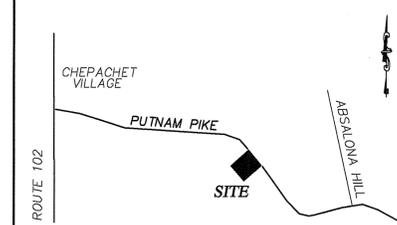


**LOCUS MAP**



- NOTES:**
1. THE SITE IS LOCATED WITHIN THE SCITUATE DRINKING WATER SUPPLY WATERSHED.
  2. THIS PARCEL IS NOT LOCATED WITHIN A GROUNDWATER RECHARGE ZONE, GROUNDWATER AQUIFER, OR GROUNDWATER RESERVOIR.
  3. THIS PARCEL IS NOT LOCATED WITHIN A NATURAL HERITAGE AREA OVERLAY.
  4. NEITHER THIS SITE NOR ADJACENT PROPERTIES ARE LOCATED ON THE NATIONAL OR RHODE ISLAND REGISTER OF HISTORIC PLACES.
  5. THERE ARE NO BUILDINGS OR NATURAL FEATURES LOCATED ON THE PARCEL WHICH ARE CURRENTLY LISTED OR ELIGIBLE FOR LISTING ON THE NATIONAL REGISTER OF HISTORIC PLACES.
  6. THE SITE IS NOT CURRENTLY USED FOR AGRICULTURAL PURPOSES.
  7. PUBLIC UTILITIES (WATER & SEWER) ARE NOT AVAILABLE TO THIS SITE.
  8. THERE ARE NO PRIVATE WELLS WITHIN 200' OF THE PROPOSED OWTS. THERE ARE NO PUBLIC WELLS WITHIN 500' OF THE PROPOSED OWTS, WHICH ARE CURRENTLY OPERATIONAL.
  9. ALL ROOFTOP DRAINAGE FROM EACH PROPOSED BUILDING SHALL BE DIRECTED INTO BMP 3. THE UNDERGROUND INFILTRATION CHAMBERS.
  10. ANY USE CONSIDERED A LAND USE WITH A HIGHER POTENTIAL POLLUTANT LOAD (LUPPL) SHALL BE PROHIBITED FROM THIS OPERATION.
  11. RIDEM REQUIRES A NEW APPLICATION WITH ANY SUBSTITUTION OF SUBSURFACE CHAMBERS.

**ZONING DISTRICT DIMENSIONAL REGULATIONS**

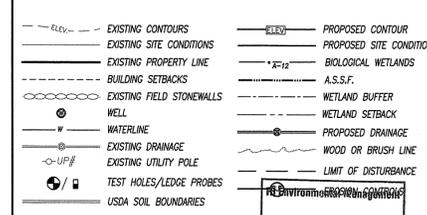
ZONE: B2 - HIGHWAY COMMERCIAL

	REQUIRED	PROPOSED
MINIMUM LOT AREA (S.F.)	20,000 S.F.	48,000 S.F.
MINIMUM LOT FRONTAGE (FT.)	120'	240'
MINIMUM LOT WIDTH (FT.)	120'	240'
MINIMUM YARD SETBACKS:		
FRONT	60'	60'
SIDE	20'	23.5' / 74'
REAR	30'	45'
MAXIMUM BUILDING COVERAGE:	25%	16.6% (8,000 S.F.)

**PARKING REQUIREMENTS**

- REQUIRED:** N/A; NO EMPLOYEES  
2 STALLS PER EVERY 3 EMPLOYEES
- PROVIDED:** 8 PRIVATE UNITS; NO STALLS REQUIRED  
SAY 2 PEOPLE PER UNIT = 16 FOLKS  
16 / 3 X 2 = 10 STALLS PROVIDED  
ADDITIONAL PARKING WITHIN UNITS

