

LILY XU, MCIP, RPP, MANAGER DEVELOPMENT REVIEW SOUTH PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

STORMTECH CHAMBER SPECIFICATIONS

- 1. CHAMBERS SHALL BE STORMTECH MC-3500.
- 2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- 3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787. "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
- a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC
- b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM
- c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
- 8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- 2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS: STONESHOOTER LOCATED OFF THE CHAMBER BED

BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.

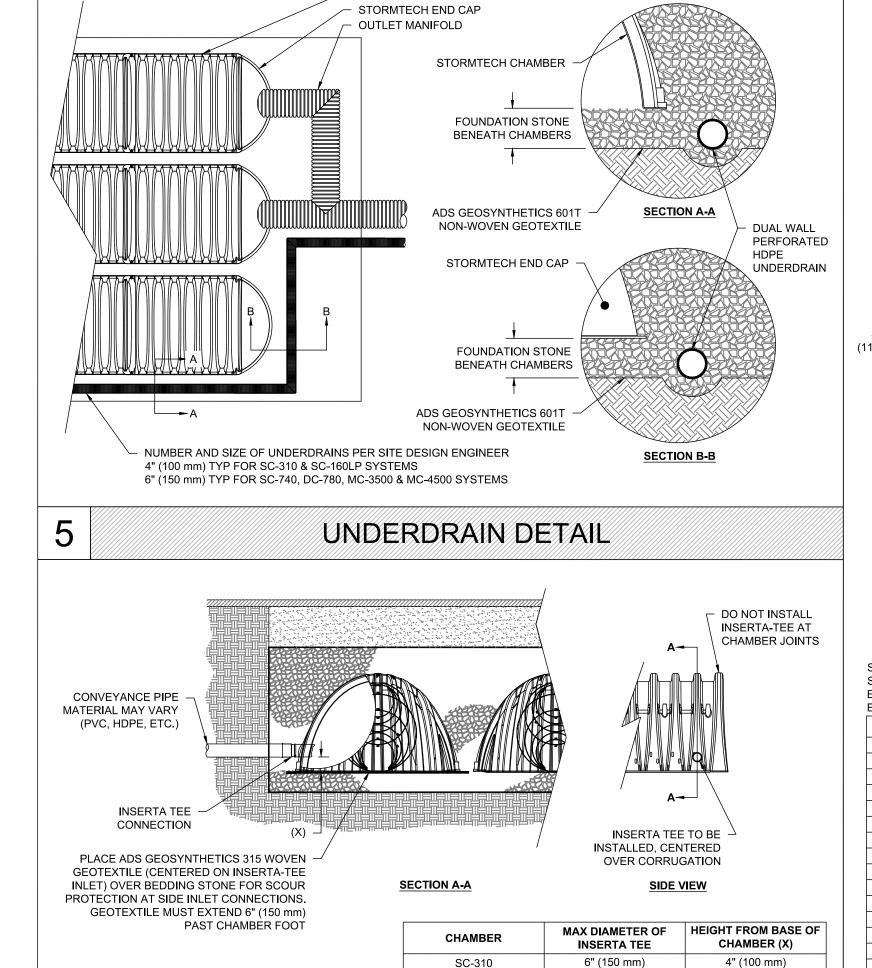
- BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- 4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- 5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- 6. MAINTAIN MINIMUM 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS. 7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- 8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43
- 9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW
- 10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- 11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

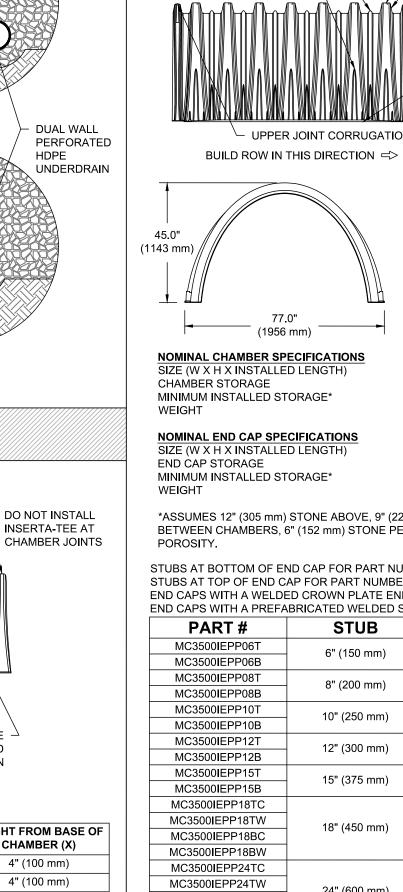
DESIGNATION OF #3 OR #4.

