMPEDE WITH FALL ZONES OF PLAY STRUCTURES.

LEGEND:

EXISTING PROPERTY LINE
NEW EDGE OF ASPHALT
EXISTING EDGE OF ASPHALT
NEW CURB
DC NEW DEPRESSED CURB
NEW CURB TRANSITION
NEW ASPHALT DRIVEWAY
EXISTING ASPHALT DRIVEWAY
NEW LINE PAINTING
NEW FENCE
EXISTING FENCE
NEW DITCH CENTERLINE
S NEW SWALE
NEW TOP OF SLOPE
NEW CULVERT
EXISTING CULVERT
EXISTING SANITARY MANHOLE
NEW STORM MANHOLE
NEW STORM CATCHBASIN MANHOLE
EXISTING STORM MANHOLE
NEW CATCH BASIN
EXISTING CATCH BASIN
EXISTING HYDRANT
EXISTING VALVE
UP EXISTING UTILITY POLE
B NEW BOLLARD AS PER 12/C2.1
UG EXISTING UNDERGROUND LINE
UG NEW UNDERGROUND LINE
B EXISTING BELL LINE
C EXISTING CABLE PEDESTAL
B EXISTING BELL PEDESTAL
NEW TRANSFORMER AS PER ELECTRICAL DRAWINGS
LS NEW LIGHT STANDARD
BF NEW BARRIER FREE SIGN AND POST
FR NEW FIRE ROUTE SIGN AND POST
NP NEW NO PARKING SIGN AND POST
NEW SIGN AND POST
EXISTING SIGNAGE
SITE TEMPORARY BENCHMARK
BUILDING ENTRANCE
NEW TERRACING AT 4H:1V SLOPE OR FLATTER.
NEW HEAVY DUTY ASPHALT AS PER 4/C2.1
NEW LIGHT DUTY ASPHALT AS PER 8/C2.1
NEW CONCRETE SIDEWALK AS PER O.P.S.D. 310.010M/C3.1 OR O.P.S.D. 310.020M/C3.1
NEW BUILDING OUTLINE
EXISTING BUILDING OUTLINE
NEW LIGHT DUTY SILT FENCE AS PER O.P.S.D. 219.110/C3.1
NEW STRAW BALE FLOW CHECK DAM AS PER O.P.S.D. 219.180/C3.1

TEMPORARY BENCH MARKS

T.B.M. No.	ELEV. (m)	T.B.M. DESCRIPTION
T.B.M.#1	95.32	FINISHED FLOOR ELEVATION

ARCHITECTURE 49
1345 ROSEMOUNT AVENUE
CORNWALL, ONTARIO, CANADA K6J 3E5
TEL: 613-933-5604 | FAX: 613-936-0335 | ARCHITECTURE49.COM

CONSULTANT - SUB CONSULTANT:
WSP
1345 ROSEMOUNT AVENUE
CORNWALL, ONTARIO, CANADA K6J 3E5
PHONE 613-933-5602 | FAX: 613-936-0335 | WWW.WSP.COM

CONSULTANT - SUB CONSULTANT:
EVB ENGINEERING
800 SECOND STREET WEST
CORNWALL, ONTARIO CANADA, K6J 1H6
TEL: 613-935-3775 | FAX: 613-935-6450
WEBSITE: EVBengineering.com

SEAL:
LICENSED PROFESSIONAL ENGINEER
K.A.MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:
CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING,
FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/03/13	REVISED PER TOWNSHIP COMMENTS

PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: 1:500
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

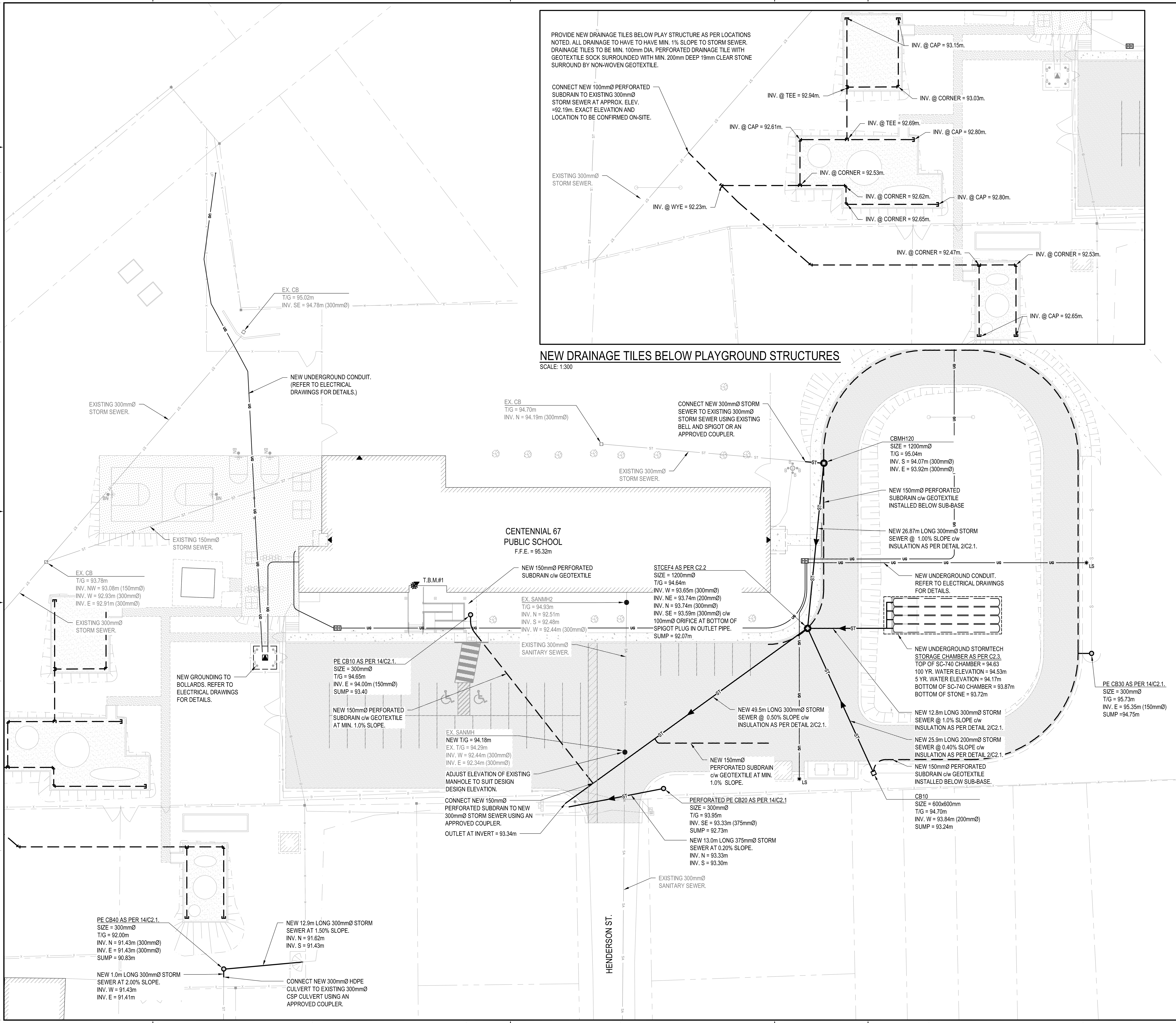
DISCIPLINE: CIVIL

TITLE:
EXHIBIT 1
GENERAL SITE PLAN

SHEET NUMBER: C1.2
SHEET #: 2 OF 8

ISSUE: REVISED PER TOWNSHIP COMMENTS
DATE OF: 2020/03/13
REV #: 0

M:\2019\19141 - Centennial 67 Public School\6.0 Dwg\6.2 Civil\2.0 Production\19141-C1-2-4.dwg Mar 13, 2020-1:44pm BY:(Kevin.MacCulloch)



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3. ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC.
4. ALL DISTURBED AREAS TO BE REINSTATED WITH 100mm TOPSOIL AND SOD UNLESS OTHERWISE NOTED.

LEGEND:

EXISTING PROPERTY LINE
NEW EDGE OF ASPHALT
EXISTING EDGE OF ASPHALT
NEW CURB
NEW DEPRESSED CURB
NEW CURB TRANSITION
EXISTING ASPHALT DRIVEWAY
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NEW SWALE
NEW TOP OF SLOPE
EXISTING SANITARY SEWER
NEW STORM SEWER
NEW PERFORATED SUBDRAIN
EXISTING STORM SEWER
EXISTING WATERMAIN
NEW PIPE INSULATION
EXISTING CULVERT
EXISTING SANITARY MANHOLE
NEW STORM MANHOLE
NEW STORM MANHOLE
EXISTING STORM MANHOLE
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SITE TEMPORARY BENCHMARK
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TEMPORARY BENCH MARKS

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T.B.M.#1	95.32	FINISHED FLOOR ELEVATION

ARCHITECTURE 49
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TEL: 613-933-5604 | FAX: 613-936-0335 | ARCHITECTURE49.COM

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LICENSED PROFESSIONAL ENGINEER
K.A. MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:
CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING, FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/03/13	REVISED PER TOWNSHIP COMMENTS

PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: 1:300
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
DISCIPLINE: CIVIL
TITLE:

EXHIBIT 2

SITE SERVICING PLAN

SHEET NUMBER: C1.3
SHEET #: 3 OF 8
ISSUE: REVISED PER TOWNSHIP COMMENTS
REV #: 0
DATE OF: 2020/03/13

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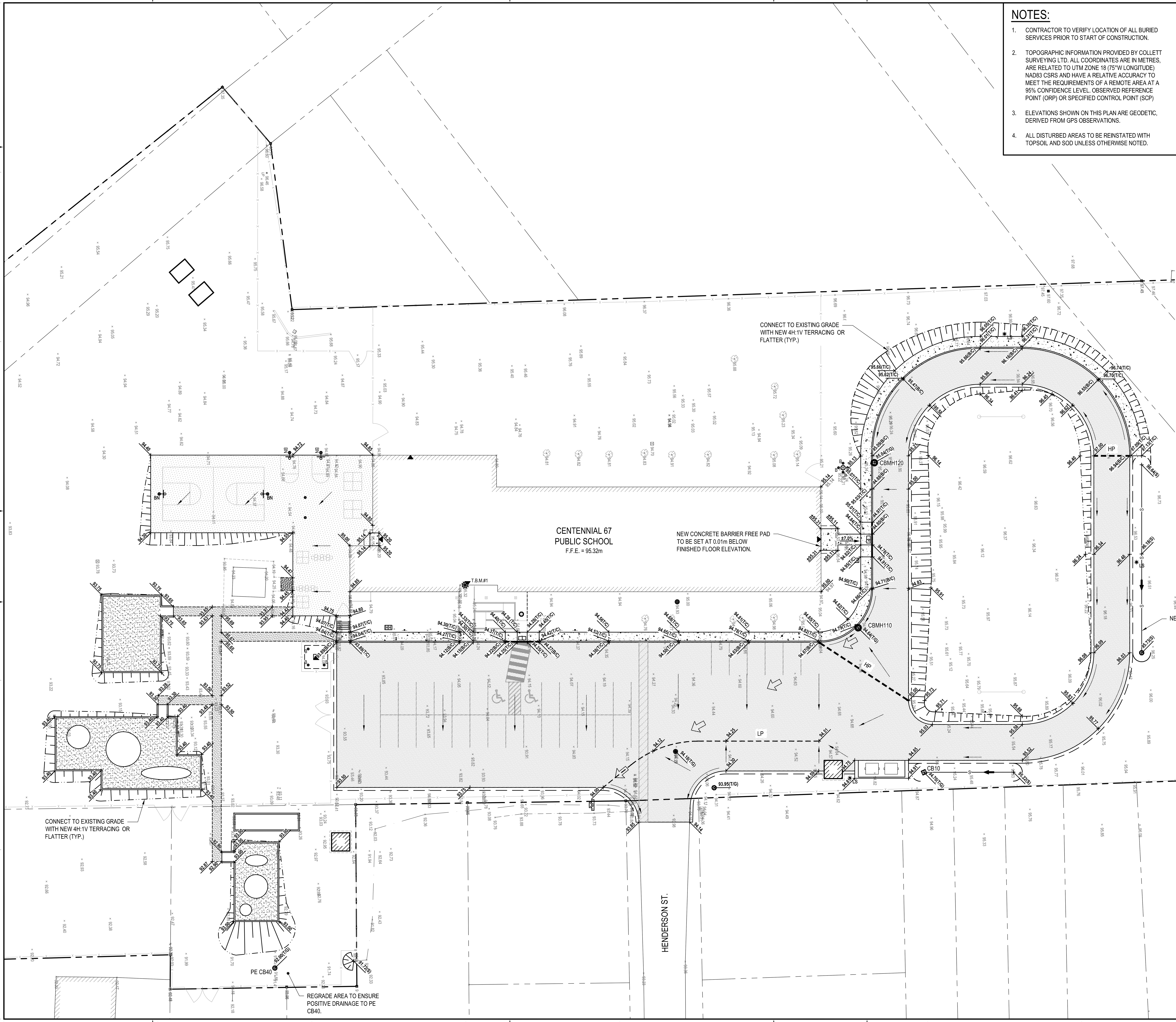

NOTES:

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3. ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC, DERIVED FROM GPS OBSERVATIONS.
4. ALL DISTURBED AREAS TO BE REINSTATED WITH TOPSOIL AND SOD UNLESS OTHERWISE NOTED.

LEGEND:

- EXISTING PROPERTY LINE
- NEW EDGE OF ASPHALT
- EXISTING EDGE OF ASPHALT
- NEW CURB
- DC — NEW DEPRESSED CURB
- NEW CURB TRANSITION
- EXISTING ASPHALT DRIVEWAY
- EXISTING GRANULAR DRIVEWAY
- EXISTING FENCE
- NEW DITCH CENTERLINE
- NEW SWALE
- NEW TOP OF SLOPE
- 59.42 — FINISHED GROUND ELEVATION
- 59.39(T/G) — FINISHED TOP OF GRATE ELEVATION
- 59.60(TC) — FINISHED TOP OF CONCRETE ELEVATION
- 59.35(S) — FINISHED SWALE ELEVATION
- 59.42 — EXISTING GROUND ELEVATION
- NEW CULVERT
- EXISTING CULVERT
- EXISTING SANITARY MANHOLE
- NEW STORM MANHOLE
- NEW STORM MANHOLE
- EXISTING STORM MANHOLE
- NEW CATCH BASIN
- EXISTING CATCH BASIN
- EXISTING HYDRANT
- EXISTING VALVE
- UP — EXISTING UTILITY POLE
- B — NEW BOLLARD AS PER 12/C2.1
- UG — EXISTING UNDERGROUND LINE
- UG — NEW UNDERGROUND LINE
- B — EXISTING BELL LINE
- NEW TRANSFORMER AS PER ELECTRICAL DRAWINGS
- BF — NEW BARRIER FREE SIGN AND POST
- FR — NEW FIRE ROUTE SIGN AND POST
- NP — NEW NO PARKING SIGN AND POST
- NEW SIGN AND POST
- EXISTING SIGNAGE
- SITE TEMPORARY BENCHMARK
- BUILDING ENTRANCE
- NEW TERRACING AT 4H:1V SLOPE OR FLATTER.
- NEW HEAVY DUTY ASPHALT AS PER 4/C2.1
- NEW LIGHT DUTY ASPHALT AS PER 8/C2.1
- NEW CONCRETE SIDEWALK AS PER O.P.S.D. 310.010M/C3.1 OR O.P.S.D. 310.020M/C3.1
- NEW BUILDING OUTLINE
- EXISTING BUILDING OUTLINE
- NEW LIGHT DUTY SILT FENCE AS PER O.P.S.D. 219.110/C3.1
- NEW STRAW BALE FLOW CHECK DAM AS PER O.P.S.D. 219.180/C3.1
- MAJOR OVERLAND FLOW ROUTE

TEMPORARY BENCH MARKS

T.B.M. No.	ELEV. (m)	T.B.M. DESCRIPTION
T.B.M.#1	95.32	FINISHED FLOOR ELEVATION

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SE
LICENSED PROFESSIONAL ENGINEER
K.A. MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:

CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING,
FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/03/13	REVISED PER TOWNSHIP COMMENTS

PROJECT NO: 199-00220-00	DATE: NOVEMBER 2019
ORIGINAL SCALE: 1:300	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: K.M.	
DRAWN BY: K.B.W.	
CHECKED BY: F.L.	25mm

DISCIPLINE: CIVIL

TITLE:

