BIORETENTION NOTES

1. MATERIAL SPECIFICATIONS

SOLUBLE SALTS

3. COMPACTION

THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN THE MSD LANDSCAPE GUIDE FOR STORMWATER BEST MANAGEMENT PRACTICES. 2. PLANTING SOIL

THE PLANTING SOIL SHOULD BE SANDY LOAM OR LOAMY SAND (SHOULD CONTAIN A MINIMUM OF 60 PERCENT SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 10 PERCENT BY VOLUME, A SATURATED HYDRAULIC CONDUCTIVITY OF AT LEAST 2.0 FEET PER DAY IS REQUIRED. THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1 INCH IN DIAMETER. FOR BEST RESULTS, BRUSH OR SEEDS FROM NOXIOUS WEEDS SUCH AS JOHNSON GRASS, MUGWORT, NUTSEDGE AND CANADIAN THISTLE SHOULD NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12 TO 18 INCHES, LOOSELY COMPACTED (RUBBER WHEELED HEAVY

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA;

PHRANGE 5.2 - 8.01.5 – 5 PERCENT (BY WEIGHT) ORGANIC MATTER MAGNESIUM 35 LB./AC

PHOSPHORUS (PHOSPHATE - P205) 75 LB./AC POTASSIUM (POTASH - K2O) 85 IB. /AC NOT TO EXCEED 500 PPM

EQUIPMENT AND MECHANICAL TAMPING DEVICES ARE NOT RECOMMENDED FOR COMPACTION).

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH. PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY. ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.

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

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 AREAS ARE 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 WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

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 REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH 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.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER

OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12 IN. TO 18 IN. 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.

4. PLANT MATERIAL

6. UNDERDRAINS

OBSERVATION WELL SHALL BE CAPPED.

REFER TO LANDSCAPE PLAN FOR PLANTINGS WITHIN BIORETENTION BASIN,

5. PLANT INSTALLATION PEA GRAVEL SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2 IN. TO 3 IN.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL 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 SHALL BE BRACED USING 2 IN. BY 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 DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

UNDERDRAINS ARE TO BE PLACED ON A 3 FT. WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A SLOPE OF 0 PERCENT. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN

THE IN-PLACE PERMEABILITY OF THE PLANTING SOIL SHALL BE 2.0 TO 3.5 FT/DAY, AND VERIFIED BY AND INFILTRATION TEST PERFORMED PER THE MARYLAND STORMWATER MANUAL, APPENDIX D.1, "INFILTRATION TESTING REQUIREMENTS (FIELD TESTING REQUIRED A MINIMUM OF ONE PERCOLATION TEST SHALL BE PERFORMED PER FACILITY. THE MSD FIELD INSPECTOR SHALL BE ALLOWED TO SELECT THE LOCATION OF PERCOLATION TESTS. THE MSD FIELD INSPECTOR SHALL BE PROVIDED A COPY OF ALL TEST RESULTS, SIGNED AND SEALED BY A MISSOURI PROFESSIONAL ENGINEER. TEST RESULTS SHALL REPORT II UNITS OF FT/DAY. RESULTS SHALL DEMONSTRATE ACCEPTABLE PERMEABILITY PRIOR TO CONSTRUCTION APPROVAL. NOTE THESE TESTS ARE NOT REQUIRED IF UTILIZING PREMIXED PLANTING SOIL SUPPLIED BY A LOCAL MSD APPROVED SOILS SUPPLIER.

