

SPECIFICATIONS

DESCRIPTION: THIS WORK SHALL CONSIST OF INCORPORATING COMPOST WITHIN THE ROOT ZONE OF THE PLANNED VEGETATION COVER TO IMPROVE SOIL QUALITY AND EVAPO-TRANSPIRATION.

COMPOST APPLICATION PROCEDURE: CLEAR SURFACE OF OBSTRUCTIONS AND PROPERLY DISPOSE. THE SOIL SURFACE SHALL BE REASONABLY FREE OF ALL OBJECTS, INCLUDING STONE AND RUBBLE, GREATER THAN 2 INCHES, AND OTHER MATERIAL WHICH WILL INTERFERE WITH PLANTING AND SUBSEQUENT SITE MAINTENANCE.

1. ROTOTILL TO A DEPTH OF 6-8" FOR TURF COVER AND A MINIMUM OF 12" FOR DEEP ROOTED VEGETATION. IF THE SOIL IS TOO DENSE FOR A ROTOTILLER, THE SOIL SHOULD FIRST BE BROKEN UP INTO LARGE AGGREGATES USING A SOIL RIPPER.
2. IF OBSTRUCTIONS ARE UNEARTHED DURING TILLING, CLEAR OBSTRUCTIONS AND PROPERLY DISPOSE OF THE SOIL SURFACE SHALL BE REASONABLY FREE OF ALL OBJECTS, INCLUDING STONE AND RUBBLE, GREATER THAN 2 INCHES, AND OTHER MATERIAL WHICH WILL INTERFERE WITH PLANTING AND SUBSEQUENT SITE MAINTENANCE.
3. DISTRIBUTE COMPOST EVENLY TO A MINIMUM DEPTH OF 2 INCHES OVER THE SOIL SURFACE.
4. RE-ROTOTILL SEVERAL TIMES IN PERPENDICULAR DIRECTIONS TO INCORPORATE COMPOST AND OTHER SOIL AMENDMENTS.
5. COMPLETE WITH FINE GRADING AND SODDING.
6. WATER THOROUGHLY. ALLOW SOIL TO SETTLE FOR ONE WEEK.

COMPOST: COMPOST SHALL BE MATURE, STABLE, WEED FREE, AND PRODUCED BY AEROBIC DECOMPOSITION OF ORGANIC MATTER. COMPOST FEEDSTOCK MAY INCLUDE, BUT IS NOT LIMITED TO: AGRICULTURAL, FOOD OR INDUSTRIAL RESIDUALS; CLASS A BIOSOLIDS AS DEFINED IN THE EPA CFR TITLE 40, PART 503; YARD TRIMMING; OR SOURCE-SEPARATED MUNICIPAL SOLID WASTE. THE PRODUCT MUST NOT CONTAIN ANY VISIBLE REFUSE OR OTHER PHYSICAL CONTAMINANTS, SUBSTANCES TOXIC TO PLANTS, OR OVER 5% SAND, SILT, CLAY OR ROCK MATERIAL BY DRY WEIGHT. THE PRODUCT SHALL POSSESS NO OBJECTIONABLE ODORS. THE PRODUCT MUST MEET ALL APPLICABLE USEPA CFR, TITLE 40, PART 503 STANDARDS FOR CLASS A BIOSOLIDS. THE MOISTURE LEVEL SHALL BE SUCH THAT NO VISIBLE WATER OR DUST IS PRODUCED WHEN HANDLING THE MATERIAL.

TESTING: PRIOR TO DELIVERY OF ANY COMPOST TO THE SITE AND AS PART OF SHOP DRAWING REVIEW, THE FOLLOWING DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR TO THE INSPECTOR:

- FEEDSTOCK PERCENTAGE IN THE FINAL COMPOST PRODUCT
- A STATEMENT THAT THE COMPOST MEETS FEDERAL AND STATE HEALTH AND SAFETY REGULATIONS
- A STATEMENT THAT THE COMPOSTING PROCESS HAS MET TIME AND TEMPERATURE REQUIREMENTS
- A COPY OF THE LAB ANALYSIS, LESS THAN FOUR MONTHS OLD, PERFORMED BY A SEAL OF TESTING ASSURANCE CERTIFIED LABORATORY VERIFYING THAT THE COMPOST MEETS THE PHYSICAL REQUIREMENTS AS DESCRIBED IN TABLE 1.