**LEGEND**



MAY 16 2024  
Office of Water Resources

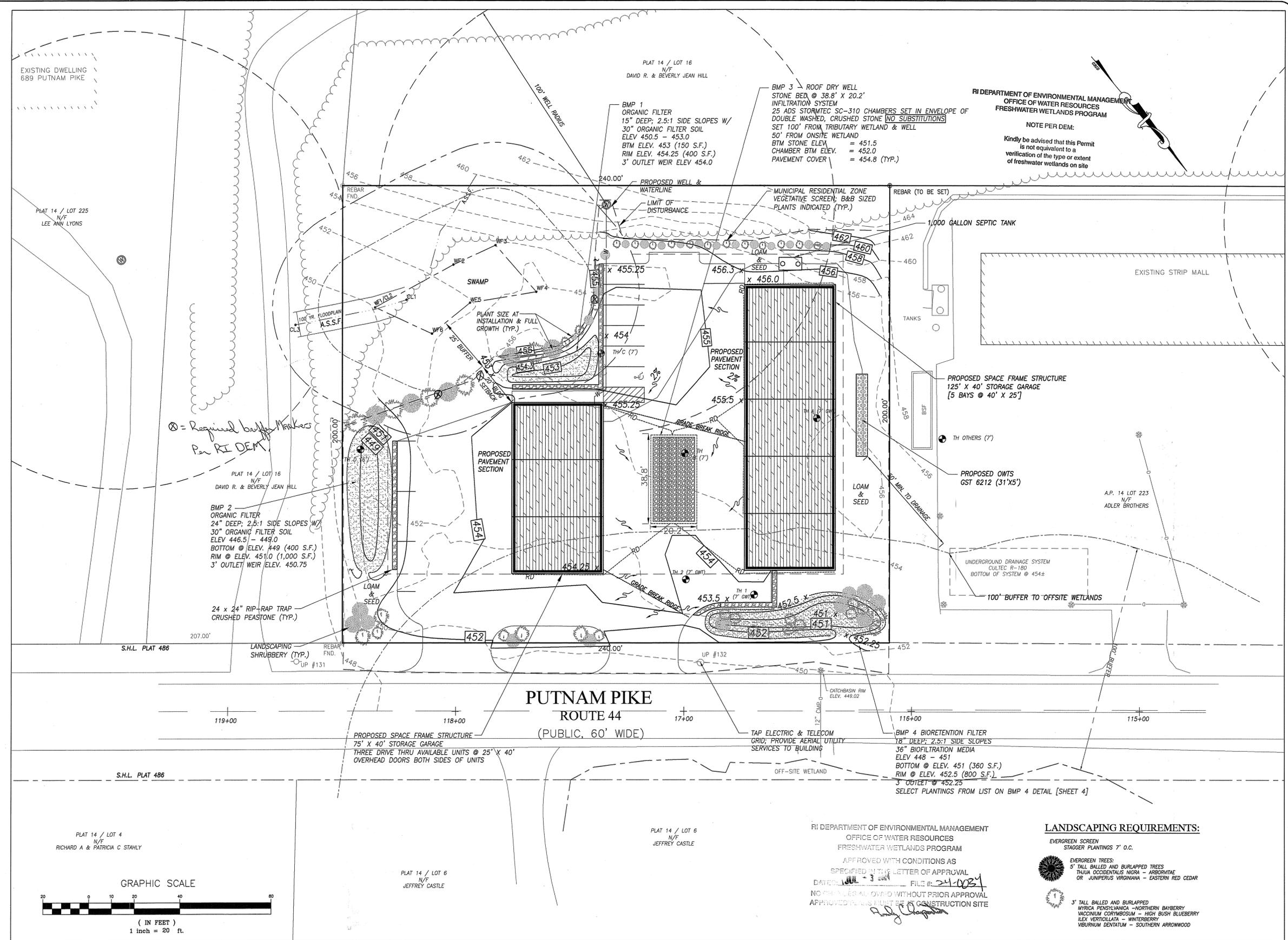
**PROPOSED CONDITIONS STORAGE FACILITY**  
PLAT 14 / LOT 224 & 243  
PUTNAM PIKE (ROUTE 44)  
GLOCESTER, RHODE ISLAND

PREPARED BY:  
**Jeffrey J. Campopiano, P.E. Inc.**  
PO BOX 808  
SAUNDERSTOWN, RI 02874  
PHONE: (401) 295-3037  
jeff@campopiano-eng.com

OWNER / APPLICANT  
**HILLTOP GLOCESTER, LLC**  
363 PUTNAM PIKE  
SMITHFIELD, RHODE ISLAND 02917

REV.	DATE	DESCRIPTION	DATE: 1/15/24
1	5/24	Site Raised for 4' GWL Sep. & Notes	SCALE: 1"=20'

Sheet 1 of 3



**TEST HOLE DATA**

TEST HOLE	ESTIMATED GROUNDWATER	COMMENT
1	7'-0"	#0413-0456
2	7'-0"	#0413-0456
A	7'-0"	JJCPE (5/19/23)
B	7'-0"	JJCPE (5/19/23)
C	7'-0"	JJCPE (5/19/23)
D	6'-0"	JJCPE (5/19/23)

**STORMWATER BMP LIST SHOWING SEASONAL HIGH GROUNDWATER TABLES**

BMP	DESCRIPTION	TEST HOLE	DESIGN ELEV.	GWL ELEV.	SHOBT	FILTER MEDIA OR BOTTOM OF STONE (DRYWELL)	SEPARATION PROVIDED
1	ORGANIC FILTER	TH C	456	449	7'	453	4'
2	ORGANIC FILTER	TP D	451	445	6'	449	4'
3	ROOF DRYWELL	TP B	454.5	447.5	7'	451.5	4'
4	BIOFILTRATION FILTER	TP 1	453	446	7'	451	5'

GRAPHIC SCALE  
1 inch = 20 ft.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
DATE: 5/16/24 FILE #: 24-0024  
NO CHANGE ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE IN CONSTRUCTION SITE