BEST MANAGEMENT PRACTICE (BMP) CONSTRUCTION NOTES

- CONSTRUCTION OF BMP AREAS SHALL BE SEQUENCED TO ALLOW FOR THE IMMEDIATE INSTALLATION OF ALL PLANTINGS AND THE COMPLETE VEGETATION OF BMP AREAS
- CONSTRUCTION SITE RUNOFF SHALL NOT FLOW INTO BMP AREAS. ALL STORM WATER FLOW TO THE BMP AREAS. SHALL BE DIVERTED. PLUGGED OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE BMPS ONLINE.
- SEE LANDSCAPE PLAN FOR PLANTING WITHIN BIORETENTION AREA
- IF POROUS PAVEMENT AREA IS USED FOR TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION, THE AREA WHERE SEDIMENT ACCUMULATES SHALL BE EXCAVATED TO A DEPTH OF 12" BELOW THE OBSERVED SEDIMENT LEVEL. AFTER THE SEDIMENT IS REMOVED, THE AREA SHALL BE BACKFILLED WITH CLEAN (NO FINES) BACKFILL.
- CONSTRUCT POROUS PAVEMENT LATE IN THE PROJECT SCHEDULE SO THAT ALL OF THE DIRT WORK SUCH AS GRADING AND LANDSCAPING IS COMPLETED FIRST. POROUS PAVEMENT AND THE STONE BED SHALL NOT BE NSTALLED UNTIL ALL AREAS TRIBUTARY TO IT ARE ESTABLISHED.
- POROUS PAVEMENTS MUST BE PROTECTED FROM SEDIMENT DURING AND AFTER THE PAVING PROCESS. AT NO TIME SHALL SEDIMENT OR OTHER MATERIAL CAPABLE OF CLOGGING THE SURFACE BE ALLOWED TO CONTACT THE PAVEMENT
- SEWER CONTRACTOR SHALL INSTALL MSD TYPE 4 FILTER FABRIC OVER THE TOP OF ALL TRENCHES UNDER
- POROUS PAVEMENT • FILTER FABRIC SHALL BE <u>REMOVED</u> PRIOR TO THE INSTALLATION OF POROUS PAVEMENT.
- AREAS NOT SUBJECT TO IMMEDIATE CONSTRUCTION ACTIVITY SHALL REMAIN VEGETATED AND UNDISTURBED AS LONG AS POSSIBLE.
- IF CONSTRUCTION SITE RUNOFF FLOWS INTO TEMPORARY SEDIMENT BASINS THAT WILL BE CONVERTED TO PERMANENT FOREBAY(S) AND/OR RETENTION AREAS, THEN AFTER THE TRIBUTARY AREA IS TOTALLY STABLE, THE SEDIMENT BASINS WILL NEED TO BE CLEANED OF ALL SILT, SEDIMENT AND TRASH THAT HAS ACCUMULATED WITHIN THEM. BMP PLANTING CAN BE DONE ONLY AFTER THIS HAS BEEN DONE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE PLANTINGS. FUTURE DEVELOPMENT AFTER PLANTS HAS BEEN INSTALLED WILL REQUIRE REINSPECTION OF AQUATIC BENCH AND FOREBAY(S) TO VERIFY THEY HAVE NOT BEEN

 IF CONSTRUCTION SITE RUNOFF FLOWS INTO A TEMPORARY SEDIMENT BASIN THAT WILL BE CONVERTED INTO A PERMANENT BIORETENTION AREA, THEN AFTER THE TRIBUTARY AREA IS TOTALLY STABLE, THE SEDIMENT BASIN WILL NEED TO BE CLEANED OF ALL SILT. SEDIMENT, AND TRASH THAT HAS ACCUMULATED WITHIN IT. OVER EXCAVATE AS NEEDED TO ALLOW FULL DEPTH OF THE BMP SECTION. BMP PLANTINGS CAN BE DONE ONLY AFTER THIS HAS BEEN DONE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE PLANTINGS.

COMPROMISED.

- 1. STANDARD 18"X12"X0.080" ALUMINUM SIGN FACE WITH BLACK 0.625' SERIES 2000 STANDARD ALPHABET ON WHITE BACKGROUND. 2. GALVANIZED STEEL POST 9'-6" LONG.
- 3. SET BOTTOM OF SIGN 5'-0" ABOVE GRADE.
- 4. SET BOTTOM OF POST 3'-0" BELOW GRADE.