EXHIBIT 3

SITE GRADING PLAN

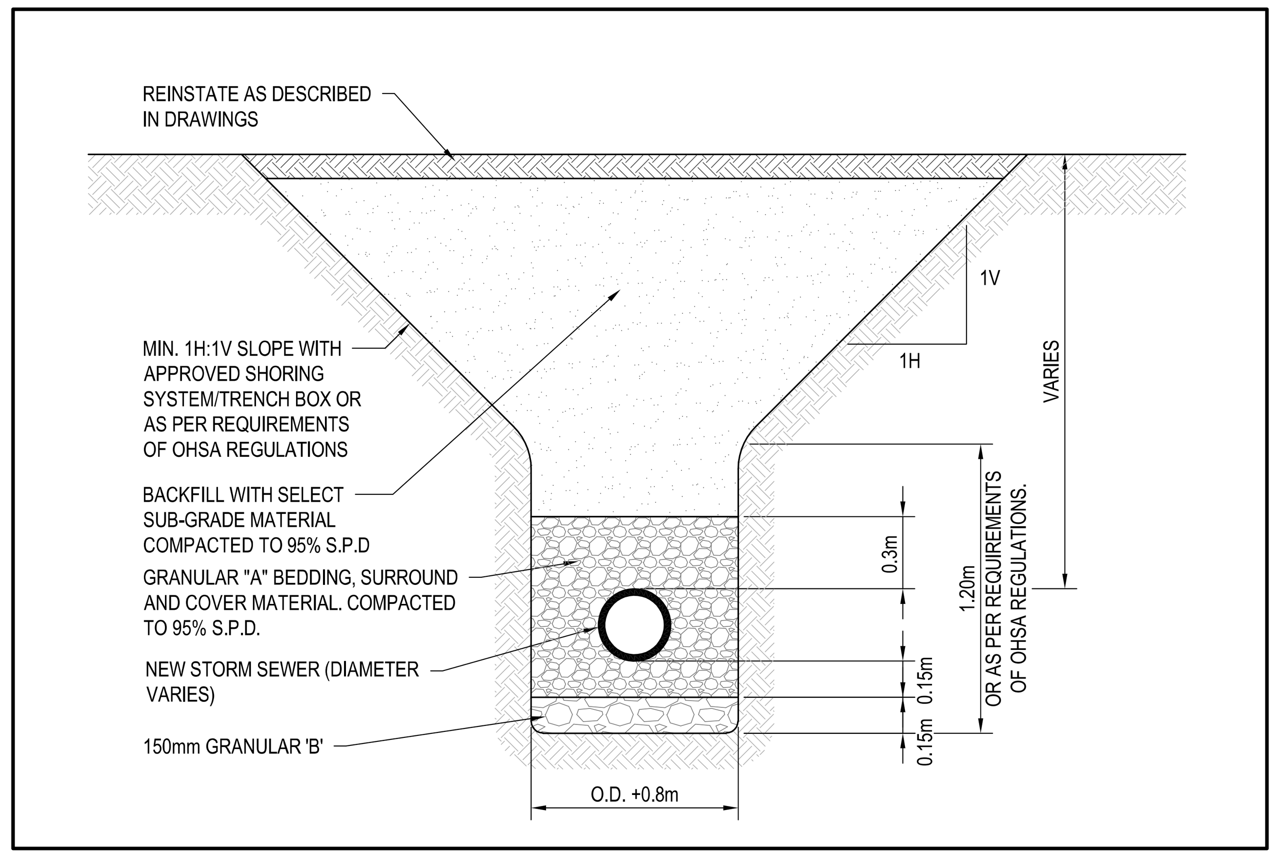
SHEET NUMBER: C1.4

SHEET #: 4 OF 8

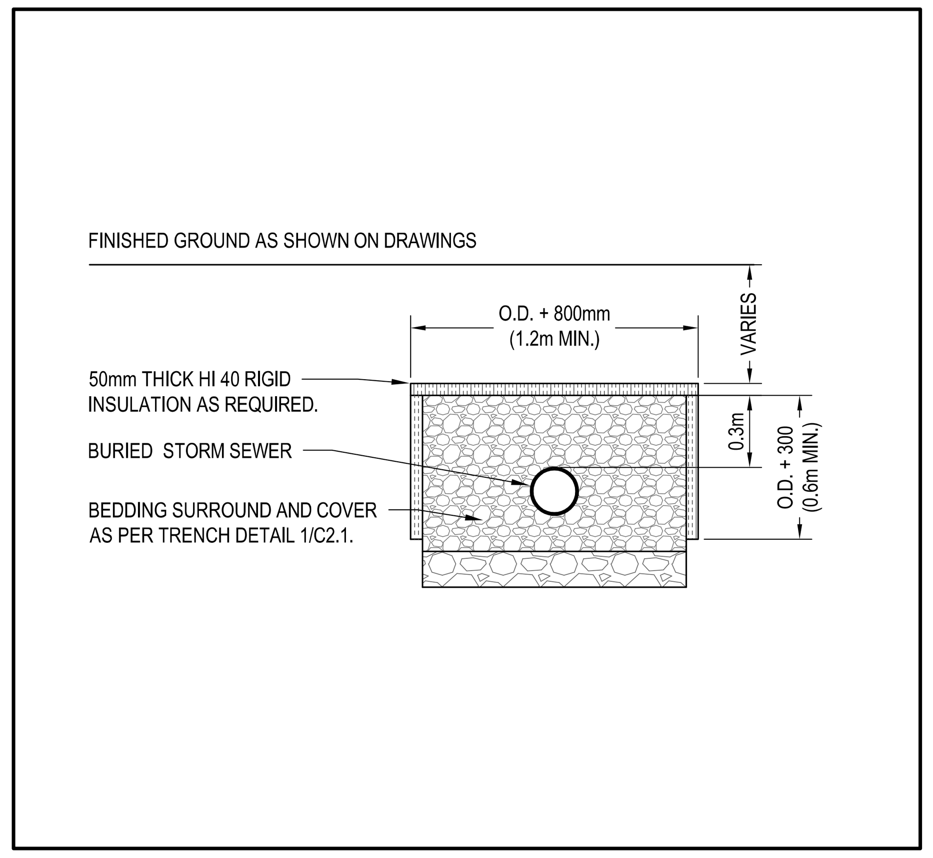
ISSUE: REVISED PER TOWNSHIP COMMENTS

DATE OF: 2020/03/13

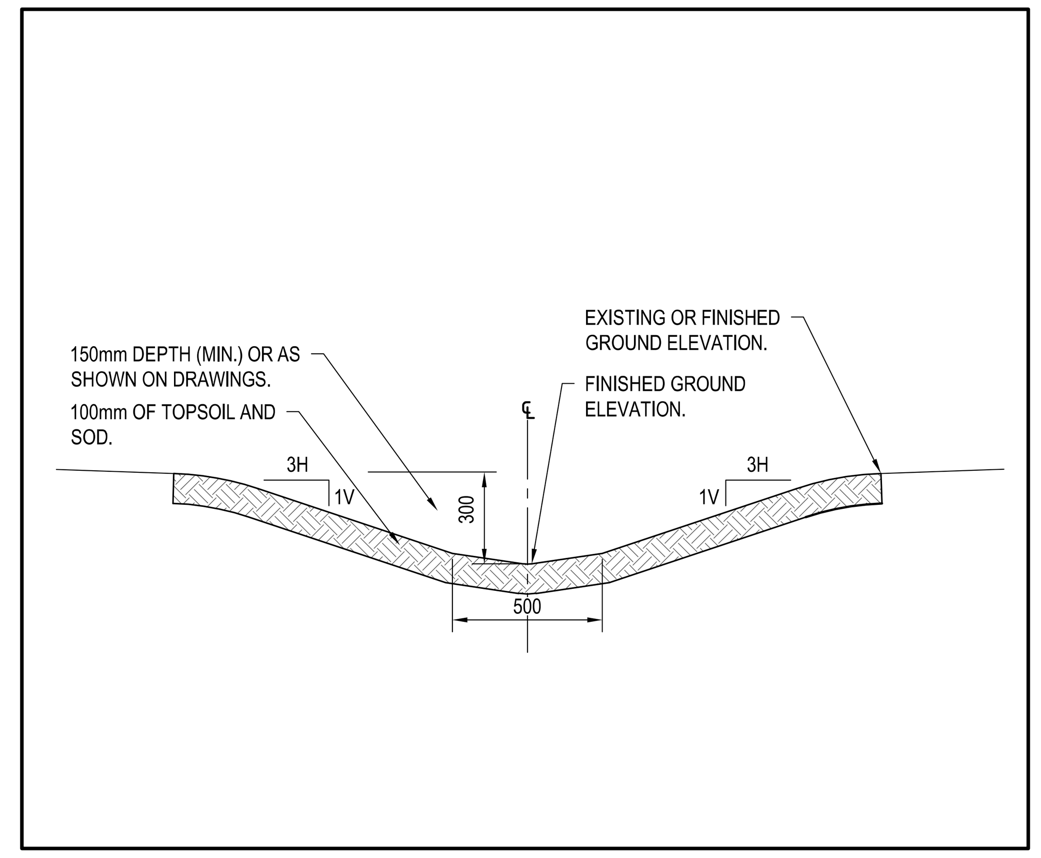
REV # 0



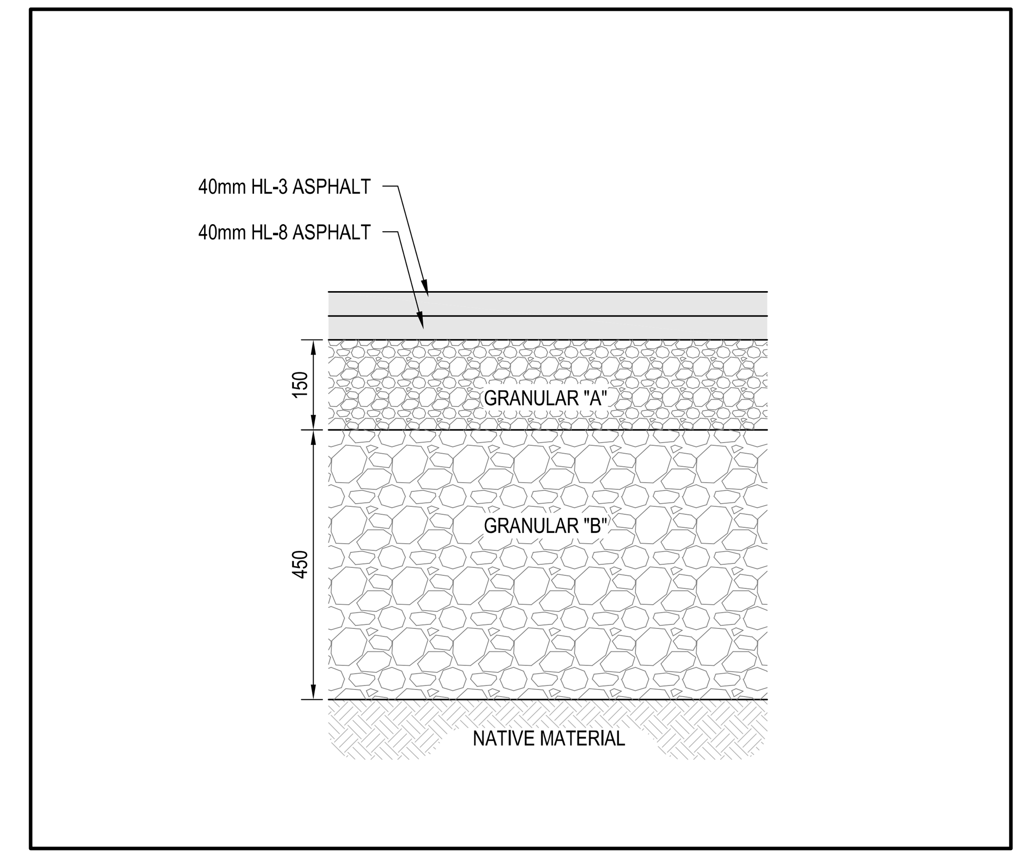
1 C2.1 TYPICAL TRENCH DETAIL
SCALE: N.T.S.



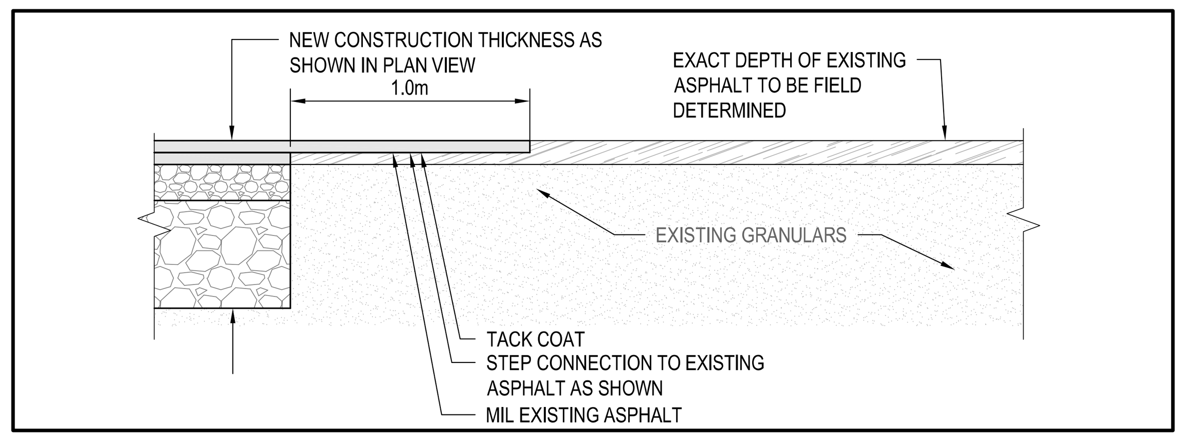
2 C2.1 TYPICAL FROST PROTECTION
SCALE: N.T.S.



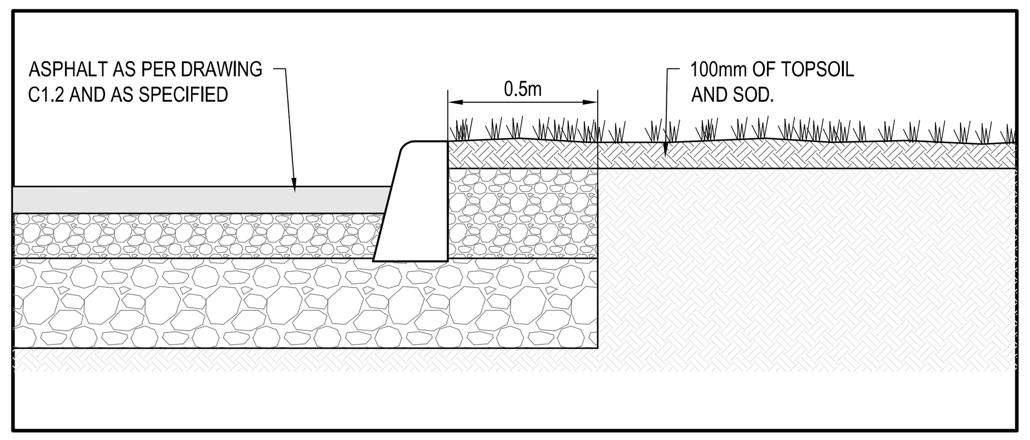
3 C2.1 TYPICAL SWALE DETAIL
SCALE: N.T.S.



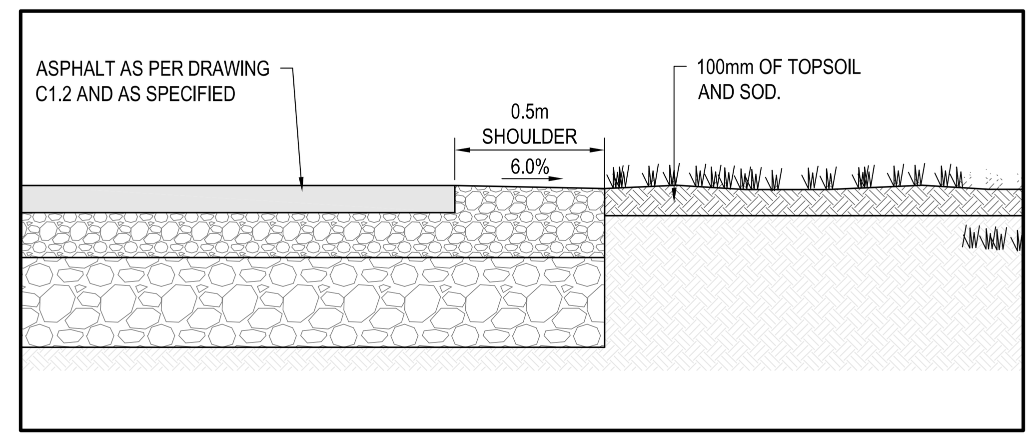
4 C2.1 NEW HEAVY DUTY ASPHALT
SCALE: N.T.S.



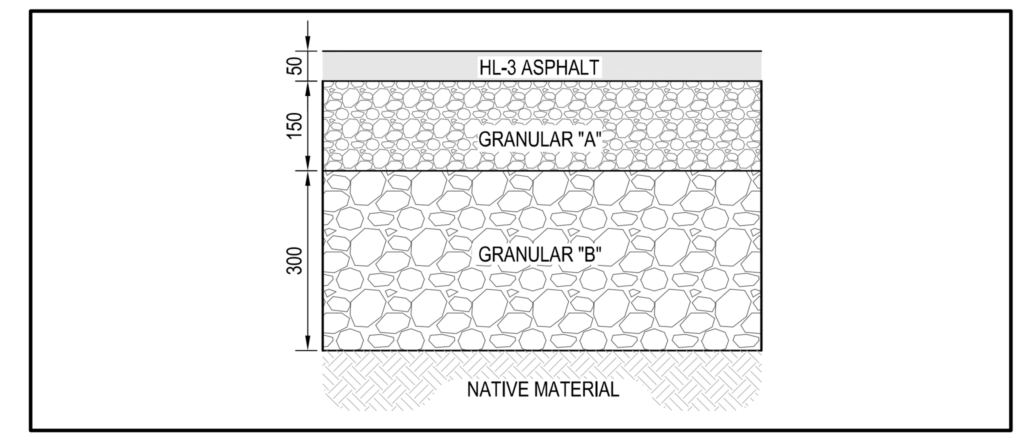
5 C2.1 TYPICAL STEP CONNECTION DETAIL
SCALE: 1:25



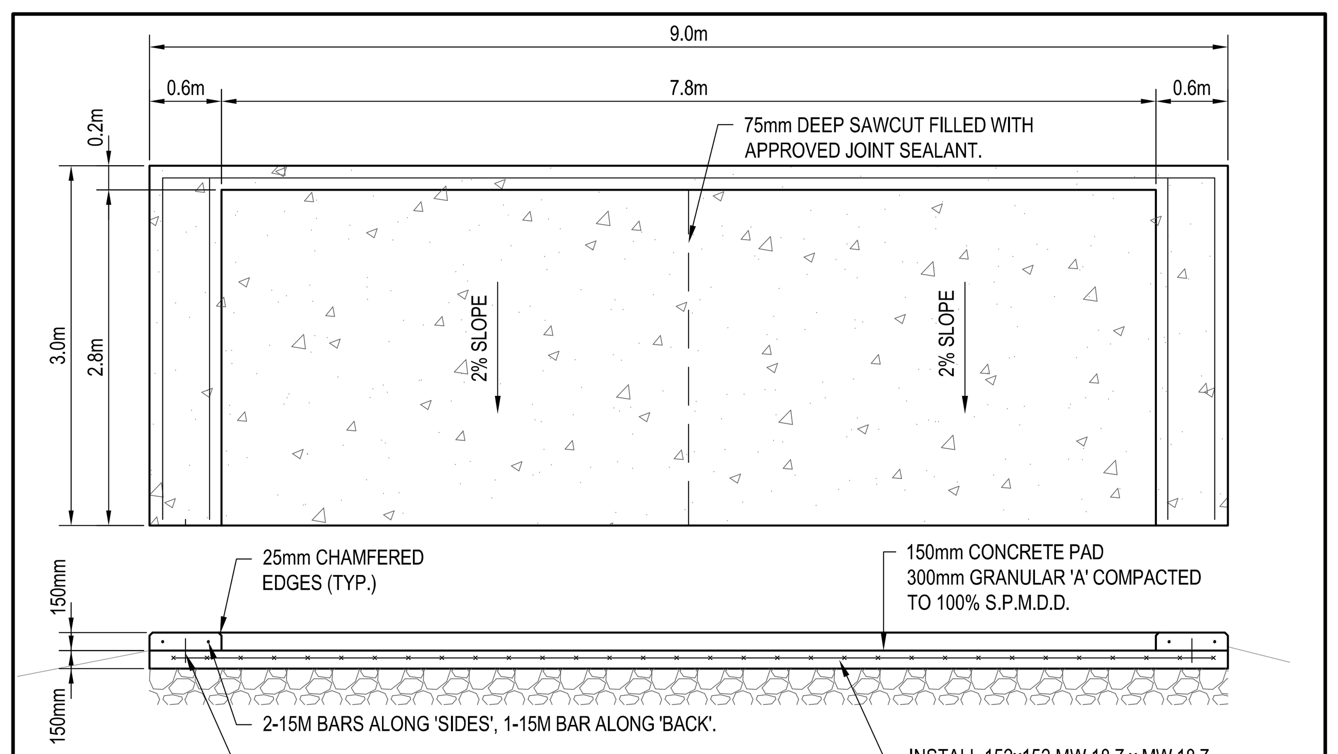
6 C2.1 TYPICAL ASPHALT EDGE DETAIL (WITH CURB)
SCALE: N.T.S.



7 C2.1 TYPICAL ASPHALT EDGE DETAIL (WITHOUT CURB)
SCALE: N.T.S.



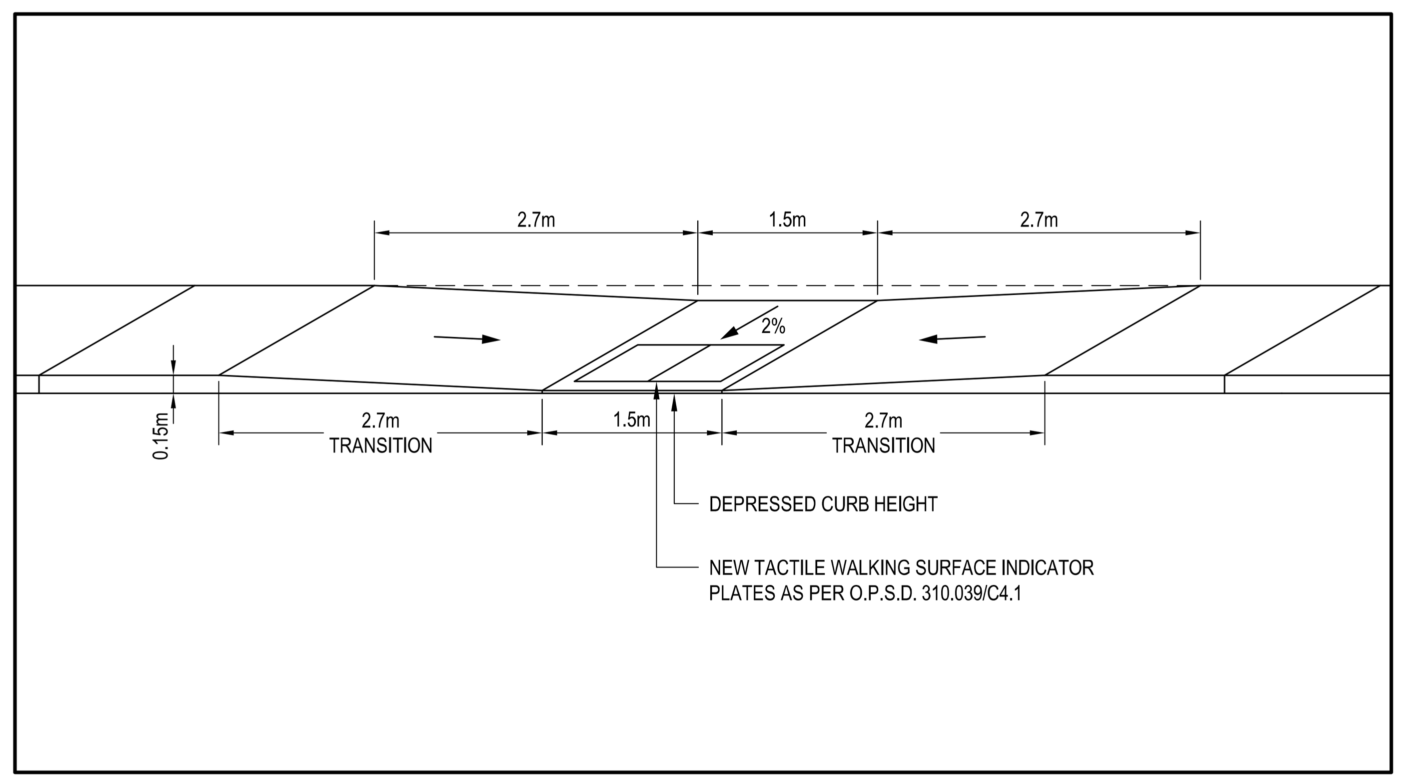
8 C2.1 LIGHT DUTY ASPAHLT
SCALE: N.T.S.



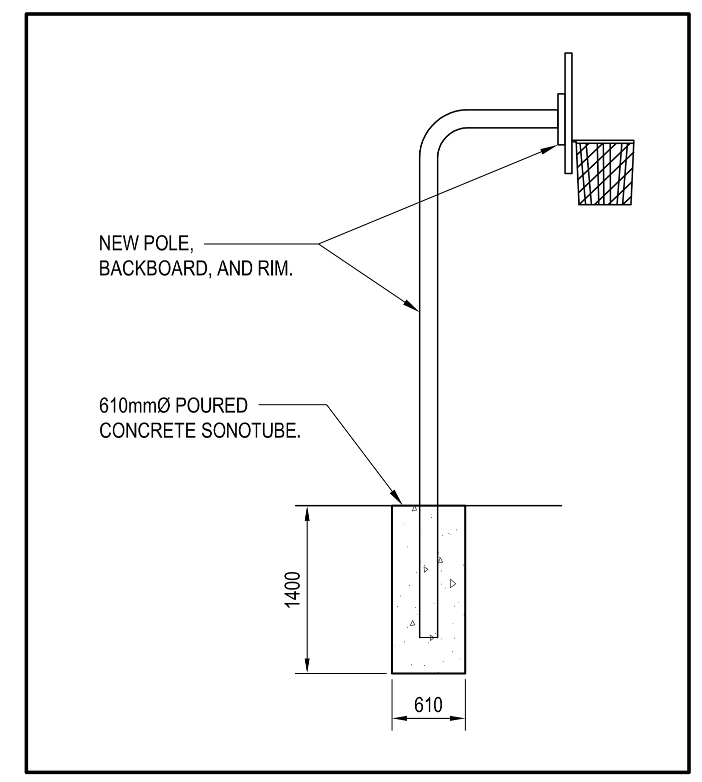
NOTES:

1. CONCRETE PER SECTION 03 30 00 - CAST IN PLACE CONCRETE.
2. GRANULARS TO BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.
3. SUBGRADE TO BE EITHER UNDISTURBED NATIVE MATERIAL OR APPROVED GRANULARS COMPACTED TO 100% STANDARD PROCTOR DENSITY.

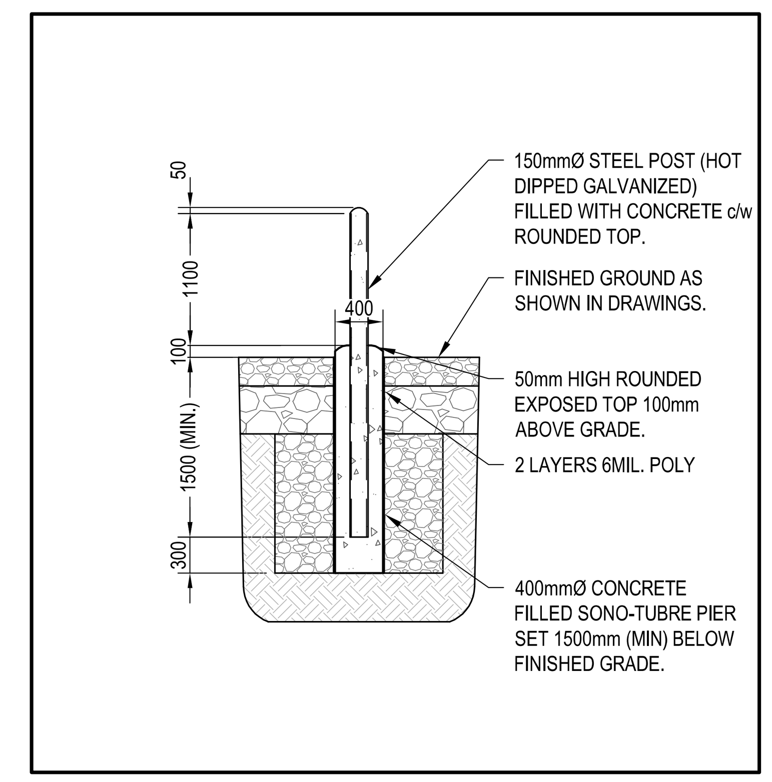
9 C2.1 GARBAGE ENCLOSURE DETAIL
SCALE: 1:50



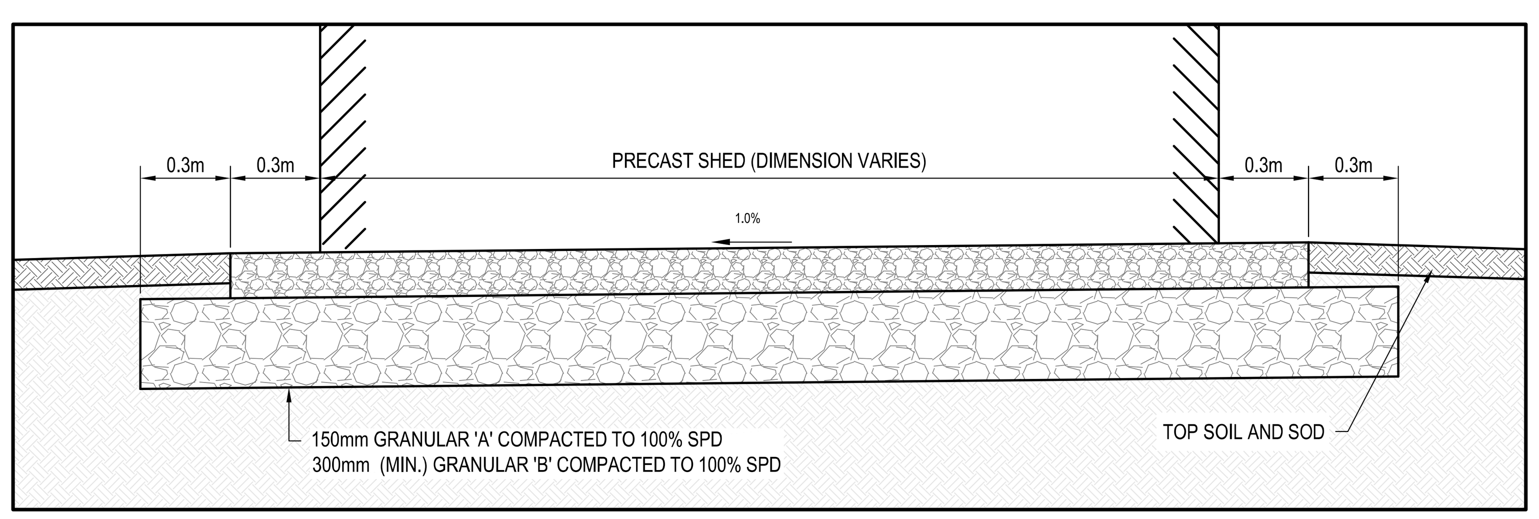
10 C2.1 SIDEWALK RAMP DETAIL
SCALE: N.T.S.



