

DEVELOPER

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: (410)313-2414

ADDRESS CHART			
PARCELS NO.	1042		
STREET ADDRESS	8800 RIDGE ROAD		
ZONE	B-2		
TAX ZONE	MAP 24		

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

DATE

DATE

DATE

DATE

MO. DESCRIPTION

BY DATE



4701 MOUNT HOPE DRIVE SUITE A BALTIMORE, MARYLAND 21215



HOWARD COUNTY MAINTENANCE FACILITY
FORMERLY O'DONNELL PONTIAC
REVISED SITE DEVELOPMENT PLAN
REVISION TO SDP-85-144

SITE DETAILS PLAN

SECOND ELECTION DISTRICT

DATE: 11/7/07

TAX MAP 24, GRID 6, PARCEL 1042 SCALE: AS SHOWN

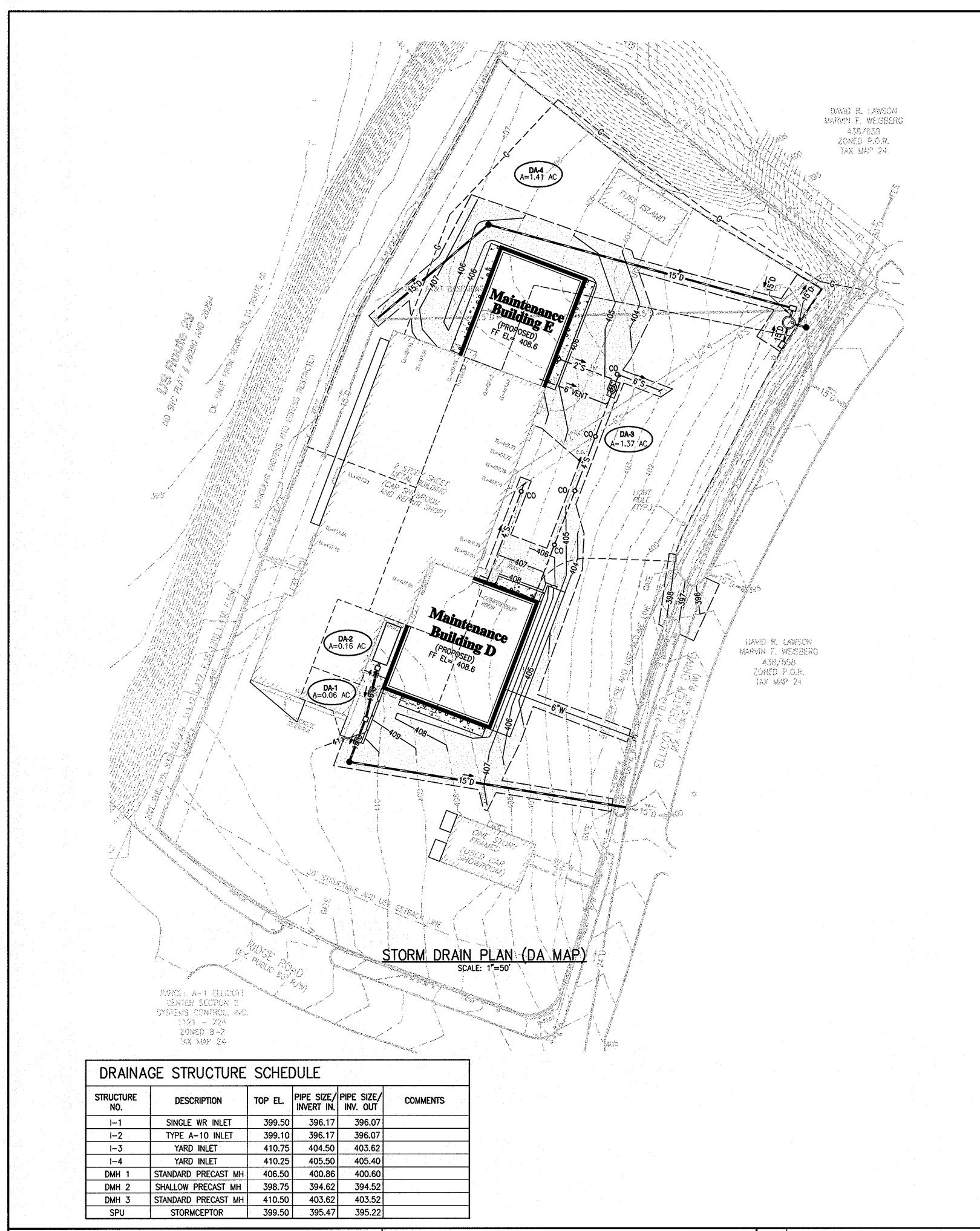
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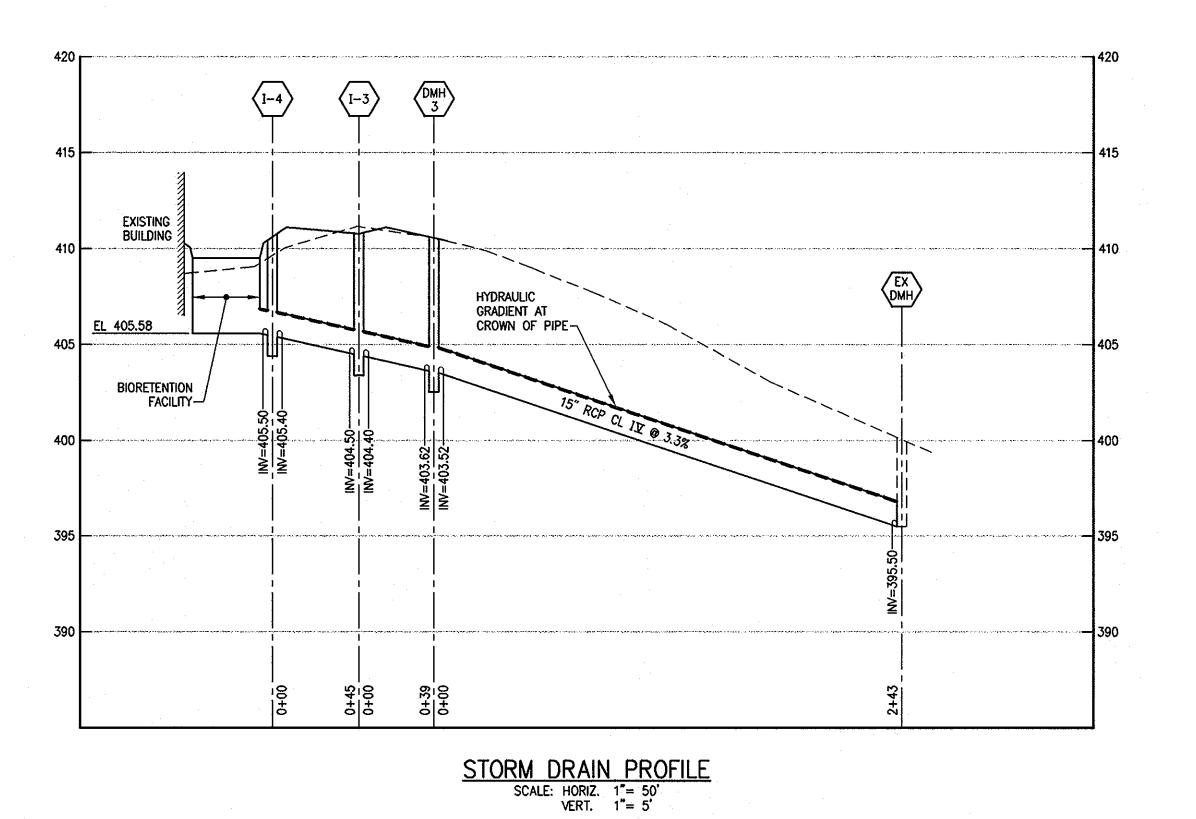
SHEET 6 OF 11