THE RAIN GARDEN IS DESIGNED TO HOLD STORM WATER RUNOFF SO IT CAN FILTER POLLUTANTS. THERE ARE MISSOURI NATIVE PLANTS IN THE BEDS WHICH ASSIST IN THE PROCESS OF ABSORBING THE POLLUTANTS. THE PLANTS ARE ALSO USED TO FEED AND ATTRACT BIRDS AND BUTTERFLIES.

RAIN GARDEN SIGN DETAIL (n.t.s.)

MAINTENANCE AND OPERATION PLAN

- Maintenance Agreement" between themselves and the City of O'Fallon. This agreement states that the owner aarees to maintain the stormwater management facilities located on this property and sets forth penalties that may occur if this maintenance is not performed. The contact information for the responsible party is as follows: VSM Abrasives Corporation
- 1012 E. Wabash Street O'Fallon, MO 63366

Routine Maintenance Activities The responsible party will maintain all private stormwater facilities in good working order. Minimum maintenance of the private facilities shall include routine inspection, maintenance and removal of sediment, debris, oil and foreign material from the storm sewers, inlets and manholes, and routine inspection, maintenance and cleaning of the bioretention basin so that the operation and capacity of the stormwater facilities continues to function properly. The party responsible for maintenance must evaluate the plan for effectiveness at least annually, and revise as necessary. 1. BIORETENTION BASIN

A bioretention area, sometimes referred to as a 'rain garden', exists on this property for the purpose of improving water quality of flooding problems that result from stormwater runoff. Responsibility for maintaining this bioretention area lies with the property owner. This maintenance plan explains the basic tasks that are needed to be sure the bioretention area works properly.

At a minimum, the property owner should inspect the bioretention area in May and October o each year. An inspection checklist/report is provided. The owner of this property must submit a copy of the inspection checklist to the City's Stormwater Coordinator annually. The annual BMP inspection report should be submitted to the City's Stormwater Coordinator before March 31st of each year. A city inspector will also periodically inspect the bioretention area.

- a. The bioretention area may pond water after a rain shower, this is normal. Do not fill in the bioretention area. The bioretention area is intended to temporarily store stormwater and then let it slowly soak into the around. If standing water remains for longer than 3 days, the top of the planting bed has likely clogged. Clogging can be repaired by raking the surface, soil aeration (poking holes in the top layer of soil), or replacing the top 2-3 inches of planting soil and mulch.
- b. The plant species in the bioretention area were specially selected. These plants typically will not require watering or fertilizing beyond their first year. Watering during drought periods will help plant appearance.
- Plants may be trimmed as needed to provide a desirable 'shape'. Between November and March, plants should be cut near the around surface. It is encouraged to leave the seed heads through the winter for bird watching,
- Weeds may be pulled and spot use of herbicides is fine, but blanket herbicide application is not recommended. The insects and birds living around a healthy
- bioretention area keep mosquito populations in check. e, All vegetation deficiencies should be addressed without the use of fertilizers and
- pesticides whenever possible. The area must be inspected for unwanted underbrush and tree growth at least once
- a year. Rainwater flowing into the basin may carry trash and debris. Inlet pipes and pop-ups should be checked and cleaned as needed. Trash, debris, leaf litter and sediment should be regularly removed to ensure that the bioretention area is not clogged and
- does not fill in. Trash, debris and sediment collected in the bioretention area car normally be disposed with other household waste. Material suspected to be polluted by oil, old paint chips (lead) or other chemicals that could potentially be hazardous should be properly tested and disposed in accordance with state and federal hazardous waste

The city permit project number for this project is CSP22-000001. This number should be referenced on all correspondence with the city stormwater coordinator. Should the bioretention area components ever need to be replaced, this number can be used to search city records and to locate the original plans and information needed to reconstruct it. . Non-Routine Maintenance Activities

Periodically, inspections may determine that non-routine corrective actions are required to continue the proper functioning of the BMP measures. Non-routine corrective actions would include items such as bank stabilization of the bioretention basin, removal and replacement of the top laver of the soil sand media of the basin.

