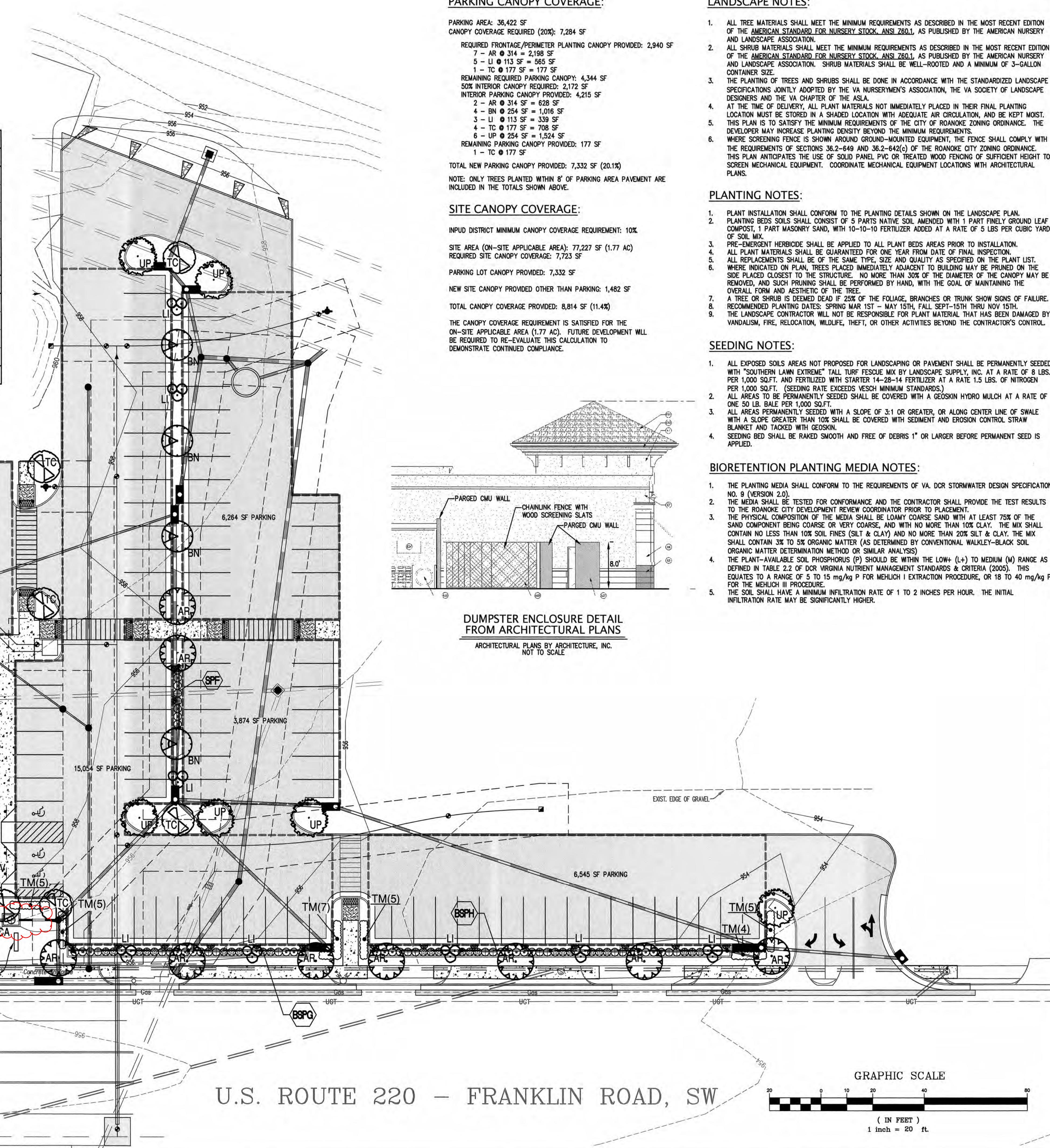


LANDSCAPE MATERIALS

SYMBOL & KEY	SCIENTIFIC NAME	COMMON NAME	SIZE (MIN.)	CONTAINER (MIN.)	QUANTITY	CANOPY	CANOPY SUB-TOTAL
TREES							
AR	Acer rubrum "Red Sunset"	RED SUNSET MAPLE	2" CAL.	B&B	11	314	3,454
BN	Betula nigra "Heritage"	HERITAGE RIVER BIRCH	2" CAL.	B&B	4	254	1,016
LI	Lagerstroemia indica "Natchez"	'NATCHEZ' CRAPEMYRTLE	5"	B&B/#15	12	113	1,356
OV	Ostrya virginiana	AMERICAN HOPHORNBEAM	2" CAL.	B&B	2	201	402
TC	Tilia cordata 'Greenspire'	'GREENSPIRE' LITTLELEAF LINDEN	2" CAL.	B&B	6	177	1,062
UP	Ulmus parvifolia 'Allee'	'ALLEE' LACEBARK ELM	2" CAL.	B&B	6	254	1,524
SHRUBS / GRASSES / GROUNDCOVER							
CA	Clethra alnifolia 'September Beauty'	'SEPTEMBER BEAUTY' SPICEBUSH	30"	#3	19	-	-
IG	Ilex glabra 'Nigra'	'NIGRA' INKBERRY	30"	#3	30	-	-
IV	Itea virginica 'Henry's Garnet'	'HENRY'S GARNET' SWEETSPIRE	30"	#3	25	-	-
TM	Taxus x media 'Densiformis'	'DENSIIFORMIS' YEW	18"	#3	31	-	-
* INDICATES NATIVE PLANT SPECIES							
THE QUANTITIES LISTED IN THIS TABLE MATCH THE QUANTITIES SHOWN ON THE PLAN. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCY OR QUESTION.							
TOTAL CANOPY 8,814							



PARKING CANOPY COVERAGE:

PARKING AREA: 36,422 SF
CANOPY COVERAGE REQUIRED (20%): 7,284 SF
REQUIRED FRONTAGE/PERIMETER PLANTING CANOPY PROVIDED: 2,940 SF
7 - AR @ 314 SF = 2,198 SF
5 - LI @ 113 SF = 565 SF
1 - TC @ 177 SF = 177 SF
REMAINING REQUIRED PARKING CANOPY: 4,344 SF
50% INTERIOR CANOPY REQUIRED: 2,172 SF
INTERIOR PARKING CANOPY PROVIDED: 4,215 SF
2 - AR @ 314 SF = 628 SF
4 - BN @ 254 SF = 1,016 SF
3 - LI @ 113 SF = 339 SF
4 - TC @ 177 SF = 708 SF
6 - UP @ 254 SF = 1,524 SF
REMAINING PARKING CANOPY PROVIDED: 177 SF
1 - TC @ 177 SF

TOTAL NEW PARKING CANOPY PROVIDED: 7,332 SF (20.1%)

NOTE: ONLY TREES PLANTED WITHIN 8' OF PARKING AREA PAVEMENT ARE INCLUDED IN THE TOTALS SHOWN ABOVE.