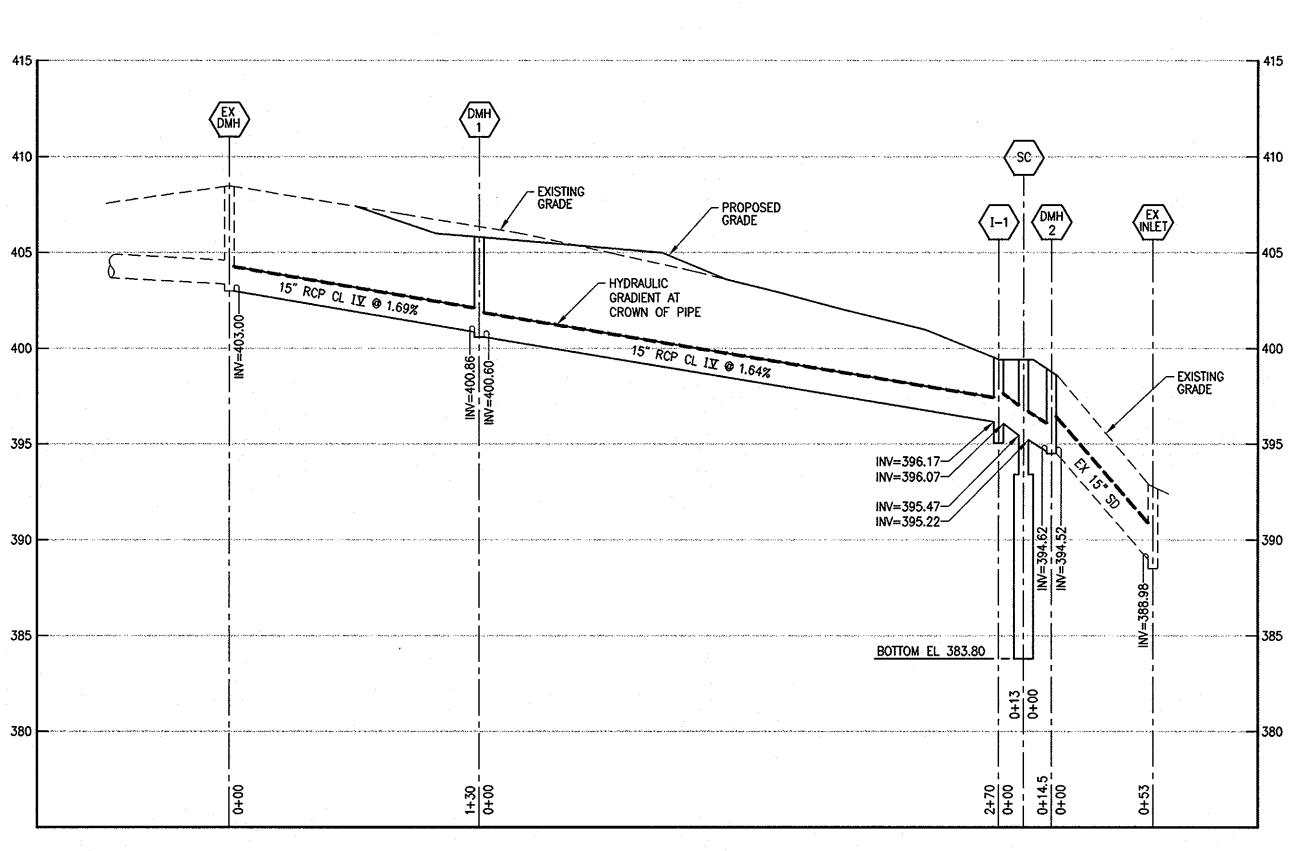
DES: JMS/RM

DRAWN: SJM

CHK: JMS







STORM DRAIN PROFILE

SCALE: HORIZ. 1"= 50"

VERT. 1"= 5"

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 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE	THOMAS J. O'DONNELL, JR. O'DONNELL REALTY CO., LLP					K
CHIEF, DIVISION OF LAND DEVELOPMENT TOTAL A CHIEF, DIVISION OF LAND DEVELOPMENT TOTAL TOT	8800 RIDGE ROAD ELLICOTT CITY, MD 21043-4122 PHONE: 410-461-5000					
DIDECTOR		NÖ.	DESCRIPTION	BY	DATE	



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STORM DRAIN PLAN

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SDP-85-144

SHEET 7 OF 11

DES: JMS/RM

DRAWN: SJM

BIORETENTION FACILITY SOIL SPECIFICATIONS

A. DESCRIPTION

SITE GRADING SPECIFICATIONS SHALL COVER THE BIORETENTION FACILITIES USED FOR STORMWATER MANAGEMENT WITH THE FOLLOWING ADDITIONAL REQUIREMENTS.

<u>MATERIALS</u>

. DETAILED MATERIALS REQUIREMENTS

1. PLANTING SOIL SHALL CONFORM TO THE FOLLOWING CRITERIA:

5.2 - 7.0 1.5 - 4% (BY WEIGHT) ORGANIC MATTER NOT TO EXCEED 35 LB/AC 75 LB/AC NOT TO EXCEED MAGNESIUM PHOSPHORUS (PHOSPHATE - P205) NOT TO EXCEED 85 LB/AC 500 PPM NOT TO EXCEED NOT TO EXCEED POTASSIUM (POTASH - K20) SOLUBLE SALTS

THE MATERIAL SHALL BE OF UNIFORM MIX AND THE GRADING ANALYSIS SHALL CONFORM TO THE FOLLOWING:

CLAY

35 - 60% 30 - 55%

2. NO.7 STONE SHALL CONFORM TO ASTM-D-448

3. GEOTEXTILE SHALL CONFORM TO CLASS "C" APPARENT OPENING SIZE ASTM -D-4751; GRAB TENSILE STRENGTH ASTM-D-4632; AND PUNCTURE RESISTANCE ASTM-D-4833.

4. UNDERDRAIN GRAVEL SHALL CONFORM TO AASHTO M-43

5. UNDERDRAIN PIPING SHALL CONFORM TO F 758, TYPE PS 28 OR AASHTO M-278

6. SAND SHALL CONFORM TO AASHTO -M-6 OR ASTM - C-33, SIZE 0.02"-0.04"

7. MULCH - SHREDDED HARDWOOD

8. BIORETENTION FACILITY LINER

• THE BIORETENTION FACILITY SHALL BE LINED WITH A TEXTURED 40-MIL LLDPE (LINEAR LOW DENSITY POLYETHYLENE) LINER HAVING THE FOLLOWING PROPERTIES:

THICKNESS (MIN., AVG) 0.92 DENSITY, G/CC, MINIMUM ASTM D792, METHOD B ASTM D1004 TEAR RESISTANCE, LBS (MIN., AVE) ASTM D4833 PUNCTURE RESISTANCE, LBS (MIN., AVE)

FIELD SEAMING

SEAMS MAY BE FUSION OR EXTRUSION WELD. OVERLAP PANELS A MINIMUM OF 6 INCHES. ORIENT SEAMS IN DIRECTION OF MAXIMUM SLOPE (DOWN SLOPE). PERFORM SEAM CONSTRUCTION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SEAM TESTING

NON-DESTRUCTIVELY TEST SEAMS OVER THEIR ENTIRE LENGTH WITH A VACUUM BOX (EXTRUSION WELDS) OR AIR TEST (FUSION WELDS) IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

- 1. THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS OR OTHER NOXIOUS WEEDS.
- 2. ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR pH, PHOSPHOROUS, 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 TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- 3. ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.
- 4. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE IT MAY BE MODIFIED WITH LIME OR IRON SULFATE PLUS SULFUR.
- 5. SURFACE OF THE BIORETENTION FILTER BED IS TO BE LEVEL.