SOD: FERTILIZING, SODDING AND WATERING TO BE IN ACCORDANCE WITH MSD STANDARD CONSTRUCTION SPECIFICATIONS PART 8 SECTION F.

TABLE 1. PHYSICAL REQUIREMENTS FOR COMPOST

PARAMETER	RANGE	TESTING METHOD
PH	5.0-8.5	TMECC 4.11A
SOLUBLE SALT CONCENTRATION	< 10DS/M	TMECC 4.10-A
MOISTURE	30-60% WET WEIGHT BASIS	SMEWV 2540B
ORGANIC MATTER	30-65% DRY WEIGHT BASIS	TMECC 5.07-A
TOTAL NITROGEN (N)	>1.00% DRY WEIGHT BASIS	TMECC 04.02-D
PHOSPHATE (P2O5)	>0.50% DRY WEIGHT BASIS	TMECC 04.03-A
POTASH (K2O)	>0.10% DRY WEIGHT BASIS	TMECC 04.04-A
PARTICLE SIZE	95% PASS THROUGH 5/8" SCREEN OR SMALLER	TMECC 2.02-B
STABILITY (CARBON DIOXIDE EVOLUTION RATE)	>80% RELATIVE TO POSITIVE CONTROL	TMECC 5.08-B
MATURITY (SEED EMERGENCE AND SEEDLING VIGOR)	>80% RELATIVE TO POSITIVE CONTROL	TMECC 5.05-A
PHYSICAL CONTAMINANTS (MAN MADE INERTS)	<1% DRY WEIGHT BASIS	TMECC 3.08-A
CHEMICAL CONTAMINANTS	MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR § 503.13, TABLES 1 AND 3 LEVELS:	
ARSENIC	< 41 PPM	TMECC 4.06-AS
CADMIUM	< 39 PPM	TMECC 4.06-CD
COPPER	< 1,500 PPM	TMECC 4.05-CU
LEAD	< 300 PPM	TMECC 4.06-PB
MERCURY	< 17 PPM	TMECC 4.06-HG
MOLYBDENUM	< 75 PPM	TMECC 4.05-MO
NICKEL	< 420 PPM	TMECC 4.06-NI
SELENIUM	< 100 PPM	TMECC 4.06-SE
ZINC	< 2,800 PPM	TMECC 4.06-ZN
BIOLOGICAL CONTAMINANTS (PATHOGENS)	MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR § 503.32(A) LEVELS:	
FECAL COLIFORM	< 1,000 MPN PER GRAM, DRY WEIGHT BASIS	TMECC 7.01

RECOMMENDED COMPOST TESTING METHODOLOGIES AND SAMPLING PROCEDURES ARE PROVIDED IN TEST METHODS FOR THE EXAMINATION OF COMPOSTING AND COMPOST (TMECC), AND STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER.