**LANDSCAPING REQUIREMENTS:**  
EVERGREEN SCREEN  
STAGGER PLANTINGS 7' O.C.  
EVERGREEN TREES:  
5' TALL BALLED AND BURLAPPED  
MIRICA PENSYLVANICA - NORTHERN BAYBERRY  
VACCINIUM CORYMBOSUM - HIGH BUSH BLUEBERRY  
ILEX VERTICILLATA - WINTERBERRY  
VIBURNUM DEWITTIANUM - SOUTHERN ARROWWOOD

# BMP 1 & 2 : ORGANIC FILTERS

1. ALL ORGANIC FILTERS SHALL BE CONSTRUCTED FOLLOWING THE COMPLETION AND STABILIZATION OF OTHER SITE WORK. COMPACTION OF THE AREA PRIOR TO AND DURING CONSTRUCTION MUST BE AVOIDED. EXCAVATION SHALL BE COMPLETED USING LIGHT EQUIPMENT WITH WIDE TRACKS. IF THE AREA DOES BECOMES COMPACTED, SOIL MUST BE TILLED TO A MINIMUM DEPTH OF 12".

## INSTALLATION

- IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BMP AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BMP AREA IS EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES ARE NOT ACCEPTABLE.
- COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BMP FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE PERFORMED TO REFRACATURE THE SOIL PROFILE THROUGH THE 12-IN COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
- WHEN BACKFILLING THE FILTER FACILITIES, PLACE SOIL IN LIFTS 12". DO NOT USE HEAVY EQUIPMENT WITHIN THE FILTER BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- FINAL GRADING SHALL BE COMPLETED WITH THE USE OF HAND TOOLS TO SATISFY STORM WATER MANAGEMENT REQUIREMENTS, AS DIRECTED BY THE ENGINEER.
- FILTERS SHALL HAVE A 4" TOPSOIL LAYER AND VEGETATED WITH TURF.

## MATERIALS

ORGANIC FILTER MEDIA - ORGANIC FILTER MEDIA SHALL CONSIST OF A 50% SAND AND 50% RED-SEED HEMIC PEAT MIXTURE

SAND: SAND SHALL BE CLEAN ASHTO M-6 OR ASTM C-33 CONCRETE SAND 0.075" TO 0.04" IN PARTICLE SIZE. SAND SUBSTITUTIONS SUCH AS DABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO ROCK DUST CAN BE USED FOR SAND.

PEAT MATERIAL: PEAT SHALL BE RED-SEED HEMIC PEAT, SHREDED, UNCOMPACTED, UNIFORM, AND CLEAN, MEETING THE FOLLOWING:

- PEAT ASH CONTENT: < 15%
- PH RANGE: 5.2 TO 4.9
- LOOSE BULK DENSITY 0.12 TO 0.15 G/CC

SEED MIXTURES SHALL CONSISTS OF THE FOLLOWING:

SEED MIXTURE (VARIETY)	LBS / ACRES	LBS / 1000 SQ. FT.
CREeping RED FESCUE	20	0.45
REDTOP	2	0.05
TALL FESCUE (KENTUCKY 31)	20	0.45

ORGANIC BASINS

SEED MIXTURE (VARIETY)	LBS / ACRES	LBS / 1000 SQ. FT.
CREeping RED FESCUE	20	0.45
REDTOP	2	0.05
TALL FESCUE (KENTUCKY 31)	20	0.45

## BIO-RETENTION FILTER CONSTRUCTION NOTES:

- ALL BIORETENTION AREAS SHALL BE CONSTRUCTED FOLLOWING THE COMPLETION AND STABILIZATION OF OTHER SITE WORK. COMPACTION OF THE BIO-RETENTION AREA PRIOR TO AND DURING CONSTRUCTION MUST BE AVOIDED. EXCAVATION SHALL BE COMPLETED USING LIGHT EQUIPMENT WITH WIDE TRACKS. IF THE AREA DOES BECOMES COMPACTED, SOIL MUST BE TILLED TO A MINIMUM DEPTH OF 12".
- IF SPECIFIED, UNDERDRAINS SHALL BE PLACED ON A MINIMUM OF 3'0" WIDE SECTION OF FILTER CLOTH, OVERLAIN BY GRAVEL BEDDING FREE FROM FINES. PIPE SHALL BE SLOPED A MINIMUM OF 0.5%.
- PLANTING MEDIA SHALL BE PLACED IN 12" LIFTS.

## MATERIALS

PLANTING MEDIA - THE MATERIAL TO BE FURNISHED SHALL BE A UNIFORM MIX FREE OF SUBSOIL, REFUSE, STUMPS, ROISTS, BRUSH, WEEDS OR OTHER MATERIAL WHICH WOULD PREVENT THE FORMATION OF A SUITABLE SEED BED. THE MEDIA SHALL CONSIST OF THE 4 PARTS PLANTING SOIL & 1 PART WELL AGED, AERATED, LEAF COMPOST.