COMPACTION

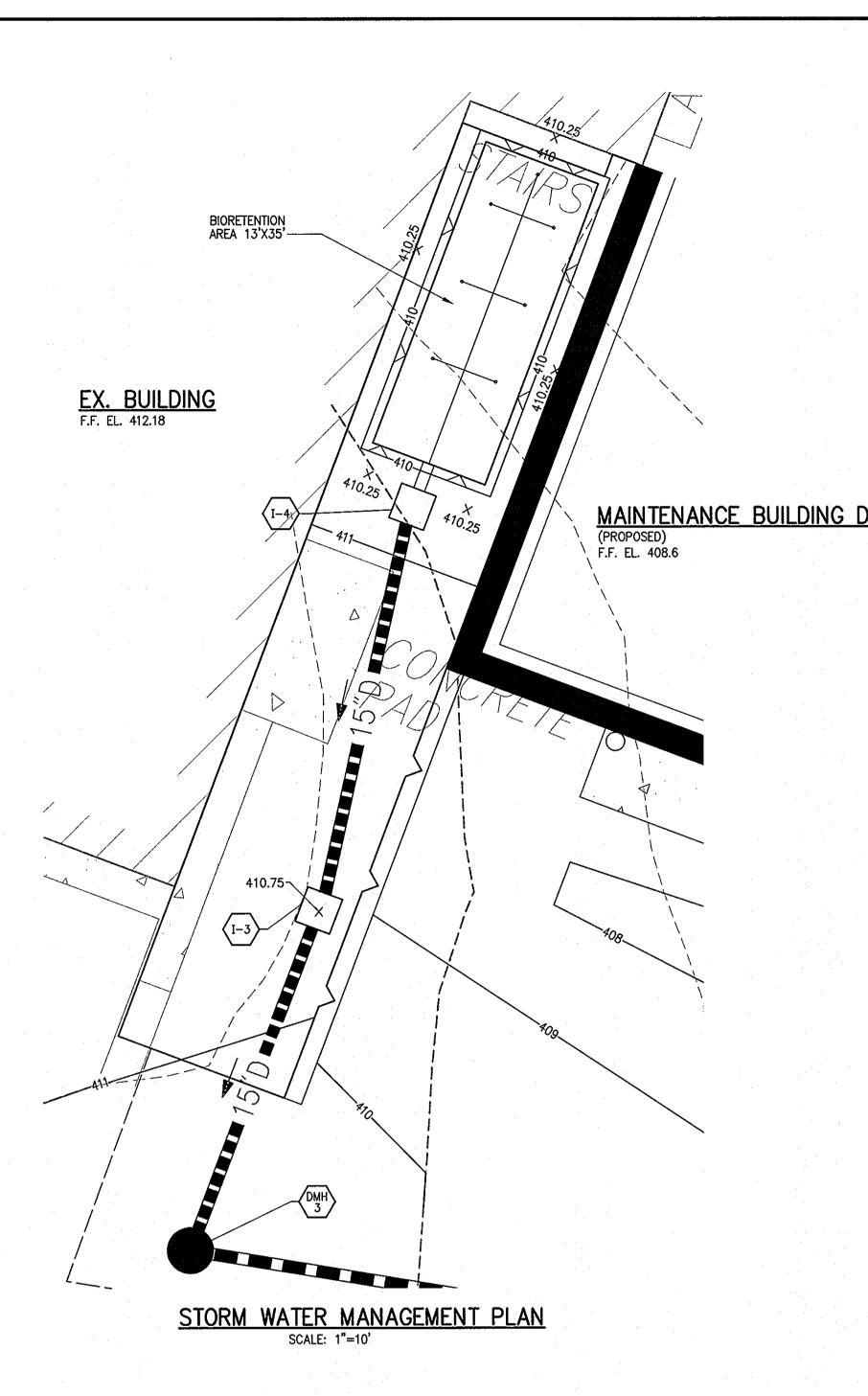
- 1. IT IS VERY IMPORTANT TO MINIMIZE COMPACTION ON BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT WEIGHT 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 AND IS NOT ACCEPTABLE.
- 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 REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
- 3. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN 12" TO 18" LIFTS. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION FACILITY. HEAVY EQUIPMENT MAY BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND.