SITE CANOPY COVERAGE:

INPUT DISTRICT MINIMUM CANOPY COVERAGE REQUIREMENT: 10%

SITE AREA (ON-SITE APPLICABLE AREA): 77,227 SF (1.77 AC)

REQUIRED SITE CANOPY COVERAGE: 7,723 SF

PARKING LOT CANOPY PROVIDED: 7,332 SF

NEW SITE CANOPY PROVIDED OTHER THAN PARKING: 1,482 SF

TOTAL CANOPY COVERAGE PROVIDED: 8,814 SF (11.4%)

THE CANOPY COVERAGE REQUIREMENT IS SATISFIED FOR THE ON-SITE APPLICABLE AREA (1.77 AC). FUTURE DEVELOPMENT WILL BE REQUIRED TO RE-EVALUATE THIS CALCULATION TO DEMONSTRATE CONTINUED COMPLIANCE.

LANDSCAPE NOTES:

- ALL TREE MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS AS DESCRIBED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1, AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
- ALL SHRUB MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS AS DESCRIBED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1, AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. SHRUB MATERIALS SHALL BE WELL-ROOTED AND A MINIMUM OF 3-GALLON CONTAINERIZED.
- THE PLANTING OF TREES AND SHRUBS SHALL BE DONE IN ACCORDANCE WITH THE STANDARDIZED LANDSCAPE SPECIFICATIONS JOINTLY ADOPTED BY THE VA NURSERYMEN'S ASSOCIATION, THE VA SOCIETY OF LANDSCAPE DESIGNERS AND THE CHAPTER OF THE ASA IN VIRGINIA.
- ALL PLANT MATERIALS MUST BE DELIVERED IN PLANTABLE CONDITION AND IMMEDIATELY PLACED IN THEIR FINAL PLANTING LOCATION. PLANT MATERIALS NOT IMMEDIATELY PLACED IN THEIR FINAL PLANTING LOCATION MUST BE STORED IN A SHADED LOCATION WITH ADEQUATE AIR CIRCULATION, AND BE KEPT MOIST.
- THIS PLAN IS TO SATISFY THE MINIMUM REQUIREMENTS OF THE CITY OF ROANOKE CITY ZONING ORDINANCE. THE DEVELOPER MAY INCREASE PLANTING DENSITY BEYOND THE MINIMUM REQUIREMENTS.
- WHERE SCREENING FENCE IS SHOWN AROUND GROUND-MOUNTED EQUIPMENT, THE FENCE SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 36.2-649 AND 36.2-642(c) OF THE ROANOKE CITY ZONING ORDINANCE. THIS PLAN ANTICIPATES THE USE OF SOLID PANEL PVC OR TREATED WOOD FENCING OF SUFFICIENT HEIGHT TO SCREEN MECHANICAL EQUIPMENT. COORDINATE MECHANICAL EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS.

PLANTING NOTES:

- PLANT INSTALLATION SHALL CONFORM TO THE PLANTING DETAILS SHOWN ON THE LANDSCAPE PLAN.
- PLANTING BEDS SHALL CONSIST OF 5 PARTS NATIVE SOIL AMENDED WITH 1 PART FINELY GROUNDED LEAF COMPOST, 1 PART MASONRY SAND, WITH 10-10-10 FERTILIZER ADDED AT A RATE OF 5 LBS PER CUBIC YARD OF SOIL MIX.
- PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANT BEDS AREAS PRIOR TO INSTALLATION.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL INSPECTION.
- ALL REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS SPECIFIED ON THE PLANT LIST.
- WHERE INDICATED ON PLANT LIST, PLANT MATERIALS ADJACENT TO BUILDING MD. BE PLANTED ON THE SIDE PAVING CLOSEST TO THE STRUCTURE. NO MORE THAN 20% OF THE DIAMETER OF THE CANOPY MAY BE REMOVED, AND SUCH PRUNING SHALL BE PERFORMED BY HAND, WITH THE GOAL OF MAINTAINING THE OVERALL FORM AND AESTHETIC OF THE TREE.
- A TREE OR SHRUB IS DEEMED DEAD IF 25% OF THE FOLIAGE, BRANCHES OR TRUNK SHOW SIGNS OF FAILURE.
- RECOMMENDED PLANTING DATES: SPRING MAR 1ST – MAY 15TH, FALL SEPT-15TH THRU NOV 15TH.
- THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT MATERIAL THAT HAS BEEN DAMAGED BY VANDALISM, FIRE, RELOCATION, WILDLIFE, THEFT, OR OTHER ACTIVITIES BEYOND THE CONTRACTOR'S CONTROL.

SEEDING NOTES:

- ALL EXPOSED SOILS AREAS NOT PROPOSED FOR LANDSCAPING OR PAVEMENT SHALL BE PERMANENTLY SEEDED WITH "SOUTHERN LAWN EXTREME" TALL TURF FESCUE MIX BY LANDSCAPE SUPPLY, INC. AT A RATE OF 8 LBS. PER 1,000 SQ.FT. AND FERTILIZED WITH STARTER 14-28-14 FERTILIZER AT A RATE 1.5 LBS. OF NITROGEN PER 1,000 SQ.FT. (SEEDED RATE EXCEEDS VSCH MINIMUM STANDARDS).
- ALL AREAS TO BE PERMANENTLY SEADED SHALL BE COVERED WITH A GEOSYNTHETIC HYDRO MULCH AT A RATE OF ONE 50 LB BALE PER 1,000 SQ.FT.
- ALL AREAS PERMANENTLY SEADED WITH A SLOPE OF 3:1 OR GREATER, OR ALONG CENTER LINE OF SWALE WITH A SLOPE GREATER THAN 10% SHALL BE COVERED WITH SEDIMENT AND EROSION CONTROL STRAW BLANKET AND TACKED WITH GEOSKIN.
- SEEDING BED SHALL BE RAKED SMOOTH AND FREE OF DEBRIS 1" OR LARGER BEFORE PERMANENT SEED IS APPLIED.