US STANDARD SIEVE SIZE	SIEVE SIZE (IN.)	MATERIAL	% PASSING
NO. 4	0.0187	GRAVEL	100
NO. 10	0.075	VERY COARSE SAND	95
NO. 40	0.017	SAND	40
NO. 200	0.003	SILT	20
NO. > 200	> 0.001	CLAY	5

A TEXTURAL ANALYSIS IS REQUIRED TO ENSURE THE BIORETENTION SOIL MEETS THE SPECIFICATION LISTED ABOVE. THE BIORETENTION SOIL SHOULD ALSO BE TESTED FOR THE FOLLOWING CRITERIA:

- PH RANGE 5.2 - 7.0
- SOLUBLE SALTS NOT TO EXCEED 500 PPM
- SOIL INFILTRATION RATE = MIN. 8" PER HOUR

SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

MULCH LAYER SPECIFICATIONS:

A FINELY SHREDED, WELL-AGED ORGANIC HARDWOOD MULCH IS THE PREFERRED ACCEPTED MULCH. A FINELY SHREDED, WELL-AGED ORGANIC DARK PINE MULCH MAY BE ACCEPTED ON A CASE-BY-CASE BASIS. BARK DUST MULCHES AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE.

SHREDED MULCH MUST BE WELL AGED (6-12 MONTHS) FOR ACCEPTANCE.