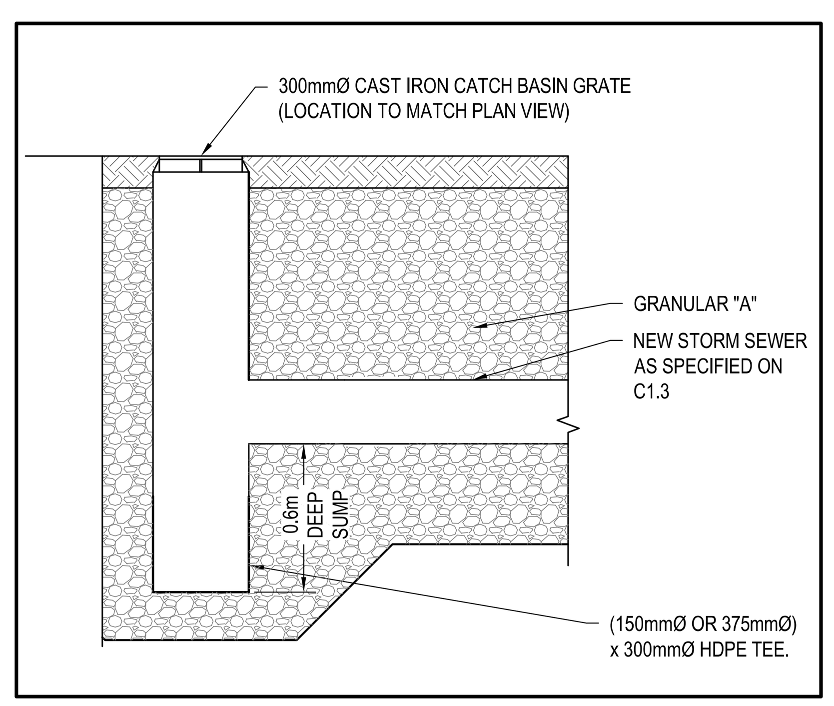
11 C2.1 TYPICAL BASKETBALL NET DETAIL
SCALE: N.T.S.



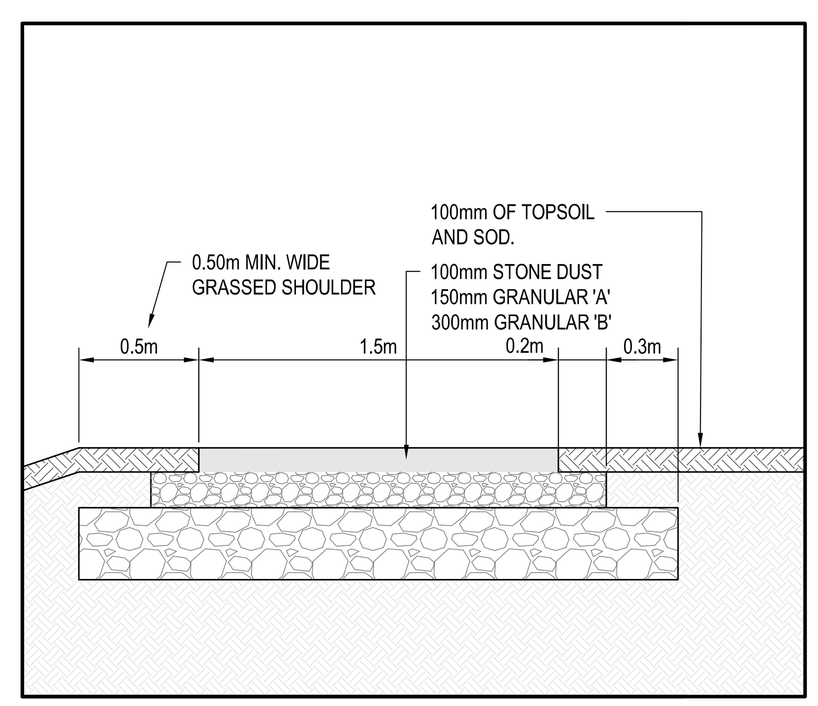
12 C2.1 TYPICAL BOLLARD DETAIL
SCALE: N.T.S.



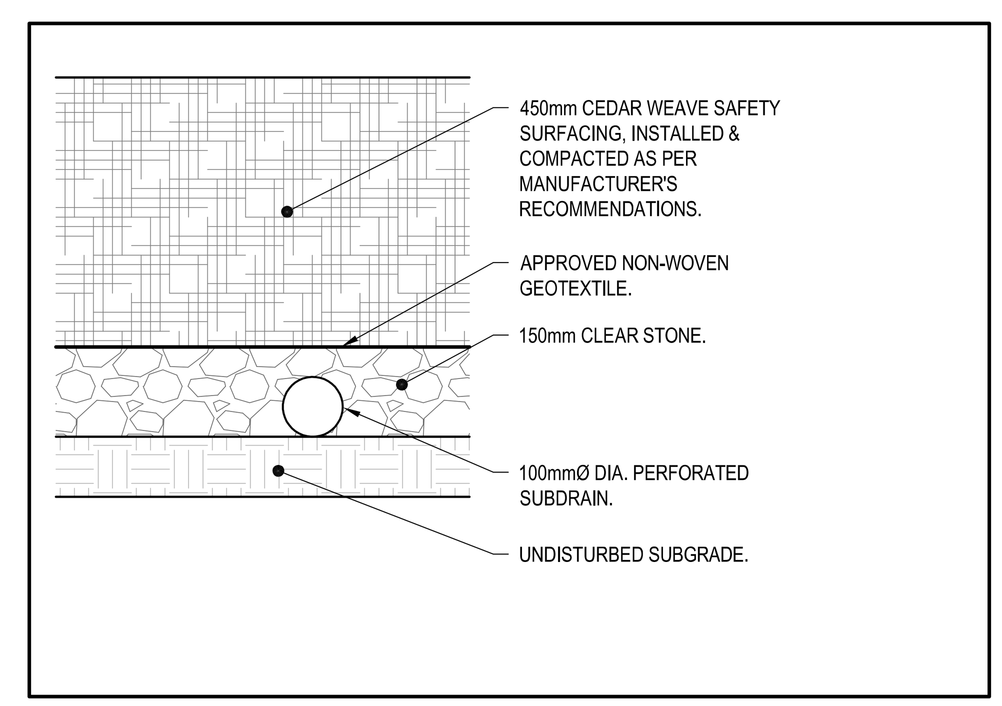
13 C2.1 GRAVEL PAD DETAIL
SCALE: N.T.S.



14 C2.1 TYPICAL PE CATCHBASIN DETAIL
SCALE: N.T.S



15 C1.3 STONE DUST PATHWAY DETAIL
SCALE: N.T.S.



16 C2.1 CEDAR WEAVE & SUBDRAIN DETAIL
SCALE: N.T.S.

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SEAL:
LICENSED PROFESSIONAL ENGINEER
K.A. MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:
CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING, FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/02/21	ISSUED FOR TENDER

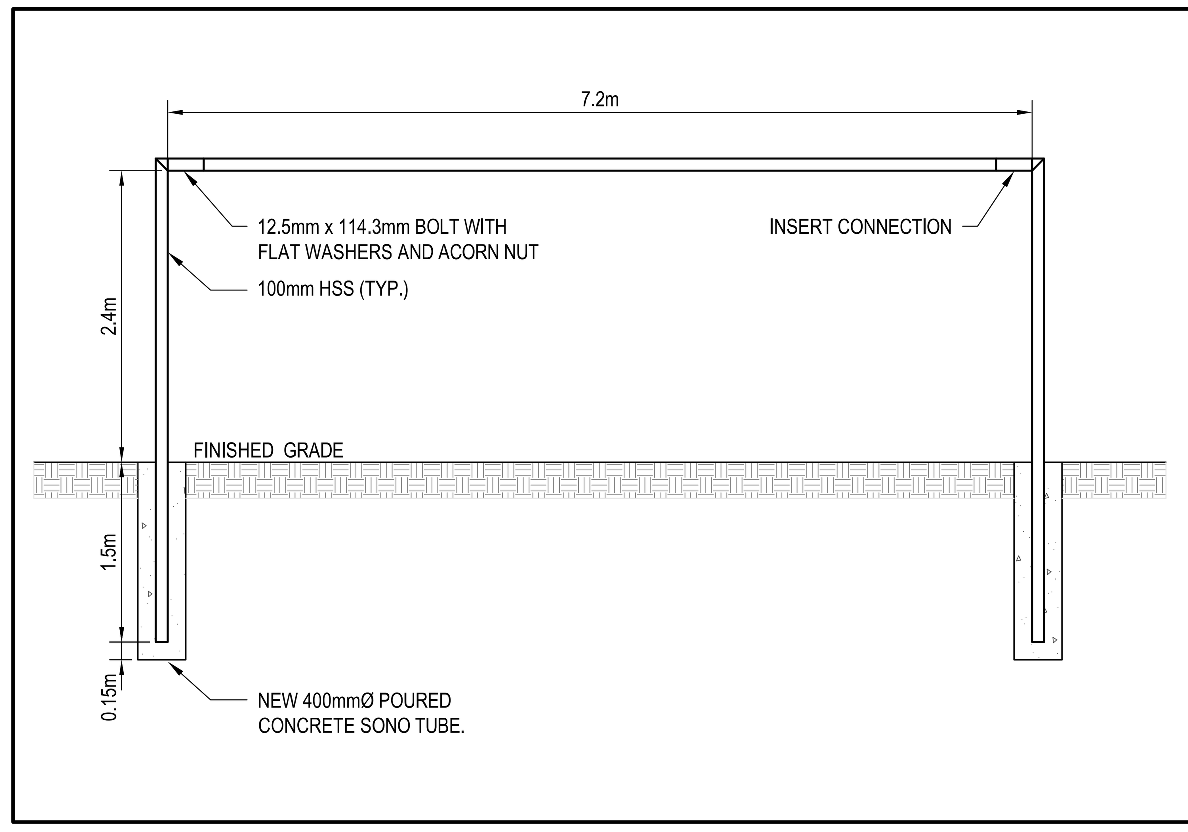
PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: AS SHOWN
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
DISCIPLINE: CIVIL
TITLE:

EXHIBIT 4

DETAILS

SHEET NUMBER: C2.1
SHEET # 5 OF 8
ISSUE: ISSUED FOR TENDER
REV # 0
DATE OF: 2020/02/14

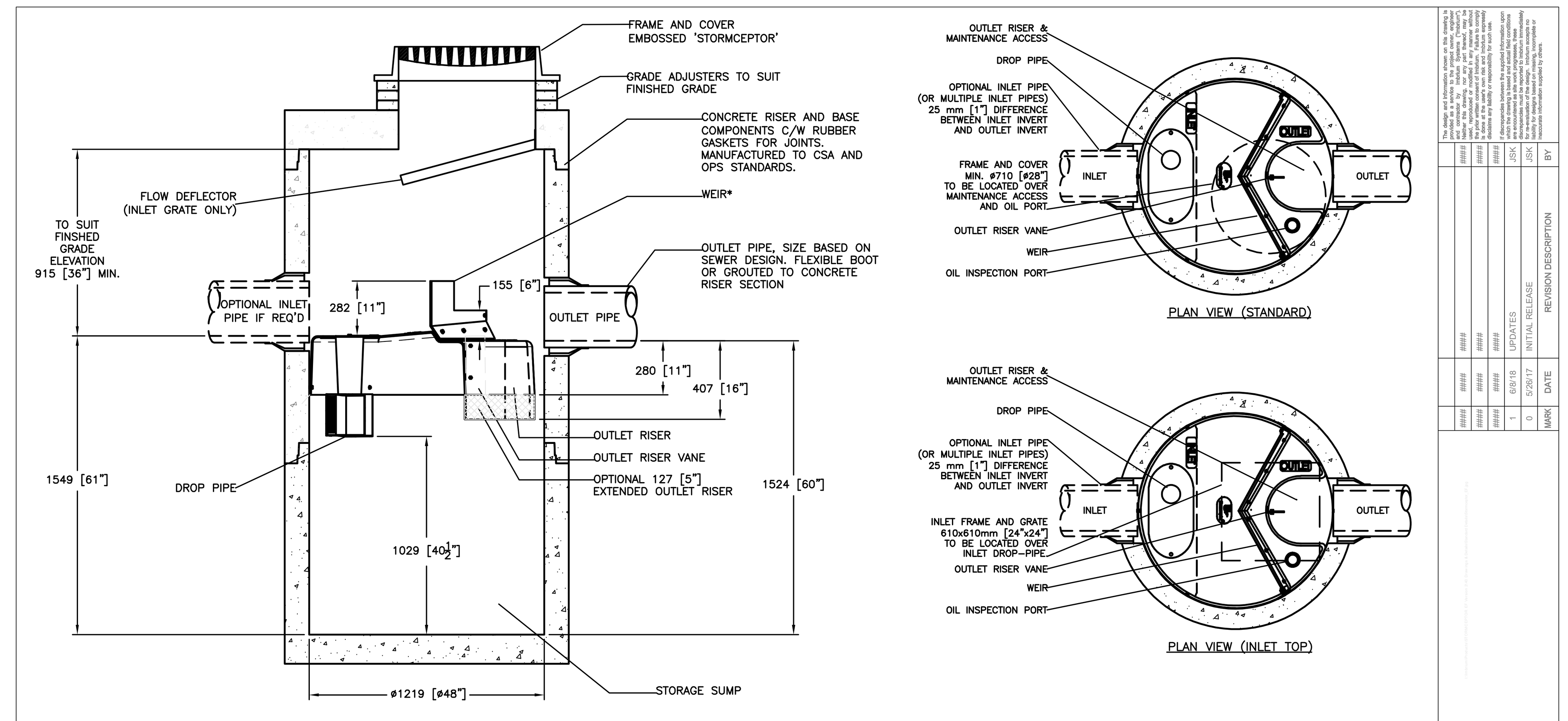
M:\2019\19141 - Centennial 67 Public School\6.0 Dwg\6.2 Civil\2.0 Production\19141 C2-1.dwg Mar 13, 2020 1:48pm BY (Kevin MacCulloch)



SOCCER GOAL INSTALLATION

1. ASSEMBLE GOAL FRAME USING THE FASTENER SUPPLIED. UPRIGHTS IN CONCRETE BASE FORM AS SHOWN ON THE DRAWING. A DRILL & 12mm BIT MAYBE REQUIRED TO BORE OUT THE HOLES IF NECESSARY FROM PAINT OVERSPRAY
2. POUR TWO CONCRETE FOOTINGS AT 400mm o/c AS SIZED AND SHOWN ON THIS DRAWING. RECOMMENDED CONCRETE TO BE TO BE 3000psi
3. ASSEMBLED GOAL FRAME IS PLUMBED IN THE CONCRETE BASE AS SHOWN. FOLLOW THE DRAWING STRICTLY TO INSURE CORRECT GOAL SIZE IS ATTAINED 2.434x7.315m. PLUMB THE FRAME IN ALL DIRECTIONS AND SUPPORT TO PREVENT MOVEMENT UNTIL THE CONCRETE PROPERLY CURES TO SUPPORT THE GOAL FRAME - MIN. 48 HOURS.
4. CHECK PLUMBNESS AND GOAL SIZE FREQUENTLY TO INSURE PROPER REGULATION SIZES.
5. AFTER 48 HOURS CURE TIME, THE GOALS WILL BE READY TO USE.

1
C2.2
TYPICAL SOCCER NET DETAIL
SCALE: N.T.S.



SECTION VIEW

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF4 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EFO4 (OIL CAPTURE CONFIGURATION). WEIR HEIGHT IS 150 mm (6 INCH) FOR EF04.

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

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DESIGNED BY: K.M.
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25mm

DISCIPLINE: CIVIL

TITLE: DETAILS

SHEET NUMBER: C2.2
SHEET #: 6 OF 8

ISSUE: ISSUED FOR TENDER
REV #: 0
DATE OF: 2020/02/14

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	HAIDER NASRULLAH 647-850-9417 HAIDER.NASRULLAH@ADS-PIPE.COM
ADS SALES REP:	####### #### ############ #######.####@ADS-PIPE.COM
PROJECT NO:	#######

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST® StormTech
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SC-740 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 50 mm (2").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 150 mm (6") SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 20-50 mm (3/4-2").
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

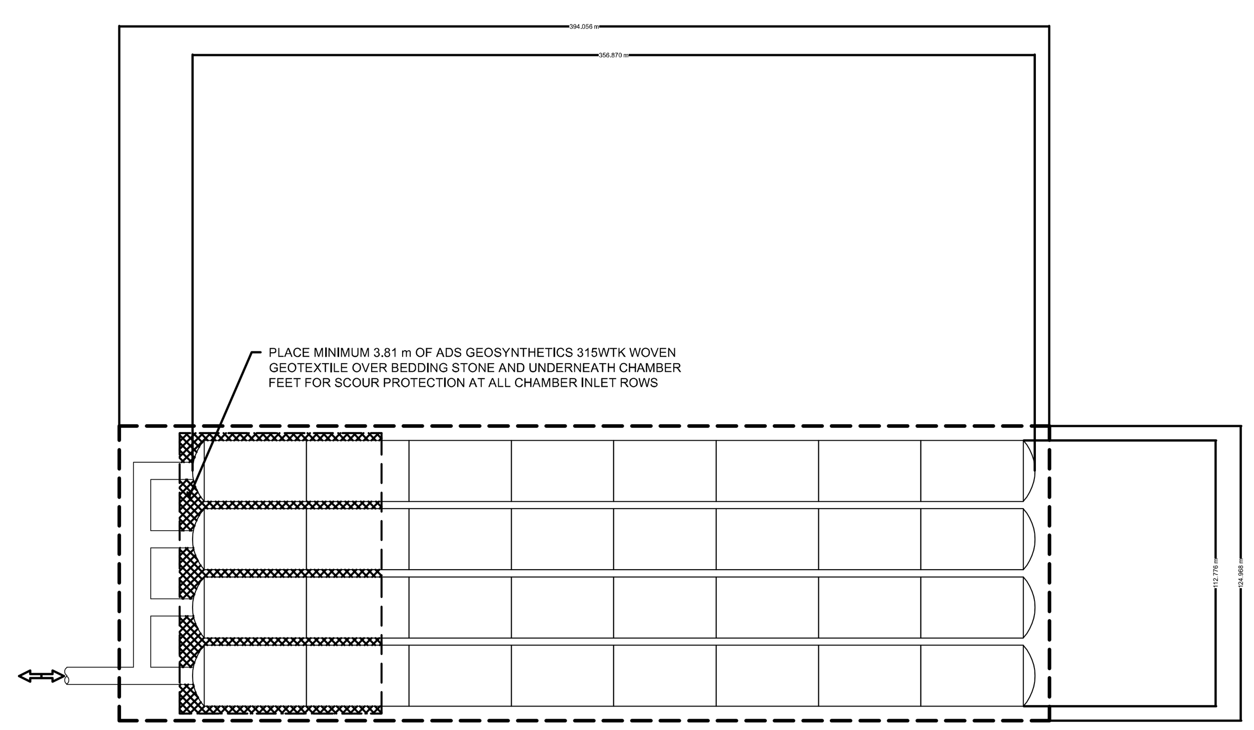
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

CONCEPTUAL LAYOUT	
32	STORMTECH SC-740 CHAMBERS
8	STORMTECH SC-740 END CAPS
152	STONE ABOVE (mm)
152	STONE BELOW (mm)
40	% STONE VOID
77.5	**INSTALLED SYSTEM VOLUME (m^3) (PERIMETER STONE INCLUDED)**
123.1	SYSTEM AREA (m^2)
51.9	SYSTEM PERIMETER (m)

CONCEPTUAL ELEVATIONS	
97.0720	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):
95.2440	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):
95.0910	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):
95.0910	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):
95.0910	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT):
94.7860	TOP OF STONE:
94.6340	TOP OF SC-740 CHAMBER:
93.8720	BOTTOM OF SC-740 CHAMBER:
93.7200	BOTTOM OF STONE:

NOTES

- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

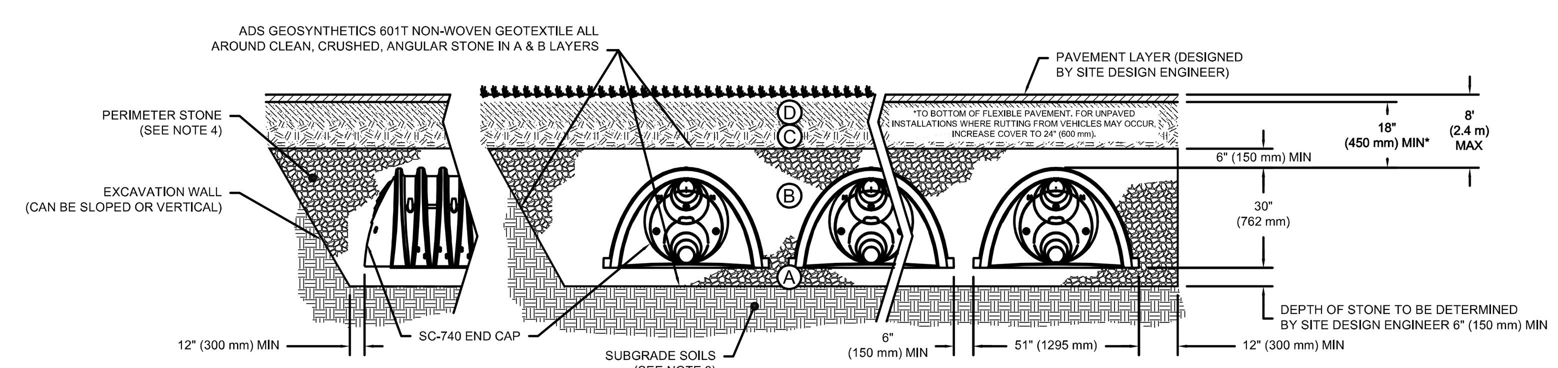


StormTech
4640 TRUEMAN BLVD HILLIARD, OH 43026
SCALE = 1 : 100
SHEET C2.3 OF #

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL**: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL**: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE**: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE**: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