BIORETENTION PLANTING MEDIA NOTES:

- THE PLANTING MEDIA SHALL CONFORM TO THE REQUIREMENTS OF VA DCR STORMWATER DESIGN SPECIFICATION NO. 9 (VERSION 2.0).
- THE MEDIA SHALL BE TESTED FOR CONFORMANCE AND THE CONTRACTOR SHALL PROVIDE THE TEST RESULTS TO THE ROANOKE CITY DEVELOPMENT REVIEW COORDINATOR PRIOR TO PLACEMENT.
- THE PHYSICAL COMPOSITION OF THE MEDIA SHALL BE LOAMY COARSE SAND WITH AT LEAST 75% OF THE SAND COMPONENT BEING COARSE OR VERY COARSE, AND WITH NO MORE THAN 10% CLAY. THE MIX SHALL CONTAIN NO LESS THAN 10% SOIL FINES (SILT & CLAY) AND NO MORE THAN 20% SILT & CLAY. THE MIX SHALL CONTAIN 3% TO 5% ORGANIC MATTER (AS DETERMINED BY CONVENTIONAL WALKLEY-BLACK SOIL ORGANIC MATTER DETERMINATION METHOD OR SIMILAR ANALYSIS).
- THE PLANT-AVAILABLE SOIL PHOSPHORUS (P) SHOULD BE WITHIN THE LOW+ (L+) TO MEDIUM (M) RANGE AS DEFINED IN TABLE 2.2 OF DCR VIRGINIA NUTRIENT MANAGEMENT STANDARDS & CRITERIA (2005). THIS EQUIATES TO A RANGE OF 5 TO 15 mg/kg P FOR MEHLICH I EXTRACTION PROCEDURE, OR 18 TO 40 mg/kg P FOR THE MEHLICH III PROCEDURE.
- THE SOIL SHALL HAVE A MINIMUM INFILTRATION RATE OF 1 TO 2 INCHES PER HOUR. THE INITIAL INFILTRATION RATE MAY BE SIGNIFICANTLY HIGHER.

COMPREHENSIVE DEVELOPMENT PLAN FOR MELLOW MUSHROOM PREPARED FOR JMH, LLC IVY MARKET, ALONG FRANKLIN ROAD THE CITY OF ROANOKE, VIRGINIA