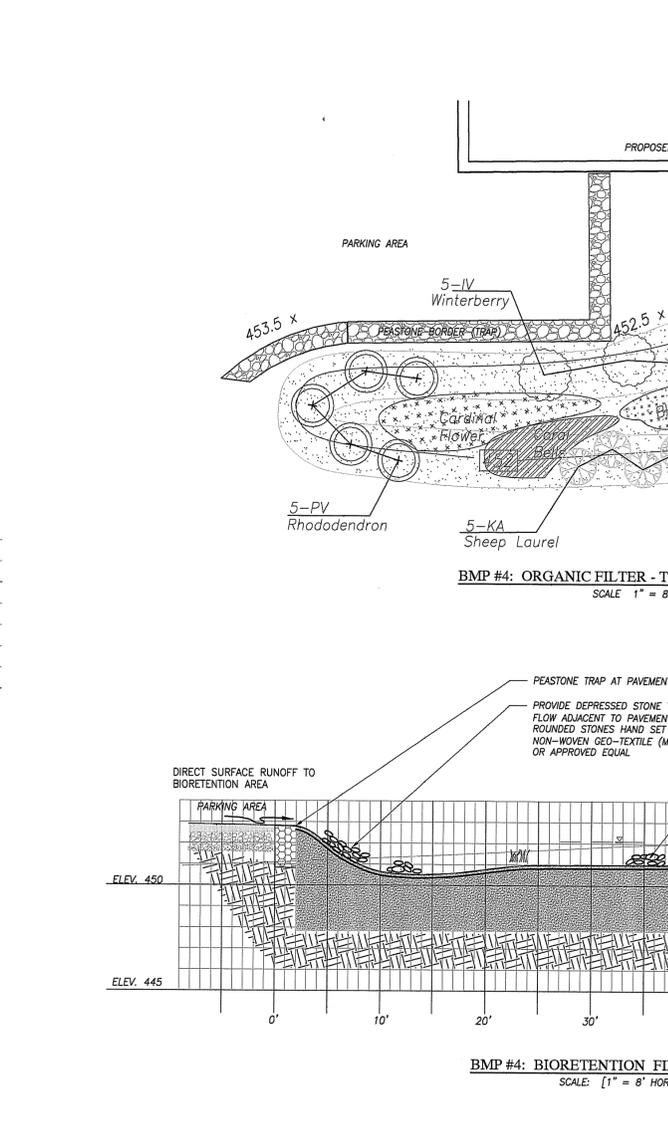
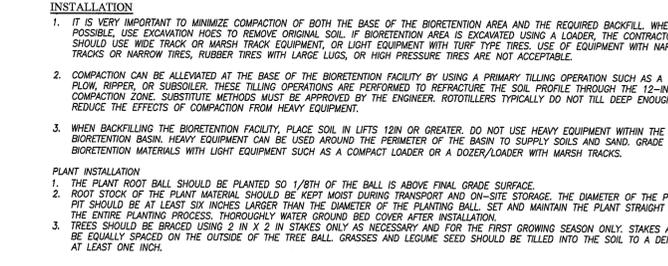
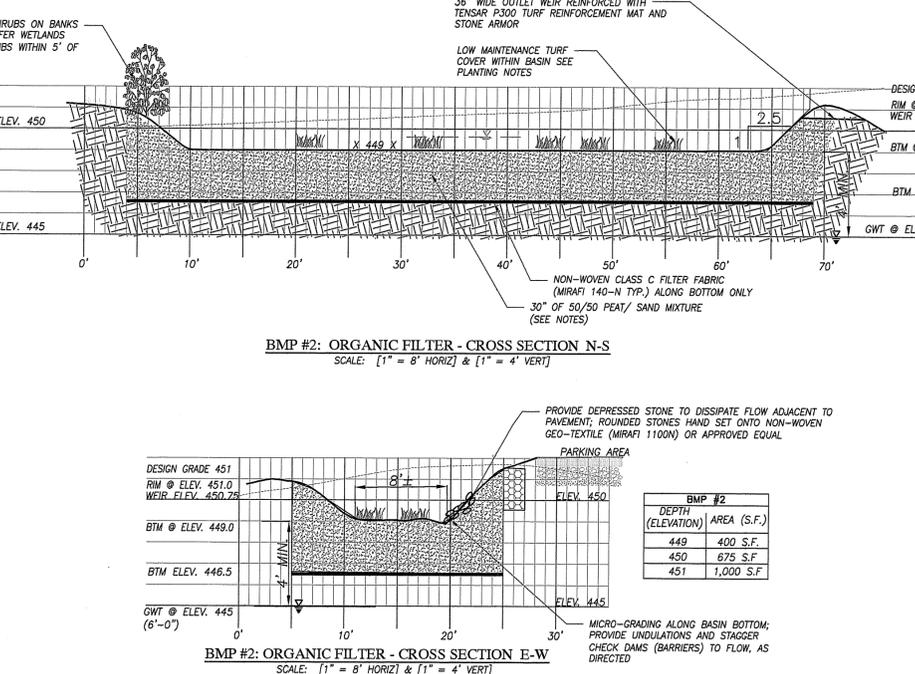
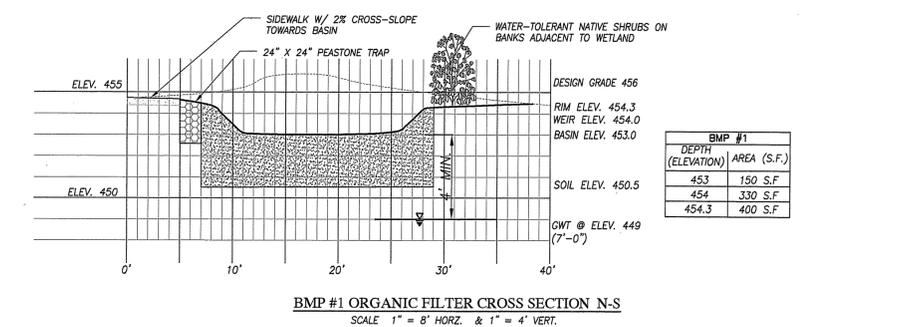
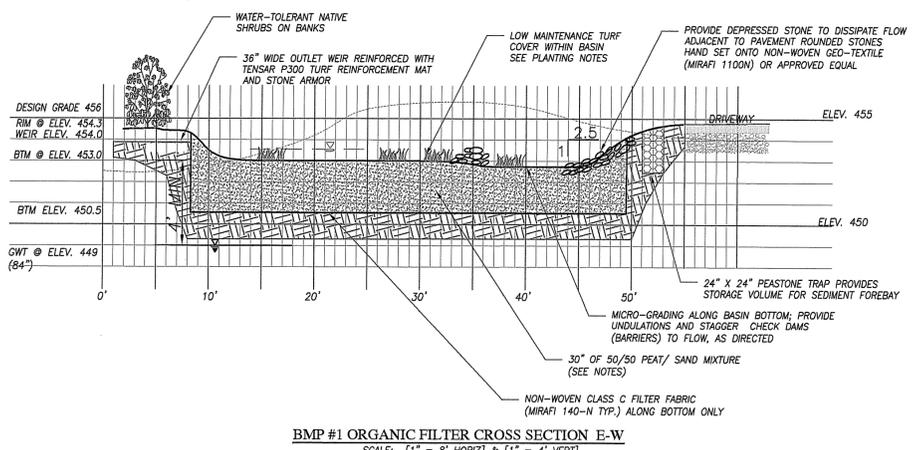
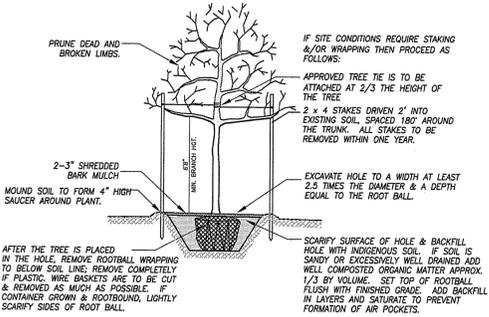
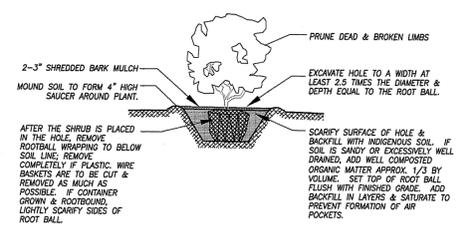
MIX APPROXIMATELY 1/3 THE SHREDED MULCH LAYER INTO THE PLANTING SOIL TO A DEPTH OF APPROXIMATELY 4 INCHES TO HELP FOSTER A HIGHLY ORGANIC SURFACE LAYER.