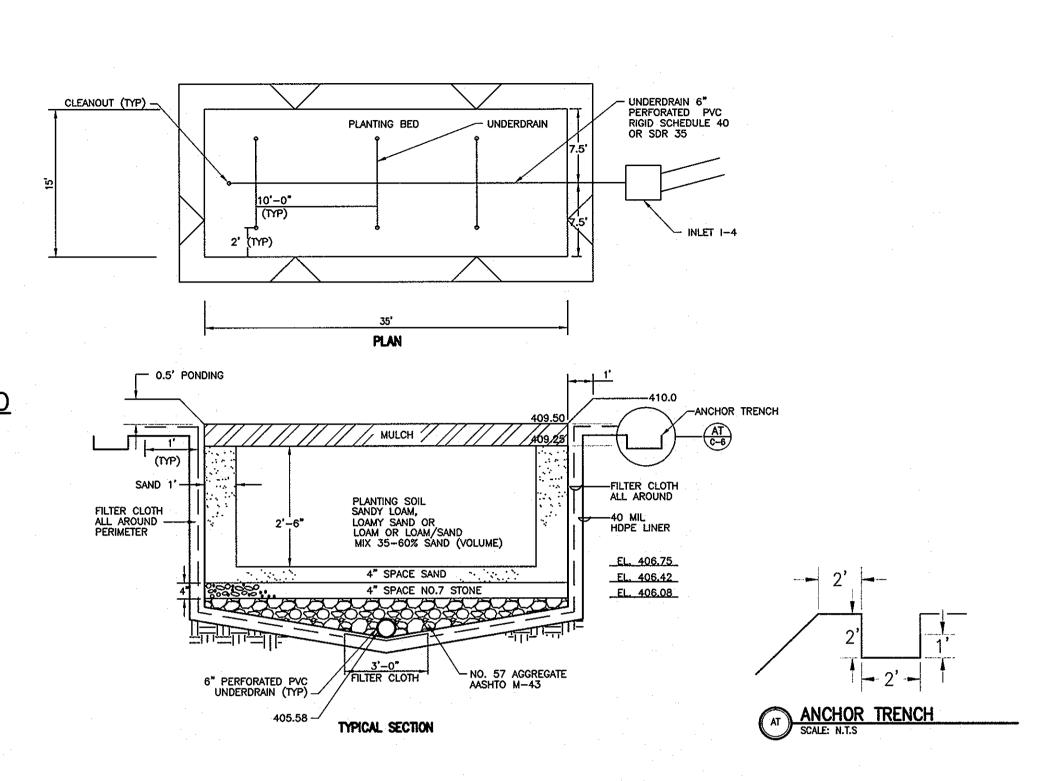
<u>UNDERDRAIN</u>

- 1. UNDERDRAIN IS TO BE PLACED ON A THREE FOOT WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF THE UNDERDRAIN PIPE NOT TERMINATING IN AN OBSERVATIONS WELL SHALL BE CAPPED.
- 2. THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A SLOPE OF 0.5%, OR AS DESIGNED. OBSERVATION WELLS MUST BE PROVIDED AT A RATE OF ONE PER 1,000 SQUARE FEET OF SURFACE AREA.

MISCELLANEOUS

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





BIORETENTION DETAIL
SCALE: N.T.S.

MAINTENANCE SCHEDULE FOR BIORETENTION AREAS

DESCRIPTION	<u>METHOD</u>	FREQUENCY	TIME OF YEAR
SOIL.			
INSPECT AND REPAIR	VISUAL	MONTHLY	N/A
ORGANIC LAYER			
REMULCH ANY VOID AREAS	BY HAND	WHENEVER NEEDED	WHENEVER NEEDED
ANY ADDITIONAL MULCH ADDED	BY HAND	ONCE A YEAR	SPRING
PLANTS			
REMOVAL AND REPLACEMENT OR ALL DEAD AND DISEASED VEGETATION	SEE PLANTING SPECIFICATIONS	TWICE A YEAR	MARCH 15 TO APRIL 30 AND OCT. 1 TO NOV. 30
TREAT ALL DISEASED TREES AND SHRUBS	BY HAND	IMMEDIATELY AFTER COMPLETION OF PROJECT	N/A
REPLACE STAKES AFTER ONE YEAR	BY HAND	ONCE A YEAR	ONLY REMOVE STAKES IN THE SPRING
REPLACE ANY DEFICIENT STAKES OR WIRES	BY HAND	N/A	WHENEVER NEEDED

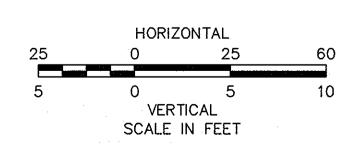
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THOMAS J. O'DONNELL, JR. O'DONNELL REALTY CO., LLP 8800 RIDGE ROAD ELLICOTT CITY, MD 21043-4122 PHONE: 410-461-5000

OWNER

NO.	DESCRIPTION		BY	DATE	
		:			



4701 MOUNT HOPE DRIVE SUITE A BALTIMORE, MARYLAND 21215



HOWARD COUNTY MAINTENANCE FACILITY FORMERLY O'DONNELL PONTIAC REVISED SITE DEVELOPMENT PLAN REVISION TO SDP-85-144

SWM PLAN AND DETAILS

SECOND ELECTION DISTRICT

HOWARD COUNTY, MD TAX MAP 24, GRID 6, PARCEL 1042 SCALE: 1"=25'

SDP-85-144 SDP-85-144

SHEET 8 OF 11

DES: JMS/RM

DRAWN: SJM

CHK: JMS

STANDARD SPECIFICATION FOR STORMWATER OIL AND SEDIMENT SEPARATOR

PART 1-GENERAL

1.1 DESCRIPTION

THE WORK COVERED BY THIS SECTION CONSISTS OF THE CONSTRUCTION OF A STRUCTURAL UNDERGROUND STORMWATER OIL AND SEDIMENT SEPARATOR THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT, TOOLS, LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

1.2 <u>REFERENCE STANDARDS</u>

CONTACT MOLDED GLASS FIBER REINFORCED CHEMICAL RESISTANT TANKS ASTM C 478: STANDARD SPECIFICATION FOR PRECAST REINFORCED CONCRETE MANHOLE STANDARD SPECIFICATION FOR JOINTS FOR CONCRETE PIPE AND MANHOLES, USING RUBBER GASKETS

1.3 SHOP DRAWINGS

- 1.3.1 SHOP DRAWINGS CONSISTING OF CATALOG CUTS OR FABRICATOR DRAWINGS SHOWING THE STRUCTURE AND FRAMES, GRATES, OR COVERS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
- 1.3.2 WHERE AN EXTERNAL BYBASS IS REQUIRED, THE MANUFACTURER MUST PROVIDE CALCULATIONS AND DESIGNS FOR ALL STRUCTURES, PIPING AND ANY OTHER REQUIRE MATERIAL APPLICABLE TO THE PROPER FUNCTIONING OF THE SYSTEM, STAMPED BY A PROFESSIONAL ENGINEER.

