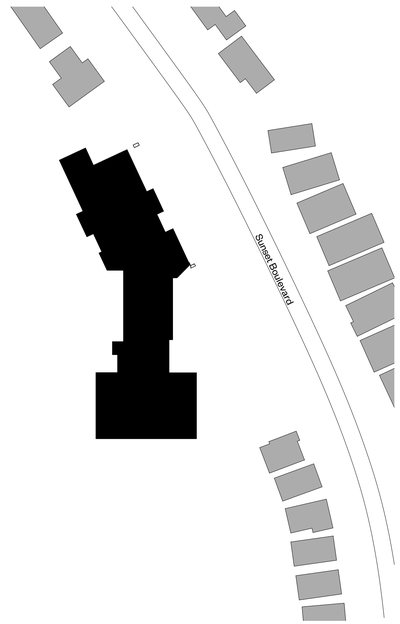
			OBC REFERENCE
FIRM NAME: WORKSHOP Architecture 6 Sousa Mendes St Toronto, ON M6P 0A8 tel. 416-901-8055		**LOCATION:** 85 Sunset Blvd, Cambridge, ON, N1S 1A9	References are to Division B unless noted [A] for Division A or [C] for Division C.
NAME OF PROJECT: Blair Road Public School Parking Lot Expansion		**Project Area:** 2360 m²	
ONTARIO'S 2012 BUILDING CODE DATA MATRIX - PART 11			
11.00	Building Code Version:	O. Reg. 332/12	
11.01	Project Type:	☐ Addition ☐ Addition and reno. ☑ Exterior work ☐ Change of use ☐ Renovation	[A] 1.1.2.6
11.02	Major Occupancy Classification:	Occupancy: Group A, Div. 2 Use: School	3.1.2.1.(1), and 11.2.1
11.03	Superimposed Major Classification:	☑ No ☐ Yes Description:	11.2 and 3.2.2.5. tp 3.2.2.8
11.04	Building Area (m²)	Existing: New: Total: NO CHANGE	1.4.1.2. [A], 11.2, & 11.3
11.05	Gross Area (m²)	Existing: New: Total: NO CHANGE	1.4.1.2. [A]
11.06	Mezzanine Area (m²)	Existing: New: Total: NO CHANGE	3.2.1.1
11.07	Building Height	Storeys above grade: 1 Storeys below grade: 0 NO CHANGE (m) Above grade: 7.00m	1.4.1.2 [A] & 3.2.1.1. and 11.3
11.08	Building Size	☐ Small ☐ Medium ☑ Large ☐ > Large	T.11.2.1.1.B-N.
11.09	Number of Streets	streets (s): 1 street	3.2.2.10., 3.2.5., 11.3
11.10	Existing Building Classification:	Change in Major Occupancy: ☐ Yes ☑ Not Applicable (no change of major occupancy) Contruction Index: NO CHANGE Hazard Index: Importance Category: ☐ Low ☐ Normal ☐ High ☐ Post-disaster	11.2.1.1. T11.2.1.1.A T11.2.1.1.B to N

Zoning Summary

	Existing	Required/Permitted	Proposed
Use	Elementary School	Elementary School	Unchanged
Parking Spaces	32	12 (for 12 classrooms, not incl. portables)	44
Landscaped Open Area	73%	30% min	70%



1 Context Plan
1 : 1000

2 Proposed Site Plan
1 : 500

General Notes:

1. Drawings are to be read in conjunction with project specifications.

2. Make good all surfaces/areas/finishes damaged during demolition. Prepare existing surfaces to accept new finishes as scheduled/specified.

3. All dimensions are to face of partition unless noted otherwise.

4. Angles are 90 degrees unless noted otherwise.

5. Site access, including working hours, for material delivery, work forces and for refuse removal is to be coordinated with the Owner, as per terms outline in Division 01 **General Requirements**.

6. General Contractor is to co-ordinate and co-operate with trades retained directly by Owner as applicable.

7. General Contractor shall be responsible for scheduling the trades identified in item 6, where such work affects the progress of the job.

8. Any temporary shoring required, including excavation support systems, shall be coordinated and provided by General Contractor within bid price. Refer also to Structural drawings, details and specification for additional requirements.

9. Building Permit shall be obtained by Owner. All other permits/fees (including but not limited to ESA, Municipal road closure permits, service connection fees, sign permits, etc) to be obtained by the Contractor as necessary to complete the Work. All costs for these permits (Municipal Inspections, traffic direction costs, etc) shall be included in bid price and provided at no additional cost to the Owner.

10. Reinstatement of any adjacent paving/sidewalks/roadways/asphalt within the Municipal Right of Way or adjacent properties disturbed during construction to be carried out according to applicable Municipal Standards. Refer also to Landscape/Civil drawings.

Sheet List

Sheet Number	Sheet Name
ARCHITECTURAL	
A0.0	OBC Matrix, General Notes, & Context Plan
A1.0	Demolition & Proposed Plans
A2.0	Exterior Elevations & Sections
A3.0	Stair and Guardrail Details
STRUCTURAL	
S0.00	General Notes & Key Plan
S1.00	Foundation Plans & Sections
CIVIL	
C0.00	General Notes
C0.01	Typical Details
C1.00	Site Grading Plan
C2.00	Site Servicing Plan
C3.00	Sediment & Erosion Control Plan
CULTEC 1	Cover Sheet
CULTEC 2	System Layout Sheet
CULTEC 3	System Calculation Sheet
CULTEC 4	System Overlay Sheet
CULTEC 5	150XLHD Detail Sheet
LANDSCAPE	
TPP-1	Tree Preservation Plan
TPP-2	Tree Preservation Notes and Details

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Rev	Description	Date
1	Issued for SD Report	10 Mar 2025
3	Permit/Tender	17 April 2025

Site Plan Legend

- Extent of new asphalt
- Extent of new concrete
- Extent of grass/sod
- Fire route
- Entrance
- Chain link fence
- Catch basin
- Tree (existing)
- Crossway painting

ONTARIO ASSOCIATION OF ARCHITECTS
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Blair Road Public School
Parking Lot Expansion

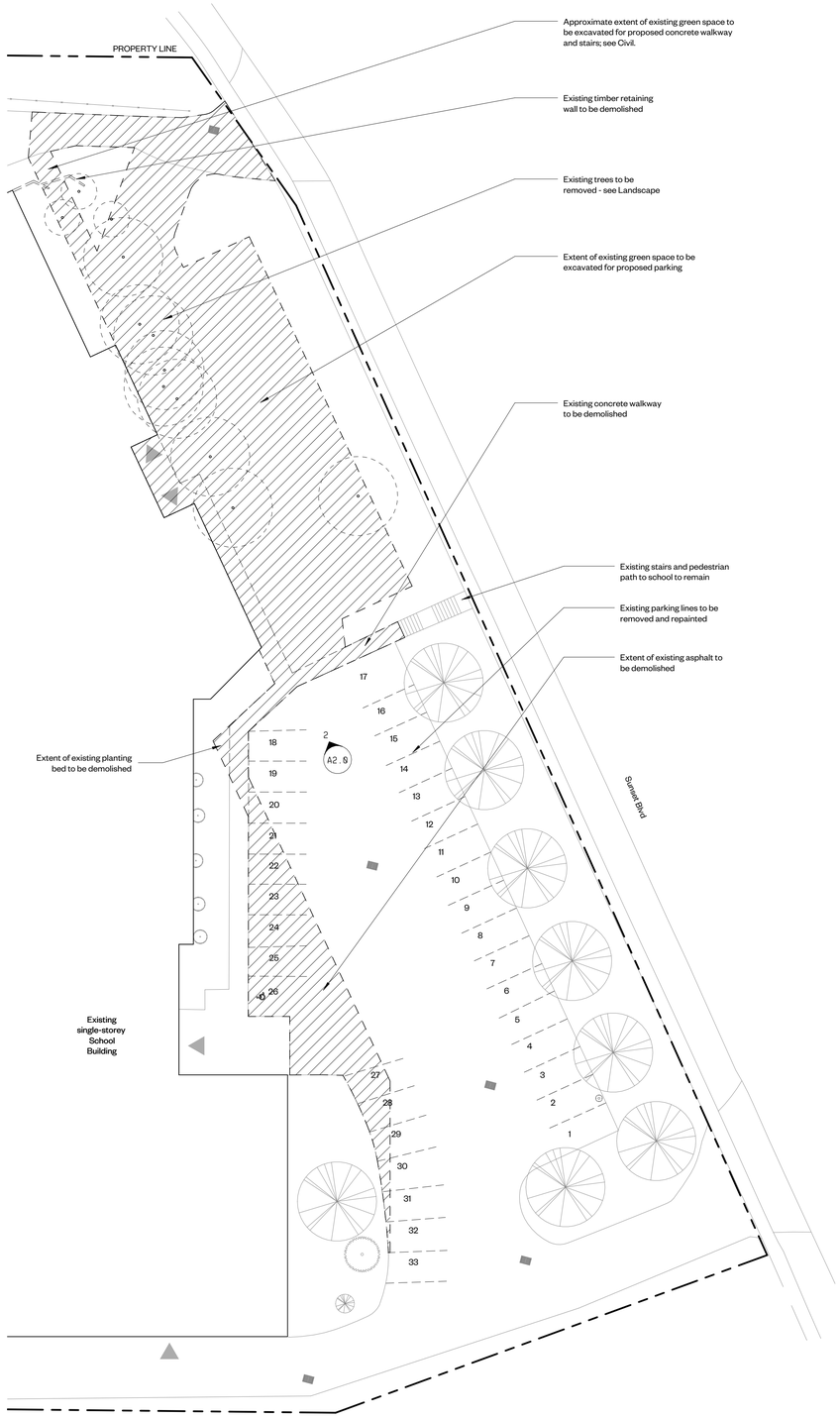
85 Sunset Blvd, Cambridge, ON, N1S 1A9

PROJECT CODE:	SCALE:
2430	As indicated
DATE:	STATUS:
April 2025	Tender

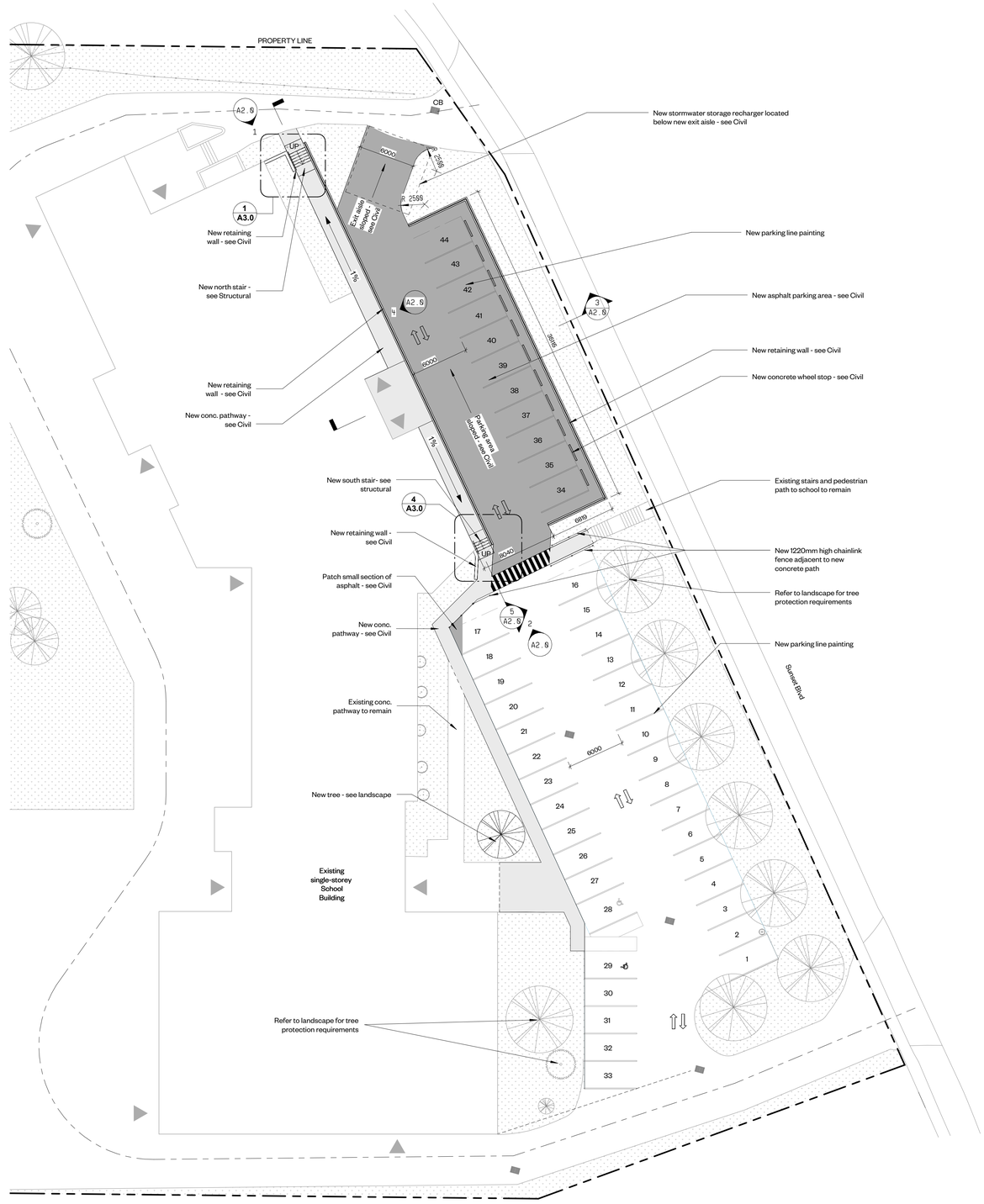
OBC Matrix, General Notes, & Context Plan

Project North

drawing number
A0.0



1 Site Plan Partial - Demolition
1 : 250



2 Site Plan - Proposed
1 : 250

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Demolition Legend

- Extent of surfaces to be demolished
- Tree to be demolished

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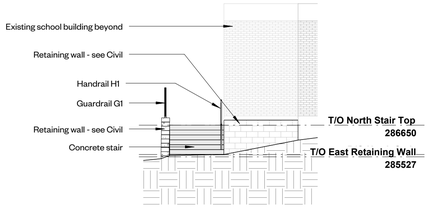
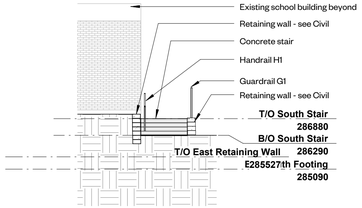
Demolition & Proposed Plans

Project North

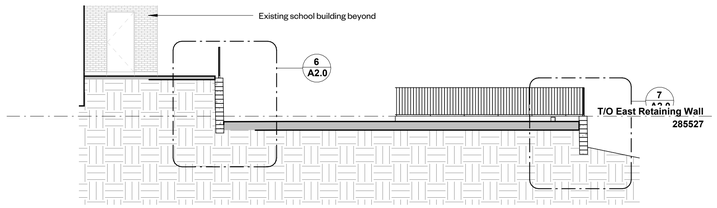
drawing number
A1.0



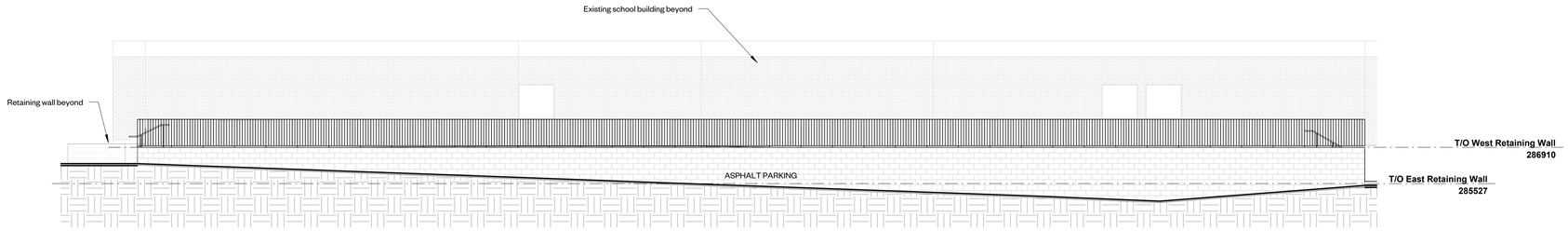
1 Exterior Elevation - North Stair
1 : 100



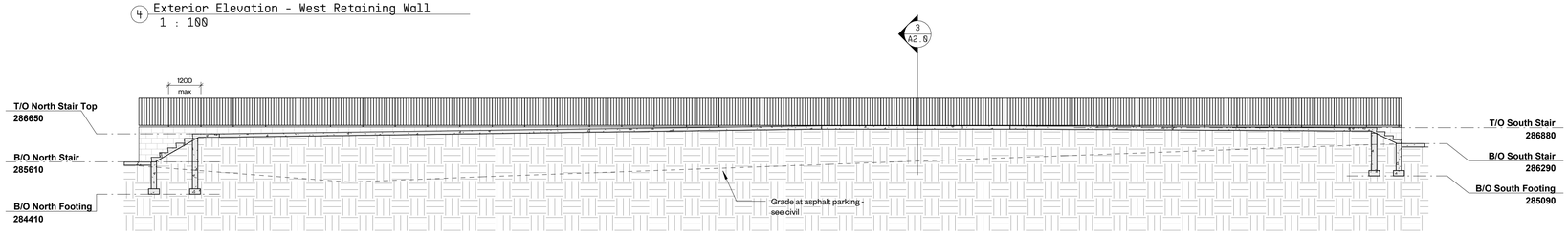
2 Exterior Elevation - South Stair
1 : 100



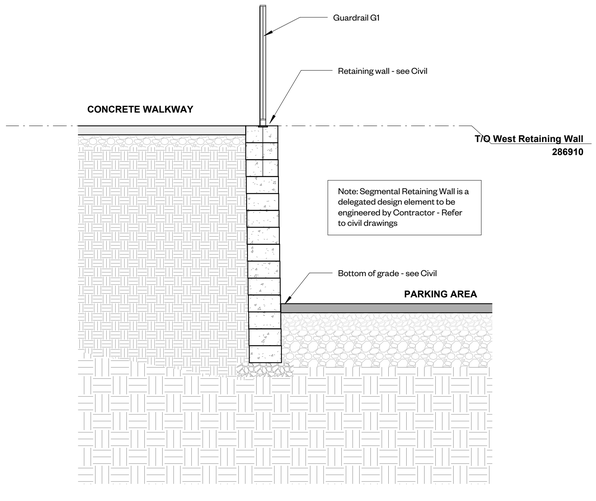
3 Site Section - East and West Retaining Walls
1 : 100



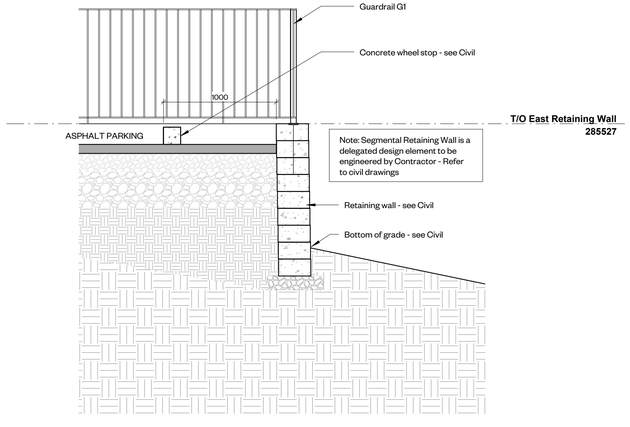
4 Exterior Elevation - West Retaining Wall
1 : 100



5 Site Section - Guardrail at Concrete Walkway and Stairs
1 : 100



6 Section Detail - West Retaining Wall
1 : 25



7 Section Detail - East Retaining Wall
1 : 25

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PROJECT CODE:	SCALE:
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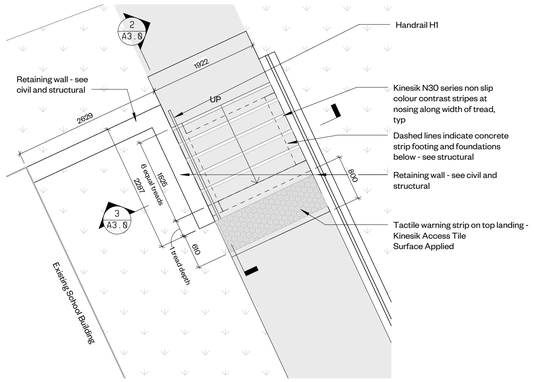
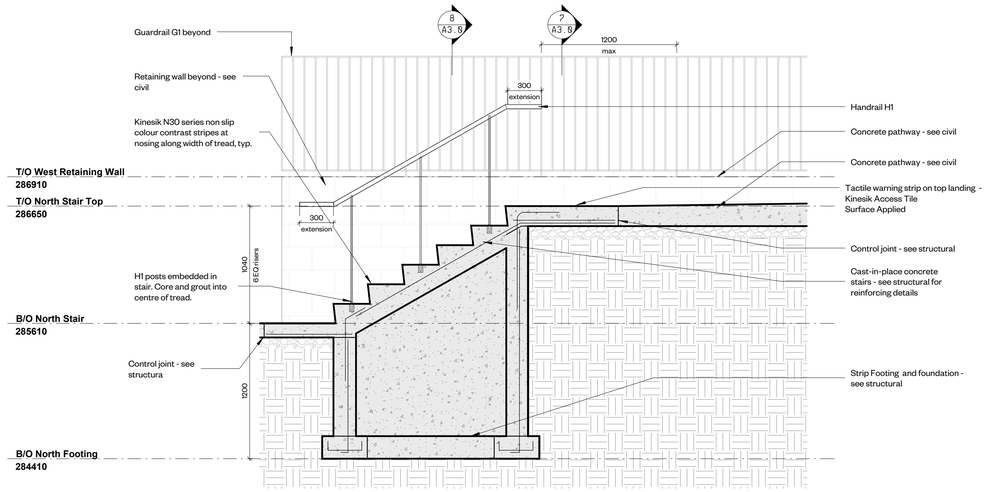
Exterior Elevations & Sections