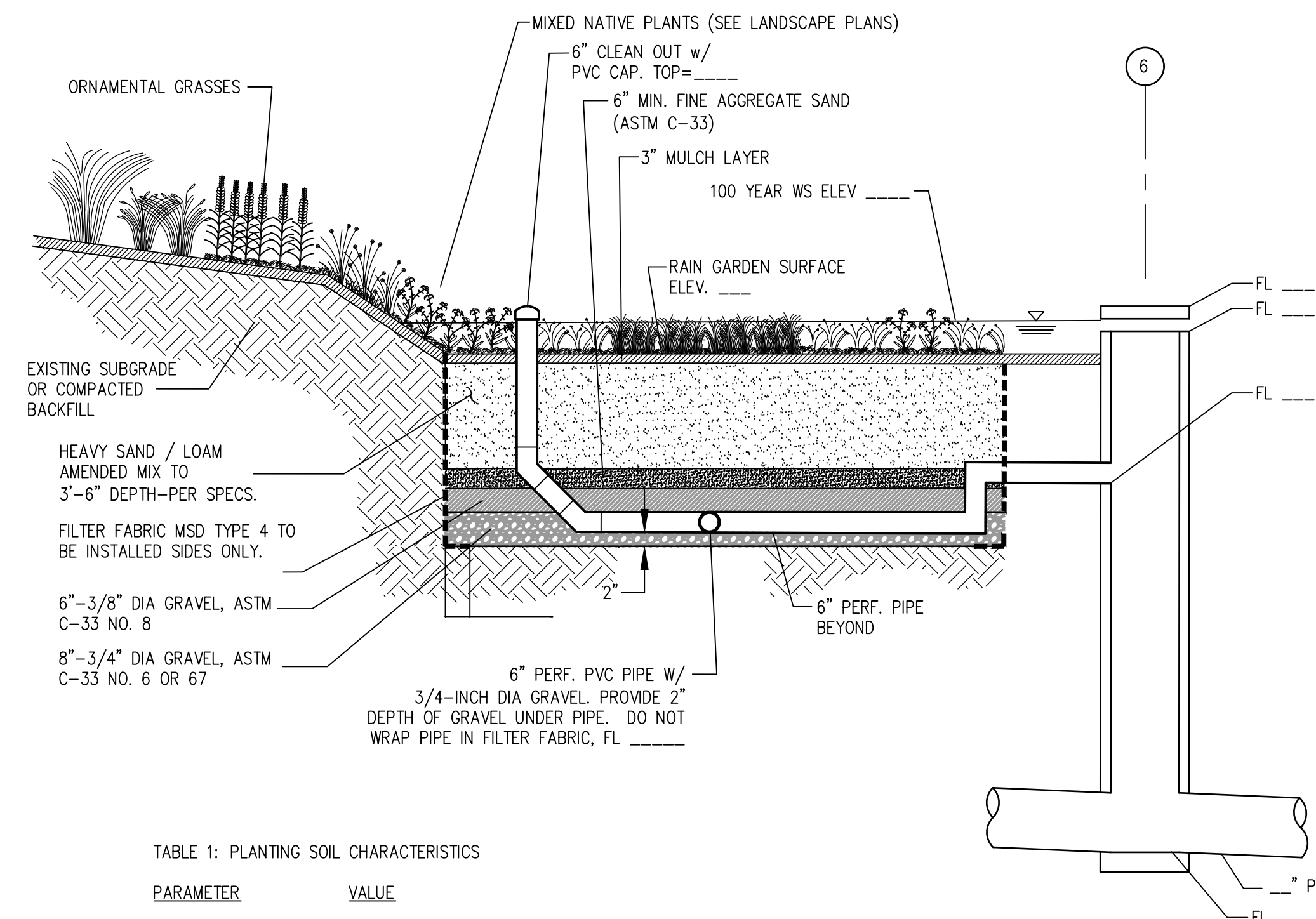


TABLE 1: PLANTING SOIL CHARACTERISTICS

PARAMETER	VALUE
pH RANGE	5.2 TO 8.00
ORGANIC MATTER	1.5 TO 5.0%
MAGNESIUM	35 LBS. PER ACRE, MINIMUM
PHOSPHORUS (P2O5)	75 LBS. PER ACRE, MINIMUM
POTASSIUM (K2O)	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	<= 500 PPM

THE PLANTING SOIL SHOULD BE A SANDY LOAM OR LOAMY SAND (SHOULD CONTAIN A MINIMUM OF 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 10% BY VOLUME. THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS, SUCH AS JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADIAN THISTLE SHOULD NOT BE PRESENT IN THE SOIL. PLACING OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12 TO 18 INCHES, LOOSELY COMPACTED (RUBBER WHEELED HEAVY EQUIPMENT AND MECHANICAL TAMPING DEVICES ARE NOT RECOMMENDED FOR COMPACTION).