INSTALLATION

- IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREA IS EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES ARE NOT ACCEPTABLE.
- COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE PERFORMED TO REFRACATURE THE SOIL PROFILE THROUGH THE 12-IN COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
- WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12IN OR GREATER. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

PLANT INSTALLATION

- THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE.
- ROOT STOCK OF THE PLANT MATERIAL SHOULD BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE DIAMETER OF THE PLANTING PIT SHOULD BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.
- TREES SHOULD BE BRACED USING 2 IN X 2 IN STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE TILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH.



SAMPLE BIORETENTION PLANT LIST FOR PART-SHADE - BMP #4

CODE	BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	SPREAD	NOTES
SP	Stewartia pseudocamellia	Stewartia *	20'	20'-30'	Deciduous (Morning Sun / Afternoon Shade)
CS	Cornus stolonifera	Dwarf Red Osier Dogwood	36"-60"	36"-60"	Deciduous Shrub - Winter Interest
IV	Ilex verticillata	Winterberry	48"-60"	48"-60"	Deciduous Shrub - Winter Interest
HA	Hydrangea arborescens	Wild Hydrangea	48"-60"	48"-60"	Deciduous Shrub - White Flowers (S)
KA	Kalmia angustifolia	Sheep Laurel	36"-48"	36"-40"	Evergreen Shrub - Pink Flowers (Sp)
PV	Rhododendron ferrugineum	Rhododendron	48"-72"	48"-72"	Evergreen Shrub - Various Flowers (Sp)
IG	Ilex glabra	Inkberry "Shamrock"	24"-36"	24"-36"	Evergreen Shrub - Various Flowers (Sp)

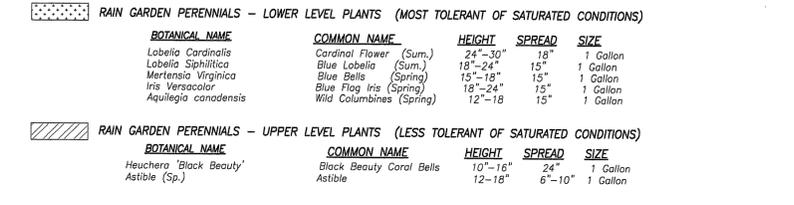
\* Alternative Shade Trees: Red Maple (Acer Rubrum), Flowering Dogwood (Cornus Florida)

PERENNIAL - PLANT LIST FOR RAIN-GARDENS

ALL PERENNIALS PLANTINGS TO BE PLANTED IN GROUPS OF THREE AND STAGGERED 18" O.C.

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	SIZE
Labelia Cardinalis	Cardinal Flower (Sum.)	24"-30"	18"	1 Gallon
Blue Lobelia (Sum.)	Blue Lobelia (Sum.)	18"-24"	15"	1 Gallon
Mertensia Virginia	Blue Bells (Spring)	15"-18"	15"	1 Gallon
Iris Versicolor	Blue Flag Iris (Spring)	18"-24"	15"	1 Gallon
Aquilegia canadensis	Wild Columbine (Spring)	12"-18"	15"	1 Gallon

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	SIZE
Heuchera 'Black Beauty'	Black Beauty Coral Bells	10"-16"	24"	1 Gallon
Astile (Sp.)	Astile	12"-18"	6"-10"	1 Gallon



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL

DATE: JUL - 3 2024 FILE # 21-0037

NOTE TO OWNER AND CONTRACTOR: THE ENGINEER SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO ANY AND ALL DRAINAGE WORK IN ORDER TO PROVIDE PROJECT CERTIFICATION

RI Environmental Management  
MAY 16 2024  
Office of Water Resources

**DRAINAGE DETAILS STORAGE FACILITY**  
PLAT 14/LOT 224 & 243  
PUTNAM PIKE (ROUTE 44)  
GLOCESTER, RHODE ISLAND

PREPARED BY:  
JEFFREY J. CAMPOPIANO, P.E. IIC  
POST OFFICE BOX 808  
SAUNDERSTOWN, RI 02874  
PHONE: (401) 295-3037  
jeff@campopiano-eng.com

