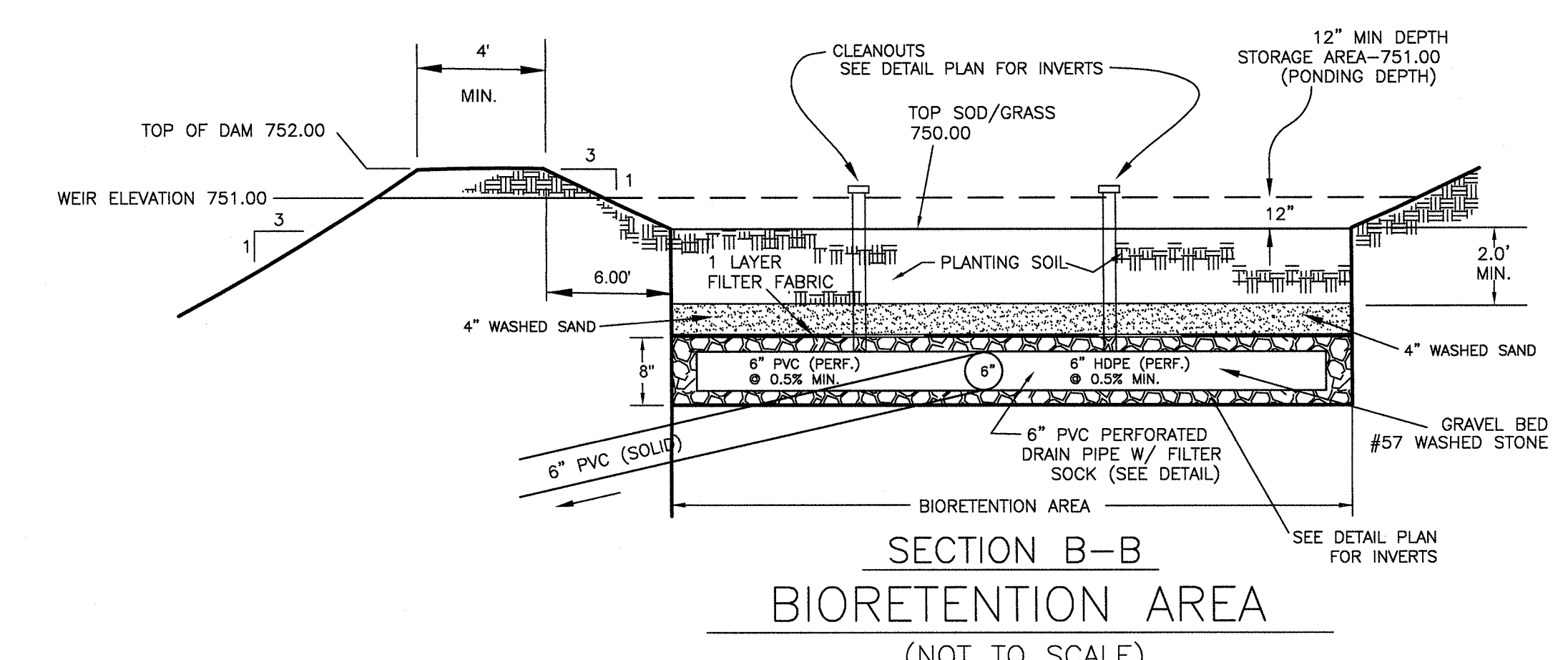