REVISIONS	DESCRIPTION
1	
2	
3	
4	
5	

DATE: May 20, 2015
SCALE: 1" = 20'
COMMISSION NO.: 14-201
SHEET 8 OF 13

LUMSDEN ASSOCIATES, P.C.
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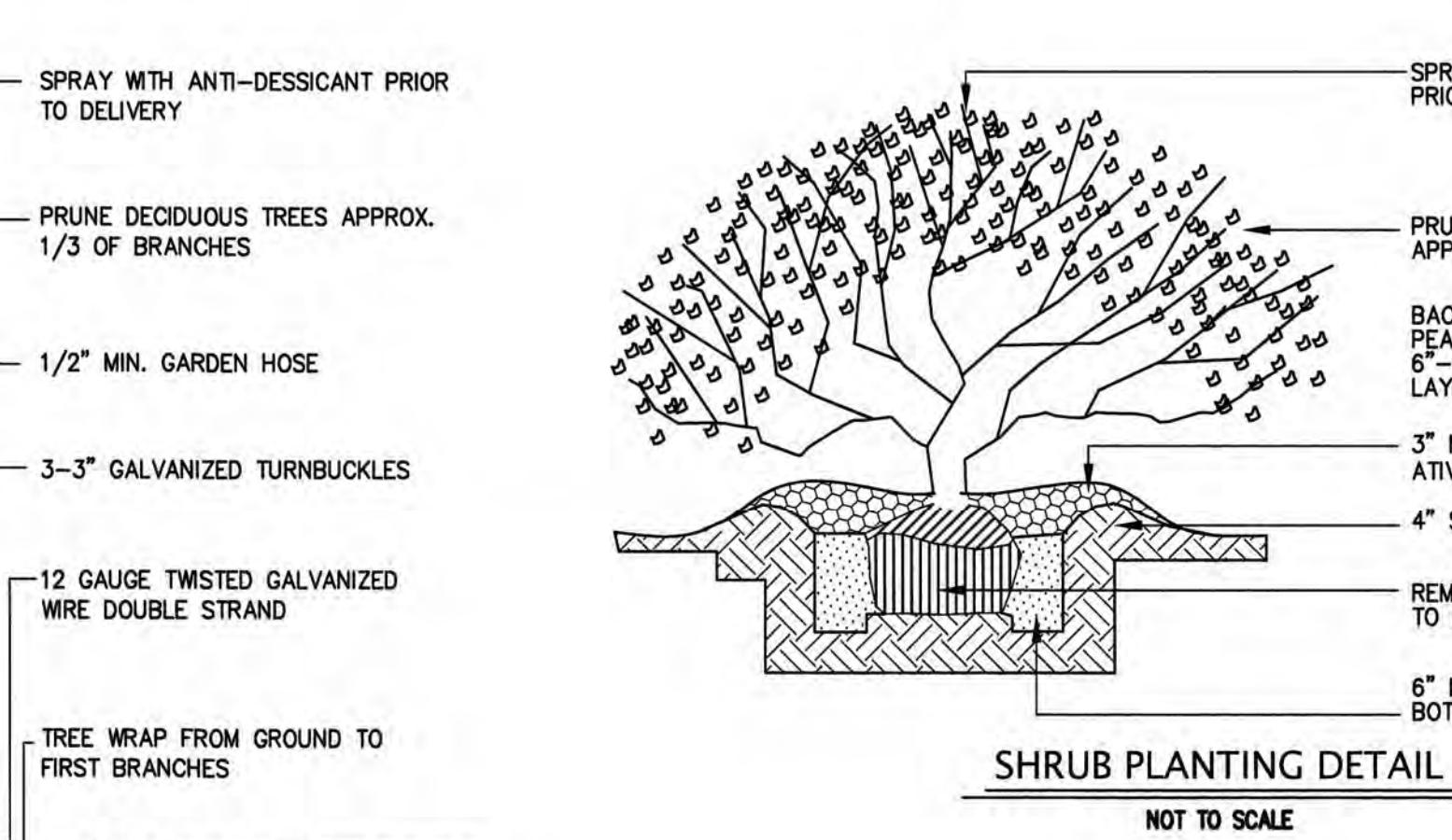
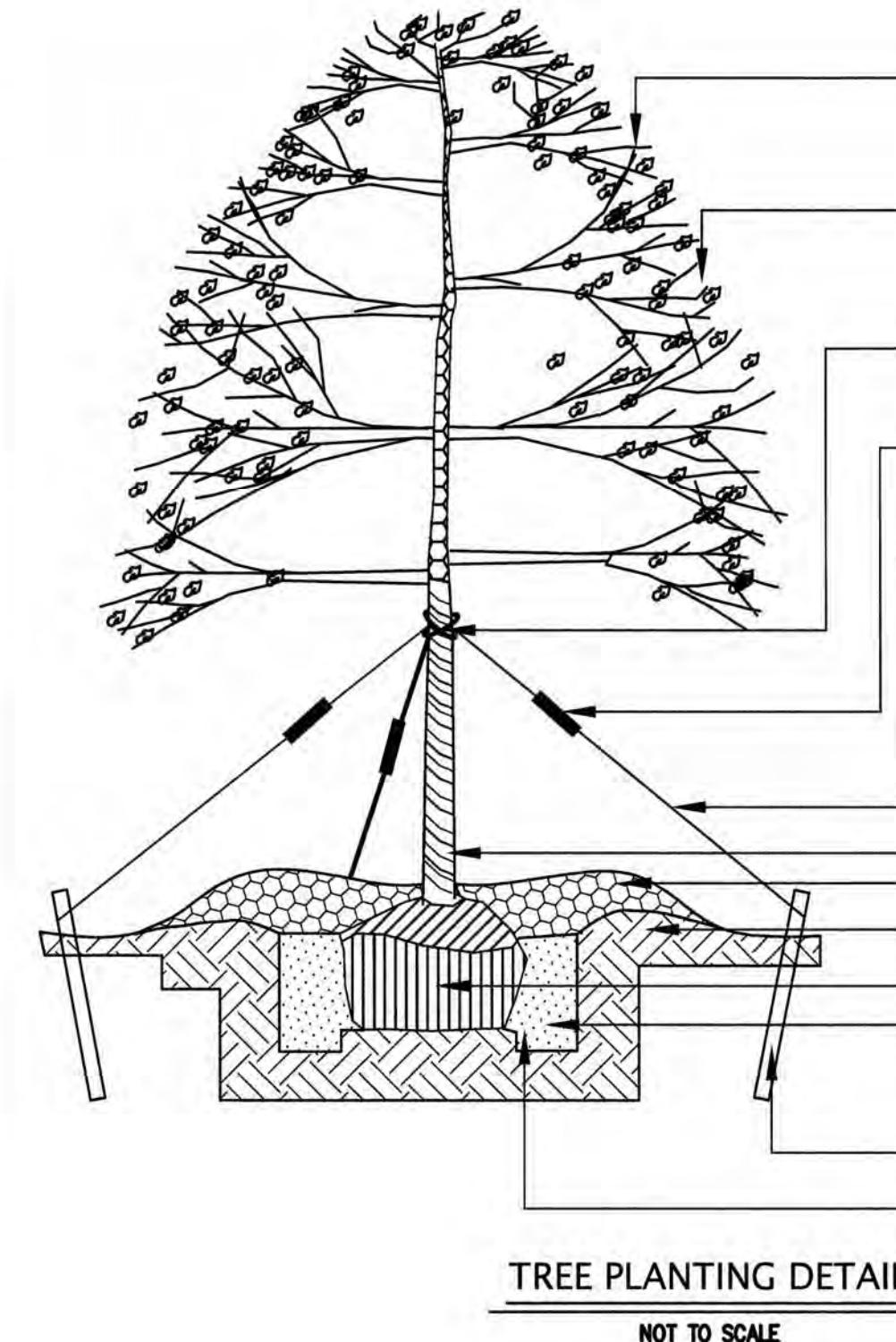


Table 9-A.3. Urban Bioretention Design Criteria

Level I: Design Only (RR: 40; TP: 25)

Size (Section 9-A.4.1):
 $T_{max} = 1(1)(\pi)(V_A / 12)$

Underdrain = Schedule 40 PVC with clean-outs
(Refer to the Main Bioretention Design Specification, Section 6.7)

Recommended Media Depth = 18 inches (min. 12 inches, max. 24 inches, 10% impervious)

Maximum Pending Depth = 6 to 12 inches²

Filter media depth minimum = 18 inches, recommended maximum = 36 inches
Media and Surface Cover (Refer to the Bioretention Design Specification, Table 9-4 and Section 6.9)

Sub-Soil testing (Refer to the Bioretention Design Specification, Section 6.2)