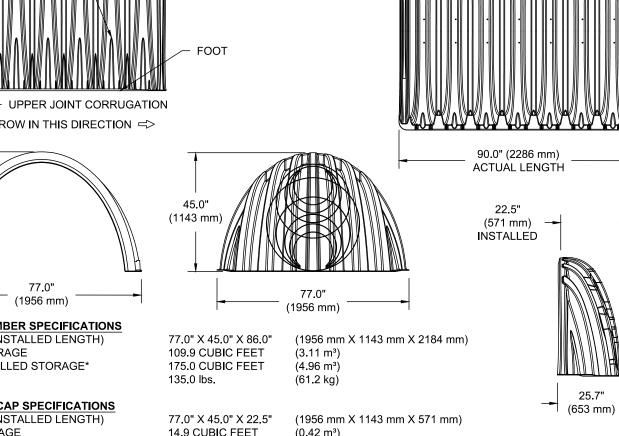
- 1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION
- 2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED: NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
- NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE". WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION
- 3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

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



STORMTECH CHAMBER





86.0" (2184 mm)

INSTALLED

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS. 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE

50.0 lbs.

45.1 CUBIC FEET

(1.28 m³)

 LOWER JOINT CORRUGATION

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"

NOTE: ALL DIMENSIONS ARE NOMINAL

STIFFENING RIB

CREST STIFFENING RIB

(1956 mm)

TUBS AT TOP OF END C	CAP FOR PART NUMBERS I	ENDING WITH "T"		5
	ED CROWN PLATE END W			
	ABRICATED WELDED STUE	B END WITH "W"	1	ტ
PART#	STUB	В	C	
MC3500IEPP06T	- 6" (150 mm)	33.21" (844 mm)	_	
MC3500IEPP06B			0.66" (17 mm)	
MC3500IEPP08T	- 8" (200 mm)	31.16" (791 mm)		_ c
MC3500IEPP08B			0.81" (21 mm)	
MC3500IEPP10T	- 10" (250 mm)	29.04" (738 mm)	_	
MC3500IEPP10B			0.93" (24 mm)	
MC3500IEPP12T	- 12" (300 mm)	26.36" (670 mm)	-	1
MC3500IEPP12B			1.35" (34 mm)	
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)		CUSTOM PRECO
MC3500IEPP15B			1.50" (38 mm)	AVAILABLE UPO
MC3500IEPP18TC	- 18" (450 mm)	20.03" (509 mm)		INVENTORIED M. 12-24" (300-600 m
MC3500IEPP18TW				AND 15-48" (375-
MC3500IEPP18BC			1.77" (45 mm)	ECCENTRIC MAN
MC3500IEPP18BW				INVERT LOCATION
MC3500IEPP24TC	- 24" (600 mm)	14.48" (368 mm)		END CAP CUT IN
MC3500IEPP24TW				RECOMMENDED
MC3500IEPP24BC			2.06" (52 mm)	GREATER THAN INVERT LOCATION
MC3500IEPP24BW				ARE THE HIGHES
MC3500IEPP30BC	30" (750 mm)		2.75" (70 mm)	THE PIPE SIZE.

STOM PRECORED INVERTS ARE AILABLE UPON REQUEST. ENTORIED MANIFOLDS INCLUDE 24" (300-600 mm) SIZE ON SIZE D 15-48" (375-1200 mm) CENTRIC MANIFOLDS. CUSTOM ERT LOCATIONS ON THE MC-3500 CAP CUT IN THE FIELD ARE NOT COMMENDED FOR PIPE SIZES EATER THAN 10" (250 mm). THE ERT LOCATION IN COLUMN 'B' THE HIGHEST POSSIBLE FOR

INSERTA-TEE SIDE INLET DETAIL

PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS.