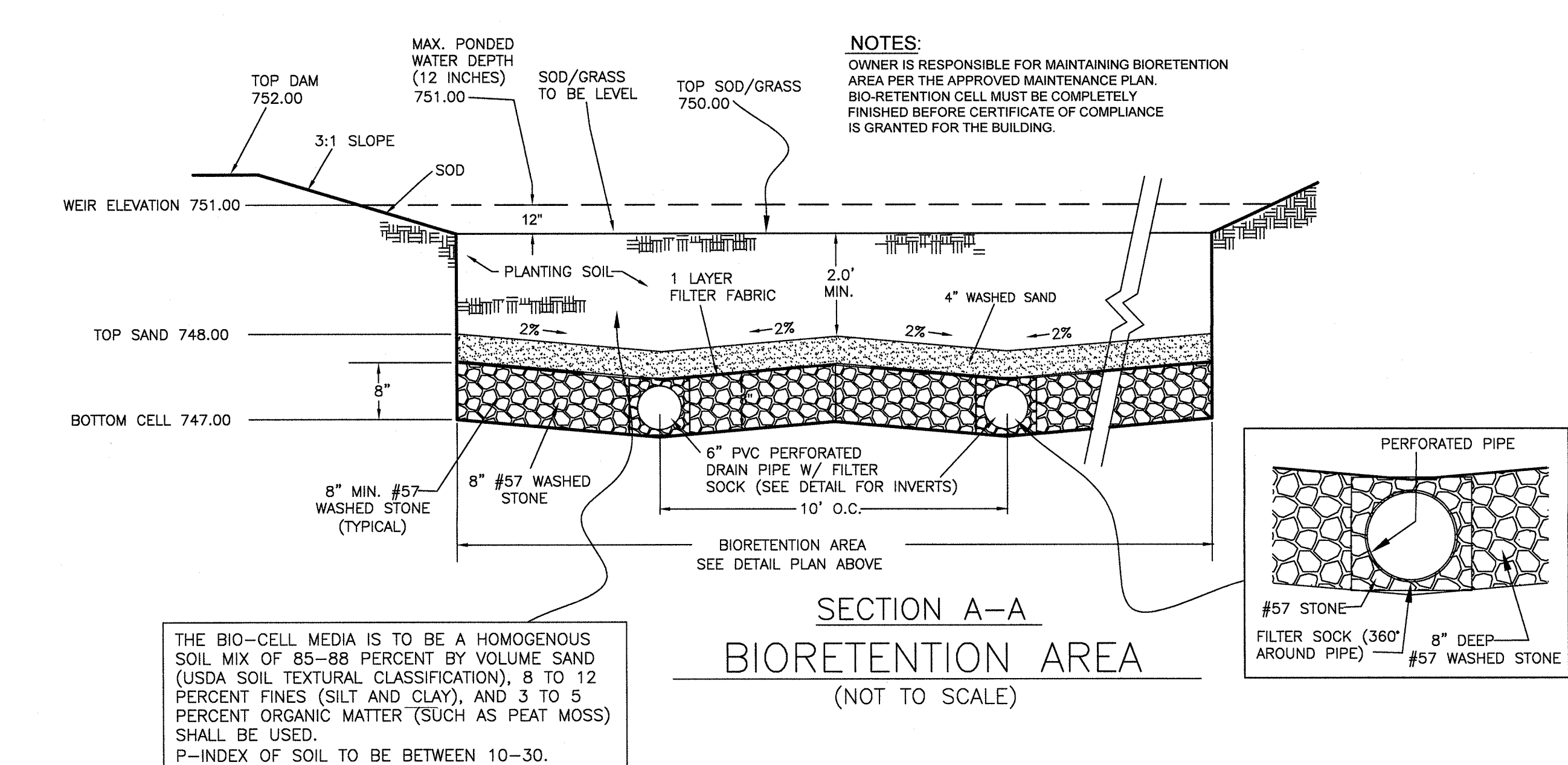
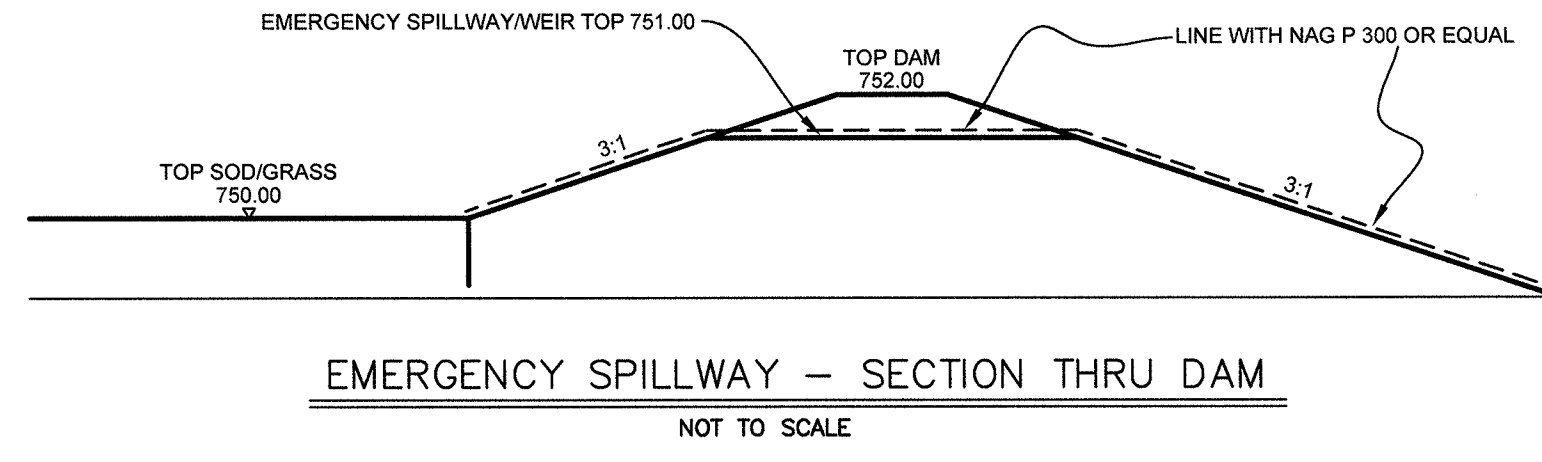