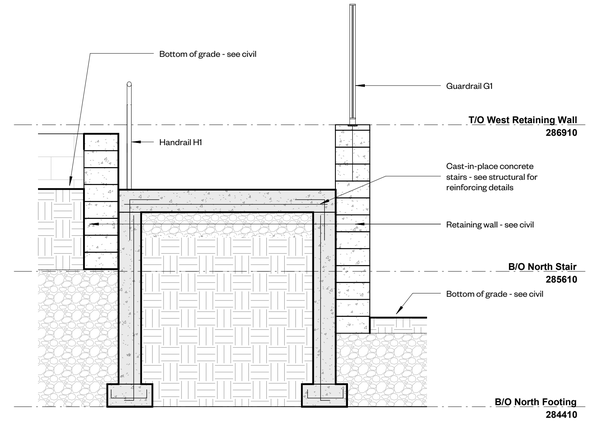
drawing number
A2.0



1 Detail Plan - North Stair
1 : 50



2 Section Detail - North Stair 1
1 : 25



3 Section Detail - North Stair 2
1 : 25

4 Detail Plan - South Stair
1 : 50

5 Section Detail - South Stair 1
1 : 25

6 Section Detail - South Stair 2
1 : 25

7 Section Detail - Guardrail G1
1 : 10

Note: Segmental Retaining Wall is a delegated design element to be engineered by Contractor - Refer to civil drawings

8 Section Detail - Handrail H1
1 : 10

H1 Intermediate Elevation

Handrail Notes:

1.All welds continous or filled and ground smooth
2. All stainless steel components at handrails to be SS finish (spec 05 55 00) UNO.
3. Ease all exposed bar edges and corners
4. Contractor is responsible for preparing shop drawings stamped by a Licensed Professional Engineer registed in the Province of Ontario

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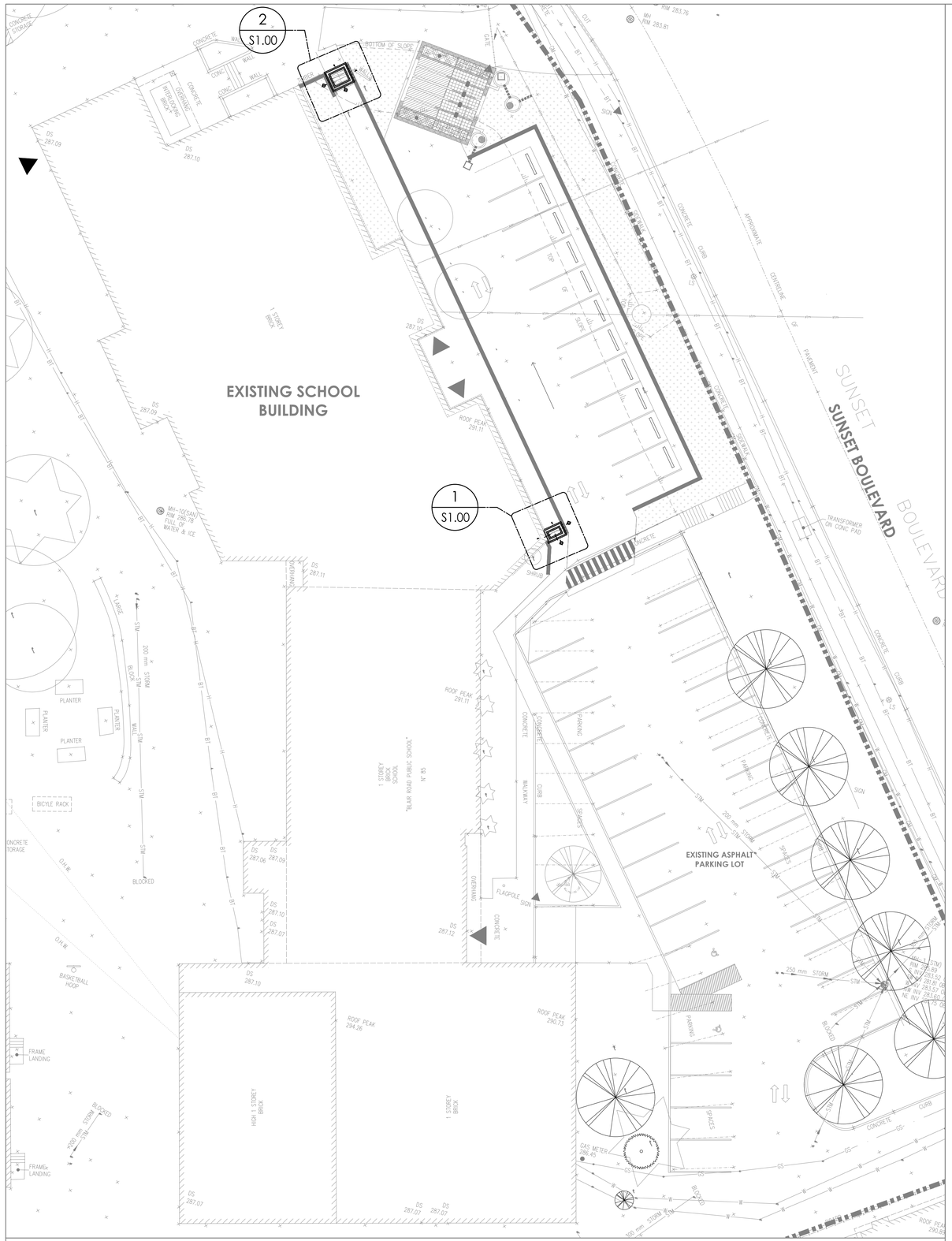
Stair and Guardrail Details

Project North

drawing number
A3.0



1 KEY PLAN
S1.00 SCALE: 1:200

STRUCTURAL DRAWING LIST

GENERAL NOTES

1. THE GENERAL NOTES MUST BE READ IN CONJUNCTION WITH THE DESIGN DRAWINGS AND SPECIFICATIONS OF ENGINEERING AND ARCHITECTURAL DISCIPLINES WHICH FORM PART OF THIS CONTRACT. THIS INCLUDES DRAWING SPECIFICATIONS AND SKETCHES. SHOULD THERE BE CONTRADICTORY INFORMATION BETWEEN DRAWINGS, SKETCHES AND SPECIFICATIONS,THE ONE WHICH IS MOST STRINGENT TAKES PRECEDENCE.
2. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND SIZE OF OPENINGS, TRENCHES, PITS, EQUIPMENT, SLEEVES, DEPRESSIONS, GROOVES AND CHAMFERS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION.THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH MEASURES. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS TO SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THE WORK.
4. ALL CONNECTIONS CONNECTED TO EXISTING STRUCTURE ARE TO BE SITE VERIFIED.
5. REVIEW OF SHOP DRAWINGS BY STRUCTURAL CONSULTANT IS ONLY TO ASSESS THAT SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN.
6. REVIEW BY THE STRUCTURAL CONSULTANT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FORSEEN THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
7. TYPICAL DETAILS SHALL BE USED WHERE SPECIFIC DETAILS ARE NOT SHOWN ON THE DRAWINGS.
8. ALL WORK REQUIRED, INCLUDING ANY DEMOLITION, SHALL BE CARRIED OUT IN A MANNER THAT WILL NOT DAMAGE THE EXISTING SITE OR STRUCTURE. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. ALL DESIGN, DETAILING, CONSTRUCTION, EXCAVATION AND SHORING, MUST CONFORM TO THE PRESENT ONTARIO BUILDING CODE, OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS LATEST EDITION. ALL ASSOCIATED COST WITH THE DESIGN, SUPPLY AND INSTALLATION OF TEMPORARY SHORING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. GENERAL CONTRACTOR TO PROVIDE STAMPED, ENGINEERED SHORING DRAWINGS.
10. THE GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK OF ALL SUBCONTRACTORS.
11. THE GENERAL CONTRACTOR MUST REVIEW ALL DIMENSIONS PRIOR TO THE COMMENCEMENT OF ALL WORK AND MUST REPORT ALL DISCREPANCIES TO THE ENGINEER/ARCHITECT.
12. STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.
13. PROVIDE STAMPED STRUCTURAL SHOP DRAWINGS AS NOTED IN THE FOLLOWING TABLE.

ITEMS	REQ'D SUBMITTAL?	ENGINEER'S STAMP REQ'D?	NOTES
REBAR SHOP DWGS.	YES	NO	
CONC. MIX DESIGNS	YES	NO	

14. PROJECTS WHICH INCLUDE ANY DEMOLITION AND OR RENOVATION WORK, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND EXISTING CONSTRUCTION. SHOULD A DISCREPANCY ON EITHER BE FOUND,REPORT FINDINGS TO ENGINEER/ARCHITECT.
15. ALL DETAILS SHOWN ARE SPECIFIC TO THE PROJECT.WHERE A LOCATION IS NOT SPECIFIED FOR A DETAIL, DETAILS IN THE DRAWINGS INCLUDING TYPICAL DETAILS WHICH CLOSELY RESEMBLES THE WORK, WILL APPLY.
16. ALL CODES AND REGULATIONS QUOTED ARE TO BE THE LATEST EDITION.

CONCRETE AND REINFORCING

1. CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION, TESTING AND STANDARD PRACTICES FOR CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1/A23.2 (LATEST EDITION).
2. CONCRETE DESIGN SHALL BE IN ACCORDANCE WITH THE DESIGN OF CONCRETE STRUCTURES CSA STANDARD A23.3 (LATEST EDITION).
3. SUPPLY AND PLACE CONCRETE IN ACCORDANCE TO TABLE 1

TABLE 1

	LOCATION	MIN. COMPRESSIVE STRENGTH (f'c) AT 28 DAYS MPa (PSI)	SLUMP mm (in)	EXPOSURE CLASS	AIR CONTENT (%)
FTGS	FND. WALL FOOTINGS	25 (3626)	80 ± 30 (3 ± 1)	N	NONE
WALLS	FND. WALLS	35 (5000)	80 ± 30 (3 ± 1)	C-1	5-8
SLABS & STAIRS	STAIRS	35 (5000)	80 ± 30 (3 ± 1)	C-1	5-8

4. THE COMPRESSIVE STRENGTH OF THE CONCRETE IS BASED ON THE FOLLOWING CONDITIONS:

a) TYPE GU NORMAL PORTLAND CEMENT UNLESS OTHERWISE NOTED OR APPROVED
b) MAXIMUM SIZE OF AGGREGATE 20mm (3/4") WASHED IRREGULAR CUT CLEAR STONE
c) SLUMP SHOWN ON THE TABLE IS SLUMP WITHOUT SLUMP AID ADMIXTURE. WHERE THE USE OF AN ADMIXTURE IS PREFERRED TO INCREASE THE SLUMP, THE SUPERPLASTICIZED CONCRETE SLUMP MUST REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR

5. REINFORCEMENT SHALL CONFORM TO CSA G30.3,G30.5 AND G30.18 (LATEST EDITION) YIELD STRENGTH FOR CONCRETE AND MASONRY REINFORCEMENT, fy=400MPa YIELD STRENGTH FOR WELDED WIRE FABRIC fy=360MPa
6. WHEN COLUMNS AND WALLS ARE POURED INTEGRALLY USE THE HIGHER STRENGTH CONCRETE OF THE ELEMENT WHICH SPECIFIED IN TABLE 1.
7. MINIMUM CONCRETE COVER FOR REINFORCING, WHERE NOT SHOWN ON DESIGN DRAWINGS SHALL BE AS FOLLOWS:

a) ALL STEEL NOT CAST IN FORMS PERMANENTLY AGAINST EARTH OR ROCK AND IN A NON-CORROSIVE ENVIRONMENT, COVER SHALL BE 75mm (3").
b) ALL STEEL CAST IN FORMS SHALL FOLLOW TABLE 2 OR AS NOTED ON DRAWINGS.

TABLE 2

STRUCTURAL ELEMENT	COVER mm (in)	STRUCTURAL ELEMENT	COVER mm (in)
CONCRETE POURED IN FORMS BUT EXPOSED TO WEATHER OR EARTH		CONCRETE NOT EXPOSED TO WEATHER OR EARTH	
-BARS LARGER THAN 15M	50 (2")	-SLABS AND WALLS	25 (1")
-BARS 15M AND SMALLER	38 (1½")	-BEAMS AND GIRDERS	38 (1½")
		-COLUMNS MAIN STEEL	50 (2")
FTGS. & OTHER ELEMENTS POURED AGAINST EARTH	75 (3")		

8. THE GENERAL CONTRACTOR MUST COORDINATE THE INSTALLATION OF MECHANICAL AND ELECTRICAL OPENINGS AND SLEEVES.THEY MUST FOLLOW THE GUIDE LINES BELOW:

a) NO SLEEVES SHALL BE PLACED VERTICALLY OR HORIZONTALLY THROUGH BEAMS UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
b) NO OPENINGS SHALL BE MADE IN FLAT SLABS OR TWO WAY SLAB COLUMN STRIPS EXCEPT AS SHOWN ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
c) WHERE A CORE DRILL OR AN OPENING IS REQUIRED IN HARDENED CONCRETE THE GENERAL CONTRACTOR MUST SEEK THE APPROVAL OF THE STRUCTURAL ENGINEER.
d) ELECTRICAL CONDUITS SHALL NOT PASS THROUGH COLUMNS AND ARE NOT TO RUN HORIZONTALLY IN WALLS.
e) CONDUITS WITHIN SLABS MUST NOT HAVE A (OUTER) DIAMETER GREATER THAN ONE-QUARTER OF THE SLAB THICKNESS, SPACING BETWEEN CONDUITS MUST BE AT LEAST 3 TIMES THE OUTER DIAMETER (CLEAR SPACING). CONDUITS MUST BE PLACED WITHIN MIDDLE THIRD OF SLAB. CONDUITS SHALL BE LAID SUCH THAT ONLY SINGLE CROSS OVERS OCCUR WITHIN MAXIMUM 500mm OF ONE ANOTHER. ALL CONDUITS WITHIN SLAB ARE SUBJECT TO APPROVAL BY STRUCTURAL CONSULTANT.

9. REFER TO DESIGN DRAWINGS FOR TYPICAL DETAILS OF CONTROL JOINTS, EXPANSION JOINTS AND CONSTRUCTION JOINTS. UNLESS OTHERWISE NOTED ON THE DESIGN DRAWINGS, THE FOLLOWING MAXIMUM DISTANCE BETWEEN JOINTS MUST BE FOLLOWED:

a) CONTROL JOINTS IN WALLS 6m (20') MAXIMUM
b) MAXIMUM POUR LENGTH FOR SLAB ON GRADE IS 30m (100').
c) ALL SAWCUTS MUST BE MADE WITHIN 24 HRS. FROM PLACING OF CONCRETE. THE DEPTH OF THE SAWCUT MUST BE 1/3 THE DEPTH OF THE SLAB.

TESTING AND INSPECTION

1. THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNLESS NOTED OTHERWISE. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEMS	REQ'D?	COMMENTS
REINF. STEEL PLACEMENT	YES	INSPECT FINAL PLACEMENT
CONC. COMPRESSIVE TESTS	YES	
CONC. SLUMP	YES	

* CONCRETE POURS IN WINTER MONTHS TO HAVE MIN. 2 SETS LAB CURED AND 2 SETS FIELD CURED.

N
TRUE NORTH

N
CONSTRUCTION NORTH

MANTECON PARTNERS
STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
www.mantecon partners.com

SEAL

LICENSED PROFESSIONAL ENGINEER
S. C. MILLER
100074446
APR 17/25
PROVINCE OF ONTARIO

REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF MANTECON PARTNERS' AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

NO.	ISSUED	DATE	BY
2	ISSUED FOR PERMIT & TENDER	2025-04-17	D.N.
1	ISSUED FOR TENDER	2025-04-11	D.N.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
GENERAL NOTES & KEY PLAN

DRAWN BY: D.N.
SCALE: AS INDICATED
CHECKED BY: S.M.
DRAWING NUMBER: S0.00
DATE: 2025-02
PROJECT NUMBER: 25-013

ORIGINAL SHEET – ARCH D

April 17, 2025 – 10:25am Plotted by: dnguyen

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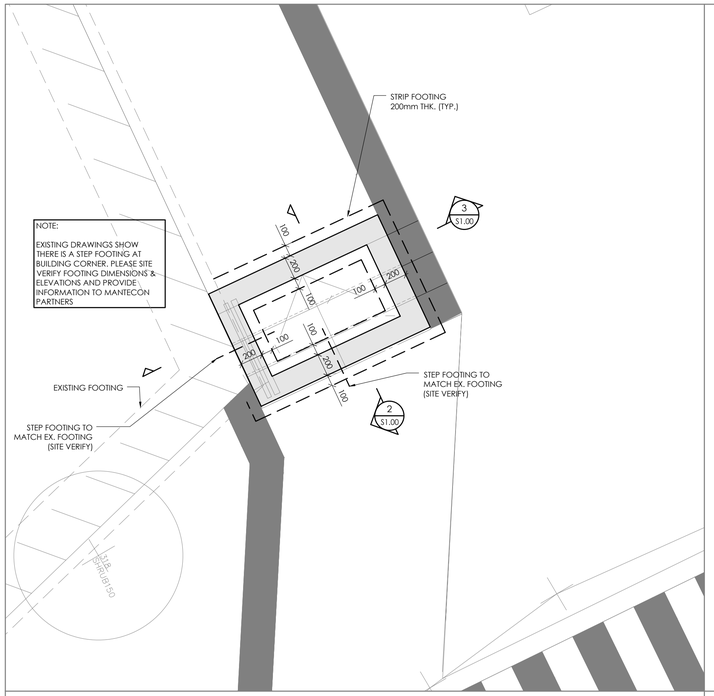

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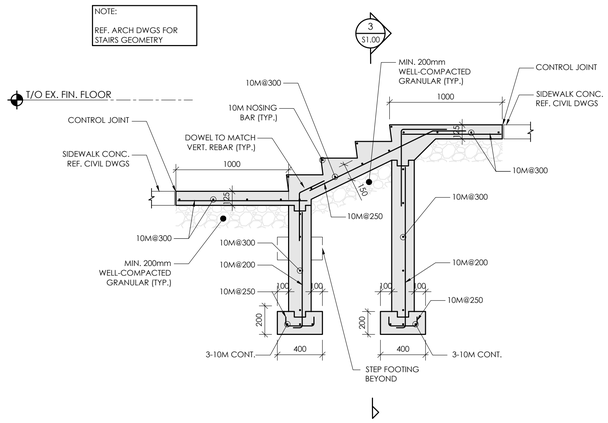

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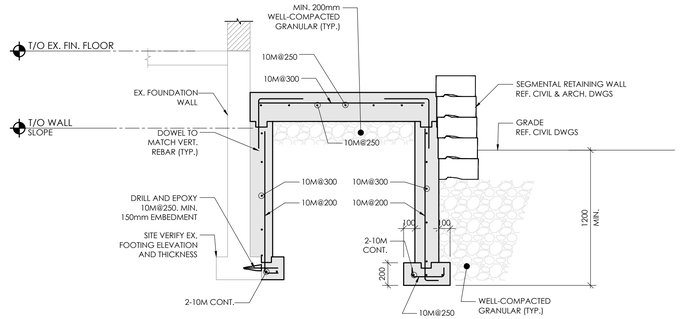

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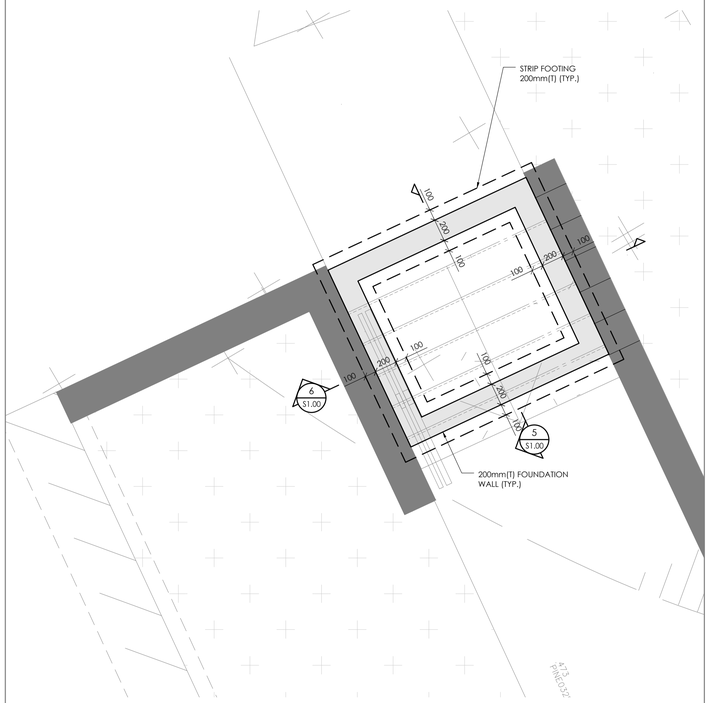