Activities which require replacement of components meeting the same design and specifications as the city-approved drawings can be completed without any prior correspondence with the City of O'Fallon or engineering consultant,

- /, Corrective Actions and Modifications Any corrective actions required that will modify the BMP(s) design components are considered design modifications and must be reviewed by MSD. The owner must consult the Metropolitan St. Louis Sewer District and will likely need any approved plan from a professional engineering consultant.
- . Maintenance Materials In the event that any of the filter media in the stormwater treatment basin needs to be replaced the following are the requirements for filter media replacement.

Upper Gravel Layer The washed gravel layer at the top of the perforated pipe must be 6 inches thick and meet ASTM C-33 size No. 8. Geotextile Fabric

The geotextile fabric shall be MSD Type 4, or approved equivalent. Geotextile fabric must meet ASTM D-4833 (puncture strength 125 lb.) and ASTM D-4632 (tensile strength 300 lb.) Filter fabric must not be used in these facilities.

Washed ASTM C33 Fine Aggregate Concrete Sand is utilized for applications in St. Louis County. Manufactured sand or stone dust is not acceptable.

Gravel Bed Around Underdrain Pipe(s) The washed gravel layer surrounding the underdrain pipe(s) must meet ASTM C-33 (No. 6 OR 67). See plan for additional information. Underdrain Pipe

The underdrain pipe consists of 6-inch diameter SDR-35 or stronger perforated PVC pipes at 0.00% slope. Perforations must be 3/8 inch in diameter and must be spaced on 1 foot centers, placed on two sides of the pipe with holes facing down.

/I. Safety Safety considerations should be taken when conducting maintenance. Hazards should be anticipated and avoided. Confined spaces should not be entered without proper training, monitoring and equipment.

VII. INSPECTION PROCEDURES

The property owner will maintain all private stormwater facilities in good working order. The stormwater facilities will have an annual inspection, maintenance, and reporting schedule, every 3 months or as actually needed, whichever is most restrictive. Inspection of Bioretention Basins:

The raingardens shall be inspected at least 4 times annually. Four times annually means every three months. For this facility, it is recommended that the property owner utilize a checklist to assure that required maintenance and inspections are being performed. The property owner shall keep a record of the inspection logs detailing the results of the inspection, and any maintenance or corrective action required. Minimum maintenance of the private facilities shall include the routine removal of sediment, debris, oil and foreign material from the storm and sanitary sewers so that the operation and capacity of the facilities continues to function properly.

Inspection Frequency

In the first year of operation, inspections shall take place at least once each quarter during the spring, summer and early fall. Bi-monthly inspections should also be conducted from November through March to determine how leaf litter will impact the flow capacity of the structures. After the first year of operation inspections shall take place at a minimum every 3 months. Routine (every 3 months) inspections of stormwater facilities shall consist of the following:

- 1. Inspect each manhole and inlet structure for any silt or debris build—up.
- 2. Check to see that all sewer structure grates and lids are in place, seated properly and nodamage has occurred to the grates or lid.
- 3. Inspection of the raingardens will consist of the following: a. Inspect for sediment and debris at the bottom of the raingarden area. Sediment shall be cleaned out when it reaches a maximum depth of 6".
- b. Check the perforated pipe in the raingardens for blockages. An indication of an improperly functioning perforated pipe is the ponding of water over the filter (if water
- ails to infiltrate within 48 hours). c. Clean or remove debris from obstructing the openings within the overflow catch basins.

VIII. ANNUAL REPORTING REQUIREMENTS AND RECORD KEEPING

structures inspected, results of inspections, and any maintenance or corrective action required. Each inspection should log information on the depth of silt, the depth of water over the raingarden (if water is present after storm events), accumulations of material over the raingarden. It is recommended that the property owner assign specific personnel who will be responsible for the inspection, maintenance, and record keeping of the private stormwater facilities. Inspection personnel will fully comply with OSHA confined space safety requirements and all other jurisdictions safety requirements.