REGISTERED PROFESSIONAL ENGINEER

OWNER / APPLICANT  
HILLTOP GLOCESTER, LLC  
363 PUTNAM PIKE  
SMITHFIELD, RHODE ISLAND 02917

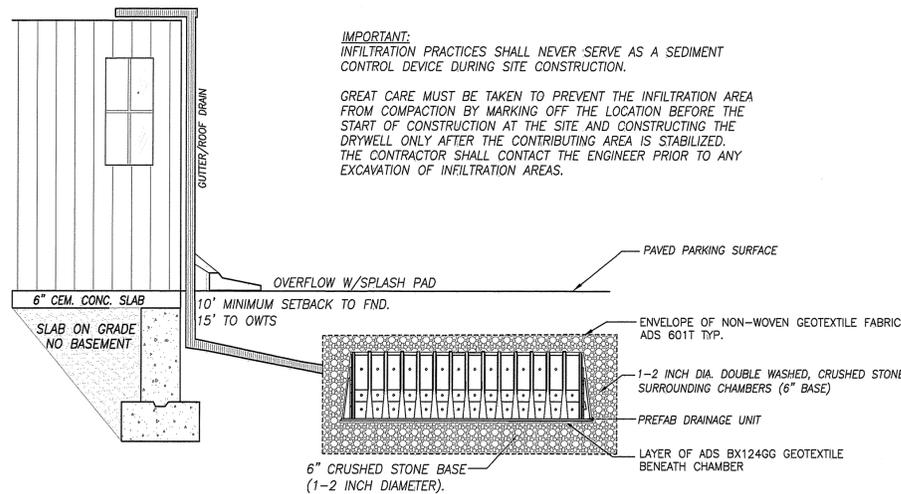
REV.	DATE	DESCRIPTION	DATE: 1/15/24
1	5/24	DETAILED SCALED DETAILS	SCALE: 1"=20'

Sheet 2 of 3

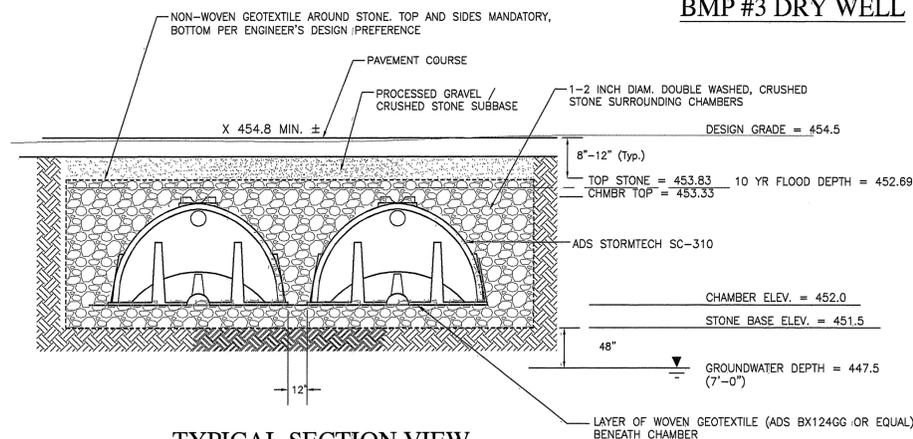
**BMP #3 ROOFTOP INFILTRATION**

**DRYWELL INSTALLATION**

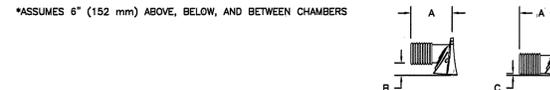
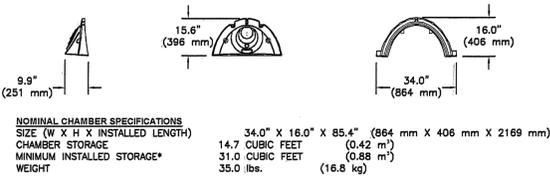
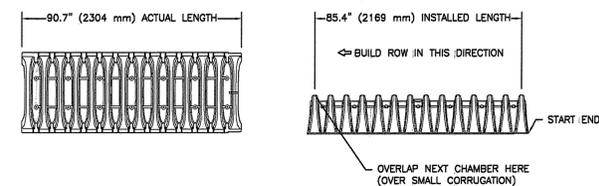
- INFILTRATION TRENCH OR CHAMBER SYSTEMS MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE DRYWELL HAS RECEIVED FINAL STABILIZATION. CONSTRUCTION EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE INFILTRATION TRENCH OR CHAMBER AREAS TO MINIMIZE COMPACTION OF THE SOIL.
- EXCAVATE THE INFILTRATION CHAMBER TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH/CHAMBER SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDE WALLS OF THE TRENCH/CHAMBER SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
- INFILTRATION CHAMBERS SHALL CONSIST OF CHAMBERS AS SHOWN OR ANY SUBSTITUTIONS MUST BE OF EQUAL SIZE AND COMPRISED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HDPE) AND MEET AASHTO H10 OR H20 STANDARDS, AS SPECIFIED.
- THE STONE AGGREGATE SHOULD BE PLACED IN LIFTS AND COMPACTED USING PLATE COMPACTORS. A MAXIMUM LOOSE LIFT THICKNESS OF 8 INCHES IS RECOMMENDED. THE GRAVEL STONE FOR THE INFILTRATION TRENCH/CHAMBER SHALL BE WASHED AND MEET ONE OF THE FOLLOWING AASHTO STD. M-43; SIZE NO. 2 OR NO. 3.
- VOIDS CAN BE CREATED BETWEEN THE FABRIC AND THE EXCAVATION SIDES AND SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOID; THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOID AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
- PVC PIPES SHALL BE SCHEDULE 40 AND MEET ASTM STD. D 1784.