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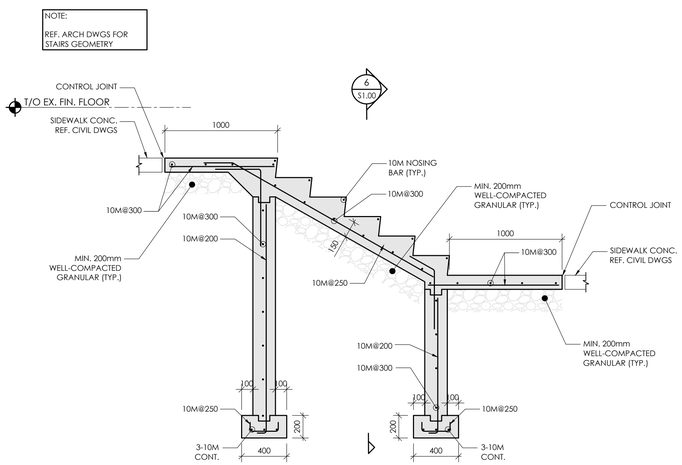

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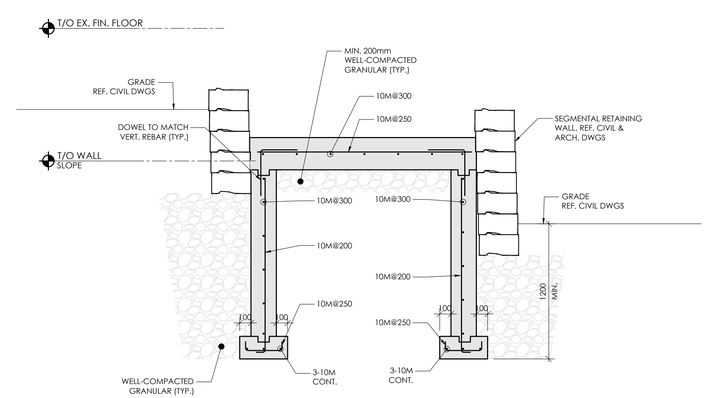
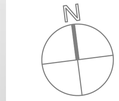


6 S1.00 SECTION
SCALE: 1:25

ORIGINAL SHEET – ARCH D



TRUE NORTH

CONSTRUCTION NORTH

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15 Foundry Street, Dundas, ON, L9H 2V6
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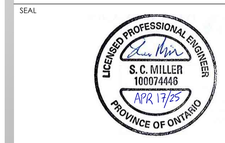
SEAL



REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF MANTECON PARTNERS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

NO.	ISSUED	DATE	BY
2	ISSUED FOR PERMIT & TENDER	2025-04-17	D.N.
1	ISSUED FOR TENDER	2025-04-11	D.N.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
FOUNDATION PLANS & SECTIONS

DRAWN BY: D.N.	SCALE: AS INDICATED
CHECKED BY: S.M.	DRAWING NUMBER: S1.00
DATE: 2025-02	
PROJECT NUMBER: 25-013	

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April 17, 2025 – 10:25am Plotted by: dnguyen

CIVIL DRAWING LIST

GENERAL NOTES

1. EXISTING UNDERGROUND SERVICE INFORMATION IS DERIVED FROM EXISTING DRAWINGS AND HAVE NOT BEEN LOCATED BY THE UTILITY COMPANIES. MANTECON PARTNERS ASSUME NO RESPONSIBILITY AS TO THE ACCURACY, CORRECTNESS AND COMPLETENESS OF THE UNDERGROUND SERVICE INFORMATION SHOWN ON THIS PLAN.
2. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ALL DAMAGED AND/OR DISTURBED PROPERTY WITHIN THE LIMIT OF MUNICIPAL RIGHT-OF-WAY TO CITY OF CAMBRIDGE STANDARDS.
3. ALL WORK AND MATERIALS SHALL BE IN COMPLIANCE WITH CITY OF CAMBRIDGE, LOCAL UTILITY, MINISTRY OF THE ENVIRONMENT, AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, CURRENT PROVINCIAL BUILDING CODE, AS WELL AS ALL APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
4. EXISTING ELEVATIONS AND LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES MINIMUM 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES FOR UTILITY STAKEOUTS. IF REQUESTED BY THE CITY, MINISTRY OF TRANSPORTATION AND/OR ENGINEER, THE CONTRACTOR TO EXPOSE EXISTING SERVICES TO VERIFY EXACT LOCATION, PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES DURING CONSTRUCTION, OR DUE TO IT'S CONSTRUCTION ACTIVITIES.
6. DEWATERING, IF REQUIRED, SHALL BE THE RESPONSIBILITY AND SOLE EXPENSE OF THE CONTRACTOR. REFER TO THE GEOTECHNICAL REPORT EXISTING SITE CONDITIONS.
7. PERMITS REQUIRED FOR ROADWORK AND RIGHT-OF-WAYS SHALL BE OBTAINED FROM THE LOCAL GOVERNING MUNICIPALITIES PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN CITY RIGHT-OF-WAYS. THE CONTRACTOR IS TO PAY AND COORDINATE ALL REQUIRED PERMITS FOR ROADWORK WITH THE CITY.
8. ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO WORKING WITHIN ANY CITY RIGHT-OF-WAY.
9. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL WORK ON SITE WITH OTHER CONTRACTORS TO PREVENT CONFLICTS.
10. ALL AREAS ON PLAN, INCLUDING EXISTING CONCRETE SIDEWALKS, WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER. GRASSED AREAS SHALL BE RESTORED WITH SOD ON MINIMUM 150mm OF TOPSOIL.
11. POSITIVE DRAINAGE SHALL BE PROVIDED THROUGHOUT THE SITE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.
12. THE CONTRACTOR IS RESPONSIBLE FOR ALL REMOVALS AND SHALL ENSURE THEIR OFFSITE DISPOSAL.
13. THE GENERAL NOTES MUST BE READ IN CONJUNCTION WITH THE DESIGN DRAWINGS AND SPECIFICATIONS OF ENGINEERING AND ARCHITECTURAL DISCIPLINES WHICH FORM PART OF THIS CONTRACT. THIS INCLUDES DRAWING SPECIFICATIONS AND SKETCHES. SHOULD THERE BE CONTRADICTORY INFORMATION BETWEEN DRAWINGS, SKETCHES AND/OR SPECIFICATIONS, THE MOST STRINGENT GOVERNS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN AS BUILT TOPOGRAPHIC SURVEY UPON THE COMPLETION OF CONSTRUCTION WORK TO VERIFY COMPLIANCE WITH THE DESIGN AND LOCAL REGULATIONS. THE TOPOGRAPHIC SURVEY SHALL BE CONDUCTED BY A PROFESSIONAL LAND SURVEYOR.
15. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

ITEMS	REQUIRED SUBMITTAL?	ENGINEER'S STAMP REQUIRED?	NOTES
CONCRETE MIX DESIGNS	YES		
ASPHALT MIX DESIGNS	YES		
AGGREGATE GRADATION	YES		
SEWER APPURTENANCES	YES		

SITE GRADING

1. NATIVE BACKFILL MATERIAL SHOULD BE COMPACTED TO 98% STANDARD PROCTER DENSITY. GRANULAR BACKFILL MATERIAL SHALL BE PLACED IN LAYERS 150mm IN DEPTH AND COMPACTED TO 98% STANDARD PROCTOR DENSITY.
2. PAVEMENT SHALL BE AS FOLLOW:

PAVEMENT COMPONENT	THICKNESS (mm)
ASPHALT SURFACING -HL3	40mm
ASPHALT SURFACING -HL8	50mm
GRANULAR "A" BASE	175mm
GRANULAR "B" TYPE II SUBBASE	350mm

3. SUBMIT ASPHALT MIX DESIGN AND TRIAL MIX TEST RESULTS TO CONSULTANT FOR APPROVAL.
4. PROOF ROLLING OF SUBGRADE SHALL BE INSPECTED BY THE GEOTECHNICAL CONSULTANT.
5. PLACE GRANULAR BASE TO COMPACTED THICKNESS AS INDICATED. DO NOT PLACE FROZEN MATERIAL.
6. ASPHALT MATERIALS SHALL BE ROLLED AND COMPACTED TO A MINIMUM OF 97% MRD.
7. PROOF ROLLING OF ASPHALT SHALL BE INSPECTED BY THE GEOTECHNICAL CONSULTANT.
8. IF PAVEMENT CONSTRUCTION OCCURS IN WET, INCLEMENT WEATHER THE CONTRACTOR SHALL DISCUSS ADDITIONAL SUBGRADE SUPPORT WITH THE GEOTECHNICAL CONSULTANT AND PROVIDE ADDITIONAL GRANULAR SUB-BASE BASED ON THE GEOTECHNICAL CONSULTANT'S RECOMMENDATIONS.
9. BACKFILL MATERIAL AND COMPACTION SHOULD BE IN CONFORMANCE WITH THE GEOTECHNICAL REPORT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN AS BUILT TOPOGRAPHIC SURVEY UPON THE COMPLETION OF CONSTRUCTION WORK TO VERIFY COMPLIANCE WITH THE DESIGN AND LOCAL REGULATIONS. THE TOPOGRAPHIC SURVEY SHALL BE CONDUCTED BY A PROFESSIONAL LAND SURVEYOR.

CONCRETE CURBS, SIDEWALKS & PADS

1. ALL BARRIER CURB WITHIN SITE TO BE OPSD 600.110, ALL CURB DEPRESSIONS ACROSS ENTRANCE DRIVEWAYS TO BE AS PER CITY STANDARD DRAWING OR MUNICIPAL STANDARDS.
2. CURBS AT ALL PEDESTRIAN CONNECTIONS/CROSSING TO BE RECESSED CURBS, FLUSH WITH PAVEMENT SURFACE.
3. CONCRETE TO BE 35MPa COMPRESSIVE AT 28 DAYS WITH 5% TO 7% AIR ENTRAINMENT.
4. EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM 4.5m ON CENTRE AND WHERE CONCRETE MEETS OTHER HARD SURFACES AND STRUCTURES. (COORDINATE WITH LANDSCAPE/ARCHITECT DRAWINGS)
5. CONSTRUCTION JOINTS WITH DOUBLE EDGER IN FRESH CONCRETE THEN SAWCUT TO A DEPTH OF 30mm. JOINTS SHALL BE SPACED AT MAXIMUM 1.5 METRES ON CENTRE. (COORDINATE WITH LANDSCAPE DRAWINGS)
6. SLUMP OF CONCRETE SHALL BE 80mm.
7. CONCRETE CURB TO BE AS PER OPSD 600.110.

CONCRETE AND REINFORCING

1. CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION, TESTING AND STANDARD PRACTICES FOR CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1/A23.2 (LATEST EDITION).
2. CONCRETE DESIGN SHALL BE IN THE DESIGN OF CONCRETE STRUCTURES CSA STANDARD A23.3 (LATEST EDITION).
3. SUPPLY AND PLACE CONCRETE IN ACCORDANCE TO TABLE 1:

TABLE 1

LOCATION	MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS MPa (PSI)	SLUMP mm (in)	EXPOSURE CLASS	AIR CONTENT (%)
SIDEWALK/CURBS PAVING SLABS, EXTERIOR CONCRETE	35 (5000)	40 ± 20 (1-1/2 ± 3/4)	C-2	5-8

4. PAVEMENT SHALL BE:

PAVEMENT COMPONENT	THICKNESS (mm)
CONCRETE PAVERS	AS NOTED
CONCRETE SLAB	125 (UNLESS OTHERWISE NOTTED)
GRANULAR "A" BASE	100
GRANULAR "B" BASE	200 (UNLESS OTHERWISE NOTED)

5. GRANULAR BASE LAYERS SHALL BE COMPACTED TO MIN. 98% STANDARD PROCTOR DENSITY.
6. THE COMPRESSIVE STRENGTH OF THE CONCRETE IS BASED ON THE FOLLOWING CONDITIONS:
   a. TYPE GU NORMAL PORTLAND CEMENT UNLESS OTHERWISE NOTED OR APPROVED.
   b. MAXIMUM SIZE OF AGGREGATE 20mm (3/4") WASHED IRREGULAR CUT CLEAR STONE, EXCEPT FOR CONCRETE TOPPING WHICH SHALL HAVE MAXIMUM SIZE OF AGGREGATE 10mm (3/8") WASHED IRREGULAR CUT CLEAR STONE.
   c. SLUMP SHOWN ON THE TABLE IS SLUMP WITHOUT SLUMP AID ADMIXTURE. WHERE THE USE OF AN ADMIXTURE IS REFERRED TO INCREASE THE SLUMP, THE SUPERPLASTICIZED CONCRETE SLUMP MUST REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR.

TESTING AND INSPECTION

1. THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY PAID BY OWNER. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEMS	REQUIRED?	COMMENTS
SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
SOIL COMPACTION	YES	BY SOILS ENGINEER
CONCRETE COMPRESSIVE TESTS	YES	MINIMUM 2 SETS PER EACH 50m³
CONCRETE SLUMP	YES	

COMPACTION REQUIREMENTS

1. ALL BEDDING AND BACKFILL MATERIAL, ROAD SUB-GRADES AND GENERALLY ALL MATERIAL USED FOR LOT GRADING AND FILL SECTIONS, ETC., SHALL BE COMPACTED TO MIN. 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS.
2. ALL GRANULAR ROAD BASE MATERIALS SHALL BE COMPACTED TO 98% SPD.
3. FOR ALL SEWERS AND WATERMAINS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.

SEWER SERVICING

1. ALL SERVICES TO BE INSTALLED AS PER THE LATEST CITY STANDARDS AND SPECIFICATIONS MANUAL.
2. MINIMUM AND MAXIMUM DESIGN REQUIREMENT FOR VELOCITIES 0.80 TO 6.0m/s FOR STORM SERVICE.
3. MINIMUM BEDDING REQUIREMENTS FOR ALL SINGLE STORM AND SANITARY SEWER MAINS AND ALL RELATED CONNECTIONS SHALL BE CLASS 'B' BEDDING AS PER THE REGION OF WATERLOO STANDARD DRAWING SSMS E1-01.
4. THE TRENCH ABOVE THE SPECIFIED BEDDING SHALL BE BACKFILLED WITH APPROVED NATIVE MATERIAL EXCAVATED FROM THE TRENCH OR OBTAINED ELSEWHERE ON THE PROJECT, AND SHALL BE PLACED IN LAYERS NOT EXCEEDING 300 mm, AND SHALL BE COMPACTED TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL WITHIN 300mm OF THE STRUCTURE AND COMPACTED TO 98% STANDARD PROCTOR DENSITY.
6. SEWER BEDDING, COVER AND BACKFILL SHALL BE WITH GRANULAR A COMPACTED TO 100% SPMDD AND IN ACCORDANCE WITH THE REGION OF WATERLOO GUIDELINES.
7. STORM AND SANITARY TO BE INSTALLED WITH A MINIMUM 2.75m COVER AT THE PROPERTY LINE BELOW THE FINAL ROAD GRADE OR AT SUCH HIGHER ELEVATION ONLY AS MAY BE NECESSITATED BY THE LEVEL OF THE MAIN SEWER. ON PRIVATE PROPERTY, THE MINIMUM COVER IS NOT TO BE LESS THAN 1.2m.
8. CONNECTIONS TO MANHOLES SHALL BE IN ACCORDANCE WITH OPSS 407 CONSTRUCTION SPECIFICATION FOR NEW MAINTENANCE HOLE, CATCH BASIN, DITCH INLET, AND VALVE CHAMBER INSTALLATION - SECTION 407.07.13 INSTALLATION OF INLET AND OUTLET PIPES INTO CONCRETE STRUCTURES C) RESILIENT CONNECTOR
9. MAINTENANCE HOLE FRAMES AND LIDS SHALL BE ADJUSTED SO THAT WHEN TESTED WITH A 3m STRAIGHT EDGE IN ANY DIRECTION OF THE SURFACE, THE GAP SHALL NOT EXCEED 7mm BETWEEN THE BOTTOM OF THE STRAIGHT EDGE AND THE SURFACE OF THE ASPHALT OR FRAME AND APPURTENANCE.
10. ALL NEW MAINTENANCE HOLES SHALL BE FITTED WITH SELF-ADJUSTING MANHOLE FRAME AND COVER FROM EAST JORDAN IRON WORKS (PRODUCT NO. 00302201). BIBBY-STE-CROIX (AUTO STABLE C-50M-ONT) OR STAR PIPE PRODUCTS MH24SL OR APPROVED EQUIVALENT ON REGION OF WATERLOO, ALL SELF-LEVERS TO BE SUPPLIED WITH RUBBER GASKETS.
11. FOR MAINTENANCE HOLE DEPTHS BETWEEN 5.0 AND 10.0 m, A SAFETY GRATE MUST BE INSTALLED AT THE MID-POINT. FOR MAINTENANCE HOLE DEPTHS BETWEEN 10.0 AND 15.0 m, A SAFETY GRATE MUST BE INSTALLED AT THE THIRD POINTS. REFER TO OPSD 404.02.
12. STORM SEWERS SHALL BE PVC, BEL, SPIGOT JOINTS, RUBBER GASKET, LUBRICANT AND ALL OTHER NECESSARY APPURTENANCES SHALL BE MANUFACTURED IN CONFORMANCE WITH OPSS 1841 AND SHALL BE CERTIFIED TO CSA B182.2 FOR PVC SEWER PIPE AND FITTINGS OR CSA B182.4 FOR PROFILE PVC SEWER PIPE AND FITTINGS. PVC PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 320 KPA.
13. ALL PVC STORM PIPES TO BE SDR-35 FOR 200mm DIAMETER AND OVER, AND SDR-28 FOR 150mm AND SMALLER TO CSA SPECIFICATIONS B182.2. PVC SANITARY PIPES TO BE SDR-35 FOR 200mm DIAMETER AND OVER, AND SDR-28 FOR 150mm AND SMALLER TO CSA SPECIFICATIONS B182.2.
14. WHERE SANITARY OR STORM CROSSING OCCURS WITH EXISTING OR PROPOSED WATERMAIN, ENSURE A MINIMUM OF 2.5m, HORIZONTAL SEPARATION AND 0.5m VERTICAL SEPARATION BY INSTALLING A VERTICAL BEND IN WATERMAIN IF REQUIRED. WATERMAIN TO CROSS BELOW OTHER SERVICES AT BENDS TO BE PREVENTED. A MINIMUM SEPARATION OF 0.1m BETWEEN SANITARY AND STORM SEWER PIPES TO BE REQUIRED WHERE ONE SEWER PIPE CROSSES OVER THE OTHER.
15. ANY CHANGES IN GRADES AND CATCH BASINS REQUIRE THE APPROVAL OF THE DIRECTOR, DEVELOPMENT DIVISION, PLANNING AND DEVELOPMENT DEPARTMENT.
16. EXISTING SEWERS TO BE KEPT IN GOOD WORKING CONDITION AND OF ADEQUATE CAPACITY TO MEET THE REQUIREMENTS OF THE SITE. THE APPLICANT/OWNER OR THEIR CONTRACTOR IS RESPONSIBLE FOR HAVING THE SEWER TO BE REUSED VIDEO INSPECTED WHILE THE CITY OF HAMILTON SEWER INSPECTOR IS PRESENT. CONTACT PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT, FROWTH MANAGEMENT DIVISION, DEVELOPMENT ENGINEERING CONSTRUCTION SECTION AT (905) 546-2424 X 7860 TO ARRANGE FOR AN INSPECTION.
17. ALL SEWERS TO BE VIDEO INSPECTED.
18. ALL SEWERS TO BE FLUSHED PRIOR TO VIDEO INSPECTION.
19. ALL PVC SEWERS (SANITARY AND STORM) ARE TO BE TESTED FOR DEFLECTION (MANDREL PASSAGE) AFTER INSTALLATION, PRIOR TO ASSUMPTION BY THE CITY, PIPE DEFLECTION TESTING SHALL BE REPEATED.

SEDIMENT AND EROSION CONTROL

1. ALL SILT FENCING TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY AREA GRADING, EXCAVATING, OR DEMOLITION.
2. PROTECT ALL EXPOSED SURFACES AND CONTROL ALL RUNOFF DURING CONSTRUCTION.
3. PROTECT ALL MANHOLES, AND PIPE ENDS (EXISTING AND NEW) FROM SEDIMENT INTRUSION WITH GEOTEXTILE CLOTH (TERRAFIX 270r), ALL CATCHBASINS TO HAVE SILTSACK AS PER THE ATTACHED DETAILS.
4. PREVENT WIND-BLOWN DUST.
5. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. CONTRACTOR TO PROVIDE ALL ADDITIONAL EROSION CONTROL STRUCTURES.
6. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY BY CONTRACTOR AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF ONE THIRD (1/3) THE HEIGHT OF THE SILT FENCE.
7. SEDIMENT CONTROL FENCE TO BE AS PER OPSD 219.130
8. ALL EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN RE-STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
9. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SEDIMENTS FROM THE MUNICIPAL ROADWAY AND SIDEWALKS AS REQUIRED TO SATISFY THE AUTHORITIES HAVING JURISDICTION AND AT THE END OF EACH WORK DAY.
10. MUD MATS OF 150MM RIP RAP, (15 METRES LONG, 7.5 METRES WIDE, 300MM DEEP) SHALL BE PROVIDED ON SITE CONSTRUCTION ENTRANCES., CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT THE MAT IS MAINTAINED IN A MANNER TO MAXIMIZE ITS EFFECTIVENESS AT ALL TIMES. REFERENCE SHOULD BE DRAWN TO LOCATIONS ON DRAWING.
11. CONSULTANT TO MONITOR THE SITE DEVELOPMENT TO ENSURE ALL EROSION CONTROLS ARE INSTALLED AND MAINTAINED TO CITY REQUIREMENTS.