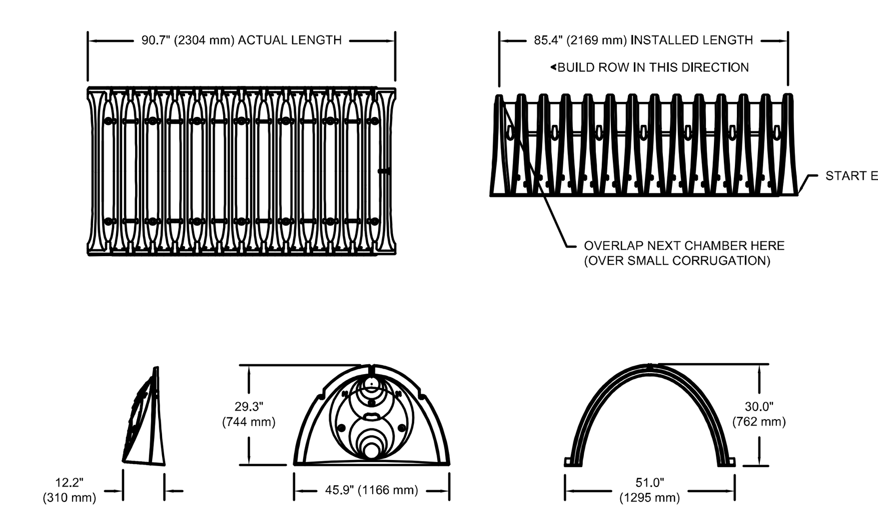
NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

StormTech
4640 TRUEMAN BLVD HILLIARD, OH 43026
SHEET C2.3 OF #

SC-740 TECHNICAL SPECIFICATION

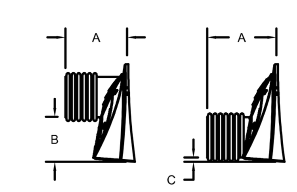
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m^3)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m^3)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

StormTech
4640 TRUEMAN BLVD HILLIARD, OH 43026
SHEET C2.3 OF #

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WEBSITE: EVBengineering.com

SE
LICENSED PROFESSIONAL ENGINEER
K.A. MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:
CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING,
FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/02/21	ISSUED FOR TENDER

PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: AS SHOWN
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

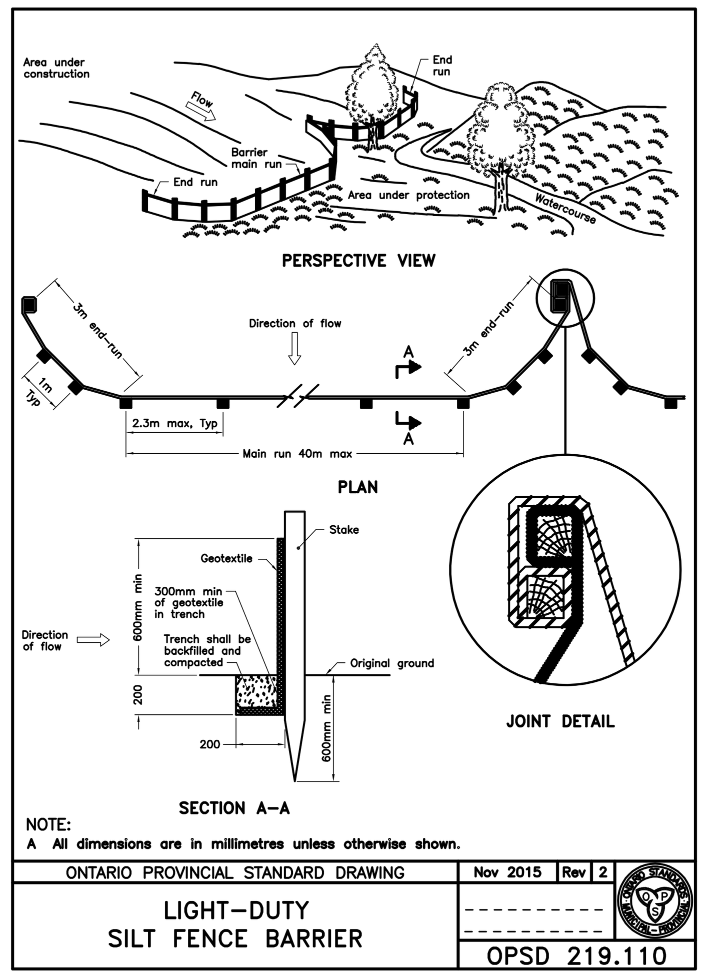
DISCIPLINE: CIVIL

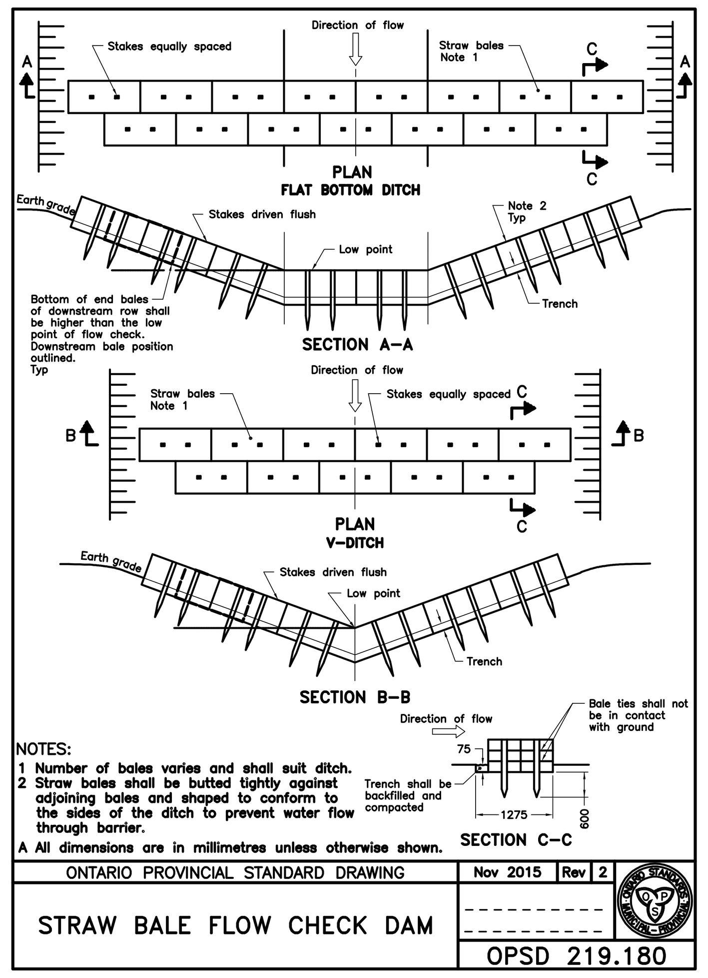
TITLE: DETAILS

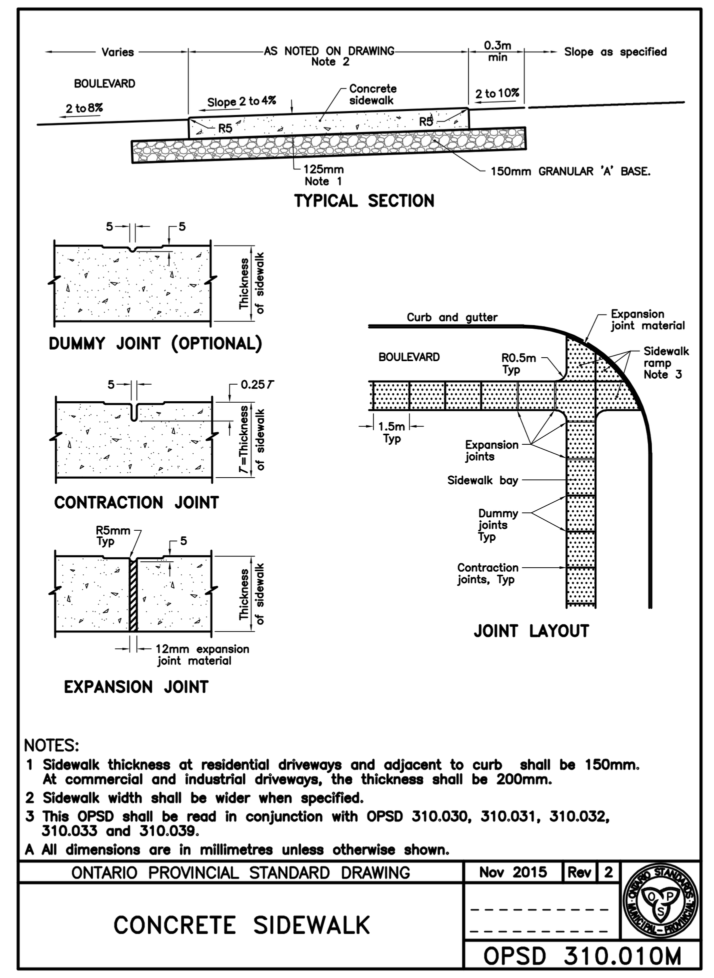
SHEET NUMBER: C2.3
SHEET # 5 OF

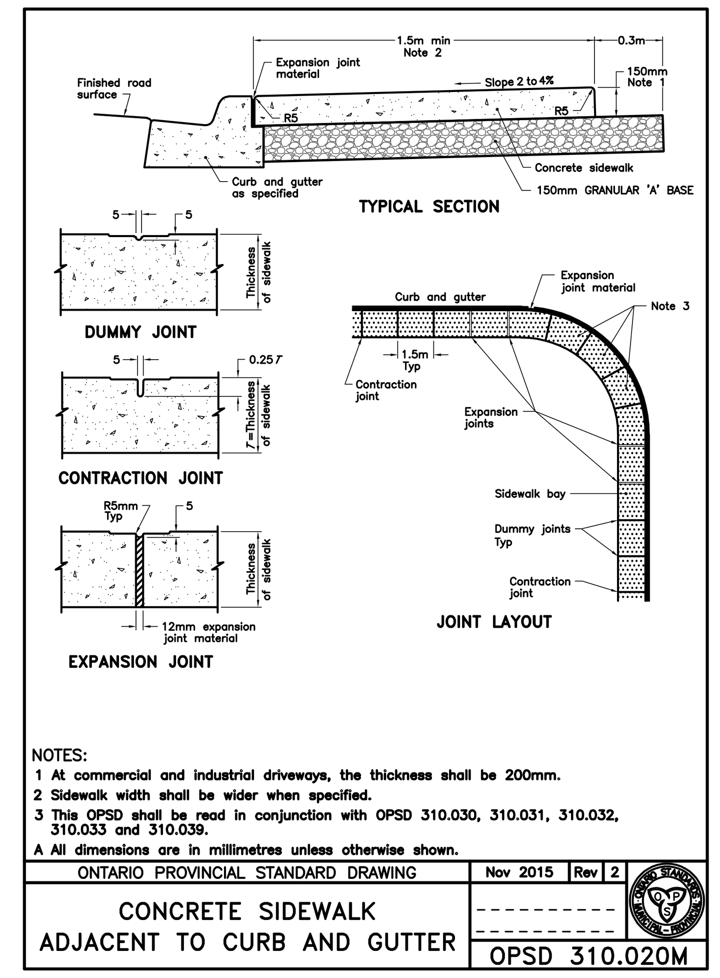
ISSUE: ISSUED FOR TENDER
REV # 0
DATE OF: 2020/02/14

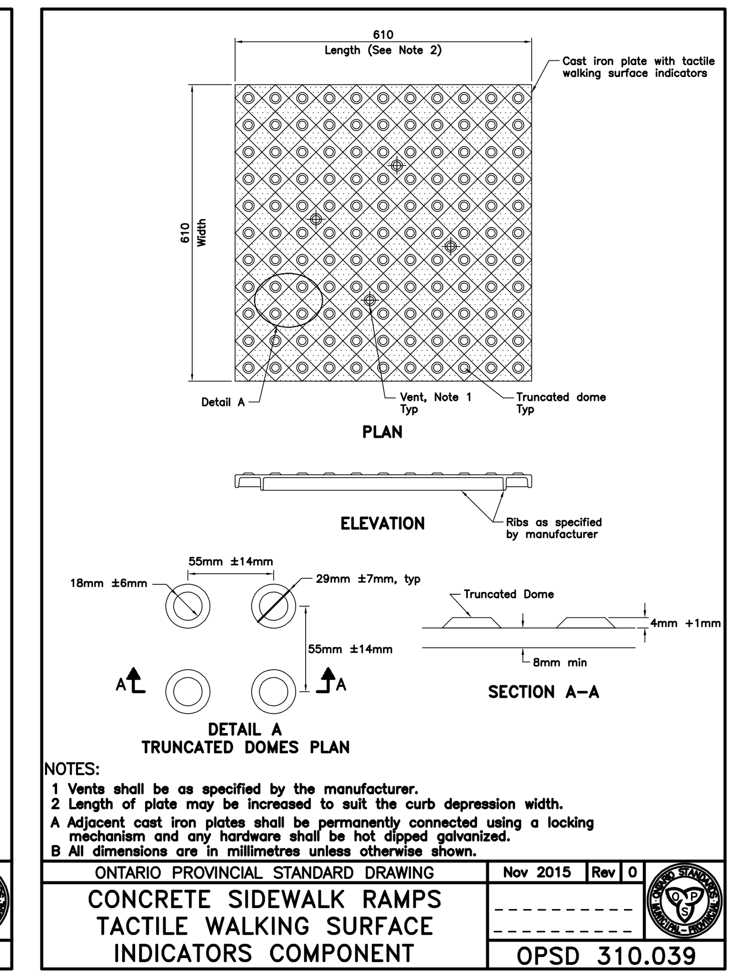
M:\2019\19141 - Centennial 67 Public School\6.0 Dwg\6.2 Civil\2.0 Production\19141 C2-1.dwg Mar 13, 2020 - 1:46pm BY (Kevin.MacCulloch)