CONTACT STORMTECH FOR MORE INFORMATION.

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SC-740

DC-780

MC-3500

MC-4500

MC-3500 TECHNICAL SPECIFICATIONS

COMPACTION / DENSITY

REQUIREMENT

PREPARE PER SITE DESIGN ENGINEER'S PLANS.

PAVED INSTALLATIONS MAY HAVE STRINGENT

MATERIAL AND PREPARATION REQUIREMENTS.

BEGIN COMPACTIONS AFTER 24" (600 mm) OF

MATERIAL OVER THE CHAMBERS IS REACHED.

COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR

WELL GRADED MATERIAL AND 95% RELATIVE

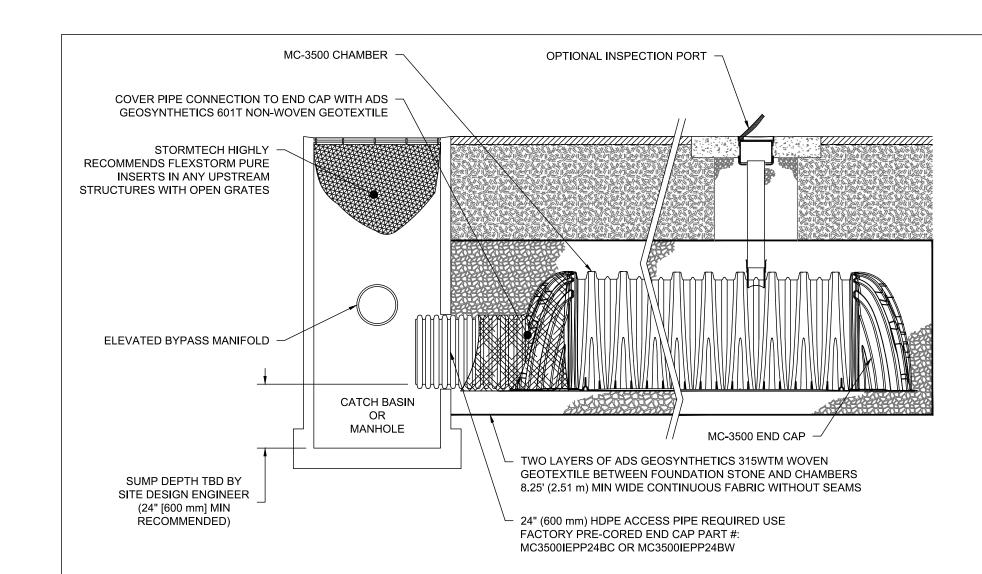
DENSITY FOR PROCESSED AGGREGATE

MATERIALS.

NO COMPACTION REQUIRED.

PLATE COMPACT OR ROLL TO ACHIEVE A FLAT

SURFACE.^{2,3}



INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT . INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON
 - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3. B. ALL ISOLATOR ROWS
 - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- . VACUUM STRUCTURE SUMP AS REQUIRED STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

- 1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- 2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS AASHTO MATERIAL MATERIAL LOCATION **DESCRIPTION** CLASSIFICATIONS FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED SUBGRADE REQUIREMENTS. GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER AASHTO M1451 A-1, A-2-4, A-3 **INITIAL FILL**: FILL MATERIAL FOR LAYER 'C' GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% STARTS FROM THE TOP OF THE EMBEDMENT FINES OR PROCESSED AGGREGATE. STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU TOP OF THE CHAMBER. NOTE THAT PAVEMENT AASHTO M431 SUBBASE MAY BE A PART OF THE 'C' LAYER. OF THIS LAYER. 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89 9, 10 **EMBEDMENT STONE: FILL SURROUNDING THE** AASHTO M431 CHAMBERS FROM THE FOUNDATION STONE ('A' CLEAN, CRUSHED, ANGULAR STONE LAYER) TO THE 'C' LAYER ABOVE. **FOUNDATION STONE:** FILL BELOW CHAMBERS AASHTO M431 FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) CLEAN, CRUSHED, ANGULAR STONE OF THE CHAMBER. PLEASE NOTE 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