Annual BMP Maintenance Report To ensure the maintenance of privately owned stormwater management facilities, the City of O'Fallon requires an Annual BMP Maintenance Report to be submitted for these facilities. The Annual Report should provide documentation that maintenance was performed in accordance with the Stormwater Management Facilities Report submitted for your development and approved by the City of O'Fallon for the above referenced project. The Annual Report typically consists of the following;

- 1. Completed inspection checklist and/or maintenance loa 2. Narrative description of corrective action measures taker 3. Photographs 4. Any other documentation appropriate for demonstrating compliance with the BMP
- Maintenance Agreement and Facilities Report The annual BMP inspection report should be submitted to the City of O'Fallon's Stormwater Coordinator before March 31st of each year. A city inspector may also periodically inspect the

IX, CLEANING OF FACILITIES AND BMP WASTE DISPOSAL

BMP. The Annual Report should be sent to:

The stormwater facility shall be cleaned shortly after the project is completed and erosion control has been removed and vegetation has been established. All silt and debris should be removed from the storm sewer structures and storm sewer lines before reaching the raingarden. All sediment and

debris should be diverted away from the bioretention basin, All sediment removed from the site shall be disposed of according to current erosion and sediment control regulations. When cleaning a BMP, standing "clear, unpolluted water" can be decanted and

1.) Pumped and hauled to an acceptable wastewater disposal facility or 2.) Treated by filtration, such as pumped through a bag filter and discharged to the sanitary sewer system.

The owner has executed a "Stormwater Management and Best Management Practices Facilities without re-suspending the solids. Unpolluted water: "any water that may be discharged under NPDES regulations into waters of the State without having to be authorized by a NPDES permit and which will not cause any violations of State or Federal water quality standards." offered only as general information available at this time.) The generator of the waste should

The property owner shall keep an inspection log on-site detailing dates of inspection

discharged to the storm system. Water that has become turbid during cleaning should be either;

The following definitions shall be used as a reference:

Clear water: Water that has settled its solids for 24 hours and can be pumped out of the BMP

The owner is responsible for determining whether the filter media and debris are classified as special waste and for properly handling and disposal of the material. Records of the same must be kept and be made available for inspection by appropriate authorities. Use of a qualified, even possibly license and bonded, disposal service is highly recommended, and should be contacted for assistance and direction. The following general guidance is based on the federal regulations, 40 CFR 262.11-Special Waste Determination. (Note- Regulations are subject to change in the future and this is

determine if the waste is a special waste using the following method: Determine if the waste is excluded from being a hazardous waste per 10 CSR 25-4.261(2)(A) and 40 CFR 261,4; then Determine if the waste is listed as a hazardous waste per 10 CSR 25-4.261 (2)

(D) and 40 CFR 261 subpart D; then 3. Determine if the waste is a characteristic hazardous waste (i.e. ignitable, corrosive, reactive, or toxic). Consider the materials used or the process used to generate the waste.

Based on this knowledge, determine the appropriate testing and analysis in accordance with 10 CSR 25-4.261(2)(C) and 40 CFR 261 subpart C. Testing for hazardous waste characteristics requires sampling at the point of generation. If the analysis detects any property characteristic of hazardous waste, you must manage the waste as a

hazardous waste. It is very important to understand that hazardous wastes remain hazardous waste when diluted or stabilized, unless it is specifically excluded from the definition of hazardous waste after the process (40 CFR 261.3). You may not dilute hazardous waste solely for the purpose of rendering it non-hazardous, unless dilution is warranted in an emergency response situation or where the dilution is part of a hazardous waste treatment process regulated or exempted under 10 CSR 25-7 or 10 CSR 25-9. You may not dispose of regulated hazardous waste treatment process regulated or exempted under 10 CSR 25-7 or 10 CSR 25-9. You may not dispose of regulated special wastes in any sanitary, demolition, utility waste landfill in Missouri.