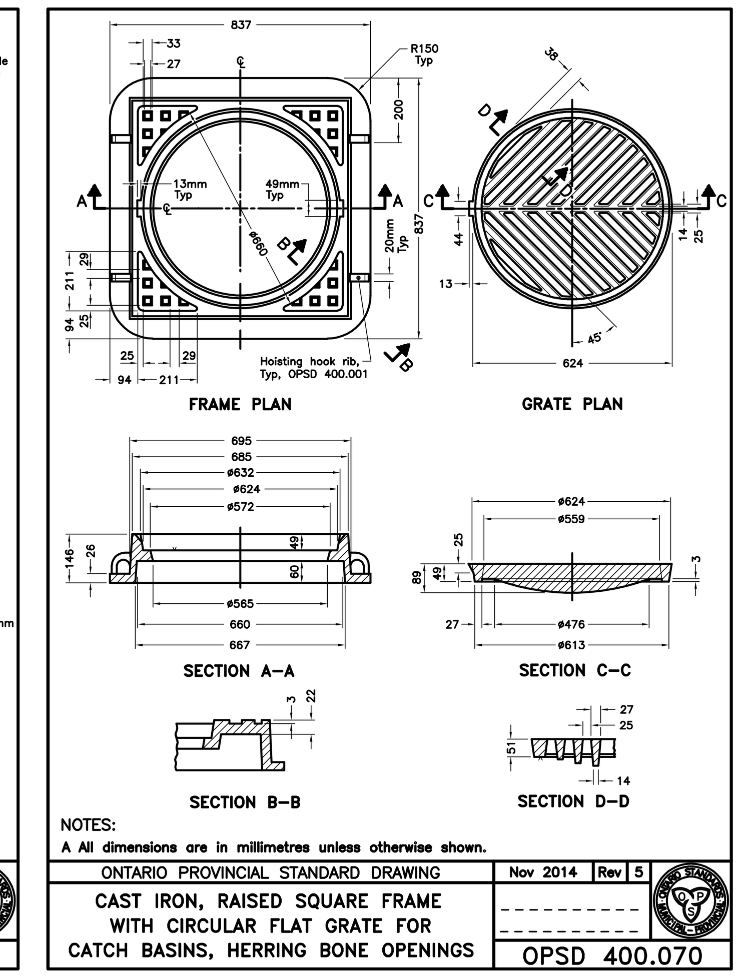


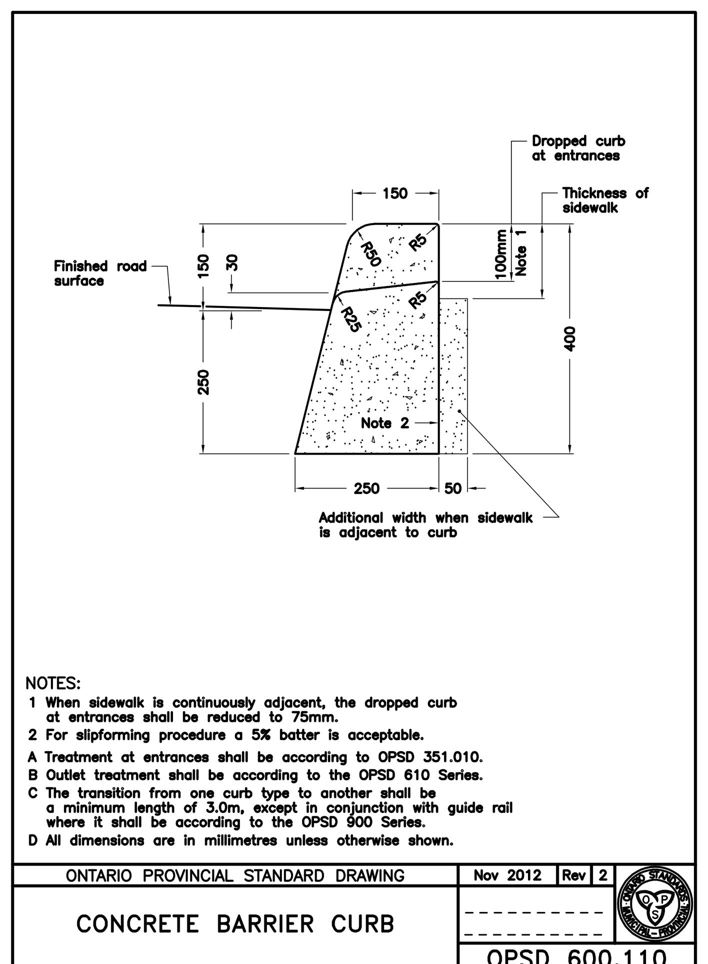


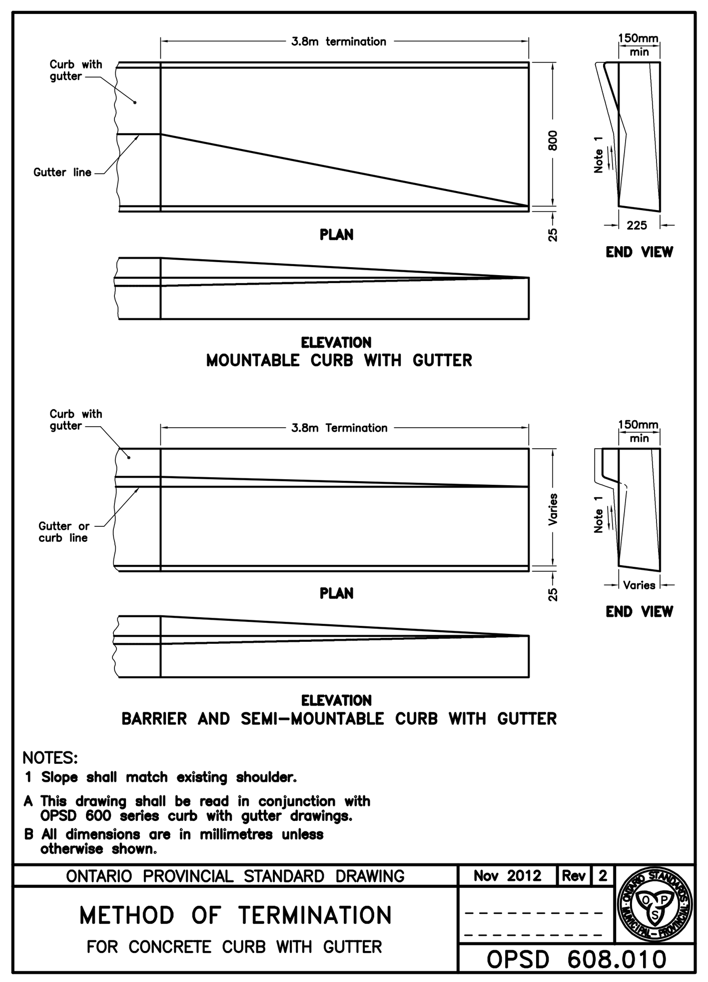


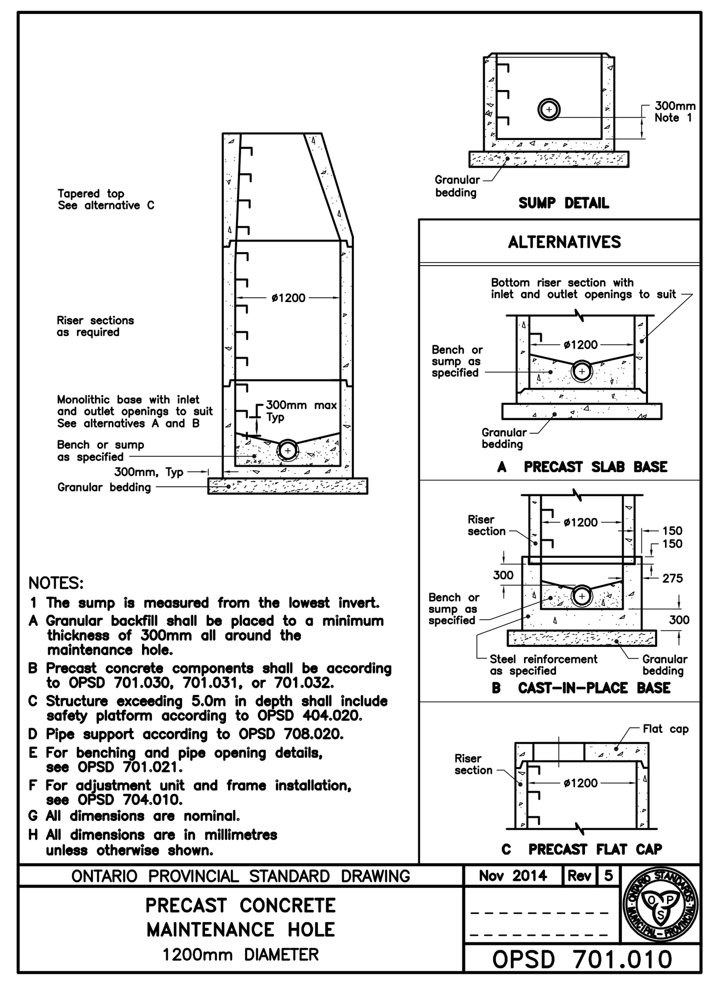


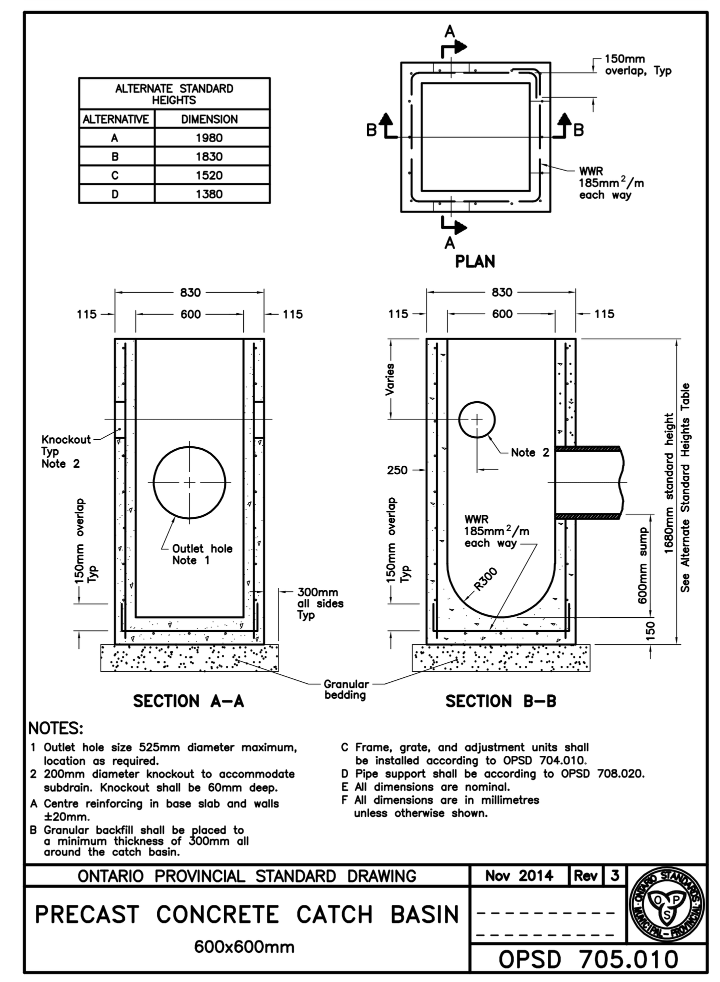


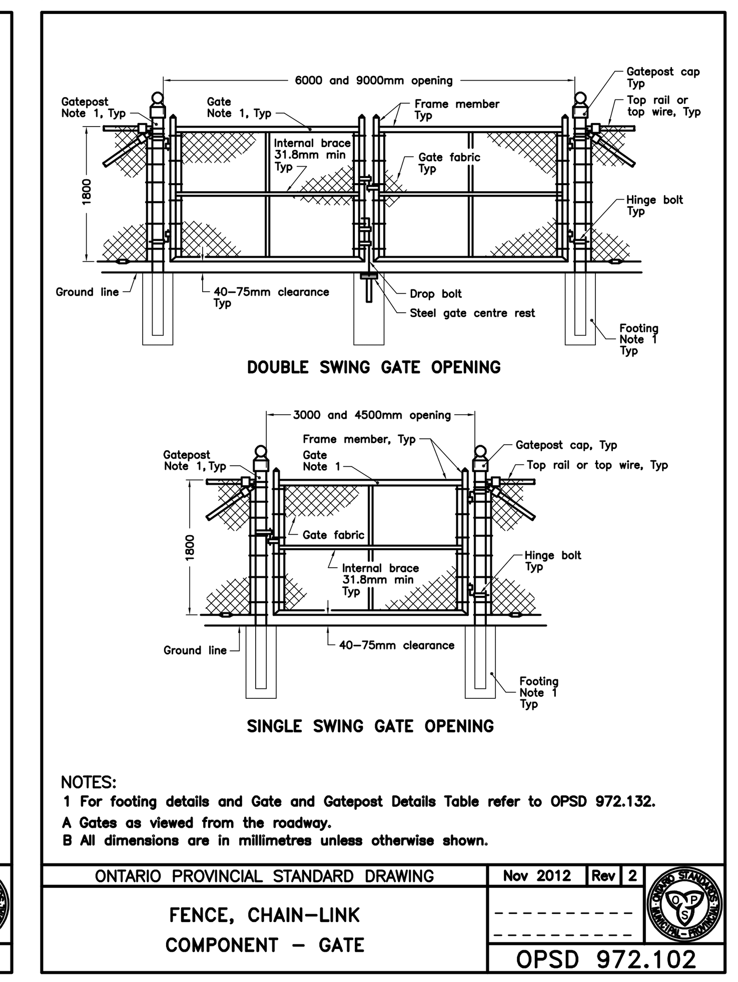


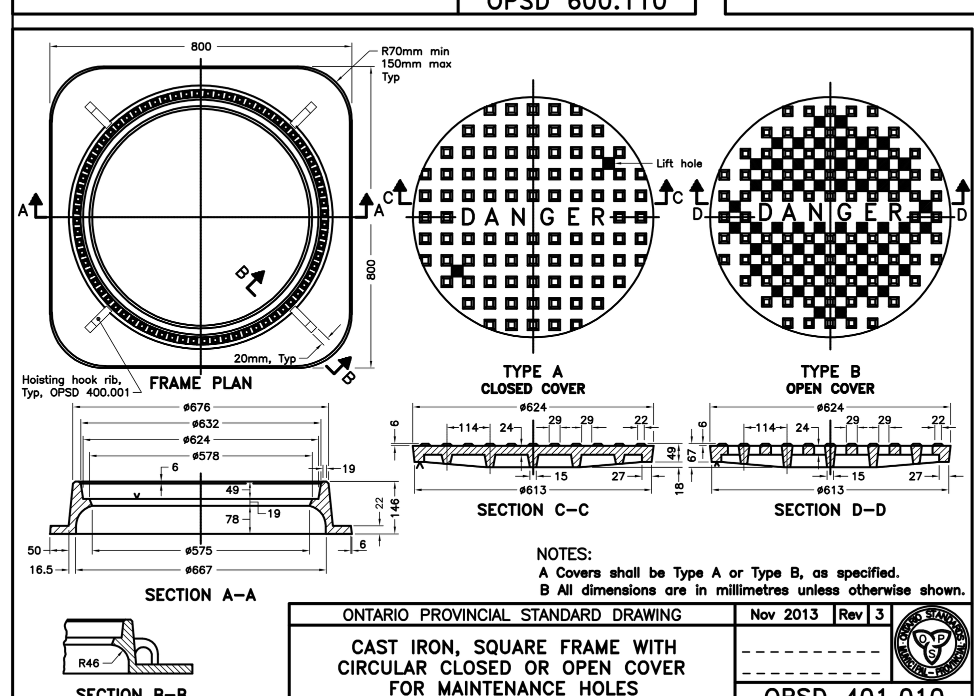


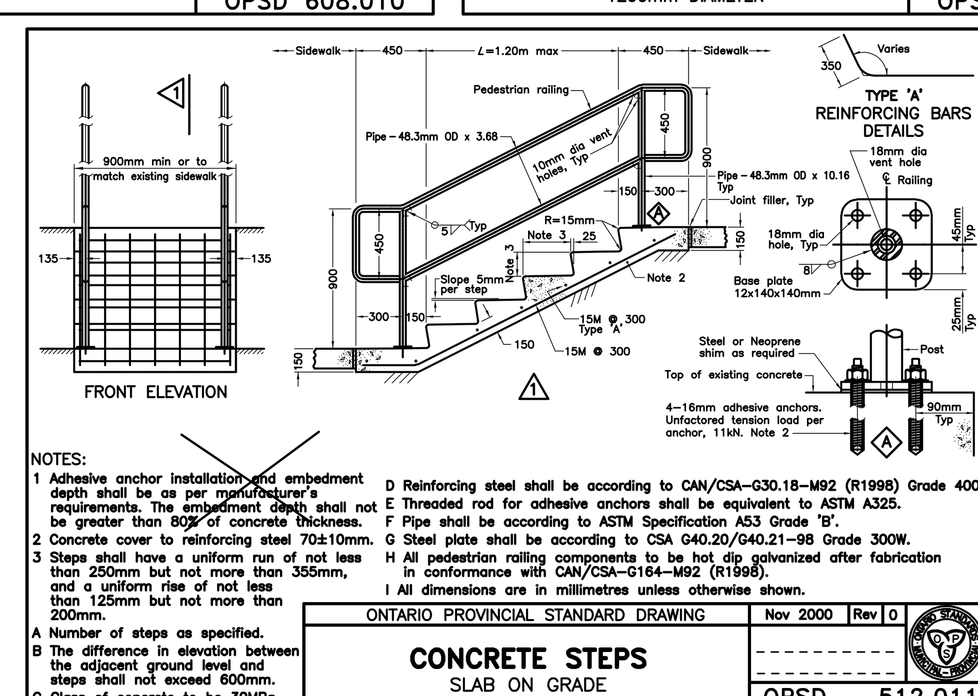


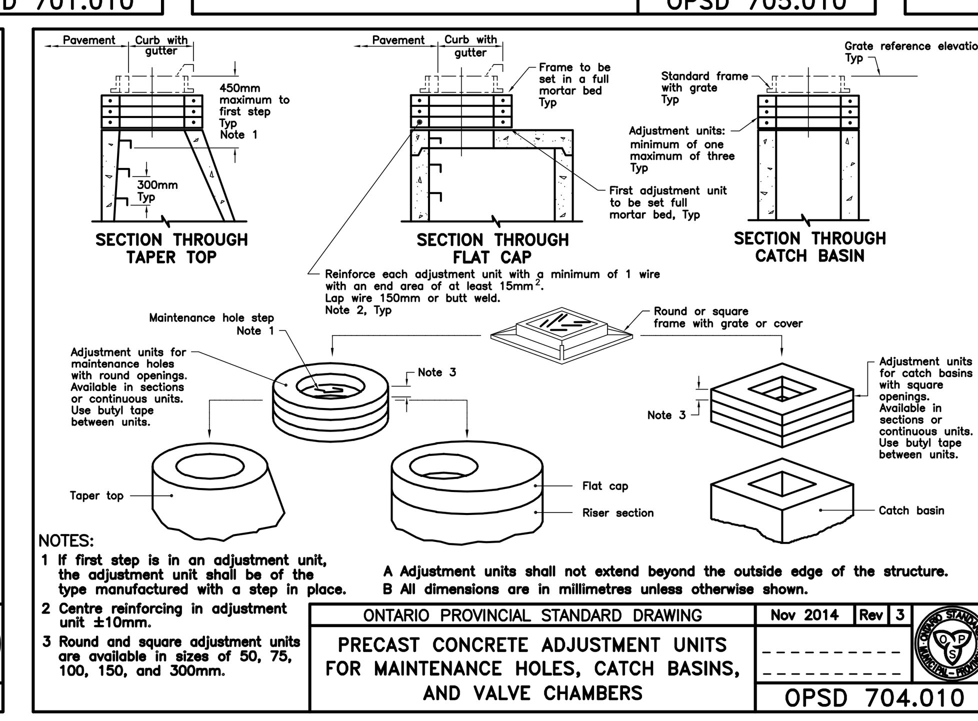


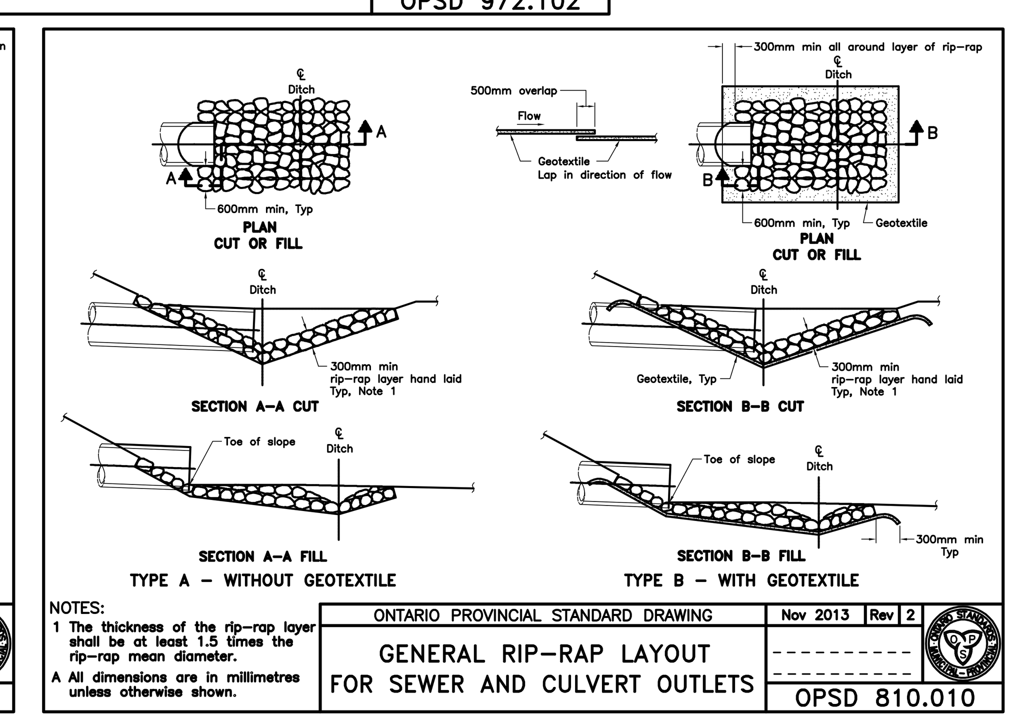


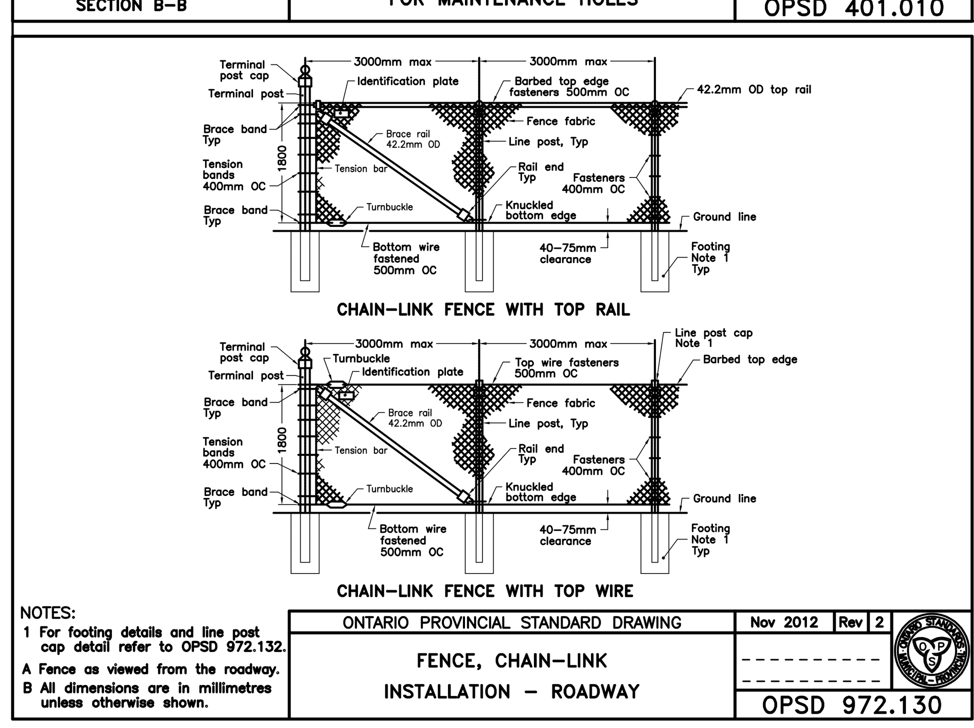


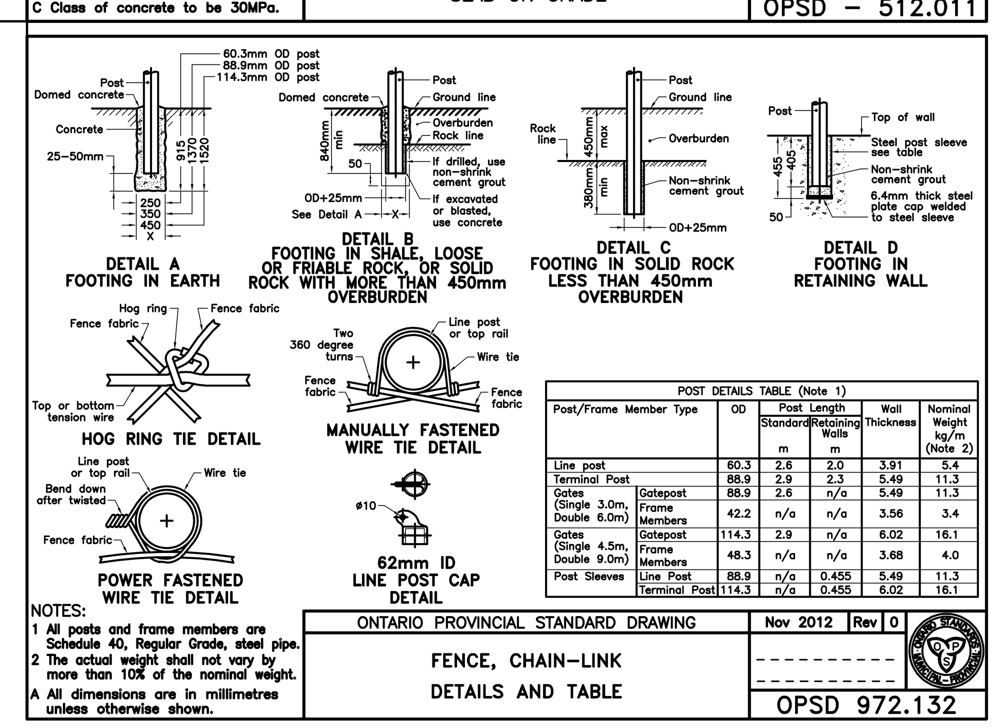












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SEAL:
LICENSED PROFESSIONAL ENGINEER
K.A.MACCULLOCH
100205607
2020/03/13
PROVINCE OF ONTARIO

CLIENT:
UPPER CANADA District School Board

PROJECT:

CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING,
FRONT ENTRANCE AND RENOVATIONS

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2020/03/13	REVISED PER TOWNSHIP COMMENTS

PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: AS SHOWN
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
DISCIPLINE: CIVIL
TITLE:
O.P.S.D.'S
SHEET NUMBER: C3.1
SHEET #: 8 OF 8
ISSUE: REVISED PER TOWNSHIP COMMENTS
DATE OF: 2020/03/13
REV # 0

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SCHEDULE "C"

Site Plan Control Agreement

STORM WATER MANAGEMENT, SEDIMENT & EROSION CONTROL PLAN

EXHIBITS: The following Exhibits attached hereto shall form part of this Schedule:

Exhibit 1- Stormwater Management Report
Prepared by EVB Engineering

Exhibit 2- Sediment & Erosion Control Plan
Prepared by EVB Engineering

EXHIBIT 1

Centennial '67 Public School 2020 Bus Lane, Parking, Front Entrance and Renovations Stormwater Management Report

Prepared for Upper Canada District School Board.

JOB#: 19141 | March, 6, 2020

SUBMITTED BY: EVB Engineering

800 Second St. West, Cornwall
ON K6J 1H6

613.935.3775
EVBengineering.com

Table of Contents

1. Introduction

1.1 Background

This stormwater management and servicing report is submitted on behalf of the Upper Canada District School Board in support of Site Plan Approval for a new bus lane, parking lot, front entrance and renovations for the Centennial 67' Public School located in Spencerville, ON.

This report completed by EVB Engineering (EVB) encompasses the stormwater management and servicing for the proposed site improvements.

1.2 General Description & Land Use

The existing Centennial 67' Public School is located off of Henderson Street, and consists of Lots 56, 57, 58, 59, 60, 66, 67, 68, 69, 73, 74, 84, 89 & 94 and Part of Lots 55, 75, 76, 82, 83, 90, 91 & 93 and Part of Park Lot "D" and "E" and Prince Street and Part of Victoria Street, South Street and King Street, on Registered Plan No. 40 in the Township of Edwardsburg-Cardinal, County of Grenville.

The proposed school upgrades are illustrated in the provided drawings and consists more specifically of a new asphalt bus loop, asphalt parking lot reinstatement, playground upgrades, front entrance upgrades and renovations to the interior of the building.

2. Stormwater Management

Standard practices are such that the quantity of stormwater runoff from a new development be reduced to acceptable (pre-development) levels. More specifically, the 5-year and 100-year post-development storm events shall match the corresponding pre-development peak flows. In addition, 80% total suspended solids (TSS) removal shall be achieved for the site.

As such, EVB Engineering has reviewed the existing and proposed stormwater drainage patterns to analyze the impacts, if any, associated with an increase in stormwater runoff resulting from the construction of the proposed development.

2.1 Site Overview and Catchment Areas

The existing drainage patterns were established based on the topographic survey completed by Collett Surveying Ltd. and are illustrated in Fig.1 – Pre-Development Stormwater Catchment Areas (Appendix A). As can be seen, the existing site is divided into two catchment areas with A1 (1.12ha) discharging to the South Nation River via a series of existing storm sewers and an open ditch located at the south eastern limits of the site, and A2 (1.46ha) discharging to the existing storm sewers on Bennet St. via a series of storm sewers and swales located on site.

The post-development drainage patterns were established based on the proposed grading plan of the site and are shown on Fig.2 – Post-Development Stormwater Catchment Areas, which can also be found in Appendix “A”.

Swales, catchbasins and storm sewers will be constructed to collect stormwater and convey it to the two existing outlets on-site as noted above.

2.2 Site Grading

The site grading plan was completed to ensure a minimum slope of 1.0% is achieved for all grassed and asphalt areas with terracing varying between 3H:1V to 4H:1V along ditches and where grass slopes exceed the maximum allowed.

2.3 Stormwater Runoff

Stormwater runoff was calculated using the Rational method and associated design criteria as described below. The Rational method is a valid approximation of the peak flow generated by a storm event, provided it is used for drainage areas smaller than 100 hectares.

2.3.1. Runoff Coefficient

The pre- and post-development weighted runoff coefficients were calculated for the various catchment areas based on runoff coefficients of 0.90 for asphalt areas, 0.95 for roof area, 0.5 for gravel areas and 0.20 for grassed areas all as per the MOECP’s *Design Guidelines for Sewage Works* (2008). Calculations may be found in Appendix “B”.

2.3.2. Time of Concentration

The time of concentration represents the longest time that it will take for a water droplet to runoff the watershed to its discharge point, and at which time the peak flow will occur.

The initial time of concentration for the open ditch outlet (A1) was calculated to be 29.01 minutes using the Aviation method. Similarly, the time of concentration for A2 was calculated to be 19.20 minutes.

2.3.3. Rainfall Intensity

The rainfall intensities were derived using the intensity-duration-frequency (IDF) Curve Lookup application available on the Ontario Ministry of Transportation website.

2.4 Stormwater Quantity

As previously mentioned, the 5-year and 100-year post development flows will be attenuated to the corresponding pre-development levels. Furthermore, since post-development catchment areas A3 and A4 will be uncontrolled, their corresponding 5yr and 100yr. post development peak flows will be deducted from the allowable (5yr and 100 pre-development) peak flows.

Storage will be regulated by a 100mmØ orifice installed on the outlet pipe of STCEF4, with an underground stormwater chamber system installed upstream to provide the necessary quantitative storage.

It should also be noted that storage provided in the proposed storm structures, trench drains, storm pipes, and ditches has conservatively not been taken into consideration in the above storage calculations.

Table 2.1 and Table 2.2 below summarizes the pre- and post-development scenarios for the site for storm events with return periods of 5 years and 100 years, respectively.

Table 2.1 – 5 Year Peak Runoff for Pre and Post Development Flows

Return Period (years)	Pre Development				Post Development					Required Storage (m^3)
	Area Label	Area (ha)	C Factor	Flow (L/s)	Area Label	Area (ha)	C Factor	Uncont. Flow (L/s)	Cont Flow (L/s)	
5	A1	1.12	0.32	45.12	A3	1.12	0.34	61.13	61.13	**34.89**
	A2	1.47	0.33	79.31	A4	0.54	0.54	47.53	47.53	
					A5	0.92	0.30	44.75	15.96	
		2.59		**124.43**		**2.59**		**153.42**	**124.62**	

Table 2.2 – 100 Year Peak Runoff for Pre and Post Development Flows

Return Period (years)	Pre Development				Post Development					Required Storage (m^3)
	Area Label	Area (ha)	C Factor	Flow (L/s)	Area Label	Area (ha)	C Factor	Uncont. Flow (L/s)	Cont Flow (L/s)	
100	A1	1.12	0.32	75.32	A3	1.12	0.34	102.04	102.04	**64.85**
	A2	1.47	0.33	132.37	A4	0.54	0.54	79.34	79.34	
					A5	0.92	0.30	74.69	20.68	
		2.59		**207.69**		**2.59**		**256.08**	**202.06**	

As can be seen in the table above, the total post-development runoff for the 5-year and 100-year storm events has been attenuated to be equal to or less than the corresponding pre-development conditions.