10" (250 mm)

10" (250 mm)

12" (300 mm)

12" (300 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS

GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

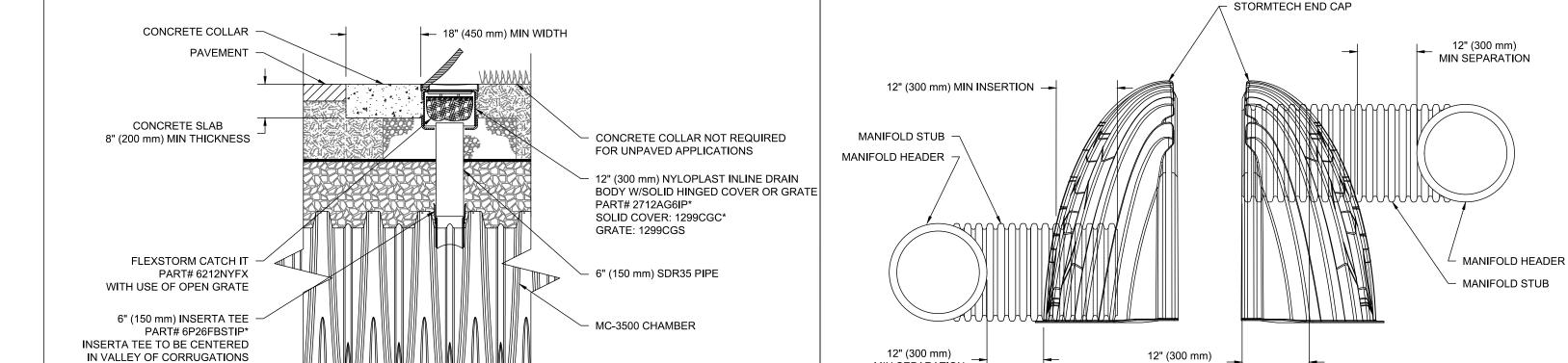
4" (100 mm)

6" (150 mm)

8" (200 mm)

1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.

ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE ALL PAVEMENT LAYER (DESIGNED BY SITE DESIGN ENGINEER) AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS. *TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, PERIMETER STONE INCREASE COVER TO 30" (750 mm). (600 mm) MIN* (SEE NOTE 6) 12" (300 mm) MIN EXCAVATION WALL (CAN BE SLOPED OR VERTICAL) (1140 mm) DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 9" (230 mm) MIN 6" (150 mm) M**I**N SUBGRADE SOILS -



* THE PART# 2712AG6IPKIT CAN BE

COMPONENTS FOR A SOLID LID

INSPECTION PORT INSTALLATION

USED TO ORDER ALL NECESSARY

MC-3500 ISOLATOR ROW DETAIL

MIN SEPARATION -

MC-3500 6" (150 mm) INSPECTION PORT DETAIL

MC-SERIES END CAP INSERTION DETAIL

MIN INSERTION

FOR A PROPER FIT IN END CAP OPENING.

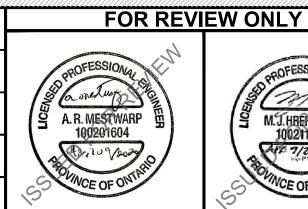
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL

NOTES:

- 1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". 2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- 4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- 5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C'
- OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION. 6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

NOT FOR CONSTRUCTION

SCALE MJH/ARM MJH/ARM APR 9/2020





AS SHOWN MC-3500 CROSS SECTION DETAIL



PROJECT PYTHON 222 CITIGATE DRIVE, CITY OF OTTAWA DRAWING NAME

STC-3500 NOTES AND DETAILS

120025

WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

20025-NDGP2

(613) 254-9643 (613) 254-5867 www.novatech-eng.com APPLICATION FOR SITE PLAN APPROVAL DATE BY REVISION

THE POSITION OF ALL POLE LINES, CONDUITS,