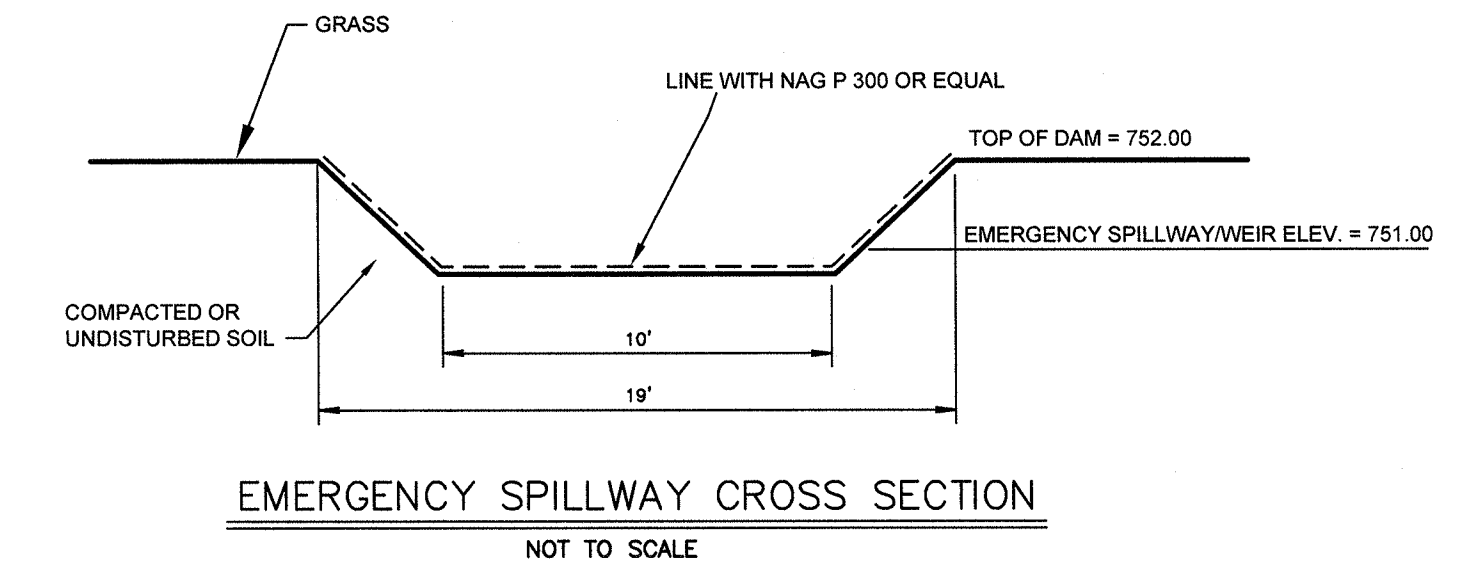