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STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
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SEAL

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Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

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NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.
1.	ISSUED FOR PROGRESS REVIEW	2025-03-28	A.A.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
GENERAL NOTES

DRAWN BY: A.A.	SCALE: AS NOTED
CHECKED BY: Y.T.	DRAWING NUMBER: C0.00
DATE: 2025-02	
PROJECT NUMBER: 25-013	

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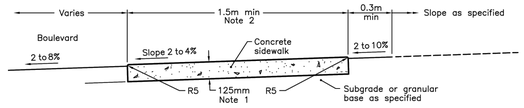
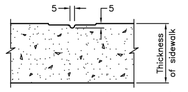
ORIGINAL SHEET - ARCH D

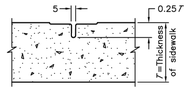
April 17, 2025 - 10:34am Plotted by: aabuwarda



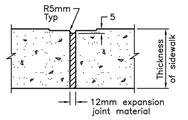
TYPICAL SECTION



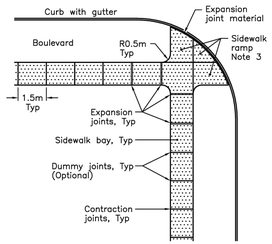
DUMMY JOINT (OPTIONAL)



CONTRACTION JOINT (Note 4)



EXPANSION JOINT

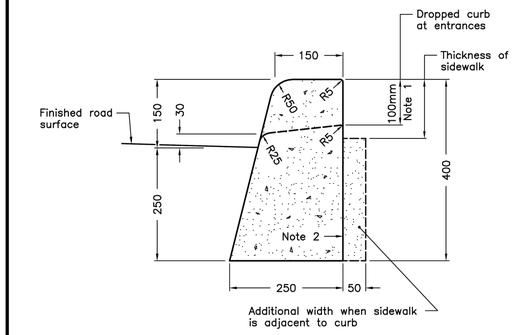


JOINT LAYOUT

NOTES:

1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
4 Contraction Joint may be tooled or sawcut.
A All dimensions are in millimetres unless otherwise shown.

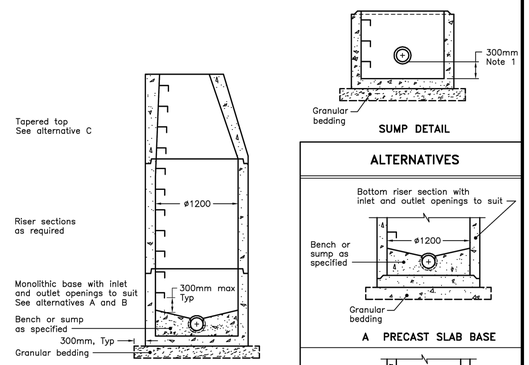
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK		OPSD 310.010



NOTES:

1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

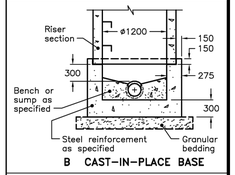
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB		OPSD 600.110



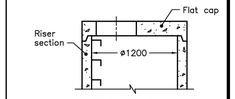
SUMP DETAIL

ALTERNATIVES

A PRECAST SLAB BASE



B CAST-IN-PLACE BASE



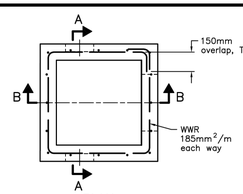
C PRECAST FLAT CAP

NOTES:

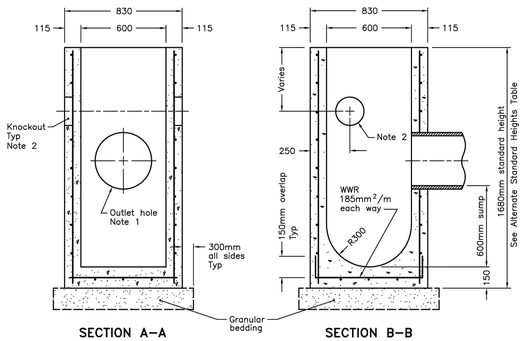
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



PLAN



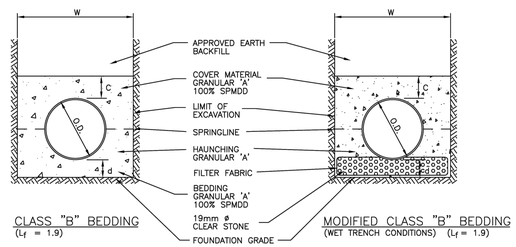
SECTION A–A SECTION B–B

NOTES:

1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010

NOMINAL PIPE INSIDE DIAMETER D (mm)	MINIMUM TRENCH WIDTH W (mm)	MINIMUM BEDDING BELOW d (mm)	MINIMUM COVER OVER PIPE C (mm)
RIGID PIPE			
900 or less	O.D. + 600	150	300
greater than 900 to less than 2100	O.D. + 600	0.15 x I.D.	300
2100 & over	O.D. + 1000	300	300
FLEXIBLE PIPE			
Under 1200	O.D. + 600	150	300

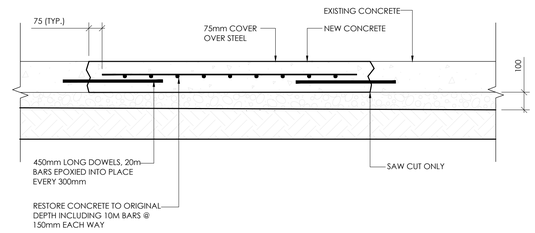


BEDDING FOR RIGID AND FLEXIBLE PIPE SEWERS

NOTES:

1. O.D. = OUTSIDE DIAMETER OF PIPE.
2. I.D. = INSIDE DIAMETER OF PIPE.
3. IN ROCK TRENCHES, BEDDING DEPTH (d) BELOW WATERMAINS AND SEWER PIPES SHALL BE INCREASED TO 300mm.
4. FOR PURPOSE OF CONTRACT SPECIFICATIONS BEDDING INCLUDES BEDDING HAUNCHING & COVER MATERIAL.
5. IN WET TRENCH CONDITIONS 19mm ø CLEAR STONE MAY BE USED TO INVERT OF PIPE. THE BEDDING BELOW INVERT SHALL BE WRAPPED IN FILTER FABRIC (TERRAFIX 270 R OR APPROVED EQUAL) WHERE DIRECTED BY THE ENGINEER.
6. GRANULAR "A" SHALL BE OF VIRGIN MATERIAL, BEDDING SHALL NOT CONTAIN RECYCLED ASPHALT OR CONCRETE.

REGION OF WATERLOO AND AREA MUNICIPALITIES STANDARD DRAWINGS	REVISION DATE: DEC. 2023
STANDARD BEDDING FOR SEWERS AND WATERMAINS	SSMS E1 - 01



TYP CONCRETE RESTORATION DETAI

SCALE: N.T.S.

MANTECON PARTNERS
STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
www.mantecon partners.com

SEAL

LICENSED PROFESSIONAL ENGINEER
Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF MANTECON PARTNERS' AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.
1.	ISSUED FOR PROGRESS REVIEW	2025-03-28	A.A.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

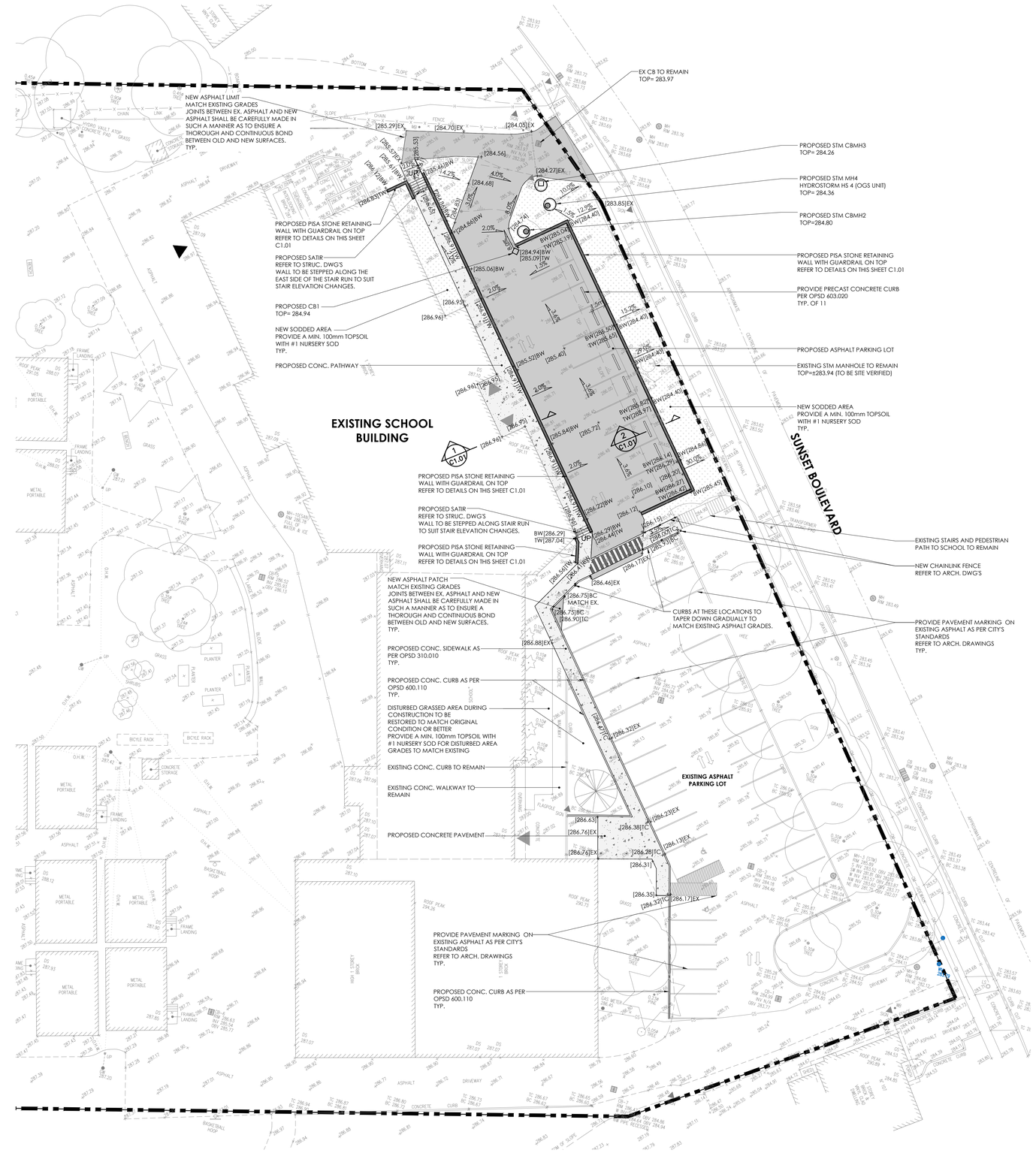
PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

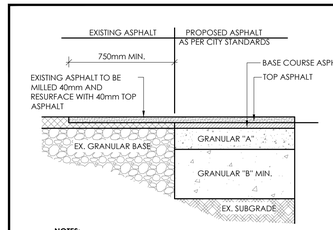
DRAWING TITLE:
TYPICAL DETAILS

DRAWN BY:	SCALE:
A.A.	AS NOTED
CHECKED BY:	DRAWING NUMBER:
Y.T.	C0.01
DATE: 2025-02	
PROJECT NUMBER: 25-013	

File: J:\Drawings\25-013 - WRDSB Blair Rd - Exit Aisle Grading\3-Working Documents\C\C0.00.dwg



1 C1.00 SITE GRADING PLAN
SCALE: 1:250



NOTES:

1. PROPOSED PAVEMENT DESIGN IN THE ROAD SHALL MATCH EXISTING DEPTHS AND CONFORM TO CITY STANDARDS.
2. UNLESS RECOMMENDED OTHERWISE BY THE GEOTECHNICAL ENGINEER, THE LAP JOINTS SHOULD BE SUCH THAT:
   a. WHERE EXISTING ASPHALT DEPTHS ARE LESS THAN 100mm, FULL DEPTH JOINT SHALL BE REQUIRED;
   b. WHERE EXISTING ASPHALT DEPTHS EXCEED 100mm, THE MINIMUM DEPTH OF JOINT SHALL BE EQUAL TO 50% OF THE TOTAL EXISTING ASPHALT DEPTH; AND,
   c. JOINT SURFACE SHALL BE FILLED WITH RUBBERIZED SEALING COMPOUND A.S.T.M. D-6690 UPON COMPLETION. TYPE TO BE SPECIFIED BY THE GEOTECHNICAL/PAVEMENT ENGINEER. REFER TO OPSS. MUNI 1212.

2 C1.00 TYP ASPHALT LAP JOINT DETAIL
SCALE: N.T.S.

LEGEND - SITE GRADING

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
	PROPERTY LINE
	EXISTING BUILDING
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PROPOSED SOD
x.xxx.xx	EXISTING ELEVATION
+ [XXX.XX]	PROPOSED ELEVATION
CB	PROPOSED CATCH BASIN
CBMH	PROPOSED CATCH BASIN MANHOLE
STMMH	PROPOSED STORM MANHOLE

METRIC: DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SITE PLAN

PLAN OF TOPOGRAPHICAL SURVEY OF
BLAIR ROAD PUBLIC SCHOOL
BEING Nº 85 SUNSET BOULEVARD,
CITY OF CAMBRIDGE
REGIONAL MUNICIPALITY OF WATERLOO

INFORMATION ON THIS SITE PLAN
TAKEN FROM SURVEY / TOPOGRAPHY
PREPARED BY:

GENESIS LAND SURVEYING INC.
10 FOUR SEASONS PLACE
10TH FLOOR TORONTO, M9B 6H7

T 905-499-2956 - T 1800-262-9784

THE SURVEY WAS COMPLETED ON DECEMBER 30, 2024

BENCHMARK

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF CAMBRIDGE BENCHMARK Nº 001-19663308 WITH A PUBLISHED ELEVATION OF 300.480 METRES (CGVD-1928:POST-1978).

UTILITY NOTE

THE LOCATION OF UNDERGROUND UTILITIES SHOWN HAS BEEN LOCATED BY MARK-IT LOCATES INC. ON JANUARY 6, 2025 AND IS FOR DESIGN PURPOSES ONLY. IT IS NOT TO BE USED AS A SUBSTITUTE FOR NEW LOCATES PRIOR TO EXCAVATION, AND IS CERTIFIED BY MARK-IT LOCATES INC ONLY. ANY DISCREPANCIES ARE TO BE REPORTED. READ WITH CORRESPONDING LOCATE REPORT.

SNOW NOTE

THE FIELDWORK WAS COMPLETED DURING HEAVY SNOW CONDITIONS AND EVERY ATTEMPT HAS BEEN MADE TO ACCURATELY CAPTURE ALL RELEVANT TOPOGRAPHIC DETAILS, ANY OMISSIONS SHOULD BE REPORTED TO THE UNDERSIGNED.

TRUE NORTH | CONSTRUCTION NORTH

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15 Foundry Street, Dundas, ON, L9H 2V6
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SEAL

LICENSED PROFESSIONAL ENGINEER
Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

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NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.
1.	ISSUED FOR PROGRESS REVIEW	2025-03-28	A.A.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

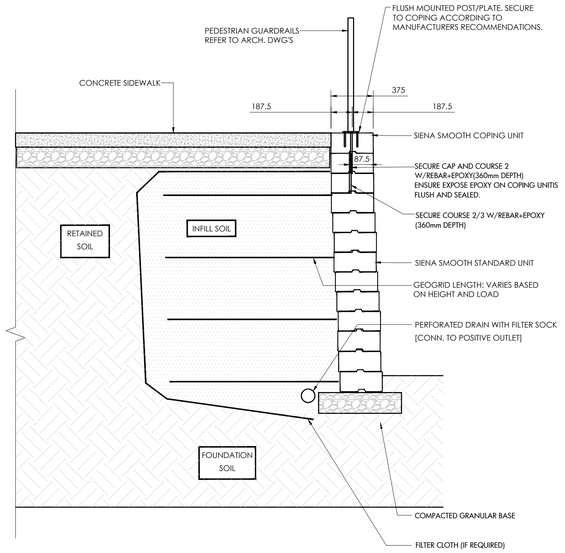
PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
SITE GRADING PLAN

DRAWN BY: A.A.	SCALE: AS NOTED
CHECKED BY: C.B.	DRAWING NUMBER: C1.00
DATE: 2025-02	
PROJECT NUMBER: 25-013	

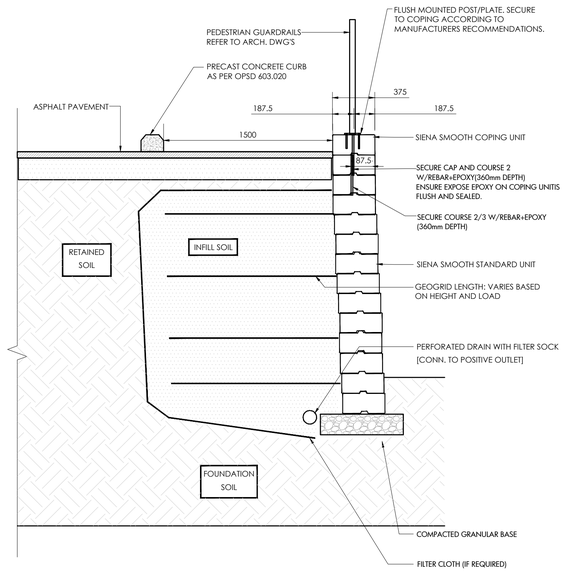
File: J:\Drawings\25-013 - WRDSB Blair Rd - Exit Aisle Grading\3-Working Documents\C1.00.dwg



NOTES:

1. THE RETAINING WALL ADJACENT TO THE EXISTING BUILDING SHOULD BE EXCAVATED AND BUILT IN SECTIONS TO PREVENT GRADE FAILURE. THE SEQUENCING OF THE RETAINING WALL EXCAVATION CONSTRUCTION TO BE AGREED ON WITH THE CONSULTANT DURING CONSTRUCTION ADMINISTRATION.
2. DO NOT EXCAVATE THE ENTIRE LENGTH AT ONCE TO ENSURE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING.
3. COMPLETE AND SECURE EACH SECTION BEFORE MOVING TO THE NEXT.
4. CONTINUOUSLY MONITOR THE EXISTING BUILDING'S FOUNDATION DURING CONSTRUCTION.
5. MAINTAIN CLEAR COMMUNICATION WITH THE ENGINEERING TEAM FOR ANY UPDATES OR CHANGES.
6. GEOGRID LENGTH:
   a) FOR THE RETAINING WALL ADJACENT TO THE EXISTING BUILDING, GEOGRID LENGTH SHALL VARY FROM 1.2m MIN. TO 1.8m BASED ON WALL HEIGHT.
   b) FOR THE RETAINING WALL ABUTTING SUNSET BOULEVARD, THE GEOGRID LENGTH SHALL BE 1.5m

1 C1.01 TYP RISISTONE SIENA SMOOTH RETAINING WALL SECTION DETAIL
SCALE: N.T.S.



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3. COMPLETE AND SECURE EACH SECTION BEFORE MOVING TO THE NEXT.
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5. MAINTAIN CLEAR COMMUNICATION WITH THE ENGINEERING TEAM FOR ANY UPDATES OR CHANGES.
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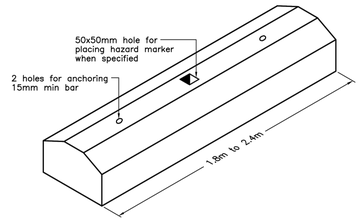
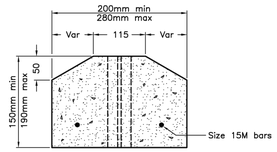
   a) FOR THE RETAINING WALL ADJACENT TO THE EXISTING BUILDING, GEOGRID LENGTH SHALL VARY FROM 1.2m MIN. TO 1.8m BASED ON WALL HEIGHT.
   b) FOR THE RETAINING WALL ABUTTING SUNSET BOULEVARD, THE GEOGRID LENGTH SHALL BE 1.5m

2 C1.01 TYP RISISTONE SIENA SMOOTH RETAINING WALL SECTION DETAIL
SCALE: N.T.S.



ISOMETRIC VIEW



SECTION

NOTES:
A Class of concrete shall be C2 according to CSA A23.1.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
PRECAST CONCRETE CURB		OPSD 603.020

NOTES:

1. THE RISISTONE SUPPLIER ENGINEER SHALL STAMP THE RETAINING WALL ON THIS PROJECT TO INSURE GRADE STABILITY.

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15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
www.manteconpartners.com

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LICENSED PROFESSIONAL ENGINEER
Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

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NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