1.4 HANDLING AND STORAGE

CARE SHALL BE TAKEN IN LOADING, TRANSPORTING, AND UNLOADING TO PREVENT DAMAGE TO MATERIALS DURING STORAGE AND HANDLING.

PART 2-PRODUCTS

2.1 GENERAL

THE SEPARATOR SHALL BE CIRCULAR AND CONSTRUCTED FROM PRE-CAST CONCRETE CIRCULAR RISER AND SLAB COMPONENTS. THE INTERNAL FIBERGLASS INSERT SHALL BE BOLTED AND SEALED WATERTIGHT INSIDE THE REINFORCED CONCRETE COMPONENT. THE SEPARATOR SHALL BE CAPABLE TO BE USED AS A BEND OR JUNCTION STRUCTURE WITHIN THE STORMWATER DRAINAGE SYSTEM.

2.2 PRECAST CONCRETE SECTIONS

ALL PRECAST CONCRETE COMPONENTS SHALL BE DESIGNED AND MANUFACTURED TO A MINIMUM LIVE LOAD OF AASHTO HS-20 TRUCK LOADING OR GREATER BASED ON LOCAL REGULATORY SPECIFICATIONS.

2.3 <u>JOINTS</u>

THE CONCRETE JOINTS SHALL BE WATER-TIGHT AND MEET THE DESIGN CRITERIA ACCORDING TO ASTM C-443. MASTIC SEALANTS OR BUTYL TAPE ARE NOT AN ACCEPTABLE ALTERNATIVE.

2.4 FRAME AND COVER

THE FRAME AND COVER SHALL INCLUDE AN INDENTED TOP DESIGN WITH LETTERING OF THE UNIT'S NAME CAST INTO THE COVER TO ALLOW FOR EASY IDENTIFICATION IN THE FIELD.

ALL REINFORCED CONCRETE COMPONENTS SHALL BE MANUFACTURED ACCORDING TO LOCAL SPECIFICATIONS AND SHALL MEET THE REQUIREMENTS OF ASTM C-478.

THE FIBERGLASS PORTION OF THE WATER TREATMENT DEVICE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING STANDARD: ASTM D-4097: CONTACT MOLDED GLASS FIBER REINFORCED CHEMICAL RESISTANT TANKS.

2.7 <u>INSPECTION</u>

ALL PRECAST CONCRETE SECTIONS SHALL BE INSPECTED TO ENSURE THAT DIMENSIONS, APPEARANCE AND QUALITY OF THE PRODUCT MEET LOCAL SPECIFICATIONS AND ASTM C-478

PART 3-PERFORMANCE

3.1 GENERAL

THE STORMWATER QUALITY TREATMENT DEVICE SHALL REMOVE OIL AND SEDIMENT FROM

3.3 TOTAL SUSPENDED SOLIDS

THE TREATMENT DEVICE SHALL BE CAPABLE OF REMOVING 80 PERCENT OF THE AVERAGE ANNUAL TOTAL SUSPENDED SOLIDS (TSS) LOAD WITHOUT SCOURING PREVIOUSLY CAPTURED POLLUTANTS.

DESIGN METHODOLOGIES SHALL PROVIDE CALCULATIONS SUBSTANTIATING REMOVAL EFFICIENCIES AND CORRELATION TO FIELD MONITORING RESULTS USING BOTH PARTICLE SIZE AND TSS REMOVAL EFFICIENCY.

ALL MANUFACTURES SHALL PROVIDE PERFORMANCE DATA THAT THE STORMWATER QUALITY TREATMENT SYSTEM DOES NOT SCOUR PREVIOUSLY CAPTURED POLLUTANTS BASED ON THE PARTICLE SIZE DISTRIBUTION SPECIFIED IN SECTION 3.5. PERFORMANCE DATA SHOULD BE LABORATORY TESTING WITH AN INITIAL SEDIMENT LOAD OF 50 PERCENT OF THE UNIT'S SEDIMENT CAPACITY AT AN OPERATING RATE OF 125% OR GREATER. PARTICLE SIZE DISTRIBUTION (PSD) FOR THE INITIAL SEDIMENT LOAD SHALL CONFORM TO TABLE 3.5.

3.4 FREE OIL

3.4.1 THE SEPARATOR MUST BE CAPABLE OF REMOVING 95 PERCENT OF THE FLOATABLE FREE OIL.

3.4.2 THE FIRST 16 INCHES (405 MM) OF HYDROCARBON STORAGE SHALL BE LINED WITH FIBERGLASS TO PROVIDE A DOUBLE WALL CONTAINMENT OF THE HYDROCARBON MATERIALS.

3.5 PARTICLE SIZE

3.5.1 THE SEPARATOR MUST BE CAPABLE OF TRAPPING FINE SAND, SILT, CLAY AND ORGANIC PARTICLES IN ADDITION TO LARGER SAND, GRAVEL PARTICLES AND SMALL FLOATABLES.

3.5.2 THE STORMWATER QUALITY TREATMENT DEVICE SHALL BE SIZED TO A SPECIFIC PARTICLE SIZE DISTRIBUTION THAT IS CLEARLY IDENTIFIED IN BOTH DIAMETER AND SPECIFIC GRAVITY. THE EXAMPLE BELOW IS A FINE PARTICLE SIZE THAT IS A COMMON PSD USED IN DESIGN OF WATER QUALITY DEVICES TO ENSURE PROPER DESIGN FOR CAPTURING SMALLER PARTICLES AND THE HIGH LOAD OF ASSOCIATED POLLUTANTS.