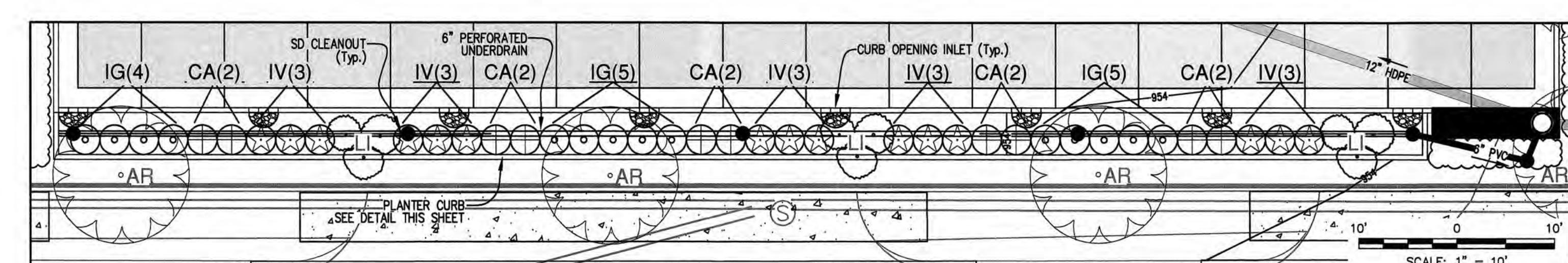
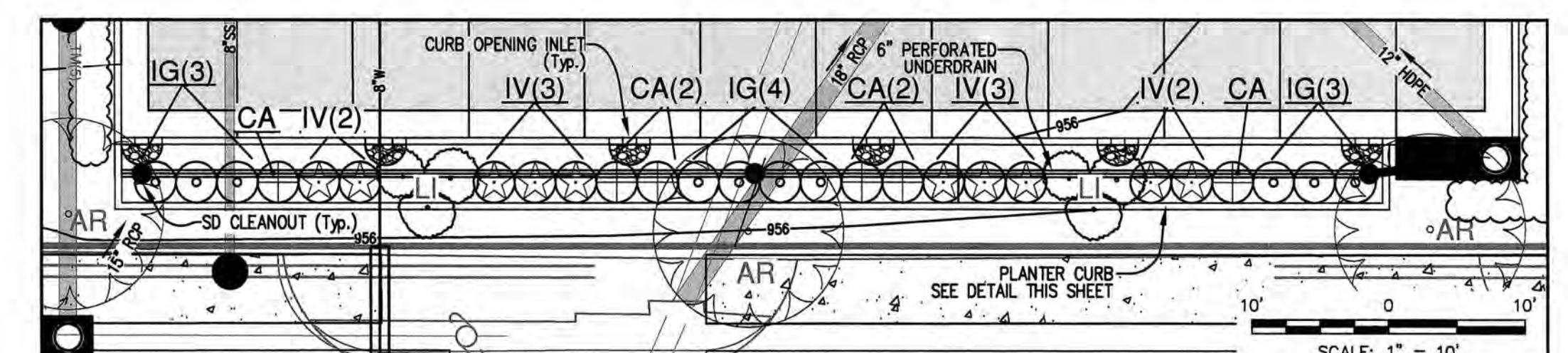
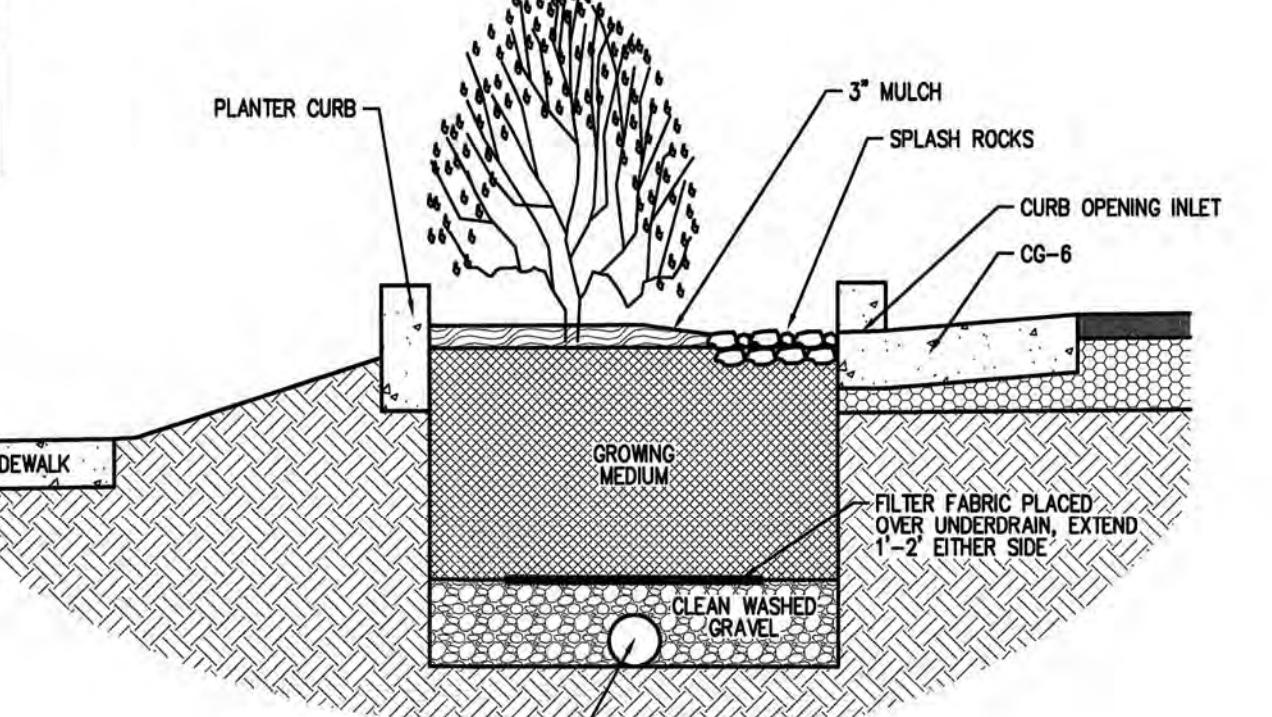
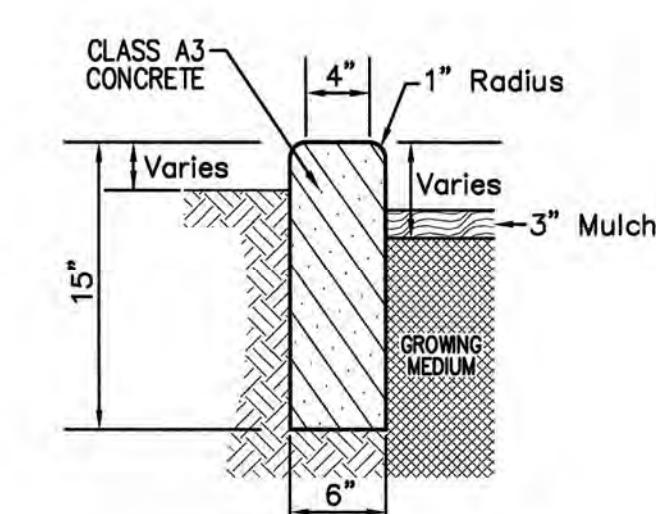