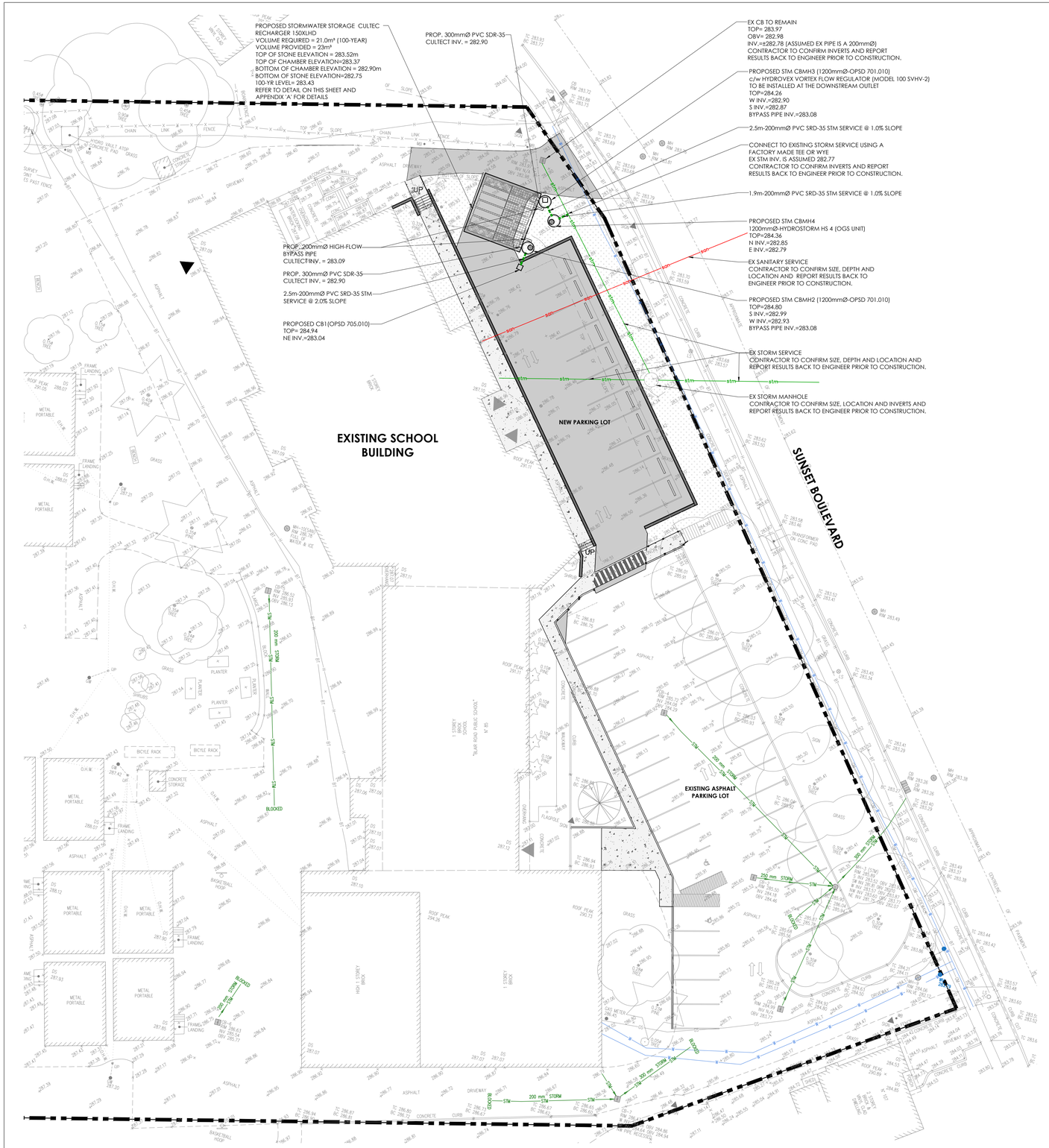
PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
RETAINING WALL
SECTION DETAILS

DRAWN BY:	SCALE:
A.A.	AS NOTED
CHECKED BY:	DRAWING NUMBER:
Y.T.	C1.01
DATE: 2025-02	
PROJECT NUMBER: 25-013	

File: J:\Drawings\25-013 - WRDSB Blair Rd - Exit Aisle Grading\3-Working Documents\C\C0.00.dwg



1 C2.00 SITE SERVICING PLAN
SCALE: 1:250

DRAWING NOTES

1. THE CONSTRUCTION OF THE PARKING LOT INVOLVES LOWERING THE GRADES BY APPROXIMATELY 1.5 METERS IN AREAS WITH EXISTING SANITARY AND STORM PIPES. CONTRACTOR SHALL ENSURE THAT THESE PIPES ARE PROTECTED DURING EXCAVATION TO PREVENT DAMAGE.
2. THE CONTRACTOR SHALL ACCURATELY LOCATE AND MARK ALL EXISTING UTILITIES BEFORE EXCAVATION.
3. THE CONTRACTOR SHALL CONFIRM THE DEPTH AND LOCATION OF ALL EXISTING PIPES AND STRUCTURES TO AVOID INTERFERENCE DURING THE WORK AND NOTIFY THE ENGINEER ONCE DEPTHS ARE CONFIRMED.
4. THE CONTRACTOR SHALL USE PROPER PROTECTION METHODS TO PREVENT PIPE EXPOSURE OR DAMAGE.
5. IF ANY RISK OF DAMAGE OCCURS, THE CONTRACTOR MUST HALT WORK IMMEDIATELY AND NOTIFY THE PROJECT MANAGER OR ENGINEER.
6. THE CONTRACTOR SHALL ENSURE ALL NECESSARY INSPECTIONS, PERMITS, AND APPROVALS ARE OBTAINED BEFORE EXCAVATION IN AREAS WITH UTILITIES.
7. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION AND MUST REPAIR OR REPLACE THEM AT THEIR OWN COST.

LEGEND - SITE SERVICING/UTILTLIES

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
	PROPERTY LINE
	EXISTING BUILDING
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PROPOSED SOD
W	EXISTING WATER SERVICE
STM	EXISTING STORM SERVICE
SAN	EXISTING SANITARY SERVICE
GM	EXISTING GAS SERVICE
H	EXISTING HYDRO SERVICE
BT	EXISTING COMMUNICATION SERVICE
	PROPOSED SERVICES - STORM SEWER
CB	PROPOSED CATCH BASIN
CBMH	PROPOSED CATCH BASIN MANHOLE
STMMH	PROPOSED STORM MANHOLE

METRIC: DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SITE PLAN

PLAN OF TOPOGRAPHICAL SURVEY OF
BLAIR ROAD PUBLIC SCHOOL
BEING N° 85 SUNSET BOULEVARD,
CITY OF CAMBRIDGE
REGIONAL MUNICIPALITY OF WATERLOO

INFORMATION ON THIS SITE PLAN
TAKEN FROM SURVEY / TOPOGRAPHY
PREPARED BY:

GENESIS LAND SURVEYING INC.,
10 FOUR SEASONS PLACE
10TH FLOOR TORONTO, M9B 6H7

T 905-499-2956 - T 1800-262-9784

THE SURVEY WAS COMPLETED ON DECEMBER 30, 2024

BENCHMARK

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF CAMBRIDGE BENCHMARK N° 00119663308 WITH A PUBLISHED ELEVATION OF 300.480 METRES (CGVD-1928:POST-1978).

UTILITY NOTE

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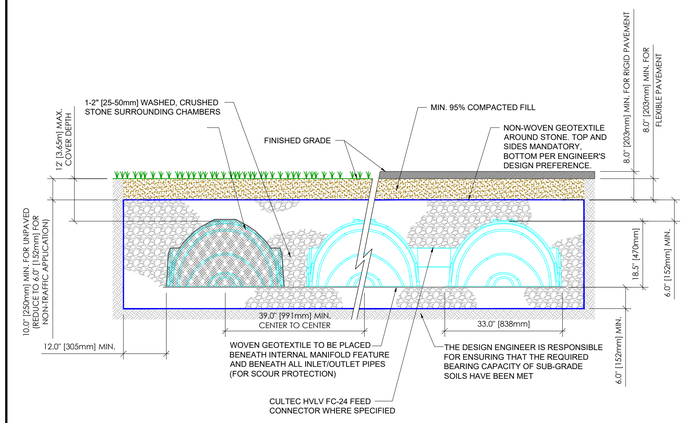

2 C2.00 CULTEC RECHARGER 150XLHD CROSS SECTION
SCALE: N.T.S.

TRUE NORTH

CONSTRUCTION NORTH

MANTECON PARTNERS
STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
www.mantecon partners.com

SEAL

LICENSED PROFESSIONAL ENGINEER
Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

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NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.
1.	ISSUED FOR PROGRESS REVIEW	2025-03-28	A.A.

WORKSHOP

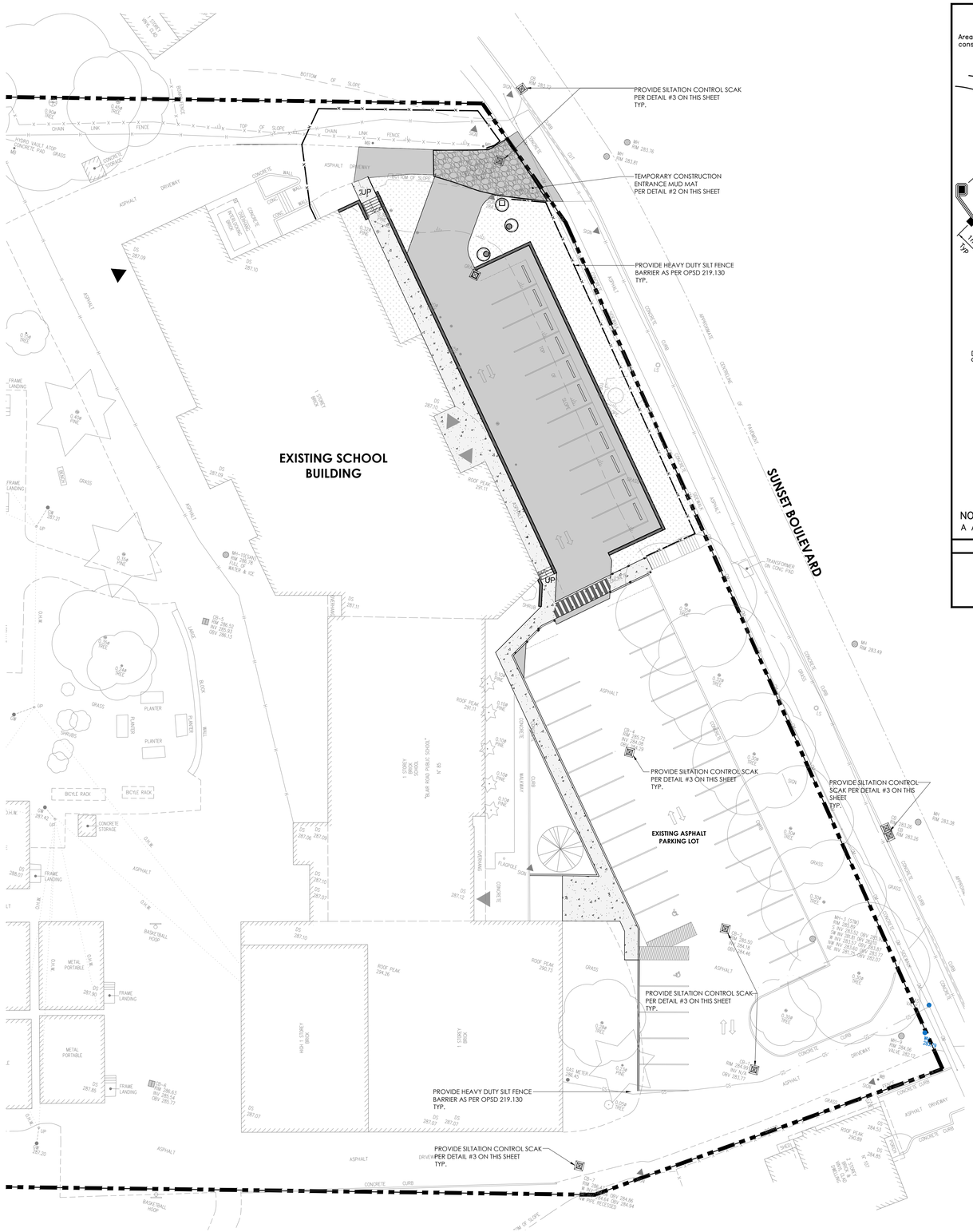
CLIENT:
BLAIR ROAD PUBLIC SCHOOL

PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

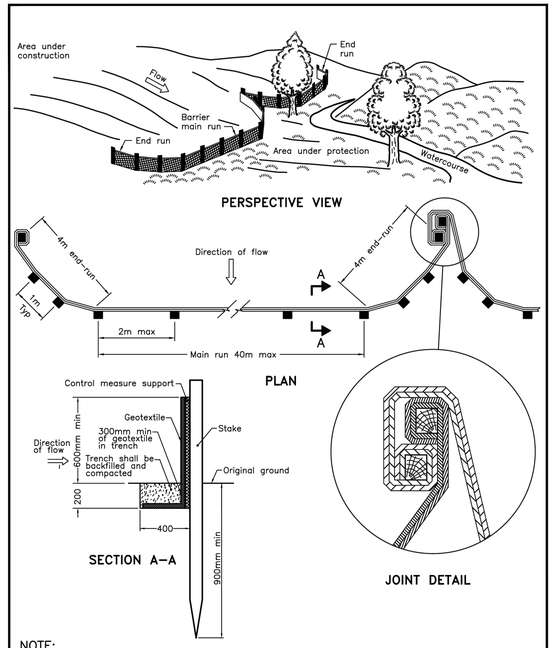
85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
SITE SERVICING PLAN

DRAWN BY: A.A.	SCALE: AS NOTED
CHECKED BY: Y.T.	DRAWING NUMBER: C2.00
DATE: 2025-02	
PROJECT NUMBER: 25-013	

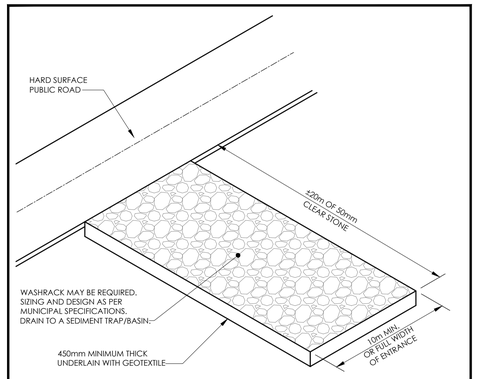


1 C3.00 SEDIMENT & EROSION CONTROL PLAN
SCALE: 1:250



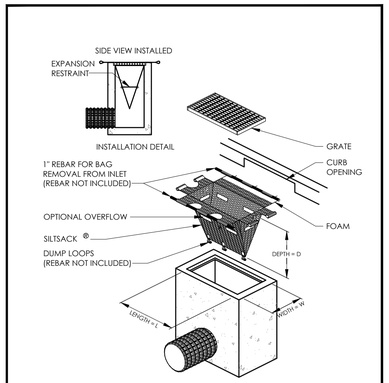
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev	3
HEAVY–DUTY SILT FENCE BARRIER			
	OPSD 219.130		



NOTES
1. DIMENSIONS HAVE BEEN MODIFIED TO SUIT SITE CONDITIONS
2. ALL EROSION AND SILTATION CONTROL DEVICES SHOULD BE AS PER LOCAL AUTHORITY HAVING JURISDICTION.

2 C3.00 TYP MUD MAD DETAIL
SCALE: N.T.S.



3 C3.00 TYP SILT TRAP DETAIL
SCALE: N.T.S.

LEGEND - SITE GRADING

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
	PROPERTY LINE
	EXISTING BUILDING
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PROPOSED SOD
x XXX.XX	EXISTING ELEVATION
+ [XXX.XX]	PROPOSED ELEVATION
CB	PROPOSED CATCH BASIN
CBMH	PROPOSED CATCH BASIN MANHOLE
STMMH	PROPOSED STORM MANHOLE

METRIC: DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SITE PLAN

PLAN OF TOPOGRAPHICAL SURVEY OF
BLAIR ROAD PUBLIC SCHOOL
BEING N° 85 SUNSET BOULEVARD,
CITY OF CAMBRIDGE
REGIONAL MUNICIPALITY OF WATERLOO

INFORMATION ON THIS SITE PLAN
TAKEN FROM SURVEY / TOPOGRAPHY
PREPARED BY:

GENESIS LAND SURVEYING INC.
10 FOUR SEASONS PLACE
10TH FLOOR TORONTO, M9B 6H7

T 905-499-2956 - T 1800-262-9784

THE SURVEY WAS COMPLETED ON DECEMBER 30, 2024

BENCHMARK

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF CAMBRIDGE BENCHMARK N° 00119663308 WITH A PUBLISHED ELEVATION OF 300.480 METRES (CGVD-1928:POST-1978).

UTILITY NOTE

THE LOCATION OF UNDERGROUND UTILITIES SHOWN HAS BEEN LOCATED BY MARK-IT LOCATES INC., ON JANUARY 6, 2025 AND IS FOR DESIGN PURPOSES ONLY. IT IS NOT TO BE USED AS A SUBSTITUTE FOR NEW LOCATES PRIOR TO EXCAVATION, AND IS CERTIFIED BY MARK-IT LOCATES INC ONLY. ANY DISCREPANCIES ARE TO BE REPORTED. READ WITH CORRESPONDING LOCATE REPORT.

SNOW NOTE

THE FIELDWORK WAS COMPLETED DURING HEAVY SNOW CONDITIONS AND EVERY ATTEMPT HAS BEEN MADE TO ACCURATELY CAPTURE ALL RELEVANT TOPOGRAPHIC DETAILS. ANY OMISSIONS SHOULD BE REPORTED TO THE UNDERSIGNED.

TRUE NORTH

CONSTRUCTION NORTH

MANTECON PARTNERS
STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
15 Foundry Street, Dundas, ON, L9H 2V6
Phone: (905)648-0373
www.manteconpartners.com

SEAL

LICENSED PROFESSIONAL ENGINEER
Y.M. TARAKY
100035303
2025-04-17
PROVINCE OF ONTARIO

REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF MANTECON PARTNERS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

NO.	ISSUED	DATE	BY
2.	ISSUED FOR PERMIT & TENDER	2025-04-17	Y.T.
1.	ISSUED FOR PROGRESS REVIEW	2025-03-28	A.A.

WORKSHOP

CLIENT:
BLAIR ROAD PUBLIC SCHOOL

PROJECT:
BLAIR ROAD PUBLIC SCHOOL
PARKING LOT EXPANSION

85 SUNSET BLVD, CAMBRIDGE
ONTARIO, N1S 1A9

DRAWING TITLE:
SEDIMENT & EROSION CONTROL PLAN

DRAWN BY:	SCALE:
A.A.	AS NOTED
CHECKED BY:	DRAWING NUMBER:
Y.T.	C3.00
DATE: 2025-02	
PROJECT NUMBER: 25-013	

File: J:\Drawings\25-013 - WRDSB Blair Rd - Exit Aisle Grading\3-Working Documents\C\C0.00.dwg

APPENDIX A

CULTEC RECHARGER 150XLHD
SUBMITTAL DRAWINGS

BLAIR RD PUBLIC SCHOOL PARKING LOT EXP.

85 SUNSET BLVD.

CAMBRIDGE, ON

DRAWING INDEX

TITLE	SHEET NO.
COVER SHEET	1 OF 5
SYSTEM LAYOUT SHEET	2 OF 5
SYSTEM CALCULATION SHEET	3 OF 5
SYSTEM OVERLAY SHEET	4 OF 5
150XLHD DETAIL SHEET	5 OF 5

PROJECT INFORMATION						
PROJECT NO:	25-0399					
CULTEC SALES REP:	DOMINIC TURNER 438-266-4033 DOMINIC.TURNER@CULTEC.COM					
CULTEC TECHNICAL SALES ENGINEER:						
CULTEC PROJECT COORDINATOR:	TYLER BRUSH 475-289-7120 TYLER.BRUSH@CULTEC.COM					
ENGINEER OF RECORD	MANTECON PARTNERS					
REVISIONS:	ITERATION	DATE	BY	COMMENTS	EOR SHEET REFERENCE	DATE
	00	04/08/2025	MPW	SUBMITTAL DRAWINGS	DWG NO C2.00 SITE SERVICING PLAN	03/28/2025
	01	04/10/2025	MPW	UPDATES INLET PIPE TO CBMH3 TO OUTLET PIPE	DWG NO C2.00 SITE SERVICING PLAN	03/28/2025

CULTEC

Subsurface Stormwater Management Systems

878 Federal Road
Brookfield, CT 06804
www.cultec.com

PH: 1(203) 775-4416
PH: 1(800) 4-CULTEC
CT-tech@cultec.com

NOTE: THESE SHOP DRAWINGS MAY CONTAIN COMPONENTS INCLUDING BUT NOT LIMITED TO MANHOLES, CATCH BASINS, STORM PIPES AND FITTINGS, MANIFOLDS, CASTINGS AND OTHER NECESSARY APPURTENANCES THAT MAY NOT BE SUPPLIED BY CULTEC, INC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUPPLIER TO CONFIRM WITH CULTEC THE MATERIALS PROVIDED.

BEFORE YOU BEGIN - REQUIRED MATERIALS AND EQUIPMENT

1. PROPER GEOTECHNICAL SOIL EVALUATION BY A QUALIFIED ENGINEER OR SOIL SCIENTIST TO DETERMINE SUITABILITY OF STRUCTURAL INSTALLATION
2. OSHA COMPLIANCE
3. CULTEC WARNING TAPE, OR EQUIVALENT
4. ASSURANCES FROM LOCAL UTILITIES THAT NO UNDERGROUND GAS, ELECTRICAL OR OTHER POTENTIALLY DANGEROUS PIPELINES OR CONDUITS ARE ALREADY BURIED AT THE SITE
5. ACCEPTABLE 1- 2 INCH (25 - 51 mm) WASHED, CRUSHED STONE AS DETAILED IN CULTEC'S INSTALLATION INSTRUCTIONS. CLEANLINESS OF STONE TO BE VERIFIED BY ENGINEER.
6. ACCEPTABLE FILL MATERIAL AS SHOWN IN CULTEC'S INSTALLATION INSTRUCTIONS.
7. ALL CULTEC CHAMBERS AND ACCESSORIES AS SPECIFIED IN THE ENGINEER'S PLANS INCLUDING CULTEC NO. 410 NON-WOVEN GEOTEXTILE, CULTEC STORMFILTER AND CULTEC NO. 4800 WOVEN GEOTEXTILE, WHERE APPLICABLE.
8. RECIPROCATING SAW OR ROUTER
9. STONE BUCKET
10. STONE CONVEYOR AND/OR TRACKED EXCAVATOR
11. TRANSIT OR LASER LEVEL MEASURING DEVICE
12. COMPACTION EQUIPMENT WITH MAXIMUM GROSS VEHICLE WEIGHT OF 12,000 LBS (5,440 KGS). VIBRATORY ROLLERS MAY ONLY BE USED ON THE STONE BASE PRIOR TO THE INSTALLATION OF CHAMBERS.
13. CHECK CULTEC CHAMBERS FOR DAMAGE PRIOR TO INSTALLATION. DO NOT USE DAMAGED CULTEC CHAMBERS, CONTACT YOUR SUPPLIER IMMEDIATELY TO REPORT DAMAGE OR PACKING-LIST DISCREPANCIES.