SOIL TEXTURE AND STRUCTURE
PLANTING SOILS FOR BIORETENTION ARE TO HAVE A SANDY LOAM, SAND, OR LOAM TEXTURE. THESE SOILS HAVE A CLAY CONTENT OF 10% (SOILS WITH INFILTRATION RATES GREATER THAN 0.5 IN/HR ARE SUITABLE FOR BIORETENTION). SANDY LOAM, LOAMY SAND, AND LOAM SOILS HAVE MINIMUM INFILTRATION RATES RANGING FROM 0.52 TO 2.41 IN/HR. BIO-CELL MEDIA FILTER TO CONSIST OF 85-88% SAND, 8-12% FINES AND 3-5% ORGANIC MATTER (PEAT MOSS).

SOIL ACIDITY
THE DESIRED SOIL PH WOULD LIE BETWEEN 5.5 AND 6.5. THE SOIL ACIDITY AFFECTS THE ABILITY OF THE SOIL TO ABSORB AND DESORB NUTRIENTS, AND ALSO AFFECTS THE MICROBIOLOGICAL ACTIVITY IN THE SOIL.

SOIL TESTING
THE PLANTING SOIL MUST BE TESTED PRIOR TO INSTALLATION FOR PH, ORGANIC MATTER, AND OTHER CHEMICAL CONSTITUENTS. THE SOIL TO MEET THE FOLLOWING CRITERIA (LANDSCAPE CONTRACTORS ASSOCIATION, 1988):
PH RANGE: 5.5 - 6.5
ORGANIC MATTER: 1.5 - 3.0%
MAGNESIUM (Mg): 35 LBS./ACRE
PHOSPHORUS (P): 100 LBS./ACRE
POTASSIUM (K): 50 LBS./ACRE
SOLUBLE SALTS: NOT TO EXCEED 500 PPM

SOIL PLACEMENT
PLACEMENT OF SOIL IN BIORETENTION AREA SHOULD BE IN LIFTS OF 6 INCHES OR LESS AND LIGHTLY COMPACTED. MINIMAL COMPACTION EFFORT CAN BE APPLIED TO THE SOIL BY TAMING WITH A BUCKET FROM A DOZER OR BACKHOE.



BIORETENTION BMP INSPECTION/CORRECTIVE MAINTENANCE CHECKLIST			
INSPECTION ITEM	CORRECTIVE MAINT. NEEDED (YES/NO)	CORRECTIVE MAINTENANCE ACTIVITIES	COMMENTS/ADDITIONAL SHEETS, AS NECESSARY
DRAINAGE AREA TO BIORETENTION BMP			
PAVED AREAS CLEAR OF DEBRIS AND LOOSE SEDIMENT		INCREASE THE FREQUENCY OF PAVED AREA SWEEPING CHECKS TO ENSURE ALL AREAS ARE BEING SWEEPED	
ANY AREAS WHERE BARE EARTH IS EXPOSED OR SCARCE GRASS COVER?		RESEED AREAS TAKE TEMPORARY MEASURES TO PREVENT EROSION UNTIL VEGETATION IS REESTABLISHED	
AREA FREE OF CLIPPINGS FROM MOWING AND PRUNING?		BAG AND REMOVE CLIPPINGS TO PREVENT THEM FROM ENTERING BIORETENTION CELL	
INLETS CLEAR OF DEBRIS?		CLEAR DEBRIS TO PRESERVE CAPACITY	
OVERALL BIORETENTION AREA			
ACCUMULATED TRASH IN BIORETENTION AREA?		REMOVE TRASH, IDENTIFY SOURCES AND TAKE NECESSARY ACTIONS TO PREVENT TRASH FROM ENTERING SYSTEM	
OBSERVE THE DRAIN DOWN TIME OF THE CELL. IS THE DRAIN DOWN EXCEEDING DESIGN DRAIN DOWN TIME 72 HOURS?		CLEAN-OUT UNDER DRAIN SYSTEM. REMOVE AND REPLACE MULCH AND TOP FEW INCHES OF PLANTING SOIL OR ADJUT. SOIL IF APPROPRIATE. DRAIN DOWN TIME CANNOT BE RESTORED. ENTIRE FILTER MAY NEED REPLACING. (SEE MAINTENANCE/INSPECTION DOCUMENT FOR MORE DETAILS)	
PRETREATMENT			
SEDIMENT BUILD-UP IN ENERGY DISSIPATOR? ROCKS WASHED AWAY?		REMOVE SEDIMENT BUILD-UP, IF VOIDS ARE FULL OF SEDIMENT, REMOVE, RINSE AND PLACE BACK. IF GRAVEL IS CONTINUALLY WASHED DOWNSTREAM, REPLACE WITH LARGER SIZE ROCKS/RAVEL	
SEDIMENT BUILD-UP OR BLOCKAGE IN SEDIMENTATION/INVERSION CHAMBER?		REMOVE SEDIMENT BUILD-UP WHEN IT EXCEEDS THE DESIGN LEVEL (12 INCHES MAX.). REMOVE ALL DEBRIS IN THE CHAMBER TO PREVENT BLOCKAGE OF THE OUTLETS	
EROSION OR BARE AREAS ON VEGETATIVE STRIP/CHANNEL?		RESEED OR RESEED IMMEDIATELY TO PREVENT EXCESS SEDIMENT FROM ENTERING CELL	
PLANTINGS			
ANY PLANTING DEAD, DISEASED, NOT ESTABLISHED?		REMOVE AND REPLACE - MAY NEED TO CHANGE PLANT SPECIES IF UNABLE TO ESTABLISH - MAY NEED TO TEST SOIL	
WEEDING AND PRUNING NECESSARY?		WEED AND PRUNE AS NECESSARY TO ENHANCE THE AESTHETICS OF THE BIORETENTION CELL	
MULCH LAYER			
ADEQUATE MULCH COVER? EVENLY SPREAD OVER FILTER BED?		REPLACE MULCH WHEN THE THICKNESS DIMINISHES DUE TO DECAY. MAKE SURE THE MULCH IS SPREAD EVENLY ACCORDING TO LANDSCAPING PLAN	
PLANTING SOIL			
TEST PH OF SOIL (ANNUALLY)		TEST PH OF SOIL TO ENSURE HEALTHY PLANTINGS	
TEST TENDENCY OF SOIL (EVERY FIVE YEARS)		TEST TENDENCY OF SOIL TO ENSURE THE BIORETENTION CELL REMAINS EFFECTIVE AND PLANTINGS WILL SURVIVE	
OUTLET			
IS THERE DISCHARGE FROM UNDER DAM WHEN WATER IS PONDED?		BIORETENTION IS NOT FUNCTIONING IF DRAIN WHEN WATER IS PONDED? CORRECTIVE MAINTENANCE FOR NONFUNCTIONING FILTER	
OVERFLOW CLEAR OF DEBRIS AND FUNCTIONING PROPERLY?		REMOVE DEBRIS, TAKE CORRECTIVE MEASURES TO RESTORE WORKING ORDER OF OVERFLOW OUTLET	
DOWNSTREAM EROSION?		REVEGETATE ERODED AREAS, ADD RIP RAP WITH LINER TO THE OUTLET AREA IF EROSION CONTINUES	