**BMP #3 DRYWELL TYPICAL SECTION VIEW**



**TYPICAL SECTION VIEW**



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

PART #	STUB	A	B	C
SC310EP0E1 / SC310EP0B1PC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EP0E2 / SC310EP0B2PC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	0.5" (13 mm)
SC310EP0E3 / SC310EP0B3PC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	0.6" (15 mm)
SC310EP0E4 / SC310EP0B4PC	12" (300 mm)	13.8" (350 mm)	---	0.7" (18 mm)
SC310E0E2*	12" (300 mm)	---	---	0.9" (23 mm)

\* FOR THE SC310E0E2\* THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

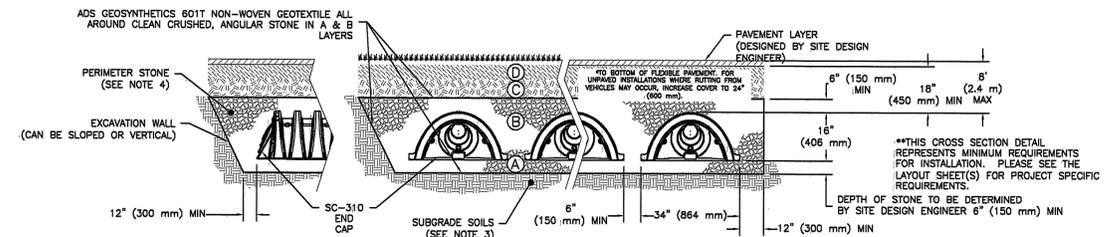
**CHAMBER ADS SC-310 SPECIFICATIONS**

**IMPORTANT:**  
INFILTRATION PRACTICES SHALL NEVER SERVE AS A SEDIMENT CONTROL DEVICE DURING SITE CONSTRUCTION.

GREAT CARE MUST BE TAKEN TO PREVENT THE INFILTRATION AREA FROM COMPACTION BY MARKING OFF THE LOCATION BEFORE THE START OF CONSTRUCTION AT THE SITE AND CONSTRUCTING THE DRYWELL ONLY AFTER THE CONTRIBUTING AREA IS STABILIZED. THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO ANY EXCAVATION OF INFILTRATION AREAS.

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 A-1, A-2-4, A-3 OR AASHTO M43 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.

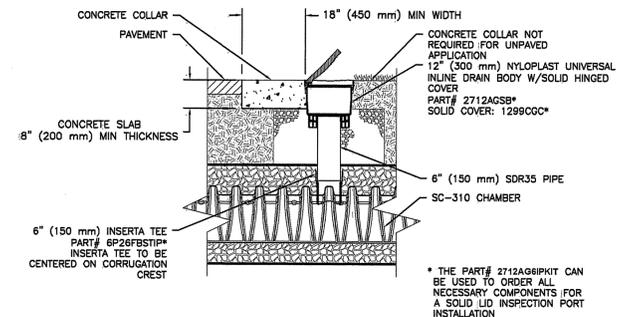
PLEASE NOTE:  
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".  
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS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



**NOTES:**

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 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.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT.% AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

**SC-310 CROSS SECTION DETAIL**



**SC-310 6" INSPECTION PORT DETAIL**

**SC-310 STORMTECH CHAMBER SPECIFICATIONS**

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 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 BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT.% THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

**IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM**

- STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- 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.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEALED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 6" SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm) IMPROVED GRADE. BE AT CONSTRUCTION SITE.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- 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**

- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
  - THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
    - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
    - NO RUBBER TIED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
    - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
  - 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 THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

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

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS SPECIFIED IN LETTER OF APPROVAL  
DATED: JUL 13 2024 FILE #: 24-0031  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED FOR CONSTRUCTION SITE

*Jeffrey J. Campopiano*

**DRAINAGE DETAILS STORAGE FACILITY**  
PLAT 14 / LOT 224 & 243  
PUTNAM PIKE (ROUTE 44)  
GLOCESTER, RHODE ISLAND

PREPARED BY:  
**JEFFREY J. CAMPOPIANO, P.E. Inc**  
PO BOX 808  
SAUNDERSTOWN, RI 02874  
PHONE: (401) 295-3037  
jeff@campopiano-eng.com

OWNER / APPLICANT  
**HILLTOP GLOCESTER, LLC**  
363 PUTNAM PIKE  
SMITHFIELD, RHODE ISLAND 02917

REV.	DATE	DESCRIPTION	DATE: 1/15/24
1	5/24	BMP RAISED TO PROVIDE 4' SEPARATION	SCALE: 1"=20'

*Sheet 3 of 3*