The following table lists typical properties of characteristic hazardous waste: (This is not a complete listing, but only a guideline to determine if a waste may be a characteristic hazardous waste)

Catches fire easily through friction absorption of moisture or spontaneous chemical changes Corrosivity pH<2.0 or pH>12.5

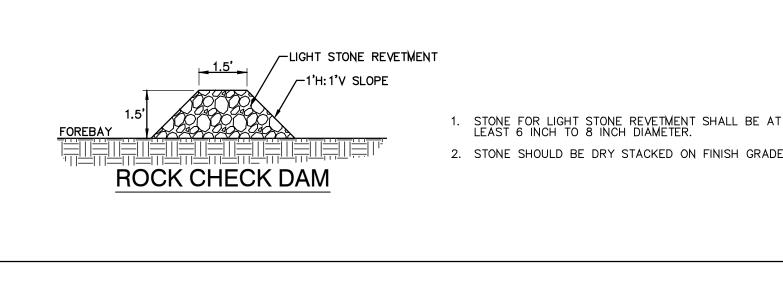
Reactivity Wastes that are normally unstable, react violently with water, can explode or release poisonous

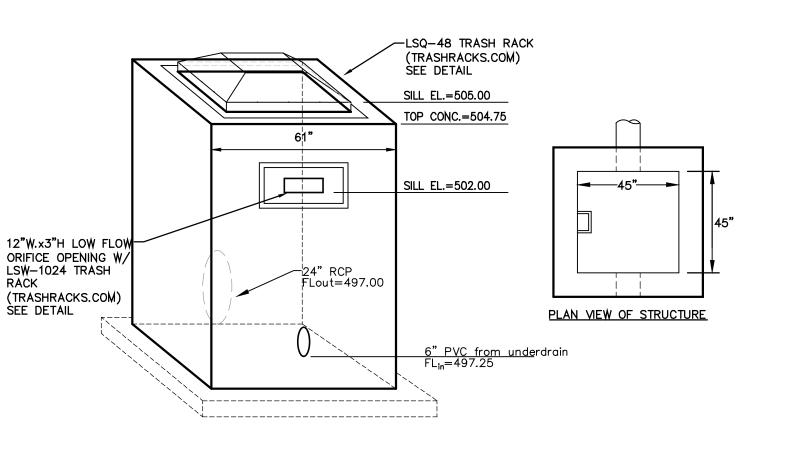
TCLP, EPS Method 1311, any contaminants listed in Table 1 of 40 CFR 261.24 equal to or greater than the listed concentration

Once the waste is determined to be non-hazardous and contain no free liquids, you must request approval from the owner/operator of the disposal facility to dispose of the special waste at the landfill by filling out and signing the generator's portion of the Special Waste Disposal Request Form.