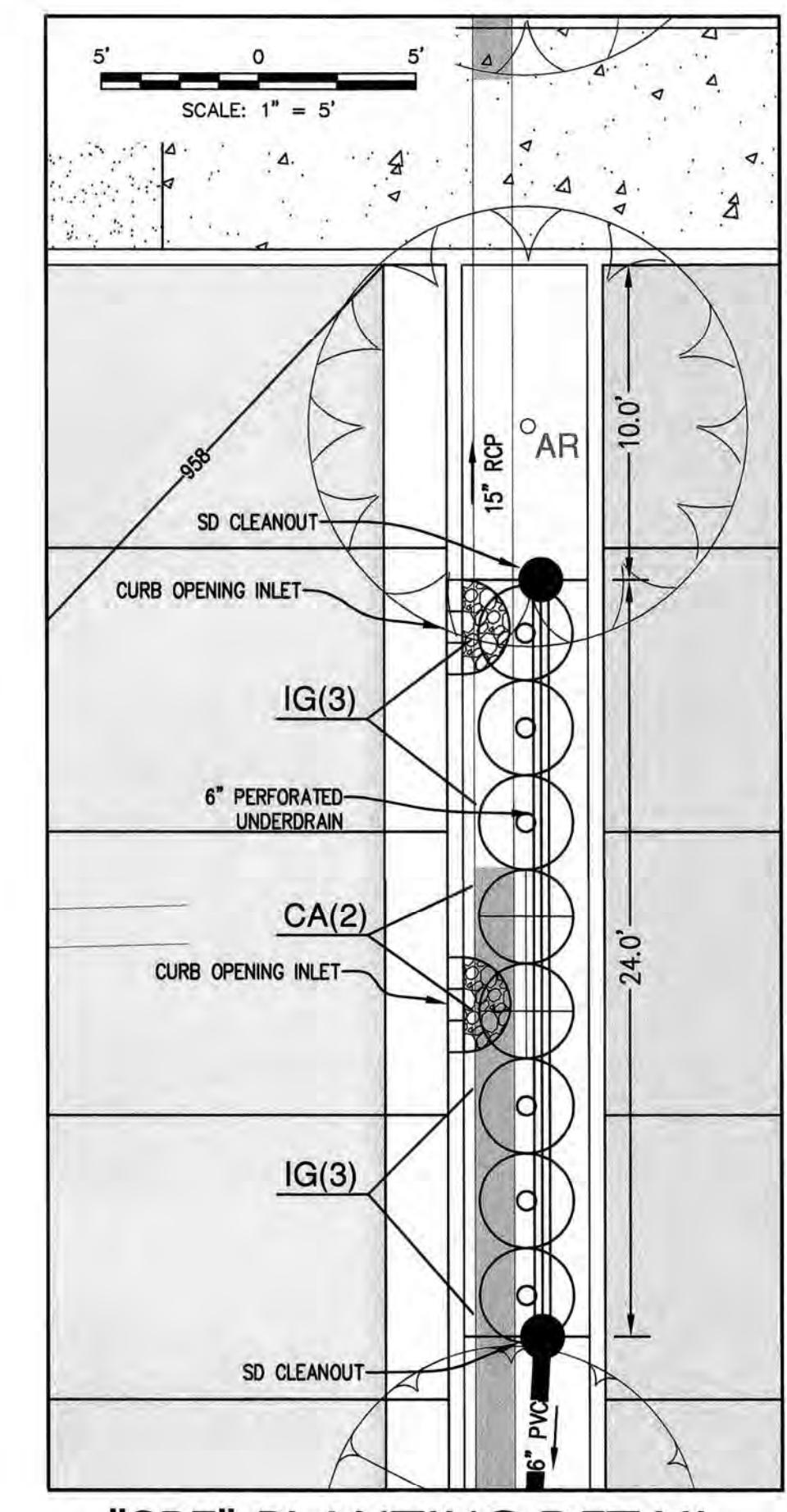
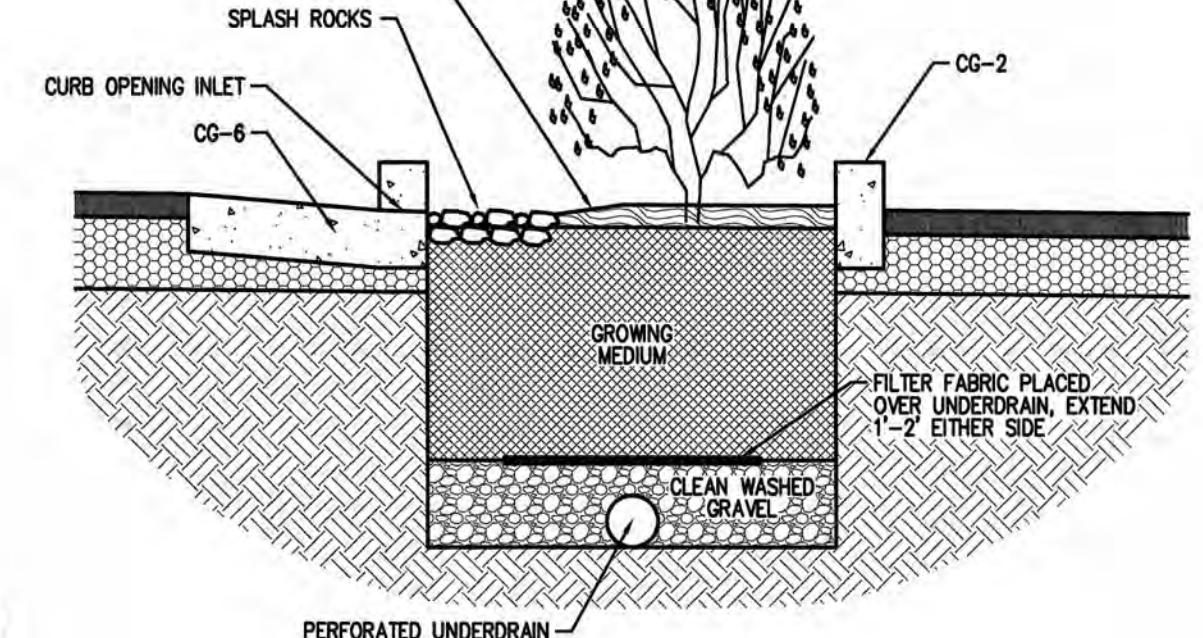
Inflow = sheetflow, curb cuts, french drains, roof drains, concentrated flow, or equivalent