TABLE 3.5-PARTICLE SIZE DISTRIBUTION

AMOUNT	DIAMETER	SPECIFIC GRAVITY
20%	20 MICRON	1.3
20%	60 MICRON	1.8
20%	150 MICRON	2.2
20%	400 MICRON	2.65
20%	2000 MICRON	2.65

PART 4-EXECUTION

4.1 INSTALLATION

THE INSTALLATION OF THE PRE-CAST CONCRETE STORMWATER QUALITY TREATMENT DEVICE SHOULD CONFORM TO STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS FOR THE CONSTRUCTION OF MANHOLES. SELECTED SECTIONS OF A GENERAL SPECIFICATION THAT ARE APPLICABLE ARE SUMMARIZED BELOW.

4.2 EXCAVATION

- 4.2.1 EXCAVATION FOR THE INSTALLATION OF THE STORMWATER QUALITY TREATMENT DEVICE SHOULD CONFORM TO STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS.
- 4.2.2 THE STORMWATER QUALITY TREATMENT DEVICE SHOULD NOT BE INSTALLED ON FROZEN GROUND. EXCAVATION SHOULD ALLOW FOR ADEQUATE COMPACTION AROUND THE STRUCTURE. IF THE BOTTOM OF THE EXCAVATION PROVIDES AN UNSUITABLE FOUNDATION ADDITIONAL EXCAVATION MAY BE REQUIRED.
- 4.2.3 IN AREAS WITH A HIGH WATER TABLE, CONTINUOUS DEWATERING SHOULD BE PROVIDED TO ENSURE THAT THE EXCAVATION IS STABLE AND FREE OF WATER.

4.3 BACKFILLING

BACKFILL MATERIAL SHOULD CONFORM TO STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS. BACKFILL MATERIAL SHOULD BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 12 INCHES (300 MM) IN DEPTH AND COMPACTED TO STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS.

4.4 WATER QUALITY DEVICE CONSTRUCTION SEQUENCE

- 4.4.1 THE CONCRETE WATER QUALITY DEVICE IS INSTALLED IN SECTIONS IN THE FOLLOWING
- SEQUENCE: AGGREGATE BASE
- BASE SLAB
- TREATMENT CHAMBER SECTION(S) TRANSITION SLAB (IF REQUIRED)
- BYPASS SECTION
- CONNECT INLET AND OUTLET PIPES
- RISER SECTION AND/OR TRANSITION SLAB (IF REQUIRED)
- MAINTENANCE RISER SECTION(S) (IF REQUIRED) FRAME AND ACCESS COVER
- 4.4.2 THE PRECAST BASE SHOULD BE PLACED LEVEL AT THE SPECIFIED GRADE. THE ENTIRE BASE SHOULD BE IN CONTACT WITH THE UNDERLYING COMPACTED GRANULAR MATERIAL. SUBSEQUENT SECTIONS, COMPLETE WITH GASKETED JOINT SEALS, SHOULD BE INSTALLED IN ACCORDANCE WITH THE PRECAST CONCRETE MANUFACTURER'S RECOMMENDATIONS.
- 4.4.3 ADJUSTMENT OF THE STORMWATER QUALITY TREATMENT DEVICE CAN BE PERFORMED BY LIFTING THE UPPER SECTIONS FREE OF THE EXCAVATED AREA, RE-LEVELING THE BASE, AND RE-INSTALLING THE SECTIONS. DAMAGED SECTIONS AND GASKETS SHOULD BE REPAIRED OR REPLACED AS NECESSARY, ONCE THE STORMWATER QUALITY TREATMENT DEVICE HAS BEEN CONSTRUCTED, ANY LIFT HOLES MUST BE PLUGGED WITH MORTAR.