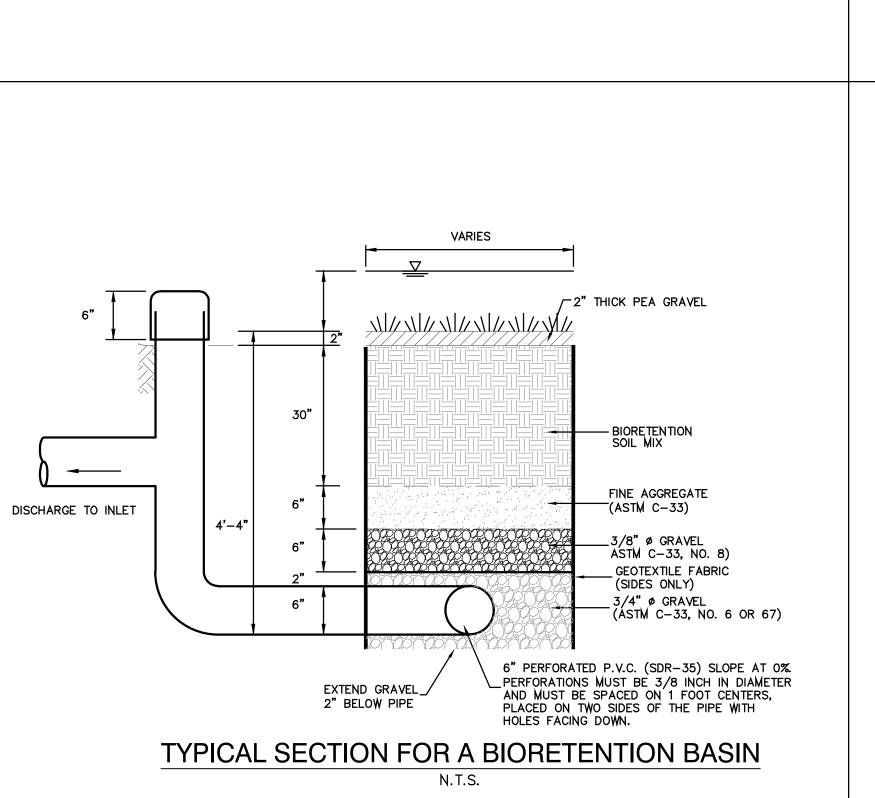
You must also identify health and hazards associated with the materials, as well as any special shipping, handling or safety requirements. For example, note whether the material should be transported in covered containers or whether it is a respiratory hazard. The completed Special Waste Disposal Request Form, along with appropriate test results and other pertinent information, are then sent to the receiving landfill for the landfill owner or operator's review and signature prior to acceptance and disposal of the waste. Until a landfill accepts the waste for disposal, it is the owner's responsibility to manage the waste in an environmentally sound manner.

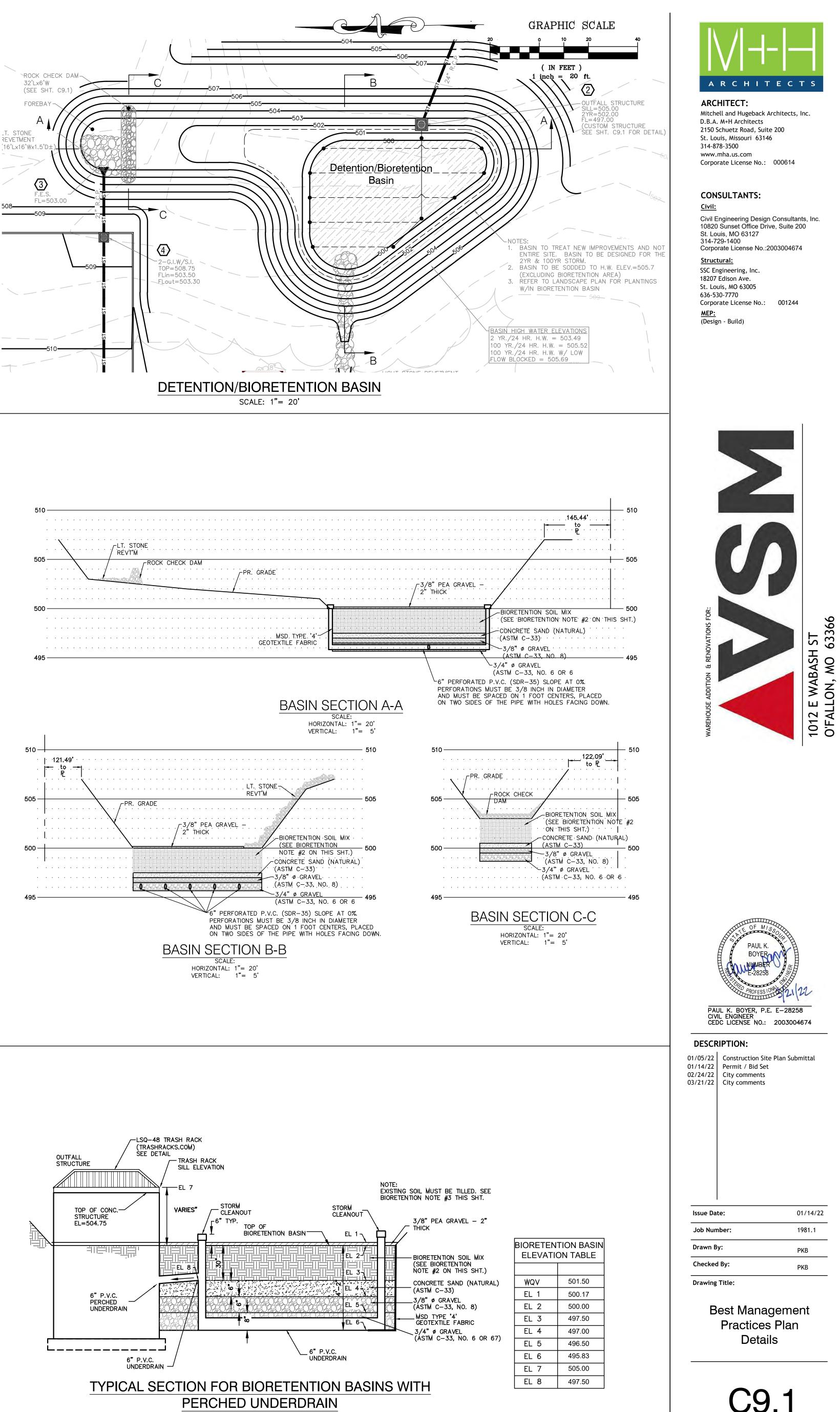
Free liquids must have pollutant components removed to or below regulatory thresholds before the free liquid may be discharged to the environment, or pretreatment or treatment facility, as and where allowable by the local authority or jurisdiction. Do not discharge the liquids or liquid slurry, captured by the cleaning and maintenance process, into any storm or sanitary structures.