SUGGESTED MAINTENANCE SCHEDULE FOR BIORETENTION AREAS:			
DESCRIPTION	METHOD	FREQUENCY	TIME OF YEAR
SOIL			
INSPECT AND REPAIR EROSION	VISUAL	WHENEVER NEEDED	MONTHLY
ORGANIC LAYER			
RE MULCH ANY VOID AREAS	BY HAND	WHENEVER NEEDED	WHENEVER NEEDED
REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER (OPTIONAL)	BY HAND	ONCE EVERY TWO OR THREE YEARS	SPRING
ANY ADDITIONAL MULCH ADDED	BY HAND	ONCE A YEAR	SPRING
PLANTS			
REMOVE AND REPLACEMENT OF ALL DEAD AND DISEASED VEGETATION CONSIDERED BEFORE TREATMENT	SEE PLANTING SPECIFICATION		3/13 TO 4/30 AND 10/1 TO 11/30
TREAT ALL DISEASED TREES AND SHRUBS	MECHANICAL OR BY HAND	N/A	VARIES, BUT WILL DEPEND ON INSECT OR DISEASE INFESTATION
WATER OF PLANT MATERIALS SHALL BE PLACED AT END OF EACH DAY FOR 15 DAYS CONSECUTIVELY PRIOR TO PLANTING HAS BEEN COMPLETED	BY HAND	IMMEDIATELY AFTER COMPLETION OF PROJECT	N/A
REPLACEMENT OF SUPPORT STAKES	BY HAND	ONCE A YEAR	ONLY REMOVE STAKE IN THE SPRING
REPLACE ANY DEFICIENT STAKES OR WIRES	BY HAND	WHENEVER NEEDED	WHENEVER NEEDED
DEBRIS			
INSPECT & REPAIR ANY EROSION TO ENSURE OFF SITE WATER DOES NOT ENTER POND	VISUAL	WHENEVER NEEDED	YEARLY

RESPONSIBILITY TO MAINTAIN PERMANENT RUNOFF CONTROL STRUCTURES STATEMENT:
The Owner shall be responsible for maintaining the completed permanent runoff control structure per the approved maintenance plan and by the governmental office having jurisdiction for watershed protection. This responsibility applies to all future property owners as well.
THE ENGINEERS CERTIFICATION OF COMPLETION WILL BE REQUIRED PRIOR TO THE FINAL PLAT OR CERTIFICATE OF OCCUPANCY. THE STORMWATER CONTROL IS TO BE INSPECTED TO ENSURE IT IS FUNCTIONING AS DESIGNED AND HAS FULL DESIGN VOLUME PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY.

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No.	1	Date:	1.08.17
By:	NK	Description:	REVISED PRE CITY OF SALISBURY AND RAMSEY BURGIN SMITH

Rowan/Kannapolis ABC STORE & WAREHOUSE
Salisbury, NC
BIO-CELL SITE PLAN AND DETAILS

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SHEET NO. **C-7**
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