Building setbacks (Refer to Section A-9.4-5)

Deeded maintenance O&M plan (Refer to the Main Bioretention Design Specification, Section 9.1)

Larger drainage areas may be used with sufficient flow control and outlet management to ensure proper infiltration and conveyance; however, the use of bioretention filter must then be designed in accordance with the Level I bioretention filter criteria (Table 9-4).

²Ponding depth above 6 inches will require a specific planting plan to ensure appropriate plants (Refer to the Main Bioretention Design Specification, Section 6.1).



filterra® Standard Plan Notes

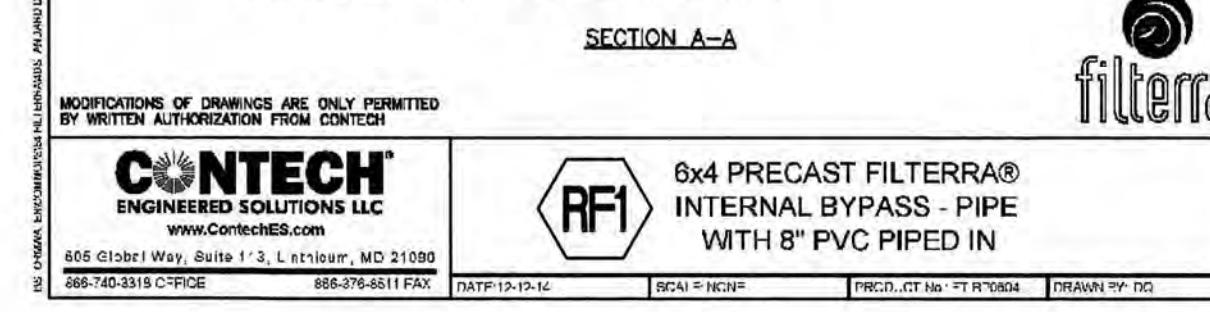
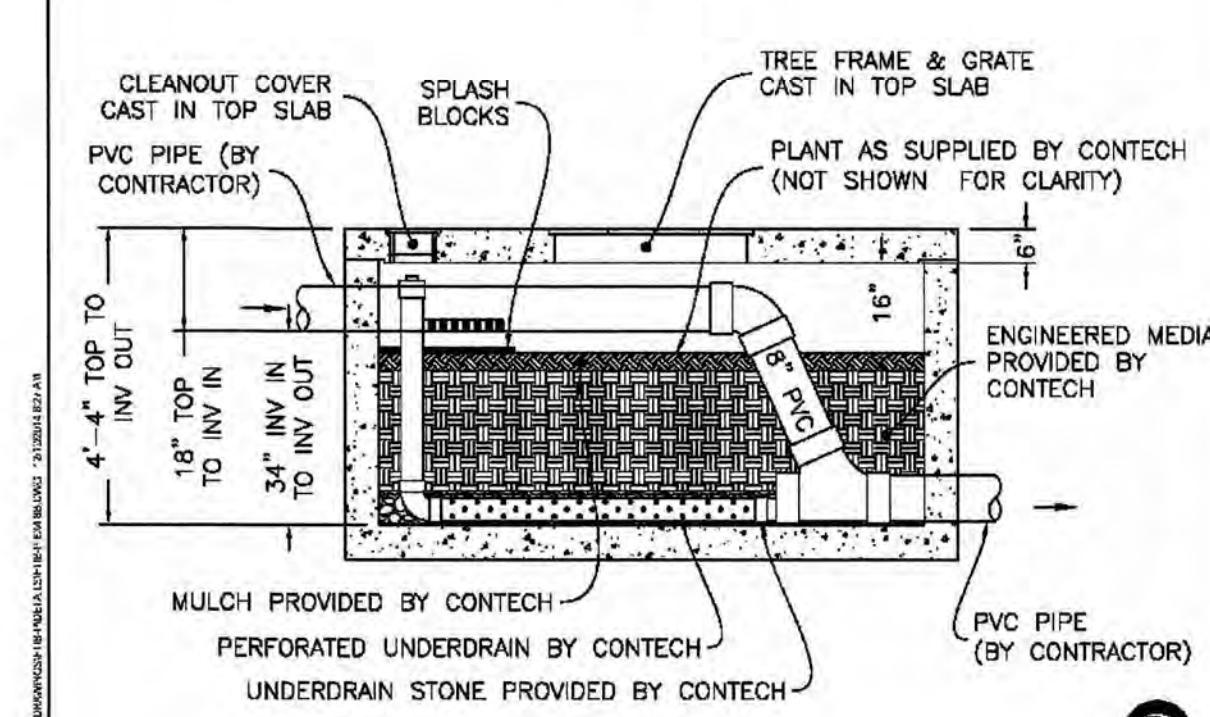
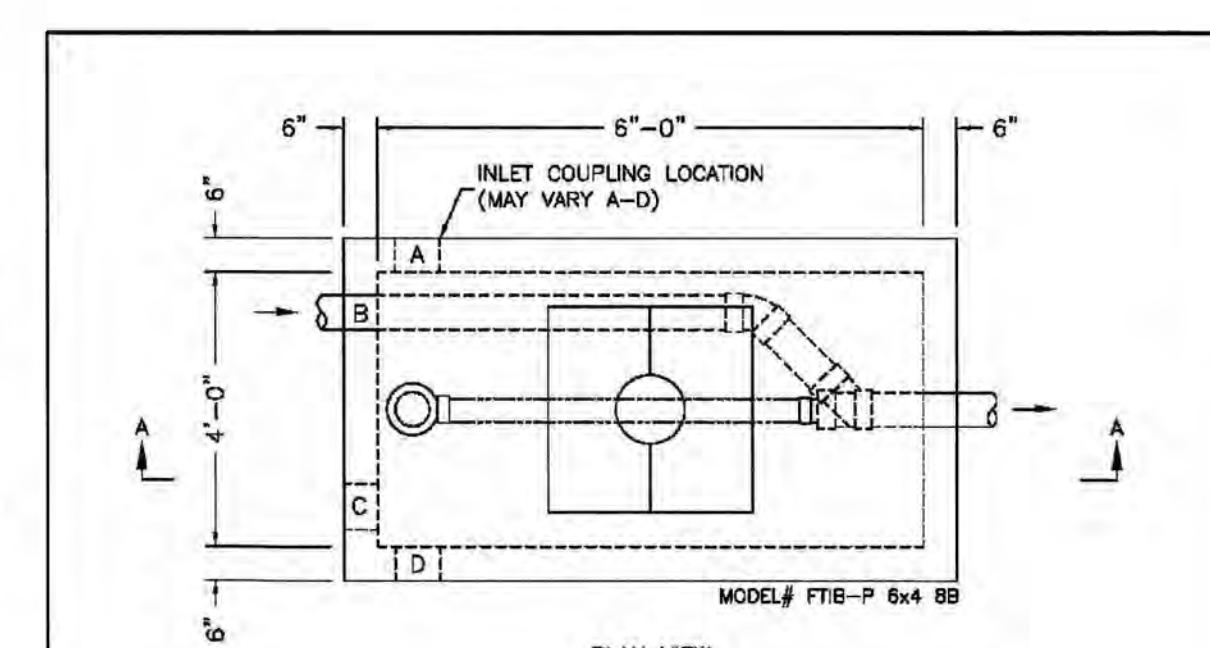
- A. Each unit shall be constructed at the locations and elevations according to the sizes shown on the approved drawings. Any modifications to the elevation or location shall be at the direction and approved by the Engineer.
- B. If the Filterra® is stored before installation, the top slab must be placed on the box using the 2x wood provided, to prevent any contamination from the site. All internal fittings supplied (if any), must be left in place as part of the delivery.
- C. The unit will be placed on a compacted sub-grade with a minimum 6-inch gravel base matching the final grade of the curb line in the area of the unit. The top slab must be placed such that the unit and top slab match the grade of the curb in the area of the unit. Compact undisturbed sub-grade materials to 95% of maximum density at +1-2% of optimum moisture. Unstable material below sub-grade shall be replaced to the site engineer's approval.
- D. Outlet connections shall be aligned and sealed to meet the approved drawings with modifications necessary to meet site conditions and local regulations.
- E. Once the unit is set, all internal wooden forms and protective mesh cover must be left intact. Remove only the top slab and the filter media and the top soil. The top lid should be removed onto the box exterior before backfilling, using a non-shrink grout, bent rubber or similar waterproof seal. The boards on top of the lid and hoists sealed in the unit's throat must NOT be removed. The Supplier (American or its authorized dealer) will remove these sections at the time of activation. Backfilling should be performed in a careful manner, bringing the application back to 6 inches in elevation above the unit. Protection shall be provided for the unit in a watershed. In all circumstances, installation of Filterra® unit shall conform to ASTM specification C981 "Standard Practice for Installation of Underground Precast Utility Structures", unless directed otherwise in contract documents.
- F. The contractor is responsible for inlet protection/sediment control and cleaning around each Filterra unit.
- G. Curb and gutter construction (where present) shall ensure that the flow-line of the Filterra units is at a greater elevation than the flow-line of the bypass structure or relief (drop inlet, curb cut or similar). Failure to comply with this guideline may cause failure and/or damage to the Filterra environmental device.
- H. Each Filterra® unit must receive adequate irrigation to ensure survival of the living system during periods of drier weather. This may be achieved through a piped system, gutter flow or through the tree graft.