CONSTRUCTION NOTES:

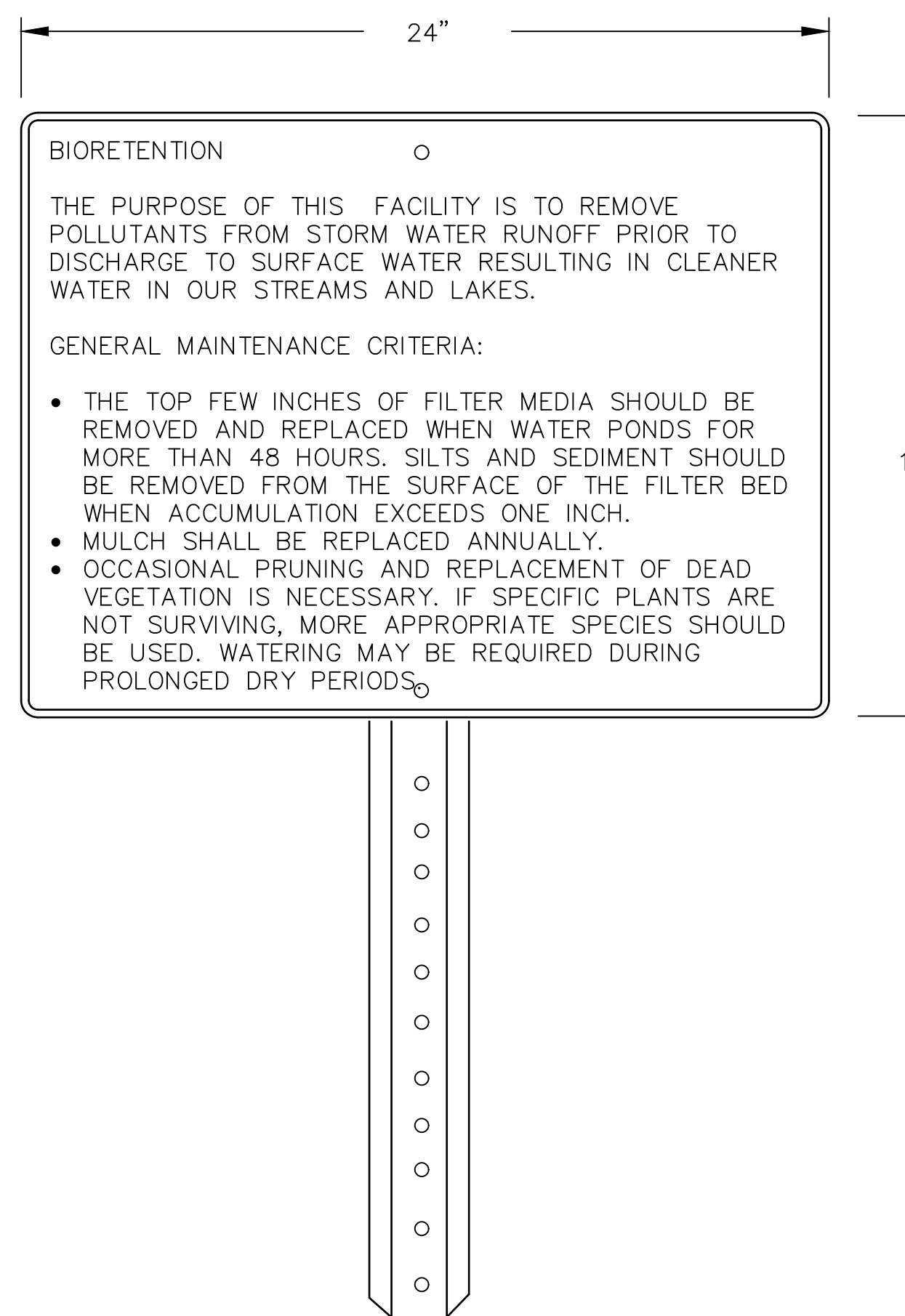
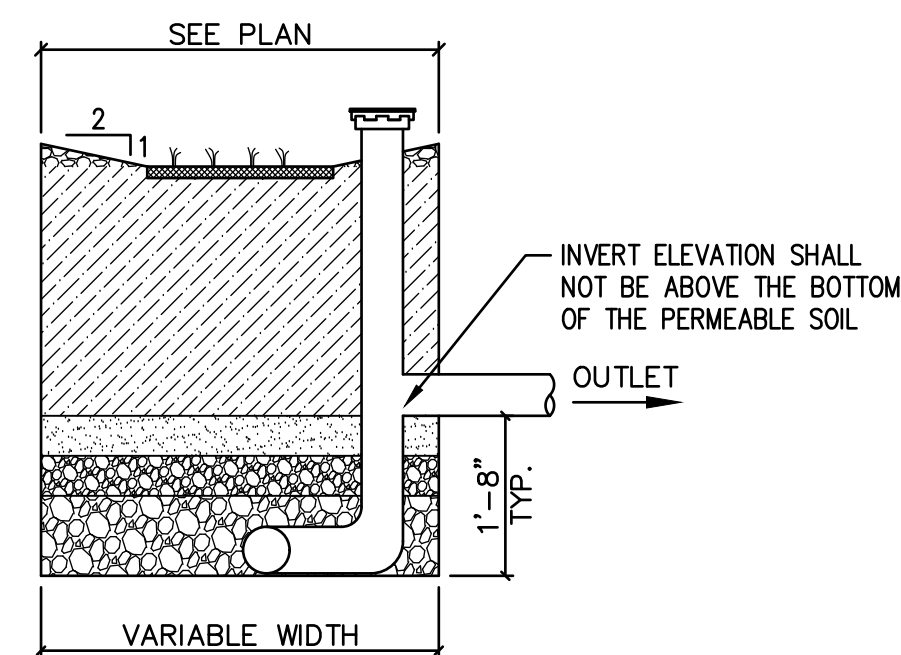
1. IT IS IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
2. COMPACTION CAN BE ALLEVIATED 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 TO RESTRUCTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE DESIGN OR GEOTECHNICAL ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
3. THE PERMEABLE SOIL USED IN THE BIORETENTION FACILITY SHOULD BE TESTED BEFORE PLACING IT IN THE FIELD TO ENSURE IT MEETS THE PERFORMANCE SPECIFICATIONS OUTLINED IN THE PLANS AND STORMWATER MANAGEMENT FACILITIES REPORT. THE PERMEABLE SOIL MUST HAVE AN INFILTRATION RATE OF 2 FEET/DAY.
4. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE THE SOIL IN LIFTS OF 12 TO 18 INCHES. 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. THE LANDSCAPER AND OR GEOTECHNICAL ENGINEER SHOULD BE PRESENT ON SITE DURING THE CONSTRUCTION OF THE BIORETENTION FACILITIES TO ENSURE QUALITY CONTROL.