REQUIREMENTS FOR CULTEC CHAMBER SYSTEM INSTALLATIONS

1. INSTALLING CONTRACTORS ARE EXPECTED TO COMPREHEND AND USE THE MOST CURRENT INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING A SYSTEM INSTALLATION. IF THERE IS ANY QUESTION AS TO WHETHER YOU POSSESS THE MOST CURRENT INSTRUCTIONS, CONTACT CULTEC AT (203) 775-4416 OR VISIT WWW.CULTEC.COM.
2. CONTACT CULTEC AT LEAST THIRTY DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
3. ALL CULTEC SYSTEM DESIGNS MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
4. USE CULTEC INSTALLATION INSTRUCTIONS AS A GUIDELINE ONLY FOR MINIMUM/MAXIMUM REQUIREMENTS. ACTUAL DESIGN MAY VARY. REFER TO APPROVED CONSTRUCTION DRAWINGS FOR JOB-SPECIFIC DETAILS. BE SURE TO FOLLOW THE ENGINEER'S DRAWINGS AS YOUR PRIMARY GUIDE.
5. THE FOUNDATION STONE SHALL BE LEVEL AND COMPACTED PRIOR TO CHAMBER INSTALLATION.
6. OVERLAPPING RIB CONNECTIONS OF CHAMBERS SHALL BE FULLY SHOULDERED PRIOR TO STONE PLACEMENT.
7. CENTER-TO-CENTER SPACING SHALL BE CHECKED AND MAINTAINED THROUGHOUT INSTALLATION PROCESS.
8. ANY DISCREPANCIES WITH THE SYSTEM SUB-GRADE SOIL'S BEARING CAPACITY MUST BE REPORTED TO THE DESIGN ENGINEER.
9. NON-WOVEN GEOTEXTILE MUST BE USED AS SPECIFIED IN THE ENGINEER'S DRAWINGS.
10. CULTEC REQUIRES THE CONTRACTOR TO REFER TO CULTEC'S INSTALLATION INSTRUCTIONS CONCERNING VEHICULAR TRAFFIC. RESPONSIBILITY FOR PREVENTING VEHICLES THAT EXCEED CULTEC'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE CHAMBER SYSTEM LIES SOLELY WITH THE CONTRACTOR THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS. THE PLACEMENT OF WARNING TAPE, TEMPORARY FENCING, AND/OR APPROPRIATELY LOCATED SIGNS IS HIGHLY RECOMMENDED. IMPRINTED WARNING TAPE IS AVAILABLE FROM CULTEC. FOR ACCEPTABLE VEHICLE LOAD INFORMATION, REFER TO CULTEC INSTALLATION INSTRUCTIONS.
11. TRAFFIC OF INSTALLATION EQUIPMENT OR OTHER VEHICULAR TRAFFIC OVER TOP OF THE CULTEC STORMWATER SYSTEM IS STRICTLY RESTRICTED AND PROHIBITED UNTIL SATISFACTORY COVER AND COMPACTION IS ACHIEVED ACCORDING TO CULTEC'S MANUFACTURER INSTALLATION INSTRUCTIONS.
12. EROSION AND SEDIMENT-CONTROL MEASURES MUST MEET LOCAL CODES AND THE DESIGN ENGINEER'S SPECIFICATIONS THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS.
13. CULTEC SYSTEMS MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. FAILURE TO DO SO WILL VOID THE LIMITED WARRANTY.
14. CONTACT CULTEC, INC. AT 203-775-4416 WITH ANY QUESTIONS OR FURTHER CLARIFICATION OF REQUIREMENTS.
15. PLACEMENT OF EMBEDMENT STONE MUST BE IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS. STONE COLUMN HEIGHT DEFERENTIAL MUST NEVER EXCEED 12" (305 mm) BETWEEN CHAMBER ROWS, ADJACENT CHAMBERS OR STONE PERIMETER. STONE MUST BE PLACED OVER THE CROWN OF THE CHAMBERS TO ANCHOR THE CHAMBERS IN PLACE AND MAINTAIN ROW SPACING.
16. EMBEDMENT STONE MUST ONLY BE PLACED BY EXCAVATOR OR TELESCOPING CONVEYOR BOOM. PLACEMENT OF EMBEDMENT STONE WITH BULLDOZER IS NOT AN ACCEPTABLE METHOD OF INSTALLATION AND MAY CAUSE DAMAGE TO THE CHAMBERS. ANY CHAMBERS DAMAGED USING AN UNACCEPTABLE METHOD OF BACKFILL ARE NOT COVERED UNDER THE CULTEC LIMITED WARRANTY.

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO CULTEC UNDER THE DIRECTION OF THE PROJECT ENGINEER OF RECORD OR OTHER PROJECT REPRESENTATIVE. IT IS ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE CULTEC SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND MANUFACTURER REQUIREMENTS.

PROPOSED STORMWATER MANAGEMENT SYSTEM ELEVATIONS
(TO BE APPROVED BY ENGINEER OF RECORD)
*ENGINEER OF RECORD TO CONFIRM MINIMUM AND MAXIMUM BURIAL REQUIREMENTS ARE MET)

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT OR UNPAVED)	287.03
MINIMUM ALLOWABLE GRADE (UNPAVED TRAFFIC)	283.78
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)	283.73
MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)	283.73
TOP OF STONE ELEVATION	283.52
TOP OF CHAMBER ELEVATION	283.37
200mm HIGH-FLOW BYPASS PIPE INVERT	283.09
INLET 300mm PIPE INVERT	282.90
BOTTOM OF CHAMBER ELEVATION	282.90
BOTTOM OF STONE ELEVATION	282.75

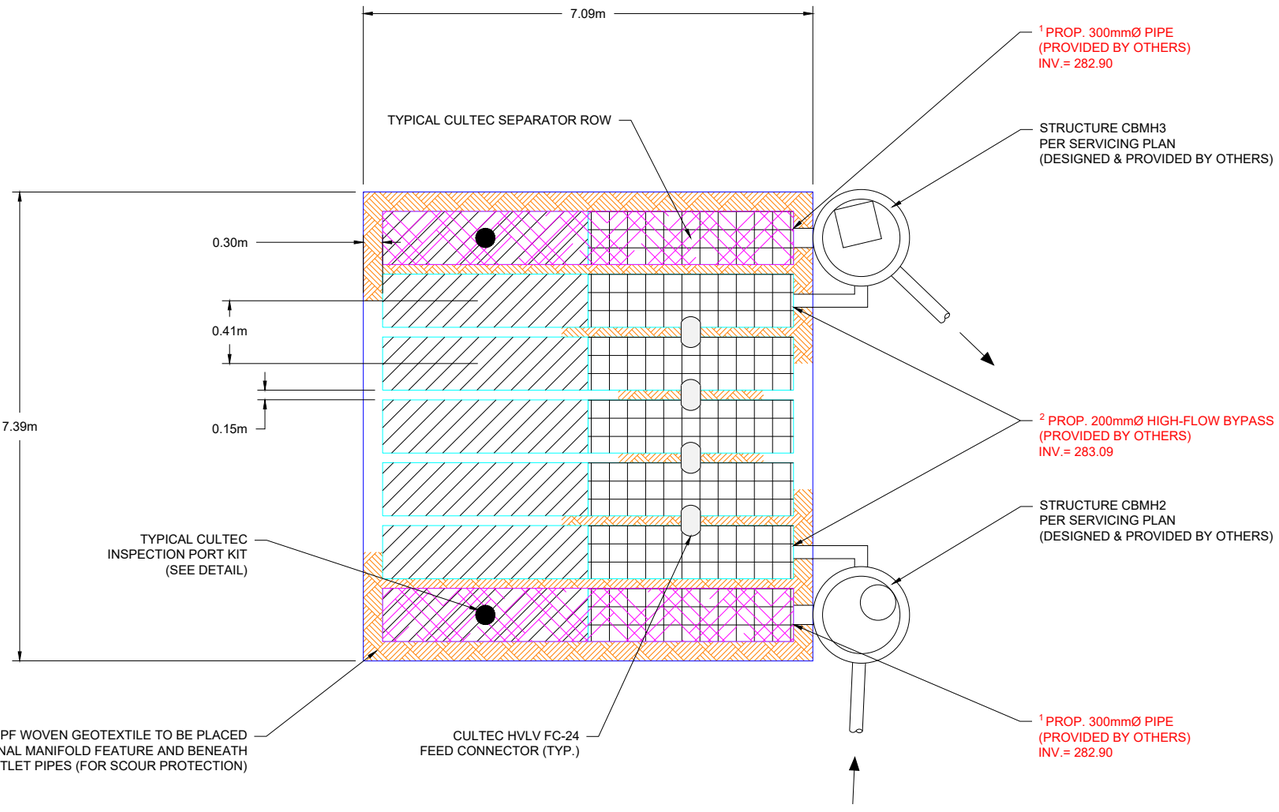
CULTEC STORMWATER MANAGEMENT SYSTEM SUMMARY

TOTAL STORAGE REQUIRED (m^3)	21.00
TOTAL STORAGE PROVIDED (m^3)	23.00
% STONE POROSITY	40
SYSTEM AREA (m^2)	52.38
DEPTH OF EMBEDMENT STONE (mm)	152
DEPTH OF BEDDING STONE (mm)	152
STONE PERIMETER (mm)	305
SPACING BETWEEN CHAMBER ROWS (mm)	152

SPECIAL CONSIDERATIONS FOR SYSTEM PROXIMITY TO BUILDING FOUNDATIONS
- IT IS ULTIMATELY THE RESPONSIBILITY OF THE ENGINEER OF RECORD TO DETERMINE THE FINAL LOCATION OF THE CULTEC SYSTEM ACCORDING TO ALL APPLICABLE LAWS AND REGULATIONS
- CULTEC RECOMMENDS A MINIMUM 10.0' (3.66M) SEPARATION BETWEEN THE CHAMBER SYSTEM AND ANY LOAD-BEARING STRUCTURAL SITE ELEMENTS
- IF REQUIRED, THE ENGINEER OF RECORD MAY LOCATE CHAMBERS CLOSER THAN 10.0' (3.66M) TO STRUCTURAL ELEMENTS, PROVIDING THAT THE FOLLOWING CONSIDERATIONS HAVE BEEN MET
  - NO LOADS FROM SITE STRUCTURAL ELEMENTS SHALL BE TRANSFERRED TO THE CULTEC CHAMBER SYSTEM
  - THE ENGINEER OF RECORD, STRUCTURAL AND OR GEOTECHNICAL CONSULTANTS REVIEW ANY HYDROSTATIC EFFECTS THE SYSTEM MAY HAVE ON THE STRUCTURAL ELEMENT
  - THE ENGINEER OF RECORD, STRUCTURAL AND OR GEOTECHNICAL CONSULTANTS REVIEW ANY EFFECTS OF A SATURATED SOIL CONDITION MAY HAVE ONT HE STRUCTURAL ELEMENT
  - THE ENGINEER OF RECORD, STRUCTURAL AND OR GEOTECHNICAL CONSULTANTS REVIEW ANY STRUCTURAL EFFECTS THE SYSTEM MAY HAVE ON THE STRUCTURAL ELEMENT

CULTEC RECHARGER®
150XLHD LEGEND

▨	RECHARGER 150XLSHD STARTER
▭	RECHARGER 150XLIHD INTERMEDIATE
▦	RECHARGER 150XLEHD END
▧	RECHARGER 150XLRHD STAND ALONE
⬭	FEED CONNECTORS
▩	SEPARATOR ROW
▩	WOVEN GEOTEXTILE
▭	STONE BORDER



1 SYSTEM LAYOUT DETAIL
NTS

NOTE: ALL EXTERNAL SYSTEM STRUCTURES, INLET/OUTLET PIPES AND PROPOSED ELEVATIONS MUST BE DESIGNED AND APPROVED BY THE ENGINEER OF RECORD. ALL PROPOSED SYSTEM ELEVATIONS PROVIDED MUST BE VERIFIED BY THE ENGINEER OF RECORD AND THE ENGINEER OF RECORD MUST ENSURE CHAMBER BURIAL REQUIREMENTS ARE MET

MATERIALS LIST SUPPLIED BY CULTEC

PRODUCT DESCRIPTION	SKU	QUANTITY	UNIT OF MEASURE
CULTEC RECHARGER 150XLHD STARTER	150XLSHD	7	PIECES
CULTEC RECHARGER 150XLHD INTERMEDIATE	150XLIHD	0	PIECES
CULTEC RECHARGER 150XLHD END	150XLEHD	7	PIECES
CULTEC HVLV FEED CONNECTORS	FC-24	4	PIECES
CULTEC NO. 410 NON-WOVEN GEOTEXTILE	75NWG410	220	SQ. METERS
CULTEC AFAB-HPF WOVEN GEOTEXTILE	75WGHPF	28	METERS
CULTEC INSPECTION PORT KIT	1299CGC	2	PIECES
MATERIALS LIST NOT SUPPLIED BY CULTEC			
1-2 INCH WASHED, CRUSHED STONE	---	29	CUBIC METERS
8 OZ. NON-WOVEN GEOTEXTILE	---	N/A	SQ. METERS
30 MIL. PVC THERMOPLASTIC LINER	---	N/A	SQ. METERS

PROPOSED SYSTEM ALTERATION TABLE

1	PROPOSED SEPARATOR ROW ACCESS PIPE
2	PROPOSED SEPARATOR ROW HIGH-FLOW BYPASS PIPE

CULTEC STORMWATER CHAMBER

PROJECT NO:	25-0399.01	DATE:	04/10/2025
DESIGNED BY:	MPW	CHECKED BY:	TNB
SCALE:	N.T.S	SHEET NO:	2 OF 5

BLAIR RD PUBLIC SCHOOL PARKING LOT EXP.
85 SUNSET BLVD.
CAMBRIDGE, ON
SYSTEM LAYOUT SHEET

CULTEC
Subsurface Stormwater Management Systems
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: 1(203) 775-4416
PH: 1(800) 4-CULTEC
CT-tech@cultec.com

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO CULTEC UNDER THE DIRECTION OF THE PROJECT ENGINEER OF RECORD OR OTHER PROJECT REPRESENTATIVE. IT IS ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE CULTEC SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND MANUFACTURER REQUIREMENTS.

1.02

CULTEC Recharger 150XLHD Stormwater System Calculations

Consulting Engineer:
Mantecon Partners

Project Information:
Blair Road Public School Parking Lot Expansion
85 Sunset Blvd.
Cambridge, ON

Calculations Performed By:
Matt Warner
Cultec, Inc.
878 Federal Rd.
Brookfield, CT 06804
PH: 203-775-4416
FX: 203-775-5887

Date: 4/10/25

Project Number: 25-0399.01

System Information

Rectangular Bed Inputs

No. of Rows: 7 — No. of Chambers/Row: 2

Given:

Storage required		CF	21 m^3
CULTEC AFAB-HPF For Internal Manifolds	17	feet	
Number of Inlet/Outlet Pipes (Excluding Separator Rows)	2		
Stone **Base**	6	inches	152 mm
Stone **Above**	6	inches	152 mm
Spacing **Between** Rows	6	inches	152 mm
No. of HVLV FC-24 Feed Connectors	4	units	
12" PVC Universal Inline Drain Body Only - Kit	2	units	
12" Ductile Iron Square Solid Drain Base Cover	2	units	
Stone Porosity	40	%	
Stone **Border Width**	12	inches	305 mm

☐ Discount stone base from Total storage provided (If Applicable)
☐ Discount stone above from Total storage provided (If Applicable)

Other Parameters:

Length of Separator Row	43	feet	13.106 m
Type of Lining	None		
☐ Sand Filter Depth (If Applicable)		feet	0.000 m
☐ Sloped Sides (1:1) (If Applicable)			

Assumptions

Model Name		Chamber Height	Design Unit Height	Chamber Width	Chamber Spacing	Design Unit Width	Chamber Volume per Linear Foot	Design Unit Volume	Installed Chamber Length
		inches	feet	inches	inches	feet	cu. ft/ft	cu. ft/ft	feet
		mm	m	mm	mm	m	cu. m/m	cu. m/m	m
Recharger® 150XLRHD Stand Alone	English	18.5	2.54	33	6	3.25	2.65	4.89	11.00
	Metric	470	0.77	838	152	0.99	0.25	0.45	3.35
Recharger® 150XLIHD Intermediate	English	18.5	2.54	33	6	3.25	2.65	4.90	10.25
	Metric	470	0.77	838	152	0.99	0.25	0.45	3.12
Recharger® 150XLSHD Starter	English	18.5	2.54	33	6	3.25	2.65	4.89	10.63
	Metric	470	0.77	838	152	0.99	0.25	0.45	3.24
Recharger® 150XLEHD End	English	18.5	2.54	33	6	3.25	2.65	4.89	10.63
	Metric	470	0.77	838	152	0.99	0.25	0.45	3.24
HVLV™ FC-24 Feed Connectors	English	12	n/a	16	n/a	n/a	0.91	n/a	0.50
	Metric	305	n/a	406	n/a	n/a	0.08	n/a	0.15

Storage Provided Within CULTEC Recharger 150XLHD Stormwater Chambers and HVLV FC-24 Feed Connectors - not including stone

Number of Recharger 150XLRHD Stand Alone by design			=	0 pcs	
0	pcs x	11.00	=	0.00 feet	0 m
Number of Recharger 150XLIHD Intermediates by design			=	0 pcs	
0	pcs x	10.25	=	0.00 feet	0.00 m
Number of Recharger 150XLSHD Starters by design			=	7 pcs	
7	pcs x	10.63	=	74.38 feet	22.6695 m
Number of Recharger 150XLEHD Ends by design			=	7 pcs	
7	pcs x	10.63	=	74.38 feet	22.6695 m
Number of HVLV FC-24 Feed Connectors			=	4 pcs	
4	pcs x	0.50	=	2.00 feet	0.6096 m
Total footage of Recharger 150XLHD chambers			=	148.75 feet	45.34 m
Total footage of HVLV FC-24 Feed Connectors			=	2.00 feet	0.61 m
Storage provided within Recharger 150XLHD chambers			=	394.63 CF	11.18 m^3
Storage within HVLV FC-24 Feed Connectors			=	1.82 CF	0.05 m^3
Total Storage within chambers and feed connectors			=	**396.45 CF**	**11.23 m^3**

Storage Provided Within Entire CULTEC Stormwater System - including stone

Bed width		24.25 feet	7.39 m
Bed length		23.25 feet	7.09 m
Bed Depth		2.54 feet	0.77 m
Total Area		563.81 sq. ft.	52.38 m^2
Volume of Effective Excavation *(not including additional cover)*		1433.02 CF	40.58 m^3
Perimeter of Bed		95.00 feet	28.96 m
Total Storage within CULTEC Recharger 150XLHD chambers and feed connectors		396 CF	11.23 m^3
Total Stone Required		1037 CF	29.36 m^3
		38 CY	
		54 tons	
Storage provided within stone		414.63 CF	11.74 m^3
Total Storage within CULTEC Stormwater System	=	**812 CF**	**23.00 m^3**

Req. storage attained.