Activation

- A. Activation of the Filterra® unit is performed ONLY by the Supplier. Purchaser is responsible for Filterra® inlet protection and subsequent clean out cost. This process cannot commence until the project site is fully stabilized and cleaned (full landscaping, grass cover, final paving and street paving completed), negating the chance of construction materials contaminating the Filterra system. Care shall be taken during construction not to damage the protective throat and top plates.
- B. Activation includes installation of plant(s) and mulch layers as necessary.

Included Maintenance

- A. Each correctly installed Filterra® unit is to be maintained by the Supplier, or a Supplier-approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Filterra® unit. Extended maintenance contracts are available at extra cost upon request.
- B. Annual included maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally, the spring visit aims to clean up after winter loads that may include salts and sand. The fall visit helps the system by removing excessive leaf litter.
- C. Each Included Maintenance visit consists of the following tasks.
 - 1. Filterra® unit inspection
 - 2. Filter debris, silt, mulch & trash removal
 - 3. Filter media evaluation and recharge as necessary
 - 4. Plant health evaluation and pruning/replacement as necessary
 - 5. Replacement of mulch
 - 6. Disposal of all maintenance refuse items
 - 7. Maintenance records updated and stored (reports available upon request)
- D. The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.



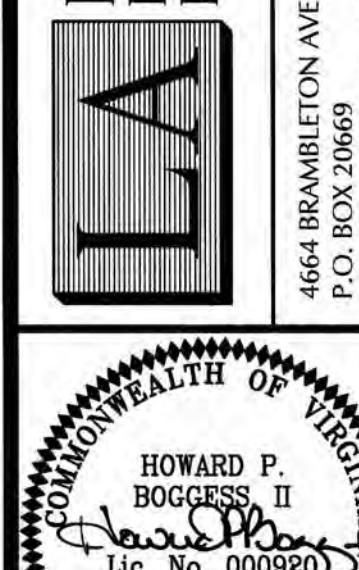
STORMWATER PLANTER NOTES:

1. THE CONTRACTOR SHALL REFER TO "VIRGINIA DCR STORMWATER DESIGN SPECIFICATION No. 9 - BIORETENTION" FOR ADDITIONAL INFORMATION ON THE CONSTRUCTION OF THESE BMPs.
2. THE FILTER MEDIA (PLANTING SOIL MIX) SHALL CONFORM TO SECTION 6.6 OF THE ABOVE REFERENCED SPECIFICATION AND SHALL BE COMPOSED OF COARSE OR VERY COARSE SAND, LOAMY TOPSOIL AND ORGANIC MATTER AND SHALL HAVE A MINIMUM INFILTRATION RATE OF 1-2 PER HOUR.
3. THE DEPTH OF FILTER MEDIA IS SPECIFIC TO EACH BMP, AND LISTED MEDIA DEPTHS ARE TO BE CONSIDERED A MINIMUM.
4. MULCH IS TO BE PLACED OVER THE FILTER MEDIA AREA FOLLOWING PLANT INSTALLATION, AND SHALL BE PLACED TO A MINIMUM DEPTH OF 2" AND MAXIMUM DEPTH OF 4" MULCH SHOULD BE DOSED WITH AGED HAMMERMULCH.
5. THE UNDERDRAIN SHALL BE PREPARED AND PLACED AT THE BOTTOM OF THE STONE LAYER, WHICH SHALL BE COMPRISED OF CLEAN, WASHED #57 STONE.
6. SHRUB MATERIALS FOR STORMWATER PLANTERS SHALL BE A MINIMUM OF 30" HEIGHT AT TIME OF PLANTING.

COMPREHENSIVE DEVELOPMENT PLAN FOR MELLOW MUSHROOM PREPARED FOR JMH, LLC IVY MARKET, ALONG FRANKLIN ROAD THE CITY OF ROANOKE, VIRGINIA

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LANDSCAPE DETAILS

REVISIONS	DATE	DESCRIPTION
1	May 20, 2015	
2		
3		
4		
5		

DATE: May 20, 2015
SCALE: AS SHOWN
COMMISSION NO.: 14-201
SHEET 9 OF 13