NOTES:

1. DURING CONSTRUCTION SITE RUNOFF SHALL NOT FLOW INTO BIORETENTION BMP AND/OR POROUS PAVEMENT. ALL STORMWATER FLOW TO THE POROUS AND BIORETENTION AREAS SHALL BE DIVERTED, PLUGGED, OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE INSPECTOR PROVIDES APPROVAL TO PLACE THE BMPS ONLINE.
2. SEE MSD LANDSCAPE GUIDELINES FOR ADDITIONAL DETAILS ON PLANTINGS IN BIORETENTION AREAS.

Planting Soil Characteristics

PARAMETER	VALUE
pH RANGE	5.2 TO 8.00
ORGANIC MATTER	1.5 TO 5.0%
MAGNESIUM	35 lbs. per acre, minimum
PHOSPHOROUS (P2O5)	75 lbs. per acre, minimum
POTASSIUM (K2O)	85 lbs. per acre, minimum
SOLUBLE SALTS	<= 500 ppm



STANDARD 24"x18"x0.080" ALUMINUM SIGN FACE WITH BLACK 0.50" SERIES 2000 STANDARD ALPHABET ON WHITE BACKGROUND GALVANIZED STEEL POST 9'-6" LONG. SET BOTTOM OF SIGN 5'-0" ABOVE GRADE. SET BOTTOM OF POST 3'-0" BELLOW GRADE.



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MASTERCARD PARKING LOT "E"

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O'FALLON, MISSOURI 63368

Professional Seal



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The seals and signatures apply only to the document to which they are affixed, and expressly disclaim any responsibility for all other plans, specifications, estimates, reports or other documents or instruments relating to or parts of the Architectural or Engineering project.

No.	Description	Date
	City Submittal	10/18/18
	City Comments	11/21/18
	City Comments	01/07/19

Sheet Title:
BEST MANAGEMENT PRACTICES DETAILS

Date: 10/01/2018
Project Number: 2018364-00
Designed By: MJM
Drawn By: TJR
Checked By: MJM

Sheet Number:

BMP 2

BEST MANAGEMENT PRACTICES DETAILS