CULTEC MATERIALS LIST

Model	Model #	Quantity	Unit of Measure	Quantity	Unit of Measure
Recharger 150XLRHD Stand Alone Heavy Duty	150XLRHD	0	pcs		
Recharger 150XLSHD Starter Heavy Duty	150XLSHD	7	pcs		
Recharger 150XLIHD Intermediate Heavy Duty	150XLIHD	0	pcs		
Recharger 150XLEHD End Heavy Duty	150XLEHD	7	pcs		
HVLV FC-24 Feed Connectors	FC-24	4	pcs		
CULTEC No. 410 Non-Woven Geotextile	NWG410	263	Sq. Yards	220	m2
CULTEC AFAB-HPF Woven Geotextile 7.5' x 100'	75WGHPF	92	feet	28	m
12" PVC Universal Inline Drain Body Only - Kit	2712AGSB	2	pcs		
12" Ductile Iron Square Solid Drain Base Cover	1299CGC	2	pcs		
Total Stone		38	cubic yards	29	m3

SYSTEM STORAGE CALCULATION

CULTEC Recharger 150XLHD Stormwater Incremental Storage

Date: April 10, 2025

Project Information
Blair Road Public School Parking Lot Expansion
85 Sunset Blvd.
Cambridge, ON

Project Number
25-0399.01

Base of Stone Elevation- 282.75

CULTEC Recharger 150XLHD Incremental Storage Volumes

Height of System		Chamber Volume		HVLV FC-24 Feed Connector Volume		Stone Volume		Cumulative Storage Volume		Total Cumulative Storage Volume			Stage/Area		Elevation		
in	mm	ft^3	m^3	ft^3	m^3	ft^3	m^3	ft^3	m^3	ft^3	acre-ft	m^3	ft^2	m^2	ft	m	
30.50	775	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	811.63	0.019	22.98	225.53	20.95	285.29	283.52	**Top of Stone Elevation**
29.50	749	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	792.83	0.018	22.45	225.53	20.95	285.21	283.50	
28.50	724	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	774.04	0.018	21.92	225.53	20.95	285.13	283.47	
27.50	699	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	755.25	0.017	21.39	225.53	20.95	285.04	283.45	
26.50	673	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	736.45	0.017	20.85	225.53	20.95	284.96	283.42	
25.50	648	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	717.66	0.016	20.32	225.53	20.95	284.88	283.40	
24.50	622	0.89	0.03	0.00	0.00	9.04	0.26	9.93	0.28	698.87	0.016	19.79	119.19	11.07	284.79	283.37	**Top of Chamber Elevation**
24.00	610	1.49	0.04	0.00	0.00	18.20	0.52	19.69	0.56	688.93	0.016	19.51	236.24	21.95	284.75	283.36	
23.00	584	4.76	0.13	0.00	0.00	16.89	0.48	21.65	0.61	669.25	0.015	18.95	259.80	24.14	284.67	283.33	
22.00	559	11.45	0.32	0.00	0.00	14.21	0.40	25.67	0.73	647.60	0.015	18.34	307.99	28.61	284.58	283.31	
21.00	533	15.17	0.43	0.00	0.00	12.72	0.36	27.90	0.79	621.93	0.014	17.61	334.77	31.10	284.50	283.28	
20.00	508	17.70	0.50	0.00	0.00	11.71	0.33	29.41	0.83	594.03	0.014	16.82	352.97	32.79	284.42	283.26	
19.00	483	19.93	0.56	0.00	0.00	10.82	0.31	30.75	0.87	564.62	0.013	15.99	369.04	34.28	284.33	283.23	
18.00	457	21.72	0.61	0.22	0.01	10.11	0.29	32.04	0.91	533.87	0.012	15.12	384.53	35.72	284.25	283.21	
17.00	432	23.21	0.66	0.18	0.01	9.51	0.27	32.90	0.93	501.82	0.012	14.21	394.76	36.67	284.17	283.18	
16.00	406	24.54	0.70	0.17	0.00	8.98	0.25	33.69	0.95	468.92	0.011	13.28	404.30	37.56	284.08	283.16	
15.00	381	25.59	0.72	0.17	0.00	8.56	0.24	34.31	0.97	435.23	0.010	12.32	411.78	38.25	284.00	283.13	
14.00	356	26.63	0.75	0.17	0.00	8.14	0.23	34.94	0.99	400.92	0.009	11.35	419.23	38.95	283.92	283.11	
13.00	330	27.37	0.78	0.16	0.00	7.85	0.22	35.37	1.00	365.98	0.008	10.36	424.49	39.43	283.83	283.08	
12.00	305	27.97	0.79	0.15	0.00	7.61	0.22	35.72	1.01	330.61	0.008	9.36	428.65	39.82	283.75	283.05	
11.00	279	28.41	0.80	0.14	0.00	7.43	0.21	35.98	1.02	294.89	0.007	8.35	431.79	40.11	283.67	283.03	
10.00	254	28.71	0.81	0.12	0.00	7.31	0.21	36.14	1.02	258.91	0.006	7.33	433.72	40.29	283.58	283.00	
9.00	229	29.01	0.82	0.09	0.00	7.19	0.20	36.29	1.03	222.76	0.005	6.31	435.47	40.46	283.50	282.98	
8.00	203	29.30	0.83	0.04	0.00	7.07	0.20	36.42	1.03	186.47	0.004	5.28	436.99	40.60	283.42	282.95	
7.00	178	30.79	0.87	0.03	0.00	6.48	0.18	37.29	1.06	150.06	0.003	4.25	447.53	41.58	283.33	282.93	
6.00	152	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	112.76	0.003	3.19	225.53	20.95	283.25	282.90	**Bottom of Chamber Elevation**
5.00	127	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	93.97	0.002	2.66	225.53	20.95	283.17	282.88	
4.00	102	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	75.18	0.002	2.13	225.53	20.95	283.08	282.85	
3.00	76	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	56.38	0.001	1.60	225.53	20.95	283.00	282.83	
2.00	51	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	37.59	0.001	1.06	225.53	20.95	282.92	282.80	
1.00	25	0.00	0.00	0.00	0.00	18.79	0.53	18.79	0.53	18.79	0.000	0.53	225.53	20.95	282.83	282.78	
0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	282.75	282.75	**Bottom of Stone Elevation**
-1.00																	
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-3.00																	
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SYSTEM STAGE-STORAGE TABLE

CULTEC STORMWATER CHAMBER

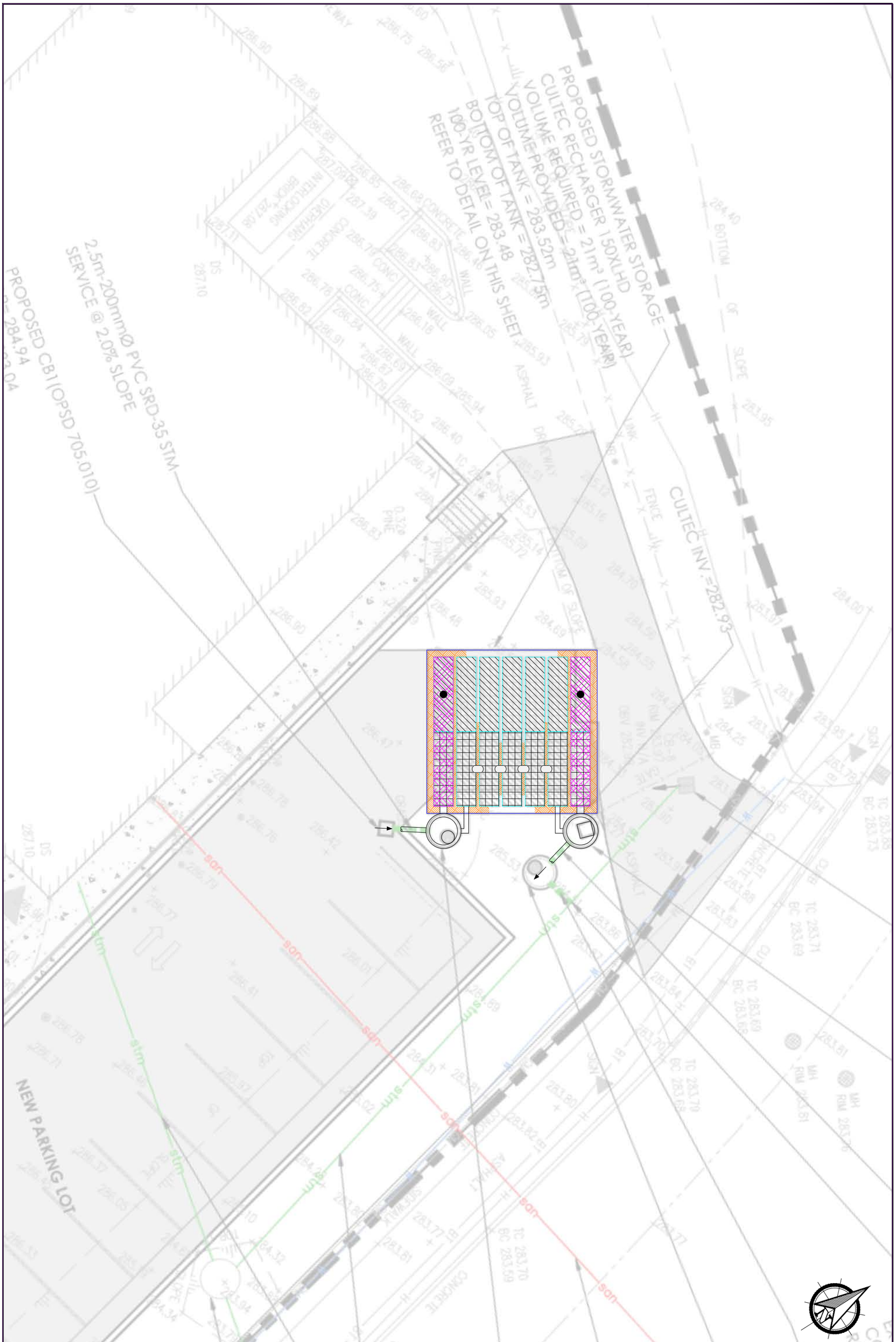
PROJECT NO: 25-0399.01 | DATE: 04/10/2025
DESIGNED BY: MPW | CHECKED BY: TNB
SCALE: N.T.S | SHEET NO: 3 OF 5

BLAIR RD PUBLIC SCHOOL PARKING LOT EXP.
85 SUNSET BLVD.
CAMBRIDGE, ON
SYSTEM CALCULATION SHEET

CULTEC
Subsurface Stormwater Management Systems
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: 1(203) 775-4416
PH: 1(800) 4-CULTEC
CT-tech@cultec.com

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING MAY BE MODIFIED BY THE PROJECT ENGINEER OF RECORD TO MEET LOCAL REGULATIONS. THE PROJECT ENGINEER OF RECORD IS RESPONSIBLE FOR THE DESIGN OF THE SYSTEM AND FOR ENSURING THAT THE SYSTEM COMPLIES WITH ALL APPLICABLE CODES, REGULATIONS AND MANUFACTURER REQUIREMENTS.

1/02



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1.02

BLAIR RD PUBLIC SCHOOL PARKING LOT EXP.

85 SUNSET BLVD.

CAMBRIDGE, ON

SYSTEM OVERLAY SHEET

CULTEC STORMWATER CHAMBER

PROJECT NO:	25-0399.01	**DATE:**	04/10/2025
DESIGNED BY:	MPW	**CHECKED BY:**	TNB
SCALE:	N.T.S	**SHEET NO:**	4 OF 5

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

GENERAL
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 150XLHD SHALL BE 18.5 INCHES (470 mm) TALL, 33 INCHES (838 mm) WIDE AND 11 FEET (3.35 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 150XLHD SHALL BE 10.25 FEET (3.12 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 12 INCHES (300 mm) HDPE OR 15" (375 mm) SMOOTH-WALL PVC.
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 8.5 INCHES (216 mm) HIGH BY 12 INCHES (304 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 10.25 INCHES (260 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (615 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 150XLHD CHAMBER SHALL BE 2.650 FT³ / FT (0.246 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 150XLHD SHALL BE 27.16 FT3 / UNIT (0.77 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 150XLHD CHAMBER SHALL HAVE THIRTY DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 150XLHD CHAMBER SHALL HAVE 20 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 150XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE ENDWALLS.
16. THE RECHARGER 150XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
17. THE RECHARGER 150XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
18. THE RECHARGER 150XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV® FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE RECHARGER 150XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
25. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
26. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATION OF NSAI IRISH AGREEMENT BOARD CERTIFICATE FOR CULTEC ATTENUATION AND INFILTRATION.
27. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 150XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT3 / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

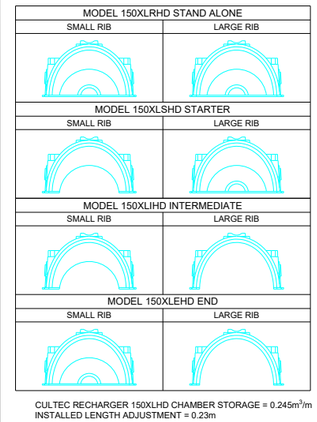
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK AND WHITE IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

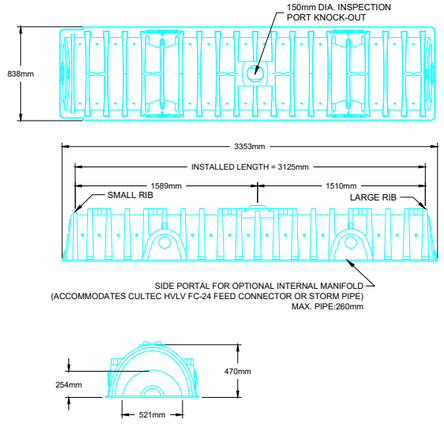
CULTEC AFAB-HPF™ WOVEN GEOTEXTILE
CULTEC AFAB-HPF WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 320 X 320 LBS (1,420 X 1,420 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 15 X 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 3,563 X 3,563 LBS/FT (52 X 52 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,500 LBS (6,670 N) PER ASTM D6241 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 120 X 120 LBS (540 X 540 N) PER ASTM D4533 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 30 US STD. SIEVE (0.60 MM) PER ASTM D4751 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.2 SEC-1 PER ASTM D4491 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 22 GPM/FT2 (900 LPM/M2) PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

150XLHD 1.0
GENERAL NOTES

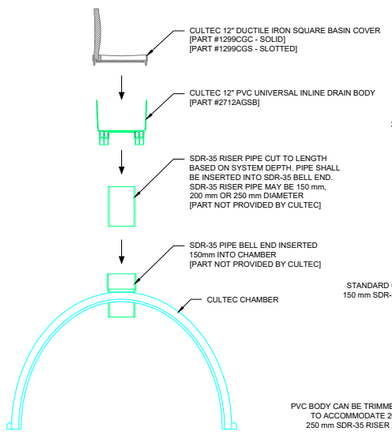


CULTEC RECHARGER 150XLHD CHAMBER STORAGE = 0.245m³/m
INSTALLED LENGTH ADJUSTMENT = 0.23m

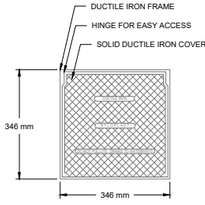


150XLHD 6.0
CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW

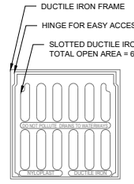
FINAL ASSEMBLY



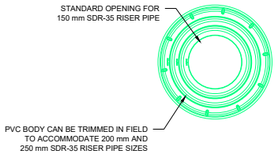
SOLID COVER OPTION



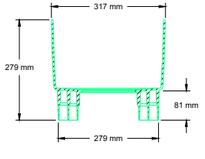
SLOTTED COVER OPTION



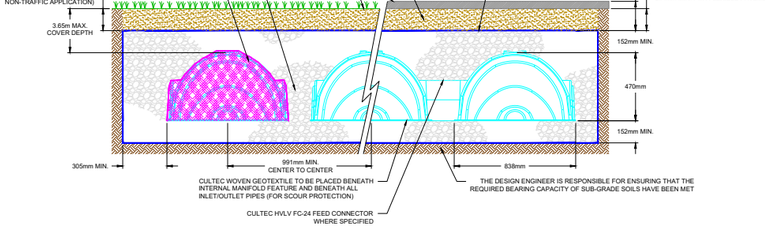
PVC BODY PLAN VIEW



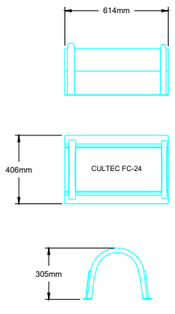
PVC BODY ELEVATION VIEW



150XLHD 2.0
CULTEC UNIVERSAL INSPECTION PORT KIT DETAIL



150XLHD 4.0
CULTEC RECHARGER 150XLHD HEAVY DUTY CROSS SECTION



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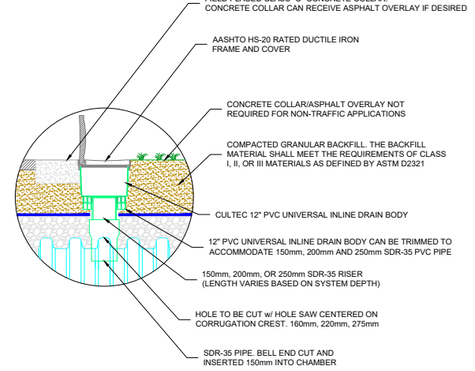
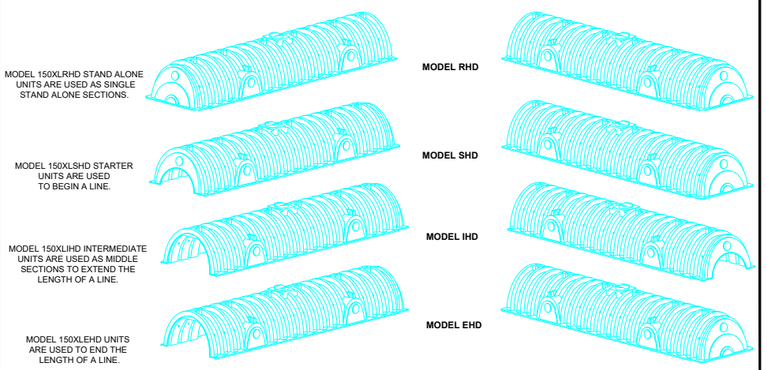
CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW



150XLHD 8.0
CULTEC INSPECTION PORT - ZOOM DETAIL

150XLHD 3.0
CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION

LARGE RIB END DETAIL | **SMALL RIB END DETAIL**



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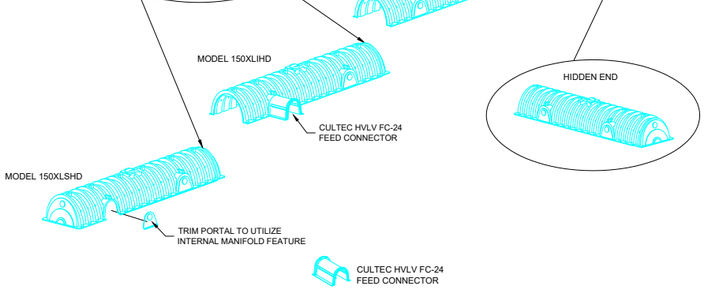
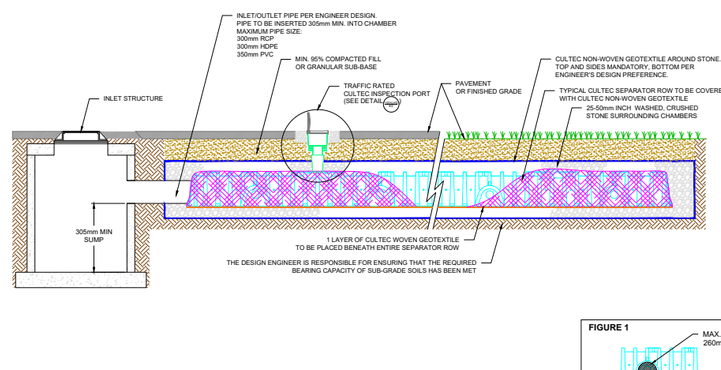


150XLHD 9.0
CULTEC SEPARATOR ROW - CULTEC INSPECTION PORT DETAIL (IF APPLICABLE)



CULTEC STORMWATER CHAMBER

DATE: 04/10/2025 | CHECKED BY: TNB | SHEET NO: 5 OF 5
PROJECT NO: 25-0399.01 | DESIGNED BY: MPW | SCALE: N.T.S

BLAIR RD PUBLIC SCHOOL PARKING LOT EXP.
85 SUNSET BLVD.
CAMBRIDGE, ON
SYSTEM DETAIL SHEET

CULTEC
Subsurface Stormwater Management Systems
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: 1(203) 775-4416
PH: 1(800) 4-CULTEC
CT-tech@cultec.com

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING MAY BE REVISED AT THE DISCRETION OF THE PROJECT ENGINEER OF RECORD AND IT IS THE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE CULTEC SYSTEM DESIGNED AND BUILT COMPLIES WITH ALL APPLICABLE LAWS, REGULATIONS AND MANUFACTURER RECOMMENDATIONS.

1 of 2

GENERAL TREE NOTES

1. All dimensions are in metres.
2. Contractor shall verify all conditions in the field and report any discrepancies to the Project Engineer prior to commencement of work.
3. Any soils and vegetation within tree protection zone damaged by the Contractor shall be restored to the satisfaction of the City of Cambridge by the Contractor at no additional cost to the City of Cambridge.
4. All arboricultural work performed on trees such as pruning of branches and roots shall be conducted by an ISA Certified Arborist.
5. Prune and mitigate limbs and roots damaged by construction work in accordance with ANSI A300 (Part 1) - 2008 Pruning and the Best Management Practices companion publication (revised 2008).
6. Tree Protection Fence to be erected prior to the commencement of any construction or grading, and maintained throughout the duration of the work.
7. Tree Protection Zone is delimited by Tree Protection Fence shown on the drawings.
8. No construction or activities including the following to occur within Tree Protection Zone: equipment parking or access, storage of supplies, topsoil or fill, and refueling.
9. Tree removals (if required) will be undertaken in compliance with the Migratory Birds Convention Act. Efforts will be made to remove vegetation outside the General Nesting period (April 1 - Aug 31) for regions C1 and C2 of Ontario. In the event vegetation must be removed within the General Nesting Period, a qualified avian biologist is to review the site prior to removal to ensure compliance with the Migratory Birds Convention Act.

CONSTRUCTION WITHIN MINIMUM TREE PROTECTION ZONE

1. An ISA Certified Arborist must be present on site during construction activities within MTPZ to confirm and/or modify mitigation measures for trees to be preserved.
2. Use trenchless methods (e.g. horizontal directional drilling) to install underground services (e.g. sanitary sewers and water lines) within Minimum Tree Protection Zones.

EXISTING UNDERGROUND SERVICES WITHIN TREE PROTECTION ZONES

1. Existing sanitary/storm sewers and watermains to be discontinued within tree protection zones will be filled (as needed) and abandoned.
2. Excavation and access for construction/removal of abandoned underground services will be conducted outside of tree protection zones.

FINISH GRADING WITHIN TREE PROTECTION ZONES

Where finish grading of cuts and fills, and including swales occurs within tree protection zones, the following steps are required.