Detailed calculations including weighted runoff coefficients, peak runoff, required storage, for the 5-year storm and 100-year storm, and provided storage are included in Appendix "B".

2.5 Stormwater Quality

As previously mentioned, an 80% total suspended solids (TSS) removal rate will be achieved for the controlled areas of the site (A5).

It is proposed that the required TSS removal rate be achieved with the use of an oil & grit interceptor, located at one centralized location encompassing the storm leads of CBMH120 and CB10 and therefore encompassing any additional stormwater runoff as a result of the new asphalt bus loop proposed at the northern extents of the site.

A Stormceptor EF4 is proposed to be installed which will provide 83% TSS removal for controlled area, A5. Sizing reports for the oil and grit interceptor can be found in Appendix "C".

2.5.1. Stormceptor Recommended Maintenance

The manufacturer recommends annual servicing of the Stormceptor units, however the frequency of maintenance may need to be increased or reduced based on local conditions once sediment depth reaches 203mm, for the EF4 model.

Sediment depth can be measured from the surface via a dipstick tube equipped with a ball valve, which is then inserted through the riser pipe. Maintenance is then performed using a standard vacuum truck. In case of oil, fuel or chemical spill, the unit is to be inspected immediately and a licensed waste management company is to remove and dispose of the contaminants.

2.5.1. Sediment Control During Construction

Straw bale flow check dams as per OPSD 219.180 and silt fencing as per OPSD 219.110 will be installed at the start of construction and will be maintained during the project. Sediment control measures will be removed only once sodding is completed and adequate grass cover has been achieved. The contractor will be required to monitor the sediment control measures weekly and following any significant storm consisting of 13 mm of precipitation or greater. The contractor will also be responsible to repair the sediment control measures as required to ensure their proper operation.

3. Servicing

3.1 Storm Sewer Sizing

The proposed storm sewer collection system was sized to match the diameter of the existing based on the peak flow of a storm event with a 5-year return period and the design criteria described above (catchment areas, runoff coefficients, time of concentration, rainfall intensity) as well as a Manning coefficient of 0.013 to achieve a minimum velocity of 0.75 m/s as per Ontario Building Code guidelines.

Storm sewer design sheets may be found in Appendix “D”.

4. Schedule

This stormwater management report is prepared in support of the Site Plan Control application for the proposed improvements to the Centennial 67’ Public School. The Owner intends to proceed with construction as soon as possible.

Respectfully submitted,
EVB Engineering

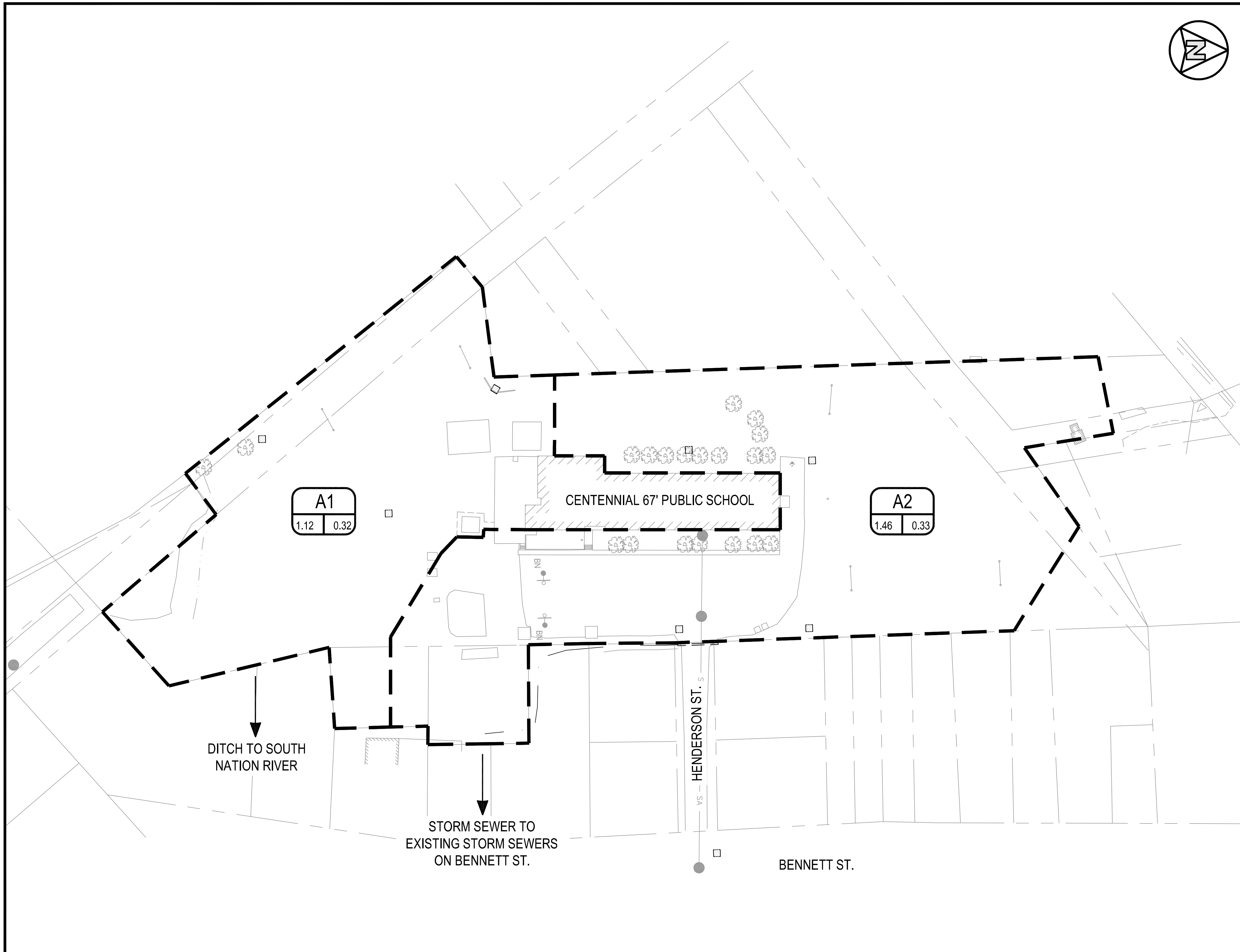
Kevin MacCulloch, P.Eng.
Municipal Engineer

LICENSED PROFESSIONAL ENGINEER
K.A. MACCULLOCH
100205607
2020/03/09
PROVINCE OF ONTARIO

APPENDIX A

FIG.1 – Pre-Development Storm Catchment Areas

FIG.2 – Post-Development Storm Catchment Areas



LEGEND:

STORM DRAINAGE BUBBLE

A1 — AREA LABEL

0.32 — RUNOFF COEFFICIENT

1.12 — AREA IN HECTARES

STORM DRAINAGE LIMIT

EVB ENGINEERING
800 SECOND STREET WEST
CORNWALL, ONTARIO CANADA, K6J 1H6
TEL: 613-935-3775 | FAX: 613-935-6450
WEBSITE: EVBengineering.com

CLIENT:

UPPER CANADA DISTRICT SCHOOL BOARD

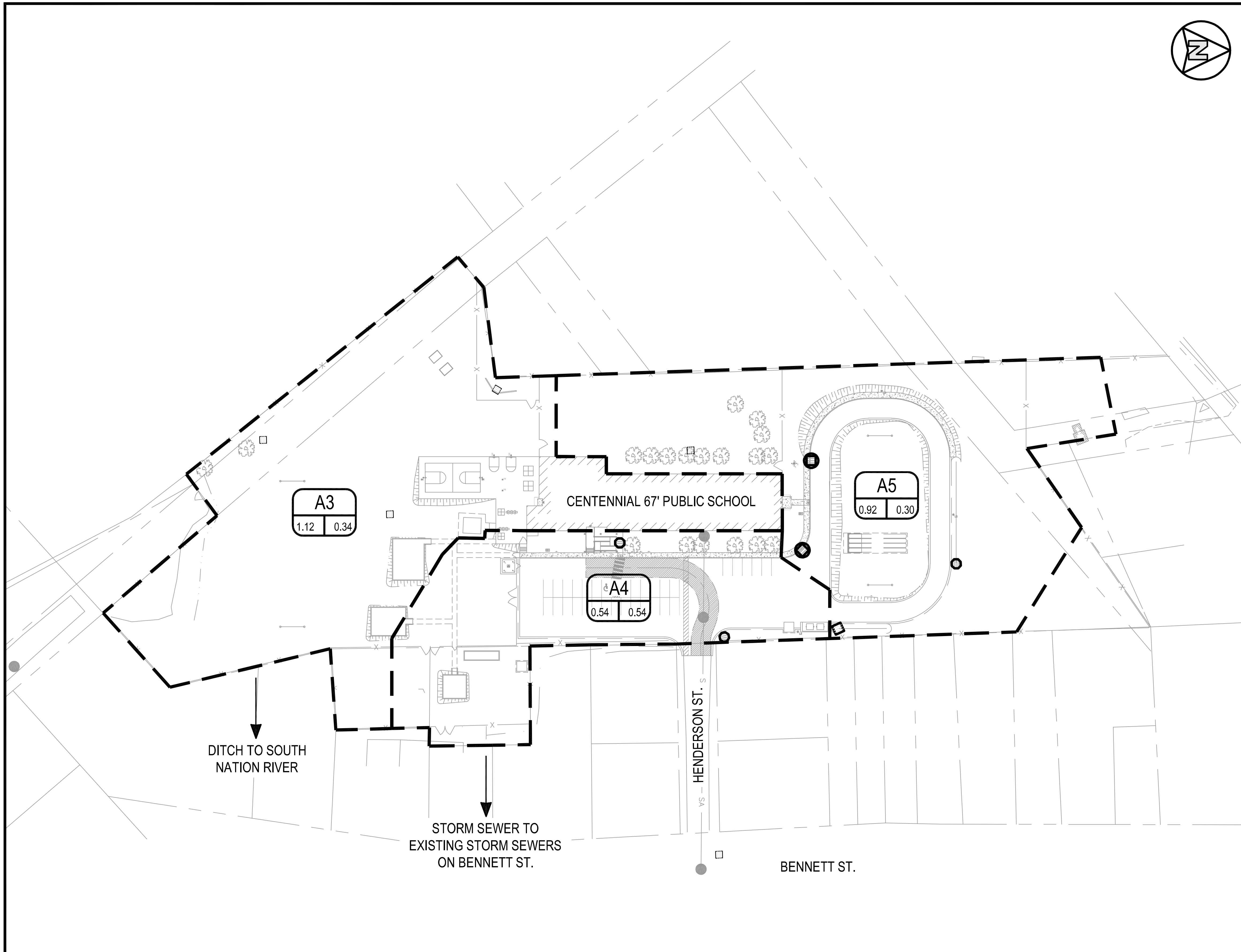
PROJECT:

CENTENNIAL 67 PUBLIC SCHOOL SITE IMPROVEMENTS

TITLE:

PRE-DEVELOPMENT STORMWATER CATCHMENT AREAS

SCALE: 1:1250	JOB NO: 19141
DESIGNED BY: K.M.	DATE: 2020/03/06
DRAWN BY: K.M.	DRAWING NO.
CHECKED BY: F.L.	FIG.1



LEGEND:

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0.32 — RUNOFF COEFFICIENT

1.12 — AREA IN HECTARES

STORM DRAINAGE LIMIT

EVB ENGINEERING

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CORNWALL, ONTARIO CANADA, K6J 1H6
TEL: 613-935-3775 | FAX: 613-935-6450
WEBSITE: EVBengineering.com

CLIENT:

UPPER CANADA DISTRICT SCHOOL BOARD

PROJECT:

CENTENNIAL 67 PUBLIC SCHOOL SITE IMPROVEMENTS

TITLE:

POST-DEVELOPMENT STORMWATER CATCHMENT AREAS

SCALE: 1:1250	JOB NO: 19141
DESIGNED BY: K.M.	DATE: 2020/03/06
DRAWN BY: K.M.	DRAWING NO.
CHECKED BY: F.L.	FIG.2

APPENDIX B

Weighted 'C' Factor Calculations

Runoff Calculations

5-Year Required Storage Calculations

100-Year Required Storage Calculations

Provided Storage Calculations

Stormtech SC-740 Volume Calculations

Weighted C Factor Calculations

Project Name: Centennial 67' Public School
Project No: 19141
Client: Upper Canada District School Board

Designed By: Kevin MacCulloch, P.Eng
Reviewed By: Francois Lafleur, P.Eng.
Date: 2020/03/06

A1 - Pre-Development

Surface/Development Type	Coefficient	Area (m^2)
Asphalt/Concrete	0.9	272
Roof	0.95	1489
Gravel	0.5	261
Precast Paving	0.75	0
Grassed & Undeveloped	0.2	9202.72
Σ Areas		11224.72
Weighted 'C' Factor		0.32

A2 - Pre-Development

Surface/Development Type	Coefficient	Area (m^2)
Asphalt/Concrete	0.9	2506.73
Roof	0.95	53.65
Gravel	0.5	184.76
Precast Paving	0.75	0
Grassed & Undeveloped	0.2	11911.22
Σ Areas		14656.36
Weighted 'C' Factor		0.33

A3 - Post-Development

Surface/Development Type	Coefficient	Area (m^2)
Asphalt/Concrete	0.9	590
Roof	0.95	1489
Gravel	0.5	61
Precast Paving	0.75	0
Grassed & Undeveloped	0.2	9084.72
Σ Areas		11224.72
Weighted 'C' Factor		0.34

A4 - Post-Development

Surface/Development Type	Coefficient	Area (m^2)
Asphalt/Concrete	0.9	2495
Roof	0.95	28
Gravel	0.5	325
Precast Paving	0.75	0
Grassed & Undeveloped	0.2	2573.08
Σ Areas		5421.08
Weighted 'C' Factor		0.54

A5 - Post-Development

Surface/Development Type	Coefficient	Area (m^2)
Asphalt/Concrete	0.9	1260
Roof	0.95	16
Gravel	0.5	118
Precast Paving	0.75	0
Grassed & Undeveloped	0.2	7841.28
Σ Areas		9235.28
Weighted 'C' Factor		0.30

Pre-Development & Post Development Runoff Calculations

Project Name: Centennial 67 Public School
Project No: 19141
Client: UCDSB

Designed By: Kevin MacCulloch, P.Eng
Reviewed By: Francois Lafleur, P.Eng
Date: 2020/03/06

Pre-Development Peak Run-off Rates (Allowable)

Contributing Area		Runoff Data						
No.	Ha	C	AC	Tc (min.)	I (mm/hr)		Q (L/s)	
					5 Year	100 Year	5 Year	100 Year
A1 - Pre-Development	1.12	0.32	0.36	29.01	44.71	74.63	45.12	75.32
A2 - Pre-Development	1.47	0.33	0.48	19.20	59.66	99.58	79.31	132.37
Total	**2.59**						**124.43**	**207.69**

Uncontrolled Post-Development Peak Run-off Rates

Contributing Area		Runoff Data						
No.	Ha	C	AC	Tc (min.)	I (mm/hr)		Q (L/s)	
					5 Year	100 Year	5 Year	100 Year
A3 - Post-Development	1.12	0.34	0.38	20.00	57.98	96.77	61.13	102.04
A4 - Post-Development	0.54	0.54	0.29	20.00	57.98	96.77	47.53	79.34
A5 - Post-Development	0.92	0.30	0.28	20.00	57.98	96.77	44.75	74.69
Total	**2.59**						**153.42**	**256.08**

Controlled Post-Development Peak Run-off Rates

Contributing Area		Runoff Data						
No.	Ha	C	AC	Tc (min.)	I (mm/hr)		Q (L/s)	
					5 Year	100 Year	5 Year	100 Year
A3 - Post-Development	1.12	0.34	0.38	20.00	57.98	96.77	61.13	102.04
A4 - Post-Development	0.54	0.54	0.29	20.00	57.98	96.77	47.53	79.34
A5 - Post-Development	0.92	0.30	0.28	20.00	--	--	15.96	20.68
Total	**2.59**						**124.63**	**202.06**

5 Year Required Storage Calculations

Project Name: Centennial 67 Public School
Project No: 19141
Client: UCDSB

Designed By: Kevin MacCulloch, P.Eng.
Reviewed By: Francois Lafleur, P.Eng
Date: 2020/03/06

Rational Method Storage Computation
Storage Rate Method

Contributing Area (Contolled)		
No.	**Ha**	**C**
A5 - Post-Development	0.92	0.30
Σ Areas		**0.92**
Weighted 'C' Factor		**0.30**

	Storm Event	Q (L/s)
Total Allow. Release Rate	5 Year	15.76
Total Actual Release Rate	5 Year	15.96

Time (Min.)	I (mm/hr)	Peak Flow (L/s)	Actual Release Rate (L/s)	Required Storage Rate (L/s)	Required Storage Volume (m^3)
5	152.79	117.93	15.96	101.98	30.59
10	94.12	72.65	15.96	56.69	34.01
15	70.89	54.72	15.96	38.76	34.89
20	57.98	44.75	15.96	28.79	34.55
25	49.60	38.29	15.96	22.33	33.50
30	43.67	33.71	15.96	17.75	31.95
35	39.21	30.26	15.96	14.31	30.05
40	35.71	27.57	15.96	11.61	27.86
45	32.89	25.39	15.96	9.43	25.47
50	30.56	23.58	15.96	7.63	22.89
55	28.59	22.06	15.96	6.11	20.16
60	26.90	20.76	15.96	4.81	17.31
65	25.44	19.63	15.96	3.68	14.34
70	24.15	18.64	15.96	2.69	11.28
75	23.02	17.76	15.96	1.81	8.14

Orifice Flow Calculations

Water Elevation (m)	Orifice Diameter (mm)	Head (m)	Flow (L/s)	Provided Storage (m3)
94.17	100.00	0.53	15.96	34.89

Orifice C/L elev.= 93.64 m
Cd = 0.63
g = 9.81 m/s2

100 Year Required Storage Calculations

Project Name: Centennial 67 Public School
Project No: 19141
Client: UCDSB

Designed By: Kevin MacCulloch, P.Eng.
Reviewed By: Francois Lafleur, P.Eng
Date: 2020/03/06

Rational Method Storage Computation
Storage Rate Method

Contributing Area (Contolled)		
No.	**Ha**	**C**
A5 - Post-Development	0.92	0.30
Σ Areas		**0.92**
Weighted 'C' Factor		**0.30**

	Storm Event	Q (L/s)
Total Allow. Release Rate	100 Year	26.30
Total Actual Release Rate	100 Year	20.68

Time (Min.)	I (mm/hr)	Peak Flow (L/s)	Actual Release Rate (L/s)	Required Storage Rate (L/s)	Required Storage Volume (m^3)
5	255.03	196.85	20.68	176.17	52.85
10	157.10	121.26	20.68	100.58	60.35
15	118.33	91.33	20.68	70.66	63.59
20	96.77	74.69	20.68	54.02	64.82
25	82.80	63.91	20.68	43.23	64.85
30	72.89	56.26	20.68	35.58	64.05
35	65.44	50.51	20.68	29.84	62.66
40	59.61	46.01	20.68	25.34	60.81
45	54.90	42.38	20.68	21.70	58.59
50	51.00	39.37	20.68	18.69	56.07
55	47.72	36.83	20.68	16.15	53.31
60	44.90	34.66	20.68	13.98	50.33
65	42.46	32.77	20.68	12.09	47.17
70	40.31	31.12	20.68	10.44	43.85
75	38.42	29.65	20.68	8.97	40.39

Orifice Flow Calculations

Water Elevation (m)	Orifice Diameter (mm)	Head (m)	Flow (L/s)	Provided Storage (m3)
94.53	100.00	0.89	20.68	64.85

Orifice C/L elev.= 93.64 m
Cd = 0.63
g = 9.81 m/s2

Stage vs Storage Calculations

Project Name: Centennial 67 Public School	**Designed By: Kevin MacCulloch**, P.Eng.
Project No: 19141	**Reviewed By:** François Lafleur, P.Eng.
Client: UCDSB	**Date:** 2020/03/06

Provided Storage Calculations (Stormtech SC-740 Chamber)

Water Height (m)	Water Elevation (m)	Incremental Chamber Storage (m3)	Cumulative Chamber Storage (m3)	Comments
1.067	94.79	1.25	77.510	Top of stone cover
1.041	94.76	1.25	76.260	
1.016	94.74	1.25	75.009	
0.991	94.71	1.25	73.758	
0.965	94.69	1.25	72.508	
0.940	94.66	1.25	71.257	
0.914	94.63	1.28	70.007	Chamber top
0.889	94.61	1.34	68.726	
0.864	94.58	1.4	67.387	
0.838	94.56	1.58	65.983	**100 Year Water Elevation**
0.813	94.53	1.69	64.404	
0.787	94.51	1.77	62.717	
0.762	94.48	1.83	60.950	
0.737	94.46	1.89	59.115	
0.711	94.43	1.94	57.222	
0.686	94.41	1.99	55.284	
0.660	94.38	2.04	53.296	
0.635	94.36	2.08	51.255	
0.610	94.33	2.11	49.175	
0.584	94.30	2.14	47.064	
0.559	94.28	2.17	44.921	
0.533	94.25	2.2	42.746	
0.508	94.23	2.23	40.542	
0.483	94.20	2.26	38.312	
0.457	94.18	2.28	36.052	**5 Year Water Elevation**
0.432	94.15	2.3	33.773	
0.406	94.13	2.32	31.470	
0.381	94.10	2.34	29.146	
0.356	94.08	2.36	26.803	
0.330	94.05	2.38	24.440	
0.305	94.02	2.4	22.061	

Stage vs Storage Calculations

Project Name: Centennial 67 Public School		**Designed By: Kevin MacCulloch**, P.Eng.	
Project No: 19141		**Reviewed By:** François Lafleur, P.Eng.	
Client: UCDSB		**Date:** 2020/03/06	

0.279	94.00	2.41	19.666	
0.254	93.97	2.42	17.257	
0.229	93.95	2.43	14.835	
0.203	93.92	2.45	12.400	
0.178	93.90	2.45	9.955	
0.152	93.87	1.251	7.504	Underside of chamber
0.127	93.85	1.251	6.253	
0.102	93.82	1.251	5.003	
0.076	93.80	1.251	3.752	
0.051	93.77	1.251	2.501	
0.025	93.75	1.251	1.251	
0.000	93.72	0	0.000	Underside of stone foundation

Chambers provided:	32	ea
Bottom of chamber elev.:	93.87	m
Approximate surface elev.:	95.80	m (varies)
Total Storage, 100 year:	64.85	m3
Total Storage, 5 year:	34.89	m3

Project: **Centennial 67 School Rev0**

Chamber Model -	SC-740	
Units -	**Metric**	Click Here for Imperial
Number of chambers -	32	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	93.69	m
Amount of Stone Above Chambers -	152	mm
Amount of Stone Below Chambers -	152	mm