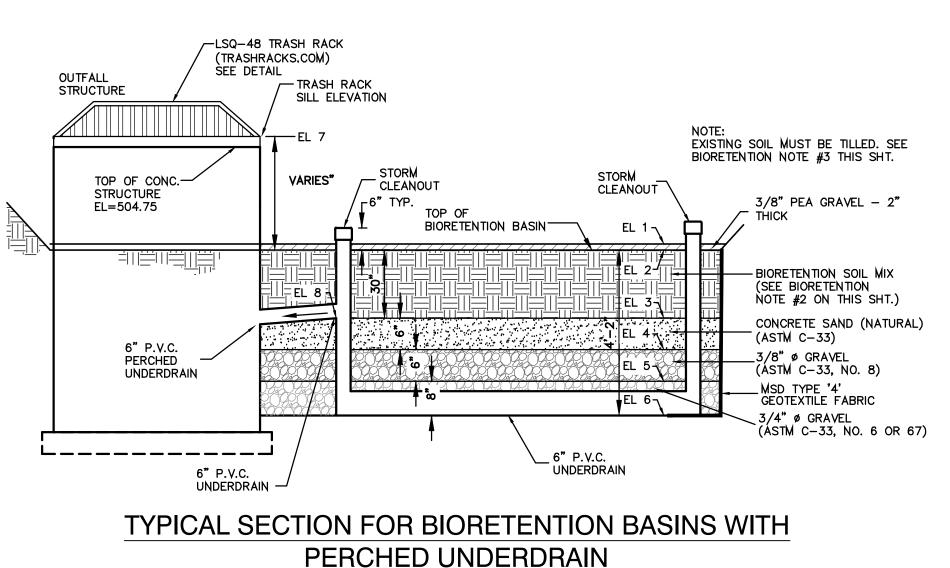




OUTFALL STRUCTURE BASIN #1 (CUSTOM OUTFALL)







N.T.S.