Grade Cut:

1. Excavate by hand or Air-spade technology to a maximum depth of 100mm.
2. Roots encountered are to be assessed by the Project Arborist to determine the extent of roots to be pruned. Based on findings, other treatments may be required (e.g. crown reduction, tree removal), and which may require approval from the City.
3. Based on root findings, local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.
4. No access by heavy equipment into tree protection zone is permitted. Fine grading to be carried out using light equipment and/or by hand.

Grade Fill:

5. Add topsoil to meet grade requirements to a maximum of 150mm.
6. No topsoil to be added onto trunk base or above-ground section of trunk base flare.
7. Maintain positive drainage away from trunk base.
8. Based on local conditions (e.g. surface drainage), local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.

TREES OWNED BY OTHERS

1. Trees owned by others require permission (i.e. written consent) from the land owner(s) prior to activities that may damage or destroy trees. Trees owned by others are Offsite Trees and Shared Trees:
   a. Offsite Trees - Trees on property adjacent to the subject property;
   b. Shared (Boundary) Trees - Trees whose trunk including the basal trunk flare growing on the boundary between the subject property and adjoining property (from *Ontario Forestry Act*).

The Provincial Forestry Act, R.S.O. 1990 (Section 10):

10. (2) Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands. 1990, c. 18 Sched. I, s. 21.
(3) Every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the land owners is guilty of an offence under this Act. 1998, c. 18, Sched. I, s. 21.

ROOT SENSITIVE EXCAVATION

A preliminary excavation at the limit of work is recommended to determine the potential magnitude of the impacts posed by the planned work. For excavation in turf or permeable surfaces, the final excavation limit should be marked in the field and arborist supervised excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. For excavation of existing impermeable surfaces, the impermeable top layer may be broken up by machine to allow access to the permeable base layers. The permeable base layers may need to be excavated further to expose existing roots, in which case this excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. All root sensitive excavation must be performed under the supervision of a qualified arborist. All roots exposed must be documented by the supervising arborist. Every effort should be made to preserve as many exposed roots as possible. Roots approved for pruning should be cleanly cut with a sharp, non-vibrating tool such as a handsaw, secateurs, chainsaw at face of trench such that no further disturbance of the roots are to be expected once mechanical excavation begins. All root pruning is to be performed by the arborist only, as per guidelines below.

1. When root sensitive excavation is performed in regards to the installation of a deep site feature such as a foundation, roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the Tree Protection Zone (TPZ) of bylaw trees they should be preserved.

2. When root sensitive excavation is performed in regards to the installation of site features such as post holes, all roots exposed of under 5cm diameter may be cleanly cut at face of hole such that no further disturbance of the roots are to be expected once mechanical excavation begins for the lower portion of the holes (below hand dug area). If roots of 5cm diameter or greater are uncovered they should be preserved, the post holes filled in with viable soil and the hole moved at least 0.5 metre away to avoid significant roots.

3. When root sensitive excavation is performed in regards to the installation of site features such as driveways, walkways, curbs, etc. roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the TPZ of bylaw trees they should be preserved

4. When root sensitive excavation is performed in regards to the installation of utilities such as water lines or sewers, every effort should be made to preserve as many exposed roots as possible by installing the utilities underneath the roots without root pruning. If roots of 5cm diameter or greater are uncovered they should be preserved.

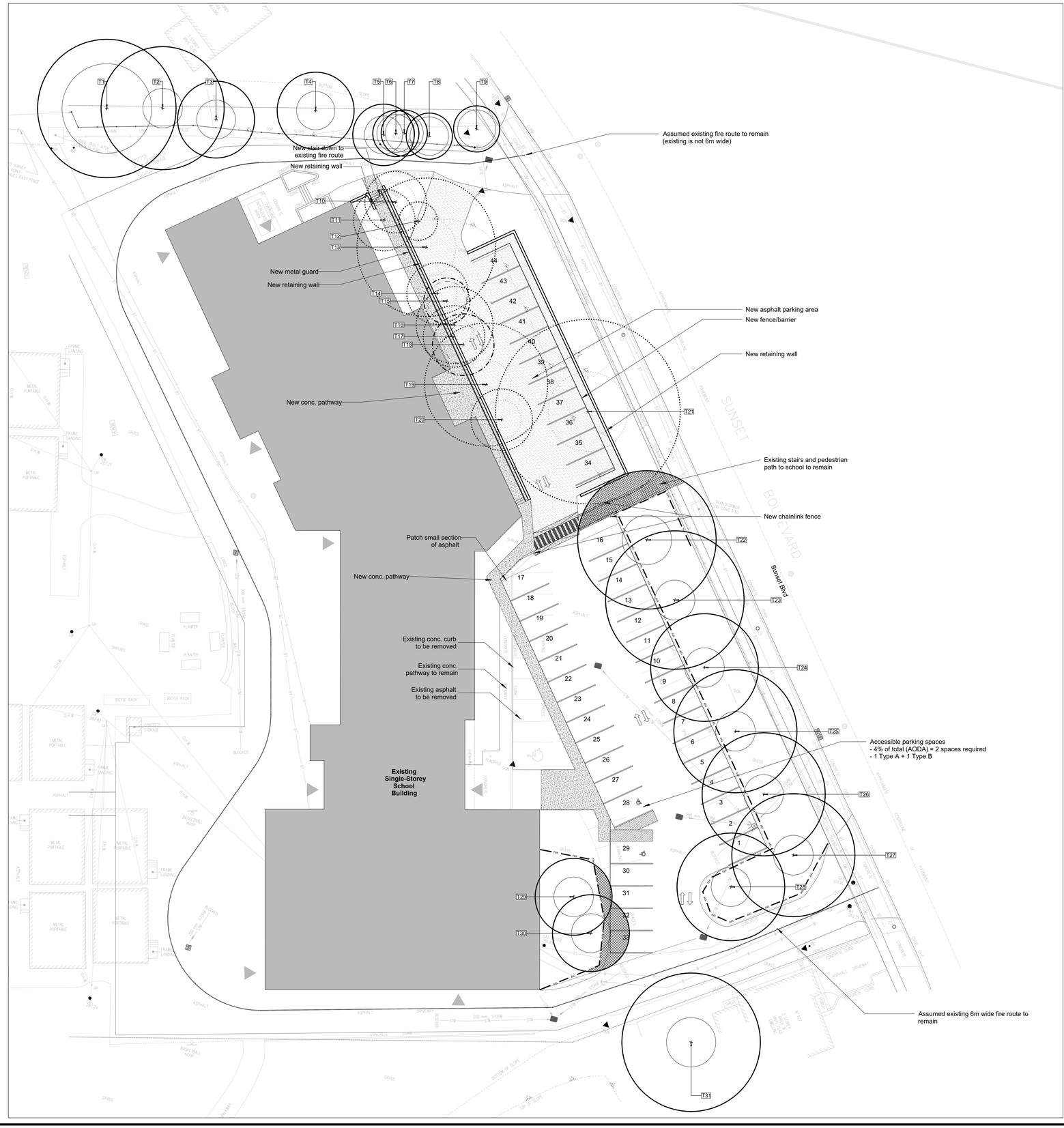
1 / TPP-1 GENERAL TREE PROTECTION NOTES

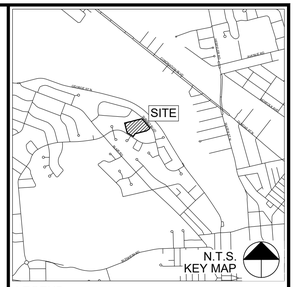
SITE SPECIFIC PRE-CONSTRUCTION ROOT EXPLORATION NOTES

1. Demolition, excavation, and construction work within the dripline of Tree #22, 29 and 30 where tree roots have the potential to be impacted is to be performed under the observation of an ISA Certifed Arborist retained by the Contractor

2. The ISA Certified Arborist will observe, document, and respond to Contractor requests for information related to trees, tree roots, and root pruning while the General Contractor and their subcontractor(s) use dry-vac excavation technology within the dripline of Tree #'s listed above. The ISA Certified Arborist will prepare a report documenting above and below grade conditions related to trees, recommended best management practices and next steps based on project requirements including site specific permit conditions, reports, drawings, and specifications.

3. If, during the dry-vac excavation procedure, the ISA Certified Arborist observes the potential for impacts to the roots of Tree #'s listed above that are such that root pruning will be detrimental to the health and structure of the tree, they will contact a City of Cambridge Forestry Division Staff Member for further review and recommendation. All demolition and excavation work is to stop and exposed tree roots are to be covered by General Contractor and their subcontractors(s) within 30 minutes with untreated burlap or alternative material acceptable to ISA Certified Arborist, and wet with potable water, free of impurities that may harm trees/tree roots. Maintain moisture until such time that the recommendation to proceed is received in writing.





LEGEND:

- EXISTING TREE — ID NUMBER / OUTER CIRCLE DENOTES APPROX. CROWN RESERVE, INNER CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ)
- PRESERVE TREE — TREE HAS MODERATE TO HIGH BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT
- REMOVE TREE — TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT
- REMOVE TREE — TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT
- TREE PROTECTION FENCE
- ROOT SENSITIVE EXCAVATION — REFER TO NOTES ON THIS DRAWING

INFORMATION SOURCES

1. Topographic Survey dated January 15, 2025 from Genesis Land Surveyors Inc.
2. Site Plan dated March 18, 2025 from Workshop Architecture.
3. Site Grading and Servicing Plans recieved March 27, 2025 from Mantecon Partners Inc.
4. Tree locations collected by an Aboud & Associates Inc. ISA Certified Arborist on March 24, 2025.

No.	Description	By	Date
0	ISSUED FOR COORDINATION	MGN	28 MAR-25

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8 . 519.822.4839 . aboudtng.com

Title:

TREE PRESERVATION PLAN

Project:

WRDSB PARKING LOT
85 SUNSET BOULEVARD
CAMBRIDGE, ONTARIO

Date: MARCH 2025	Designer: NB
Project: AA25-067A	Drawn: NB
Scale: 1:250	Checked: JD/MGN

Drawing No:

TPP-1

FILEPATH: S:\AA PROJECTS\2025\25-067A 85 SUNSET BOULEVARD CAMBRIDGE TMP\DRAWINGS\25-067A 85 SUNSET BLVD CAMBRIDGE TPP 2025-03-27.DWG CTB: ABOUD2007.ctb PLOTTED:28-Mar-25 12:33 PM

Tree No.	Tree Species	DBH (cm) 1, 2	Minimum Tree Protection Zone (m) (one radius in m if trees 3 or more) 3	Crown Reserve est. (m)	Biological Health (H, M, L)	Structural Condition (H, M, L)	Overall Condition (E, G, F, P, D)	Ownership (Private - Off-Site, Municipal, Shared)	Rec. Action - Condition: Preserve, Remove	Rec. Action - Development: Preserve, Transplant, Remove	Final Recommendation: Preserve, Remove	Compensation - Yes, No	Observations/ Tree Preservation Notes
1	Quercus rubra Red Oak	85	5.4	18	L	M(L)	Poor	O	P	P	P	N	50% of crown dead, DBH estimated
2	Acer platanoides Norway Maple	34	2.4	16	M(H)	M(H)	Good	O	P	P	P	N	DBH estimated
3	Acer platanoides Norway Maple	26	2.4	10	M	M	Fair	S	P	P	P	N	DBH estimated
4	Juglans nigra Black Walnut	18	2.4	10	M	M(H)	Good	O	P	P	P	N	DBH estimated
5	Betula sp.	16	2.4	8	M	M(L)	Fair	S	P	P	P	N	DBH estimated, severe lean
6	Acer platanoides Norway Maple	14	2.4	6	M(H)	M(H)	Good	S	P	P	P	N	DBH estimated
7	Juglans nigra Black Walnut	14	2.4	6	M(H)	M(H)	Good	S	P	P	P	N	DBH estimated
8	Acer platanoides Norway Maple	20 [14,14]	2.4	6	M(H)	M	Good	S	P	P	P	N	DBH estimated
9	Acer platanoides Norway Maple	14	2.4	6	M	M(L)	Fair	S	P	P	P	N	DBH estimated, growing into multistem Acer ginnala
10	Pinus nigra Austrian Pine	37	2.4	8	M(H)	M(H)	Good	P	P	R	RD	Y(2)	
11	Pinus nigra Austrian Pine	37	2.4	8	M	M	Fair	P	P	R	RD	Y(2)	
12	Pinus nigra Austrian Pine	34	2.4	5	M	M	Fair	P	P	R	RD	Y(2)	Sap sucker holes
13	Acer platanoides Norway Maple	56	3.6	18	M(H)	M	Good	P	P	R	RD	Y(3)	Included bark
14	Acer ginnala Amur Maple	22	2.4	8	M	M(L)	Fair	P	P	R	RD	Y(1)	Crooked trunk ,unbalanced crown
15	Acer ginnala Amur Maple	31	2.4	6	M(L)	M(L)	Poor	P	R	R	RCD	N	Moderate deadwood, lean, cavity
16	Acer ginnala Amur Maple	33	2.4	10	M	M(L)	Fair	P	P	R	RD	Y(2)	Lean
17	Acer ginnala Amur Maple	29	2.4	8	M	M(L)	Fair	P	P	R	RD	Y(1)	Lean, trunk cavity
18	Acer ginnala Amur Maple	24	2.4	8	M(L)	L	Poor	P	R	R	RCD	N	Trunk wounds, lean, unbalanced crown, cavities
19	Acer platanoides Norway Maple	42	3	16	M(H)	M	Good	P	P	R	RD	Y(3)	Included bark
20	Acer saccharinum Silver Maple	22	2.4	8	M	M(L)	Fair	P	P	R	RD	Y(1)	Trunk wounds, basal sprouts
21	Gleditsia triacanthos Honeylocust	77	4.8	24	M(H)	M	Good	P	P	R	RD	Y(4)	Low deadwood
22	Gleditsia triacanthos Honeylocust	42	3	18	M(H)	M	Good	P	P	P	P	N	
23	Gleditsia triacanthos Honeylocust	39	2.4	18	M(H)	M(H)	Good	P	P	P	P	N	
24	Gleditsia triacanthos Honeylocust	34	2.4	14	M(H)	M	Good	P	P	P	P	N	
25	Gleditsia triacanthos Honeylocust	35	2.4	16	M(H)	M	Good	P	P	P	P	N	
26	Gleditsia triacanthos Honeylocust	32	2.4	16	M(H)	M	Good	P	P	P	P	N	
27	Gleditsia triacanthos Honeylocust	36	2.4	16	M(H)	M(H)	Good	P	P	P	P	N	
28	Gleditsia triacanthos Honeylocust	30	2.4	14	M(H)	M	Good	P	P	P	P	N	
29	Acer platanoides Norway Maple	34	2.4	10	M	M	Fair	P	P	P	P	N	Moderate deadwood
30	Pinus nigra Austrian Pine	28	2.4	10	M	M(L)	Fair	P	P	P	P	N	Codominant stems
31	Acer platanoides Norway Maple	41	3	18	M(H)	M	Good	O	P	P	P	N	DBH estimated

Ownership														
								Private (On Site) Trees			21			
								Private (Off Site) Trees			4			
								Municipal Trees			0			
								Shared Trees			6			
								Subtotal			**31**			
Recommendation Based on Condition														
								Preserve Tree Based on Health & Structure				29		
								Remove Tree Based on Health & Structure				2		
								Subtotal				**31**		
Recommendation Based on Development														
								Preserve/Transplant Tree Based on Development Impacts					19	
								Remove Tree Based on Development Impacts					12	
								Subtotal					**31**	
Final Recommendation														
								Final Recommendation: Preserve (P)						19
								Final Recommendation: Remove due to Condition (RC)						0
								Final Recommendation: Remove with Consent Only (RP)						0
								Final Recommendation: Remove due to Development (RD)						10
								Final Recommendation: Remove due to Condition and Development (RCD)						2
								Total						**31**
Compensation:														
								Compensation Required (>20cm DBH – no cost): No (N)						21
								Compensation Required (20cm – 30cm : 1 replacement tree): Yes (Y(1))						3
								Compensation Required (31cm - 40cm : 2 replacement trees): Yes (Y(2))						4
								Compensation Required (41cm – 70cm : 3 replacement trees): Yes (Y(3))						2
								Compensation Required (>71cm : 4 replacement trees): Yes (Y(4))						1
								Compensation Required (Dead Tree> 20cm DBH : ½ replacement tree): Yes (Y(1/2))						0
								Total						**31**

1. DBH (Diameter at breast height): Measurement of tree stem diameter at 1.4 meters above ground.

2. [ ] Denotes DBH's of Each Stem of Tree with Multiple Stems

3. Tree Protection Zones, Taken from Tree Protection Barrier Detail (TP-1) City of Cambridge. March, 2019.

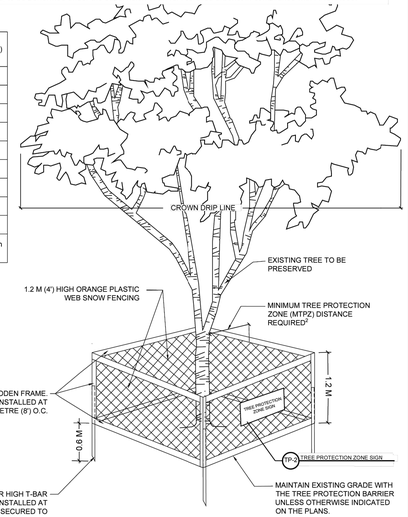
Removal of trees owned by others (e.g. private off-site, municipal or shared/boundary trees) require approval from the owner.

TREE PROTECTION BARRIER

1. Tree protection barrier and signage to be installed as prescribed in approved tree preservation plan prior to any construction activity, including demolition, removals or grading.
2. Tree protection barrier and signage is to be maintained in good repair during construction and may not be removed without written authorization from the City of Cambridge Forestry Division.
3. The area within the boundary of the tree protection barrier is identified as the tree protection zone, maintain minimum tree protection zone distances required in this detail or greater, unless otherwise prescribed in approved Tree Invenotry and Preservation Plan.
4. Construction activities are prohibited in the tree protection zone, including but not limited to:
   i. operating, storing, parking, repairing or refuelling any equipment or vehicles.
   ii. temporary or permanent grade changes (cutting, filling or excavating).
   iii. storing construction materials.
5. Protect tree protection zone from erosion and sediment as prescribed in the approved erosion and sediment control plan. When an erosion and sediment control plan does not exist, install and maintain, temporary erosion and sediment control measures in accordance with OPSS 805 to the satisfaction of the City of Cambridge Forestry Divison.
6. Tree limb or root pruning, when required, to be performed under the supervision of an ISA certified arborist in compliance with ANSI A300.

TRUNK DIAMETER (DBH)[1]	MINIMUM TREE PROTECTION ZONE (MTPZ) DISTANCES REQUIRED[2]
≤10 cm	1.2 m
10 - 20 cm	1.8 m
21 - 40 cm	2.4 m
41 - 50 cm	3.0 m
51 - 60 cm	3.6 m
61 - 70 cm	4.2 m
71 - 80 cm	4.8 m
81 - 90 cm	5.4 m
91 - 100 cm	6.0 m
> 100 cm	6 cm protection for each 1 cm diameter

NOTES:
[1] DIAMETER AT BREAST HEIGHT (DBH) IS THE MEASUREMENT OF TREE TRUNK AT 1.4 METRES ABOVE GROUND.
[2] MINIMUM TREE PROTECTION ZONE (MTPZ) ZONE DISTANCES ARE TO BE MEASURED FROM ANY OUTSIDE EDGE OF THE TREE BASE TOWARDS THE DRIP LINE.

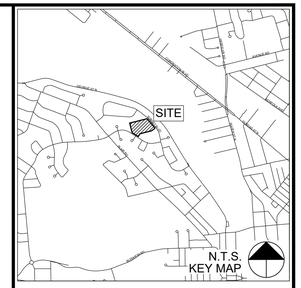


Title:	Drawing No:		
TREE PROTECTION BARRIER DETAIL	**TP-1**	Date: MARCH 2019 Scale: N.T.S. Page: 1 of 1	CAMBRIDGE CANADA PEOPLE • PLACE • PROSPERITY

1 TPP-2 CITY OF CAMBRIDGE TREE PROTECTION FENCE DETAIL
N.T.S.

Title:	Drawing No:		
TREE PROTECTION ZONE SIGN DETAIL	**TP-2**	Date: MARCH 2019 Scale: N.T.S. Page: 1 of 1	CAMBRIDGE CANADA PEOPLE • PLACE • PROSPERITY

2 TPP-2 CITY OF CAMBRIDGE TREE PROTECTION AREA SIGN
N.T.S.



No.	Description	By	Date
0	ISSUED FOR COORDINATION	MGN	28 MAR-25

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
3-5 Edinburgh Road South , Guelph , Ontario , N1H 5N8 , 519.822.6839 , aboudng.com

Title:
TREE PRESERVATION NOTES AND DETAILS

Project:
WRDSB PARKING LOT
85 SUNSET BOULEVARD
CAMBRIDGE, ONTARIO

Date: MARCH 2025	Designer: NB
Project: AA25-067A	Drawn: NB
	Checked: JD/MGN

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
MARC GARON-NIELSEN
March 2025
OALA MEMBER

Drawing No:
TPP-2

FILEPATH: S:\A-n-A PROJECTS\2025\25-067A 85 SUNSET BOULEVARD CAMBRIDGE TMP\DRAWINGS\25-067A 85 SUNSET BLVD CAMBRIDGE TPP 2025-03-27.DWG CTB: ABOUD2007.ctb PLOTTED:28-Mar-25 12:33 PM