☑ Include Perimeter Stone in Calculations

123.1 sq.meters Min. Area - . sq.meters

Height of System *(mm)*	Incremental Single Chamber *(cubic meters)*	Incremental Total Chamber *(cubic meters)*	Incremental Stone *(cubic meters)*	Incremental Ch & St *(cubic meters)*	Cumulative Chamber *(cubic meters)*	Elevation *(meters)*
1067	0.00	0.00	1.25	1.25	77.510	94.75
1041	0.00	0.00	1.25	1.25	76.260	94.73
1016	0.00	0.00	1.25	1.25	75.009	94.70
991	0.00	0.00	1.25	1.25	73.758	94.68
965	0.00	0.00	1.25	1.25	72.508	94.65
940	0.00	0.00	1.25	1.25	71.257	94.62
914	0.00	0.05	1.23	1.28	70.007	94.60
889	0.00	0.15	1.19	1.34	68.726	94.57
864	0.01	0.26	1.15	1.40	67.387	94.55
838	0.02	0.55	1.03	1.58	65.983	94.52
813	0.02	0.73	0.96	1.69	64.404	94.50
787	0.03	0.86	0.91	1.77	62.717	94.47
762	0.03	0.97	0.86	1.83	60.950	94.45
737	0.03	1.07	0.82	1.89	59.115	94.42
711	0.04	1.15	0.79	1.94	57.222	94.40
686	0.04	1.23	0.76	1.99	55.284	94.37
660	0.04	1.32	0.72	2.04	53.296	94.35
635	0.04	1.38	0.70	2.08	51.255	94.32
610	0.04	1.43	0.68	2.11	49.175	94.29
584	0.05	1.49	0.66	2.14	47.064	94.27
559	0.05	1.54	0.63	2.17	44.921	94.24
533	0.05	1.59	0.62	2.20	42.746	94.22
508	0.05	1.63	0.60	2.23	40.542	94.19
483	0.05	1.68	0.58	2.26	38.312	94.17
457	0.05	1.72	0.56	2.28	36.052	94.14
432	0.05	1.75	0.55	2.30	33.773	94.12
406	0.06	1.79	0.53	2.32	31.470	94.09
381	0.06	1.82	0.52	2.34	29.146	94.07
356	0.06	1.85	0.51	2.36	26.803	94.04
330	0.06	1.88	0.50	2.38	24.440	94.02
305	0.06	1.91	0.49	2.40	22.061	93.99
279	0.06	1.93	0.48	2.41	19.666	93.96
254	0.06	1.95	0.47	2.42	17.257	93.94
229	0.06	1.97	0.46	2.43	14.835	93.91
203	0.06	1.99	0.45	2.45	12.401	93.89
178	0.06	2.00	0.45	2.45	9.955	93.86
152	0.00	0.00	1.25	1.25	7.504	93.84
127	0.00	0.00	1.25	1.25	6.253	93.81
102	0.00	0.00	1.25	1.25	5.003	93.79
76	0.00	0.00	1.25	1.25	3.752	93.76
51	0.00	0.00	1.25	1.25	2.501	93.74
25	0.00	0.00	1.25	1.25	1.251	93.71

APPENDIX C

Stormceptor EF4 Sizing Report

Stormceptor®

FORTERRA

Stormceptor® EF Sizing Report

ESTIMATED NET ANNNUAL SEDIMENT (TSS) LOAD REDUCTION STORMCEPTOR®

Province:	Ontario
City:	Spencerville
Nearest Rainfall Station:	OTTAWA MACDONALD-CARTIER INT'L AP
NCDC Rainfall Station Id:	6000
Years of Rainfall Data:	37
Site Name:	Centennial 67 Public School
Drainage Area (ha):	0.92
Runoff Coefficient 'c':	0.30

Project Name:	Centennial 67 Public School
Project Number:	-
Designer Name:	Brandon O'Leary
Designer Company:	Forterra
Designer Email:	brandon.oleary@forterrabp.com
Designer Phone:	(905) 630-0359
EOR Name:	Kevin MacCulloch
EOR Company:	EVB Engineering
EOR Email:	Kevin.MacCulloch@evbengineering.com
EOR Phone:	(613) 861-0958

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0
Required Water Quality Runoff Volume Capture (%):	90.0
Require Hydrocarbon Spill Capture?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	74.69
Estimated Water Quality Flow Rate (L/s):	9.97
Peak Conveyance (maximum) Flow Rate (L/s):	74.69

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	83
EFO6	88
EFO8	91
EFO10	92
EFO12	93

Recommended Stormceptor EFO Model:	**EFO4**
Estimated Net Annual Sediment (TSS) Load Reduction (%):	**83**
Water Quality Runoff Volume Capture (%):	**> 90**

imbrium

THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

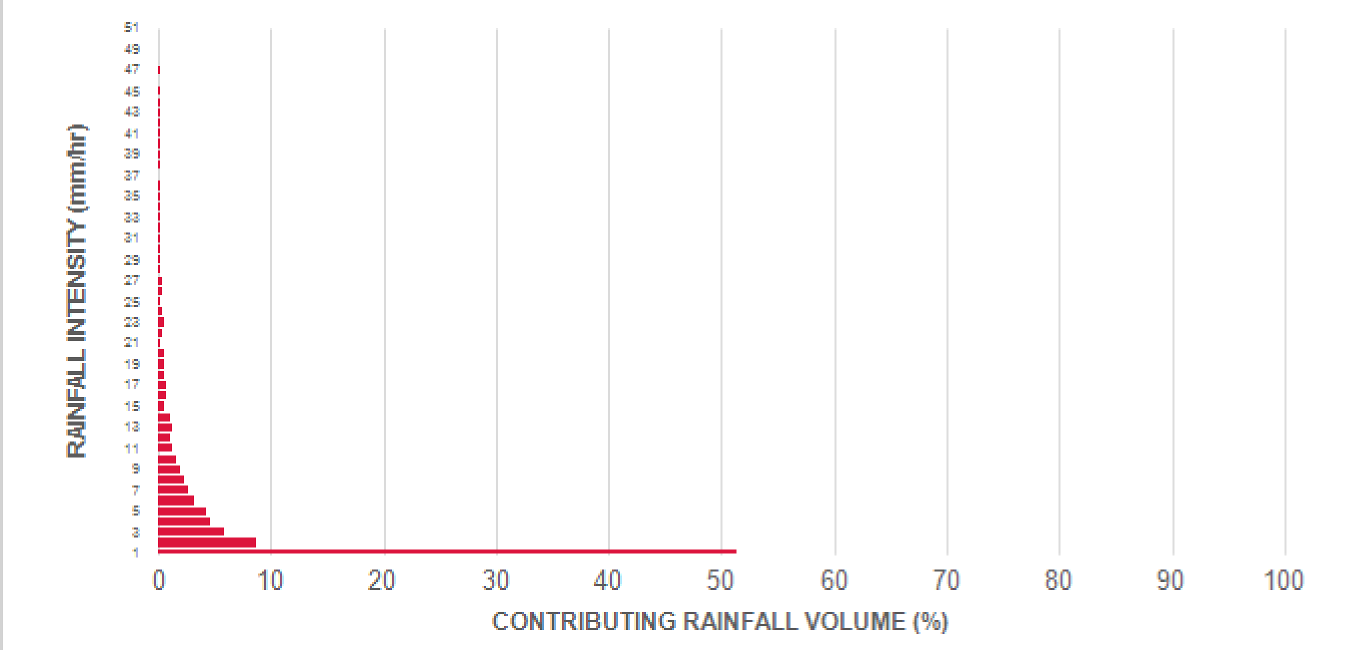
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Upstream Flow Controlled Results

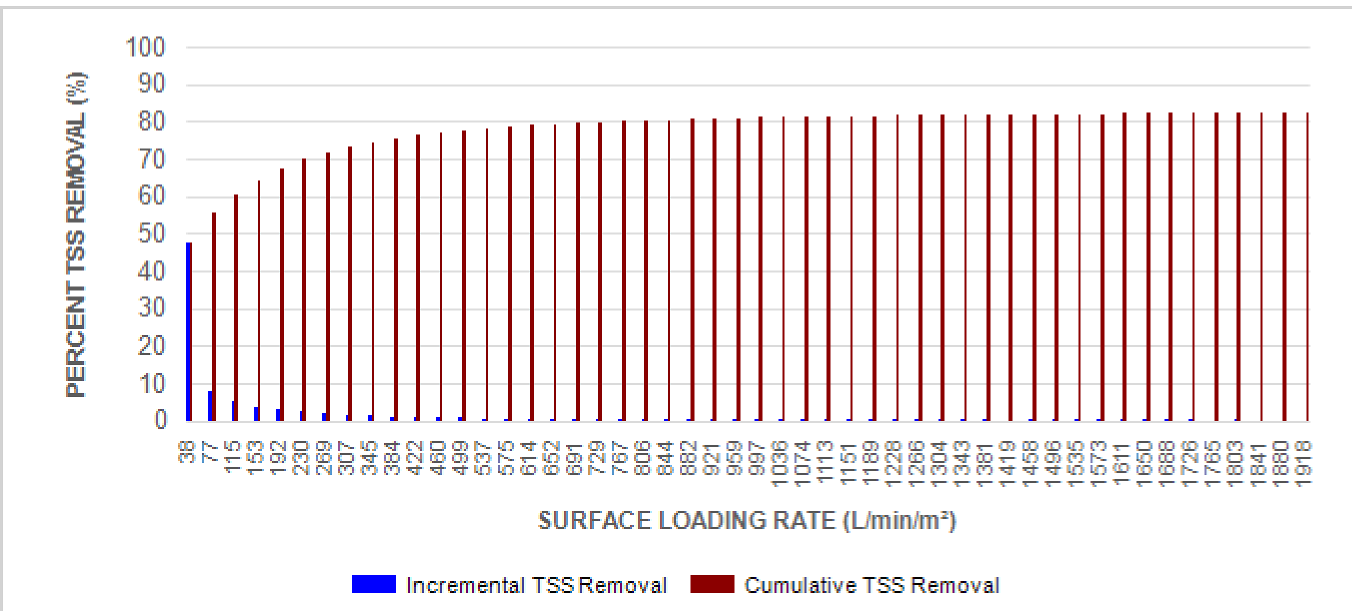
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	51.3	51.3	0.77	46.0	38.0	93	47.7	47.7
2	8.7	60.0	1.53	92.0	77.0	90	7.8	55.5
3	5.8	65.8	2.30	138.0	115.0	86	5.0	60.5
4	4.6	70.4	3.07	184.0	153.0	81	3.7	64.3
5	4.2	74.6	3.84	230.0	192.0	77	3.2	67.5
6	3.2	77.8	4.60	276.0	230.0	73	2.3	69.8
7	2.6	80.4	5.37	322.0	269.0	71	1.8	71.7
8	2.4	82.8	6.14	368.0	307.0	67	1.6	73.3
9	1.9	84.7	6.91	414.0	345.0	63	1.2	74.5
10	1.6	86.3	7.67	460.0	384.0	60	1.0	75.4
11	1.3	87.6	8.44	506.0	422.0	57	0.7	76.2
12	1.1	88.7	9.21	552.0	460.0	56	0.6	76.8
13	1.3	90.0	9.97	598.0	499.0	55	0.7	77.5
14	1.1	91.1	10.74	645.0	537.0	54	0.6	78.1
15	0.6	91.7	11.51	691.0	575.0	53	0.3	78.4
16	0.8	92.5	12.28	737.0	614.0	52	0.4	78.9
17	0.7	93.2	13.04	783.0	652.0	52	0.4	79.2
18	0.5	93.7	13.81	829.0	691.0	52	0.3	79.5
19	0.6	94.3	14.58	875.0	729.0	51	0.3	79.8
20	0.5	94.8	15.35	921.0	767.0	51	0.3	80.0
21	0.2	95.0	16.11	967.0	806.0	51	0.1	80.1
22	0.4	95.4	16.88	1013.0	844.0	51	0.2	80.3
23	0.5	95.9	17.65	1059.0	882.0	51	0.3	80.6
24	0.4	96.3	18.41	1105.0	921.0	50	0.2	80.8
25	0.1	96.4	19.18	1151.0	959.0	50	0.1	80.9

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
26	0.3	96.7	19.95	1197.0	997.0	50	0.2	81.0
27	0.4	97.1	20.72	1243.0	1036.0	50	0.2	81.2
28	0.2	97.3	21.48	1289.0	1074.0	49	0.1	81.3
29	0.2	97.5	22.25	1335.0	1113.0	49	0.1	81.4
30	0.2	97.7	23.02	1381.0	1151.0	49	0.1	81.5
31	0.1	97.8	23.79	1427.0	1189.0	48	0.0	81.5
32	0.2	98.0	24.55	1473.0	1228.0	48	0.1	81.6
33	0.1	98.1	25.32	1519.0	1266.0	47	0.0	81.7
34	0.1	98.2	26.09	1565.0	1304.0	47	0.0	81.7
35	0.1	98.3	26.85	1611.0	1343.0	47	0.0	81.8
36	0.2	98.5	27.62	1657.0	1381.0	46	0.1	81.9
37	1.5	100.0	28.39	1703.0	1419.0	45	0.7	82.6
38	0.1	100.1	29.16	1749.0	1458.0	44	0.0	82.6
39	0.1	100.2	29.92	1795.0	1496.0	43	0.0	82.6
40	0.1	100.3	30.69	1841.0	1535.0	42	0.0	82.7
41	0.1	100.4	31.46	1888.0	1573.0	41	0.0	82.7
42	0.1	100.5	32.23	1934.0	1611.0	40	0.0	82.8
43	0.2	100.7	32.99	1980.0	1650.0	39	0.1	82.8
44	0.1	100.8	33.76	2026.0	1688.0	38	0.0	82.9
45	0.1	100.9	34.53	2072.0	1726.0	37	0.0	82.9
46	-0.9	100.0	35.29	2118.0	1765.0	37	N/A	82.6
47	0.1	100.1	36.06	2164.0	1803.0	36	0.0	82.6
48	-0.1	100.0	36.83	2210.0	1841.0	35	N/A	82.6
49	0.0	100.0	37.60	2256.0	1880.0	34	0.0	82.6
50	0.0	100.0	38.36	2302.0	1918.0	34	0.0	82.6
Estimated Net Annual Sediment (TSS) Load Reduction =								**83 %**

RAINFALL DATA FROM OTTAWA MACDONALD-CARTIER INT'L AP RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

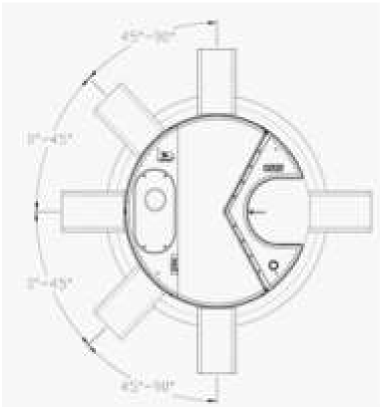
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	197	52	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	348	92	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	545	144	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	874	231	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	1219	322	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program’s **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4ft (1219mm) Diameter OGS Units:	1.19m3 sediment / 265L oil
	6ft (1829mm) Diameter OGS Units:	3.48m3 sediment / 609LI oil
	8ft (2438mm) Diameter OGS Units:	8.78m3 sediment / 1,071L oil
	10ft (3048mm) Diameter OGS Units:	17.78m3 sediment / 1,673L oil
	12ft (3657mm) Diameter OGS Units:	31.23m3 sediment / 2,476L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing shall be determined using historical rainfall data and a sediment removal performance curve derived from the actual third-party verified laboratory testing data. The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m2 to 2600 L/min/m2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

APPENDIX D

Storm Sewer Design Sheet

FIG.3 –Stormwater Catchment Areas

Storm Sewer Design Sheet - 5 Year Storm

Client: Upper Canada District School Board

Service Location and Contributing Areas						Runoff Data						Outlet Pipe Data									
Location	Manhole		Contributing Area			C	AC	Σ AC	Tc (min.)	I (mm/hr)	Q (L/s)	Size (mm)	Slope (%)	Qcap (l/s)	Q/Qcap	Velocity (m/s)	Length (m)	Δ Elev (m)	Pipe Inverts	
	From	To	No.	Ha	Σ Areas														U/S	D/S
	EXCB1	CBMH120	A1	0.18	A1	0.15	0.027	0.027	15.0	70.9	5.38	300	0.35%	57.2	0.1	0.81	34.05	0.119	94.19	94.07
	CBMH120	CBMH110	A2	0.27	A1 to A2	0.29	0.077	0.104	15.7	68.7	20.03	300	1.00%	96.7	0.2	1.37	26.87	0.269	93.92	93.65
	CB10	STCEF4	A3	0.24	A3	0.31	0.073	0.073	15.0	70.9	14.58	200	0.40%	20.7	0.7	0.66	25.9	0.104	93.84	93.74
	STCEF4	OUTLET	A4	0.33	A1 to A4	0.52	0.172	0.349	16.0	67.7	66.18	300	0.50%	68.4	1.0	0.97	49.5	0.248	93.59	93.34

Design Parameters

Coefficients

Mannings n = 0.0130

Designed By: K.MacCulloch, P.Eng

Reviewed By: F. Lafleur, P.Eng

Dwg. Reference: Fig.3 - Storm Catchment Areas

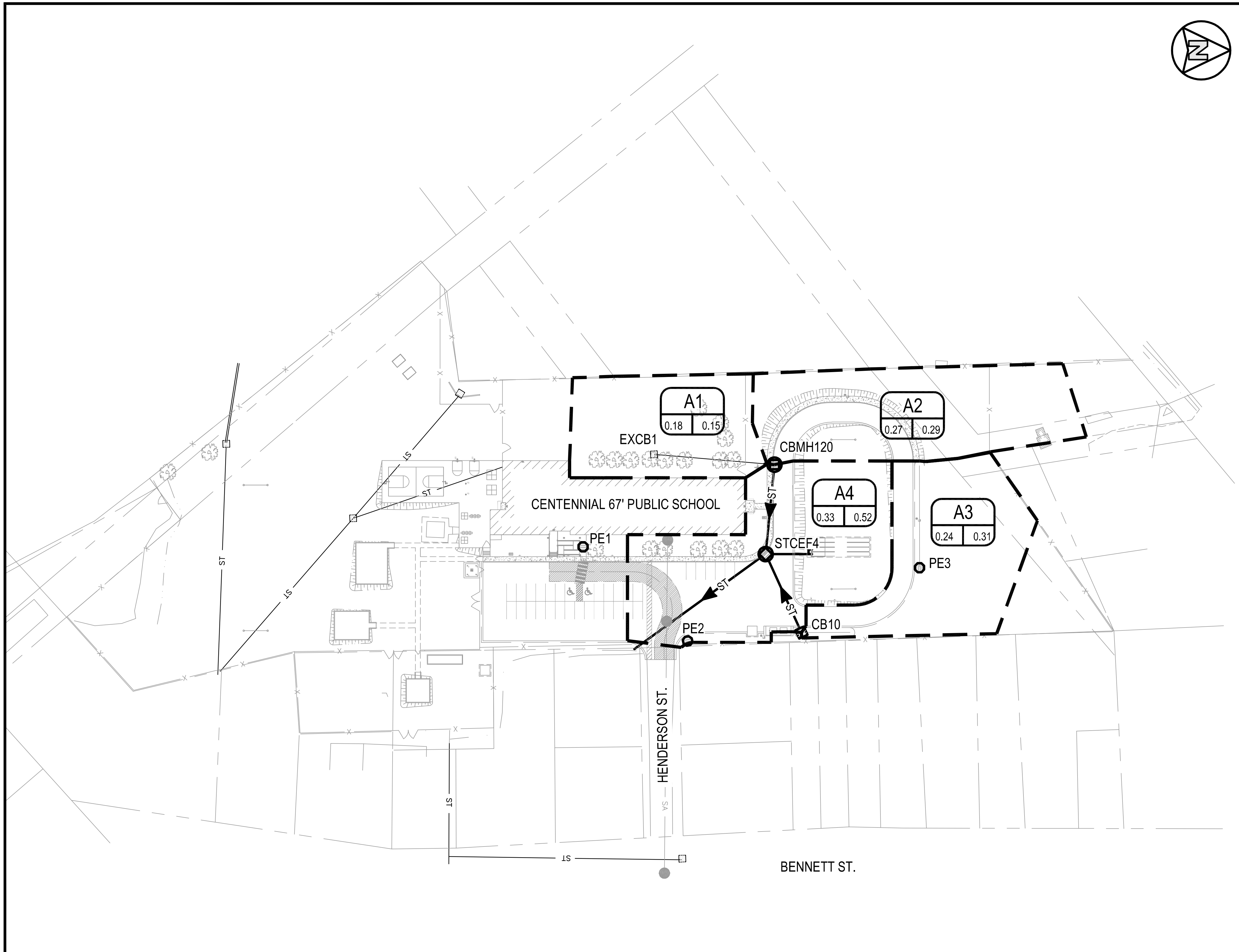
Project: Centennial '67 Public School Site Works

Location: Spencerville, Ontario

Project Number: 19141

Date: 6-Mar-20

Sheet Number: 1/1



LEGEND:

STORM DRAINAGE BUBBLE

A1 — AREA LABEL

0.32 — RUNOFF COEFFICIENT

1.12 — AREA IN HECTARES

STORM DRAINAGE LIMIT

EVB ENGINEERING
800 SECOND STREET WEST
CORNWALL, ONTARIO CANADA, K6J 1H6
TEL: 613-935-3775 | FAX: 613-935-6450
WEBSITE: EVBengineering.com

CLIENT:
UPPER CANADA DISTRICT SCHOOL BOARD

PROJECT:
CENTENNIAL 67 PUBLIC SCHOOL SITE IMPROVEMENTS

TITLE:
STORMWATER CATCHMENT AREAS STORM SEWER DESIGN

SCALE: 1:1250	JOB NO: 19141
DESIGNED BY: K.M.	DATE: 2020/03/06
DRAWN BY: K.M.	DRAWING NO.
CHECKED BY: F.L.	FIG.3

EXHIBIT 2

PART 1 GENERAL

1.1 OBJECTIVES

.1 Prevent the loss of soil from construction site resulting from storm water runoff, wind erosion and construction activities.

.2 Prevent the sedimentation of storm sewers and receiving waters.

.3 Prevent air pollution caused by dust and particulate matter.

1.2 DESCRIPTION OF WORK

.1 Implement the Erosion and Sedimentation Control (ESC) measures shown on the project drawings and described in these specifications.

.2 Install ESC products in accordance with contract drawings.

.3 Inspect ESC measures on a weekly basis and following all significant storm events. If deficiencies are found, make repairs within 24 hours of detection.

.4 Maintain an ESC inspection log to document observations, deficiencies and corrective actions.

1.3 REFERENCES

.1 U.S. Environmental Protection Agency, Office of Water. "Chapter 3: Sediment and Erosion Control" and Chapter 4: Other Controls". Document No. EPA 832-R-92-005 Storm Water Management for Construction Activities.

1.4 SUBMITTALS

.1 Inspection Checklist – Schedule A

  .1 Prepare the checklist to include all measures shown on the drawings and described in the specifications.
  .2 Complete a new checklist with each inspection and keep completed checklists with the weekly inspection log documentation.

.2 Weekly Inspection Log – Schedule B

  .1 Complete the log on a weekly basis and keep all documentation on-site and available for review by the Contract Administrator.
  .2 The inspection log shall be completed for each inspection, and must document deficiencies for all measures indicated as "Not OK" on the inspection ckecklist.
  .3 Each deficiency must be initialled and each log signed, only after all corrective measures have been completed and documented.
  .4 Submit all ESC documentation (e.g.: inspection checklists and inspection log) to the Contract Administrator after final landscaping is completely installed.

.3 Photographs:

  .1 A minimum of three (3) digital photographs shall be taken (from various viewpoints) of each ESC measure implemented on-site immediately following installation.

.2 A minimum of three (3) digital photographs shall be taken (from various viewpoints) of ESC measure implemented on-site at the end of construction or prior to dismantling, whichever comes first.

.3 Submit all digital photographs to Contract Administrator for documentation within seven (7) days of being taken.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Geotextile: Type II Non-woven as per OPSS 1860

.2 Straw Bales and Silt Fencing as per OPSD 219.180 and 219.130.

PART 3 EXECUTION

3.1 INSPECTIONS AND MAINTENANCE

.1 Inspection procedures specified below summarize the EPA document and shall be followed in conjunction with details, drawings and manufacturer requirements.

.2 Inspect all control measures at least once each week (unless otherwise noted) and following any significant storm (13 mm of precipitation or greater). Complete the inspection log for each inspection, and keep in an accessible location on site until all corrective measures have been documented. Submit each completed log to the Contract Administrator for review.

.3 Maintain all measures in good working order. If a repair is necessary, initiate within 24 hours of report.

.4 Stabilized Construction Entrance: Apply additional gravel as required, remove sediments and other materials from all areas to minimize clogging. Keep adjacent public roadway(s) free from sediment.

.5 Site Arrangement: Verify that movement of construction equipment to appropriate area occurs at the same time as movement of construction activities.

.6 Material Stockpile: Inspect for effective prevention of runoff and erosion. Remove built-up sediment from silt fence when it has reached 1/3 the height of the filter fabric.

.7 Preservation of Natural Vegetation: Routine maintenance shall include mowing, fertilizing, liming, irrigating, pruning and weed and pest control, depending on the specific species and environmental conditions. Remove any debris and ensure area is protected from traffic.

.8 Buffer Zones: Routine maintenance shall include mowing, fertilizing, liming, irrigating, pruning and weed and pest control, depending on the specific species and environmental conditions. Remove any debris and ensure area is protected from traffic.

.9 Soil Retaining Measures: Inspect for structural damage and repair as required.

.10 Permanent Seeding: Inspect for sufficient growth and water conditions. Replant areas if cover does not provide erosion control.

.11 Silt Fence: Silt fence to be inspected for depth of sediment, tears, loose fabric attachment at fence posts, channel erosion beneath fence, sagging or collapse, and to ensure the fence posts are firmly in the ground. Built-up sediment is to be removed from silt fence when it has reached 1/3 the height of the fence. Repair such that fence is in original installation condition.

.12 Outlet Protection: Inspect for erosion and pooling of water. Necessary repairs to be made as required to reduce exit velocity of runoff. If a riprap apron is used, inspect for riprap displacement and damage to filter fabric.

.13 Check Dams: Inspect for sediment and debris accumulation and erosion of sides. Sediment should be removed when it reaches ½ the original dam height. Repair dam as required.

.14 Drainage Swale: Inspect for dips or low points along the swale where water is pooling and ensure that runoff is being directed to sediment-trapping measure used onsite.

.15 Subsurface Drains: Inspect pipe for breaks or clogging by sediment or debris. Remove blockage immediately, replace any broken sections and restabilize the surface. Check inlets and outlets for sediment or debris, and remove and dispose of these materials properly.

3.2 REMOVAL OF PRODUCTS

.1 ESC measures shall not be removed and shall be fully inspected and maintained until final landscaping is complete.

Inspection Checklist – Schedule A

Project Name: ____

Completed By: ____

Date: ____________________

During Construction: Contractor to complete this Inspection Checklist ***once a week*** as per the ESC Specification. For each measure, check the “OK” box if there are no repairs or maintenance required; check the “Not OK” box if attention is required as per the inspection/maintenance procedures in the ESC specification.

For all measures marked as “Not OK”, the Inspection Log must be completed. List the measures that are deficient in the “Deficiencies” column on the Inspection Log, and record the maintenance performed. Submit both the Inspection Checklist and Inspection Log to the Contract Administrator after all maintenance activities have been completed and recorded.

OK	Not OK	Location on Site	Measure

Inspection Log – Schedule B

Erosion & Sedimentation Control Weekly Inspection Log

Log Start Date: ______________________________

Log End Date: ______________________________

Log Completed By: ______________________________

Company: ______________________________

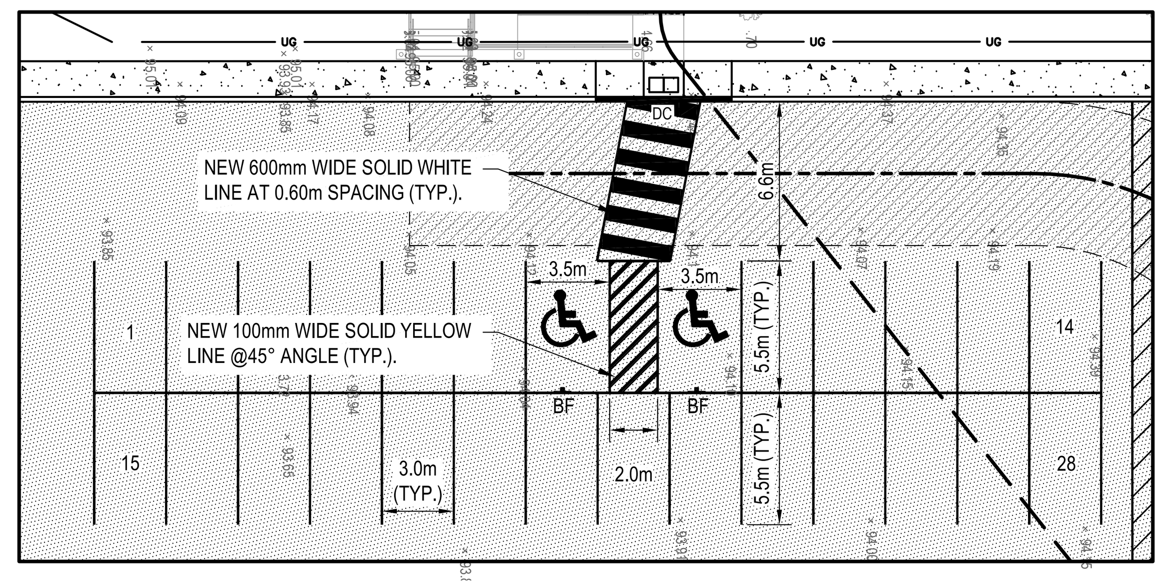
Telephone No.: ______________________________

Inspection Date	General Observations (ie: seasonal conditions)	Location & Deficiency of ESC Measure	Corrective Measures	Initials

I hereby certify that the information provided is complete, correct and complies with the requirements of EPA Best Management Practices.

Signature	Title	Date

END OF SECTION



TYPICAL PARKING STALL DETAIL

SCALE: 1:250

NOTES:

1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY COLLETT SURVEYING LTD. ALL COORDINATES ARE IN METRES, ARE RELATED TO UTM ZONE 18 (75°W LONGITUDE) NAD83 CSRS AND HAVE A RELATIVE ACCURACY TO MEET THE REQUIREMENTS OF A REMOTE AREA AT A 95% CONFIDENCE LEVEL. OBSERVED REFERENCE POINT (ORP) OR SPECIFIED CONTROL POINT (SCP)
3. LEGAL BOUNDARIES PROVIDED BY COLLETT SURVEYING LTD.
4. ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC, DERIVED FROM GPS OBSERVATIONS.
5. ALL DISTURBED AREAS TO BE REINSTATED WITH TOPSOIL AND SOD UNLESS OTHERWISE NOTED.
6. ALL BASKETBALL POSTS AND SOCCER POSTS ARE TO BE NEW.
7. KINDER YARD (2-5)
   1 - NEW CAR STRUCTURE (CASH ALLOWANCE)
   2 - RELOCATED KINDER STRUCTURE (ONE HALF OF EXISTING STRUCTURE)
   3 - RELOCATED TIC-TAC-TOE STRUCTURE.

   JUNIOR YARD (5-12)
   1 - NEW CLIMBER (CASH ALLOWANCE)
   2 - RELOCATED JUNIOR STRUCTURE (ONE HALF OF EXISTING STRUCTURE)
   3 - NEW DOME (CASH ALLOWANCE)

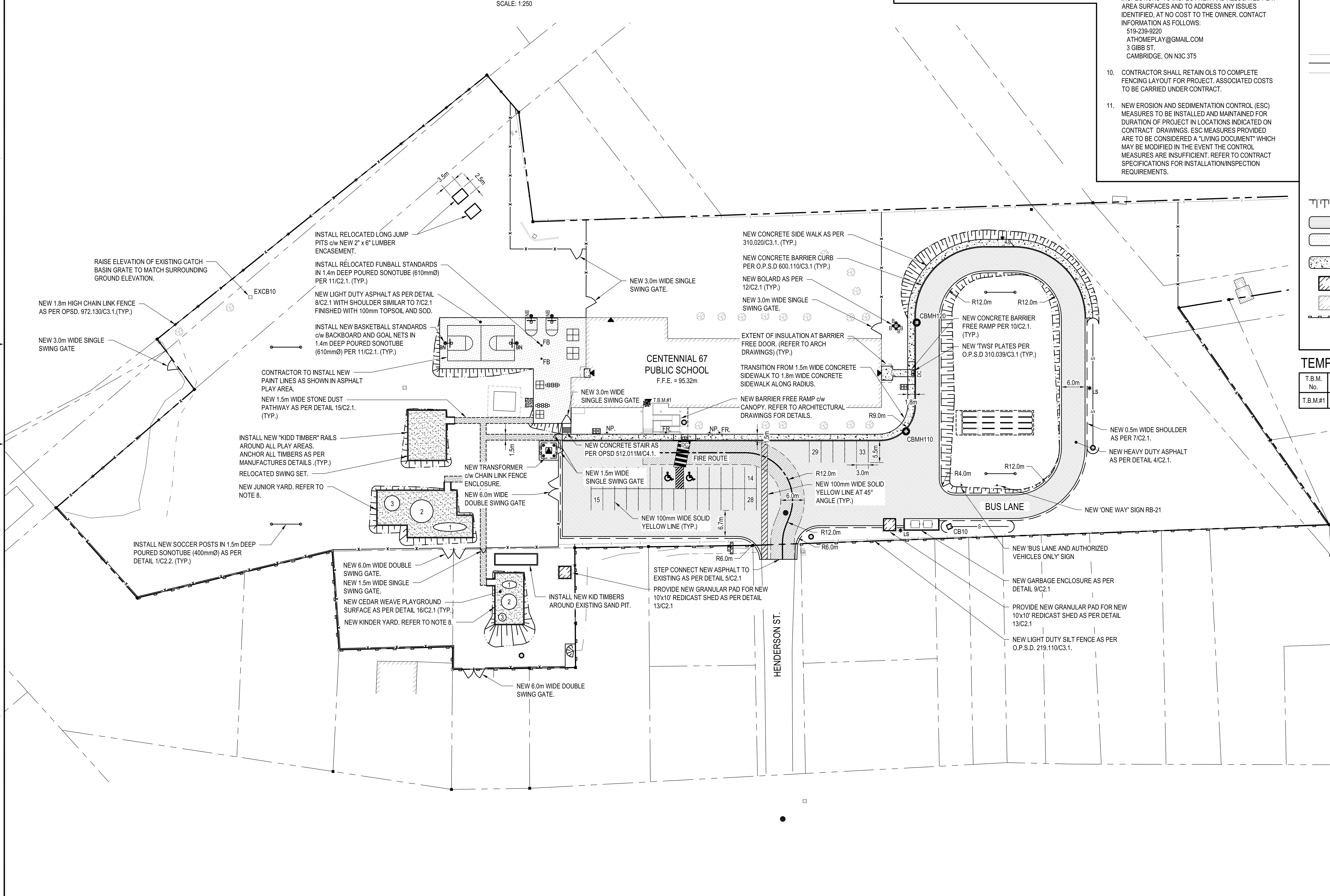
   CONTRACTOR TO ENSURE PLACEMENT AND INSTALLATION MEETS ALL SAFETY STANDARDS (CSA-Z614).
8. NEW ACCESSIBLE WHEELCHAIR RAMP TO BE PROVIDED FOR EACH PLAY STRUCTURE. ENSURE LOCATIONS OF RAMPS DO NOT IMPEDE WITH FALL ZONES OF PLAY STRUCTURES.
9. CONTRACTOR SHALL RETAIN 'AT HOME AND PLAY INSPECTIONS' TO INSPECT NEW AND RELOCATED PLAY AREA SURFACES AND TO ADDRESS ANY ISSUES IDENTIFIED, AT NO COST TO THE OWNER. CONTACT INFORMATION AS FOLLOWS:
   519-239-9220
   ATHOMEPLAY@GMAIL.COM
   3 GIBB ST.
   CAMBRIDGE, ON N3C 3T5
10. CONTRACTOR SHALL RETAIN OLS TO COMPLETE FENCING LAYOUT FOR PROJECT. ASSOCIATED COSTS TO BE CARRIED UNDER CONTRACT.
11. NEW EROSION AND SEDIMENTATION CONTROL (ESC) MEASURES TO BE INSTALLED AND MAINTAINED FOR DURATION OF PROJECT IN LOCATIONS INDICATED ON CONTRACT DRAWINGS. ESC MEASURES PROVIDED ARE TO BE CONSIDERED A "LIVING DOCUMENT" WHICH MAY BE MODIFIED IN THE EVENT THE CONTROL MEASURES ARE INSUFFICIENT. REFER TO CONTRACT SPECIFICATIONS FOR INSTALLATION/INSPECTION REQUIREMENTS.

LEGEND:

EXISTING PROPERTY LINE
NEW EDGE OF ASPHALT
EXISTING EDGE OF ASPHALT
NEW CURB
DC NEW DEPRESSED CURB
NEW CURB TRANSITION
NEW ASPHALT DRIVEWAY
EXISTING ASPHALT DRIVEWAY
NEW LINE PAINTING
NEW FENCE
EXISTING FENCE
NEW DITCH CENTERLINE
S NEW SWALE
NEW TOP OF SLOPE
NEW CULVERT
EXISTING CULVERT
EXISTING SANITARY MANHOLE
NEW STORM MANHOLE
NEW STORM CATCHBASIN MANHOLE
EXISTING STORM MANHOLE
NEW CATCH BASIN
EXISTING CATCH BASIN
EXISTING HYDRANT
EXISTING VALVE
UP EXISTING UTILITY POLE
B NEW BOLLARD AS PER 12/C2.1
UG EXISTING UNDERGROUND LINE
UG NEW UNDERGROUND LINE
B EXISTING BELL LINE
C EXISTING CABLE PEDESTAL
B EXISTING BELL PEDESTAL
NEW TRANSFORMER AS PER ELECTRICAL DRAWINGS
LS NEW LIGHT STANDARD
BF NEW BARRIER FREE SIGN AND POST
FR NEW FIRE ROUTE SIGN AND POST
NP NEW NO PARKING SIGN AND POST
NEW SIGN AND POST
EXISTING SIGNAGE
SITE TEMPORARY BENCHMARK
BUILDING ENTRANCE
NEW TERRACING AT 4H:1V SLOPE OR FLATTER.
NEW HEAVY DUTY ASPHALT AS PER 4/C2.1
NEW LIGHT DUTY ASPHALT AS PER 8/C2.1
NEW CONCRETE SIDEWALK AS PER O.P.S.D. 310.010M/C3.1 OR O.P.S.D. 310.020M/C3.1
NEW BUILDING OUTLINE
EXISTING BUILDING OUTLINE
NEW LIGHT DUTY SILT FENCE AS PER O.P.S.D. 219.110/C3.1
NEW STRAW BALE FLOW CHECK DAM AS PER O.P.S.D. 219.180/C3.1

TEMPORARY BENCH MARKS

T.B.M. No.	ELEV. (m)	T.B.M. DESCRIPTION
T.B.M.#1	95.32	FINISHED FLOOR ELEVATION



ARCHITECTURE 49

1345 ROSEMOUNT AVENUE
CORNWALL, ONTARIO, CANADA K6J 3E5
TEL: 613-933-5604 | FAX: 613-936-0335 | ARCHITECTURE49.COM

CONSULTANT - SUB CONSULTANT:

WSP

1345 ROSEMOUNT AVENUE
CORNWALL, ONTARIO, CANADA K6J 3E5
PHONE 613-933-5602 | FAX: 613-936-0335 | WWW.WSP.COM

CONSULTANT - SUB CONSULTANT:

EVB ENGINEERING

800 SECOND STREET WEST
CORNWALL, ONTARIO CANADA, K6J 1H6
TEL: 613-935-3775 | FAX: 613-935-6450
WEBSITE: EVBengineering.com

SEAL:

LICENSED PROFESSIONAL ENGINEER
K.A.MACCULLOCH
100205607
2020/04/15
PROVINCE OF ONTARIO

CLIENT:

UPPER CANADA District School Board

PROJECT:

CENTENNIAL '67 PUBLIC SCHOOL
2020 BUS LANE, PARKING,
FRONT ENTRANCE AND RENOVATIONS

DISCLAIMER: COPYRIGHT:

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
2		2020-04-15	ISSUED FOR TENDER/REVISED PER SNC
1		2020-03-24	ISSUED FOR TENDER

PROJECT NO: 199-00220-00
DATE: NOVEMBER 2019
ORIGINAL SCALE: 1:500
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DESIGNED BY: K.M.
DRAWN BY: K.B.W.
CHECKED BY: F.L.
DISCIPLINE: CIVIL

TITLE:

GENERAL SITE PLAN &
EROSION AND SEDIMENTATION
CONTROL PLAN

SHEET NUMBER: C1.2

SHEET #: 2 OF 8

ISSUE: ISSUED FOR TENDER
DATE OF: 2020/04/15
REV #: 0

M:\2019\19141 - Centennial 67 Public School\6.0 Dwg\6.2 Civil\2.0 Production\19141-C1-2-4.dwg Apr 15, 2020-3:53pm BY:(Kevin.MacCulloch)

SCHEDULE “D”

Site Plan Control Agreement

SPECIAL CONDITIONS

1. **Access Facilities**
   As per site plan forming Exhibit 1 OF Schedule “B”. No additional entrance ways shall be established without the consent of the Roads Superintendent and the United Counties of Leeds and Grenville, if on a County Rd.

2. **Stormwater, Sediment & Erosion Control**
   Drainage, stormwater, sediment and erosion control shall be managed as per Schedule “C”.

3. **Refuse Storage and Disposal**
   The owner shall be responsible for the disposal of refuse from his/her/their property.

4. **Snow Removal**
   Snow removal is the responsibility of the owner.

5. **Location of Building Structures and Facilities**
   As per Site Plan forming Exhibit 1 of Schedule “B” to this Agreement.

6. **Additional Renovations**
   Prior to the commencement of any work on additions or alterations to existing structures on the property, as per Site Plan forming Exhibit 1 of Schedule “B” to this Agreement, a building permit must be issued by the Chief Building Official for any works that require a building permit.

Properties

PIN	68141 - 0430 LT
Description	LT 56-60, 66-69, 73-74, 84, 89, 94 PL 40; PT LT 55, 75-76, 82-83, 90-91, 93 PL 40 AS IN PR16869; PT PARKLT D, E PL 40 PT 7, 15R9456, PT 2, 15R9632; PRINCE ST PL 40; PT SOUTH ST, KING ST, VICTORIA ST PL 40 CLOSED BY PR17985, PR155279, AS IN PR17986, PT 1, 15R9626 & PT 6, 15R9456; EDWARDSBURGH/CARDINAL
Address	7 HENDERSON ST SPENCERVILLE

Consideration

Consideration $0.00

Applicant(s)

The notice is based on or affects a valid and existing estate, right, interest or equity in land

Name	THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL
Address for Service	18 Centre Street, Spencerville, Ontario, K0E 1X0

I, Patrick Sayeau, Mayor and David Grant, CAO, have the authority to bind the corporation.

This document is not authorized under Power of Attorney by this party.

Statements

This notice is pursuant to Section 71 of the Land Titles Act.

This notice is for an indeterminate period

Schedule: See Schedules

Signed By

Amanda Jayne Spink Pietersma	Box 428, 522 St. Lawrence St. Winchester K0C 2K0	acting for Applicant(s)	Signed	2020 06 16

Tel 613-774-2670

Fax 613-774-2266

I have the authority to sign and register the document on behalf of the Applicant(s).

Submitted By

AULT & AULT	Box 428, 522 St. Lawrence St. Winchester K0C 2K0	2020 06 16

Tel 613-774-2670

Fax 613-774-2266

Fees/Taxes/Payment

Statutory Registration Fee	$65.05
Total Paid	$65.05

File Number

Applicant Client File Number : 1369-372

ACKNOWLEDGEMENT AND DIRECTION

TO: Samantha Berry
(Insert lawyer's name)

AND TO: AULT & AULT
(Insert firm name)

RE: SITE PLAN CONTROL AGREEMENT - PIN 68141-0430 ("the transaction")
(Insert brief description of transaction)

This will confirm that:

- I/We have reviewed the information set out in this Acknowledgement and Direction and in the documents described below (the "Documents"), and that this information is accurate;
- You, your agent or employee are authorized and directed to sign, deliver, and/or register electronically, on my/our behalf the Documents in the form attached.
- You are hereby authorized and directed to enter into an escrow closing arrangement substantially in the form attached hereto being a copy of the version of the Document Registration Agreement, which appears on the website of the Law Society of Upper Canada as the date of the Agreement of Purchase and sale herein. I/We hereby acknowledge the said Agreement has been reviewed by me/us and that I/We shall be bound by its terms;
- The effect of the Documents has been fully explained to me/us, and I/we understand that I/we are parties to and bound by the terms and provisions of the Documents to the same extent as if I/we had signed them; and
- I/we are in fact the parties named in the Documents and I/we have not misrepresented our identities to you.
- I,____________________, am the spouse of____________________, the (Transferor/Chargor) , and hereby consent to the transaction described in the Acknowledgment and Direction. I authorize you to indicate my consent on all the Documents for which it is required.

DESCRIPTION OF ELECTRONIC DOCUMENTS

The Document(s) described in the Acknowledgement and Direction are the document(s) selected below which are attached hereto as "Document in Preparation" and are:

- ☐ A Transfer of the land described above.
- ☐ A Charge of the land described above.
- ☐ Other documents set out in Schedule "B" attached hereto.

Dated at Spencerville **, this** 16 **day of** June **, 20**20.

WITNESS

(As to all signatures, if required)

____

THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL

____
PATRICK SAYEAU - MAYOR

____
DAVID GRANT - CAO

____
I/WE HAVE AUTHORITY TO BIND THE CORPORATION

Properties

PIN	68141 - 0430 LT
Description	LT 56-60, 66-69, 73-74, 84, 89, 94 PL 40; PT LT 55, 75-76, 82-83, 90-91, 93 PL 40 AS IN PR16869; PT PARKLT D, E PL 40 PT 7, 15R9456, PT 2, 15R9632; PRINCE ST PL 40; PT SOUTH ST, KING ST, VICTORIA ST PL 40 CLOSED BY PR17985, PR155279, AS IN PR17986, PT 1, 15R9626 & PT 6, 15R9456; EDWARDSBURGH/CARDINAL
Address	7 HENDERSON ST SPENCERVILLE

Consideration

Consideration $0.00

Applicant(s)

The notice is based on or affects a valid and existing estate, right, interest or equity in land

Name	THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL Acting as a company
Address for Service	18 Centre Street, Spencerville, Ontario, K0E 1X0

I, Patrick Sayeau, Mayor and David Grant, CAO, have the authority to bind the corporation.

This document is not authorized under Power of Attorney by this party.

Statements

This notice is pursuant to Section 71 of the Land Titles Act.

This notice is for an indeterminate period

Schedule: See Schedules

File Number

Applicant Client File Number : 1369-372