4.5 DROP PIPE AND RISER PIPE

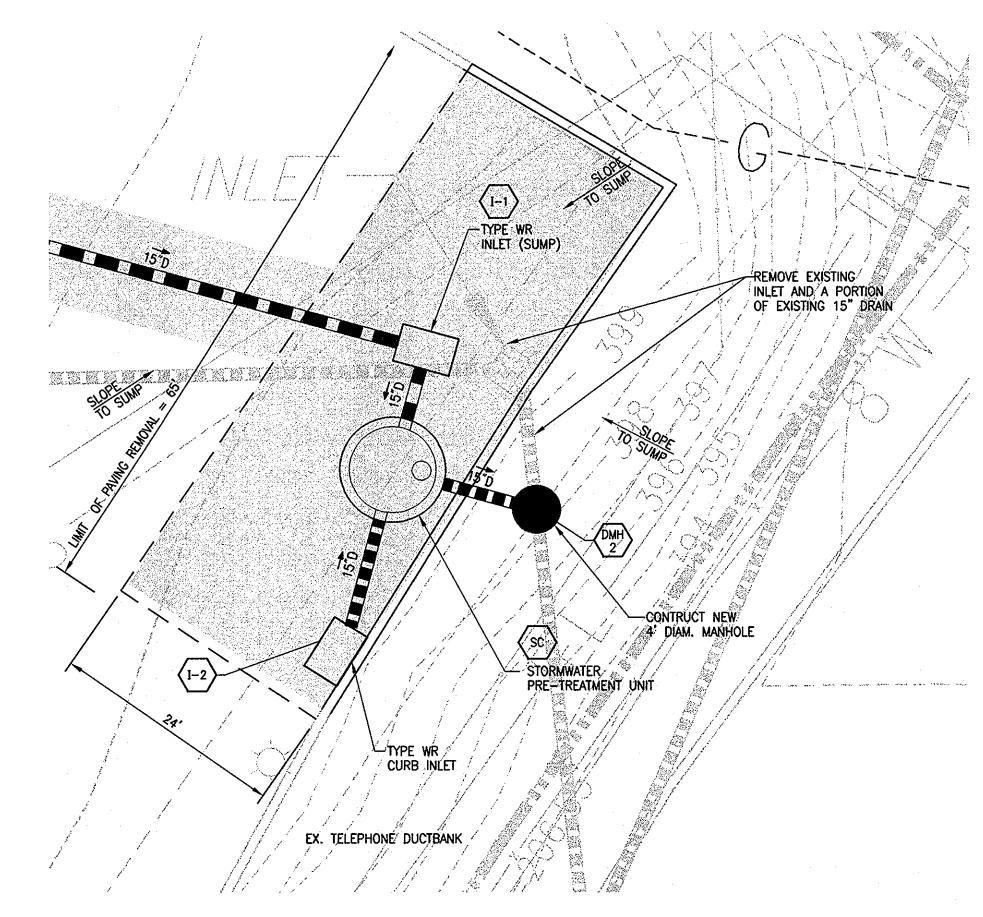
ONCE THE UPPER CHAMBER HAS BEEN ATTACHED TO THE LOWER CHAMBER, THE INLET DROP TEE, AND RISER PIPE MUST BE ATTACHED. PIPE INSTALLATION INSTRUCTIONS AND REQUIRED MATERIALS SHALL BE PROVIDED WITH THE INSERT.

4.6 INLET AND OUTLET PIPES

INLET AND OUTLET PIPES SHOULD BE SECURELY SET INTO THE UPPER CHAMBER USING NON-SHRINK GROUT OR APPROVED PIPE SEALS (FLEXIBLE BOOT CONNECTIONS, WHERE APPLICABLE) SO THAT THE STRUCTURE IS WATERTIGHT.

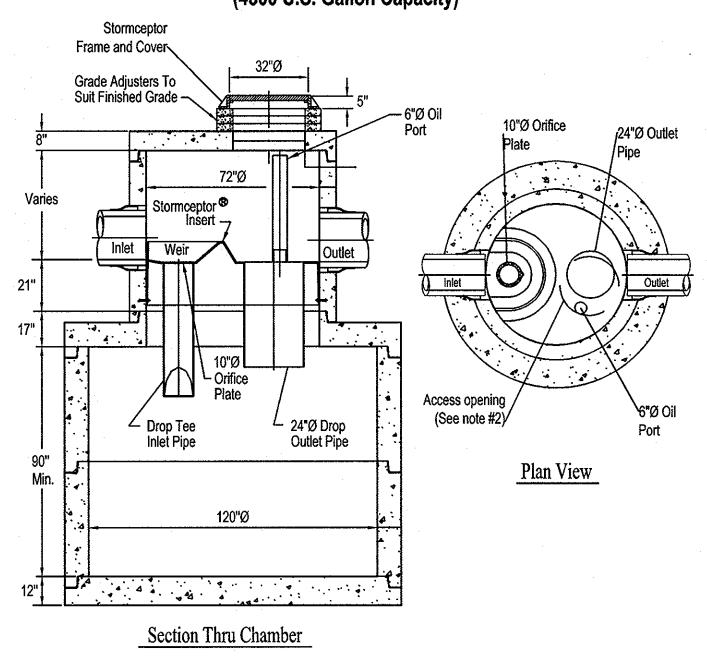
4.7 FRAME AND COVER OR FRAME AND GRATE INSTALLATION

THE GRADE ADJUSTMENT UNITS SHOULD BE LAID IN A FULL BED OF MORTAR WITH SUCCESSIVE UNITS BEING JOINED USING SEALANT RECOMMENDED BY THE MANUFACTURER. FRAMES FOR THE COVER SHOULD BE SET IN A FULL BED OF MORTAR AT THE ELEVATION SPECIFIED.



STORMWATER TREATMENT UNIT PLAN

STC 4800 Precast Concrete Stormceptor (4800 U.S. Gallon Capacity)



1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable. 2. The Cover Should be Positioned Over The Outlet Drop Pipe and The Oil Port. 3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690. 4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

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OWNER THOMAS J. O'DONNELL, JR. O'DONNELL REALTY CO., LLP 8800 RIDGE ROAD ELLICOTT CITY, MD 21043-4122 PHONE: 410-461-5000 NO.

Gannett Fleming 4701 MOUNT HOPE DRIVE

BALTIMORE, MARYLAND 21215



HOWARD COUNTY MAINTENANCE FACILITY FORMERLY O'DONNELL PONTIAC REVISED SITE DEVELOPMENT PLAN REVISION TO SDP-85-144

STORMCEPTOR DETAILS

SECOND ELECTION DISTRICT HOWARD COUNTY, MD TAX MAP 24, GRID 6, PARCEL 1042 SCALE: 1"=50" DATE: 11/7/07

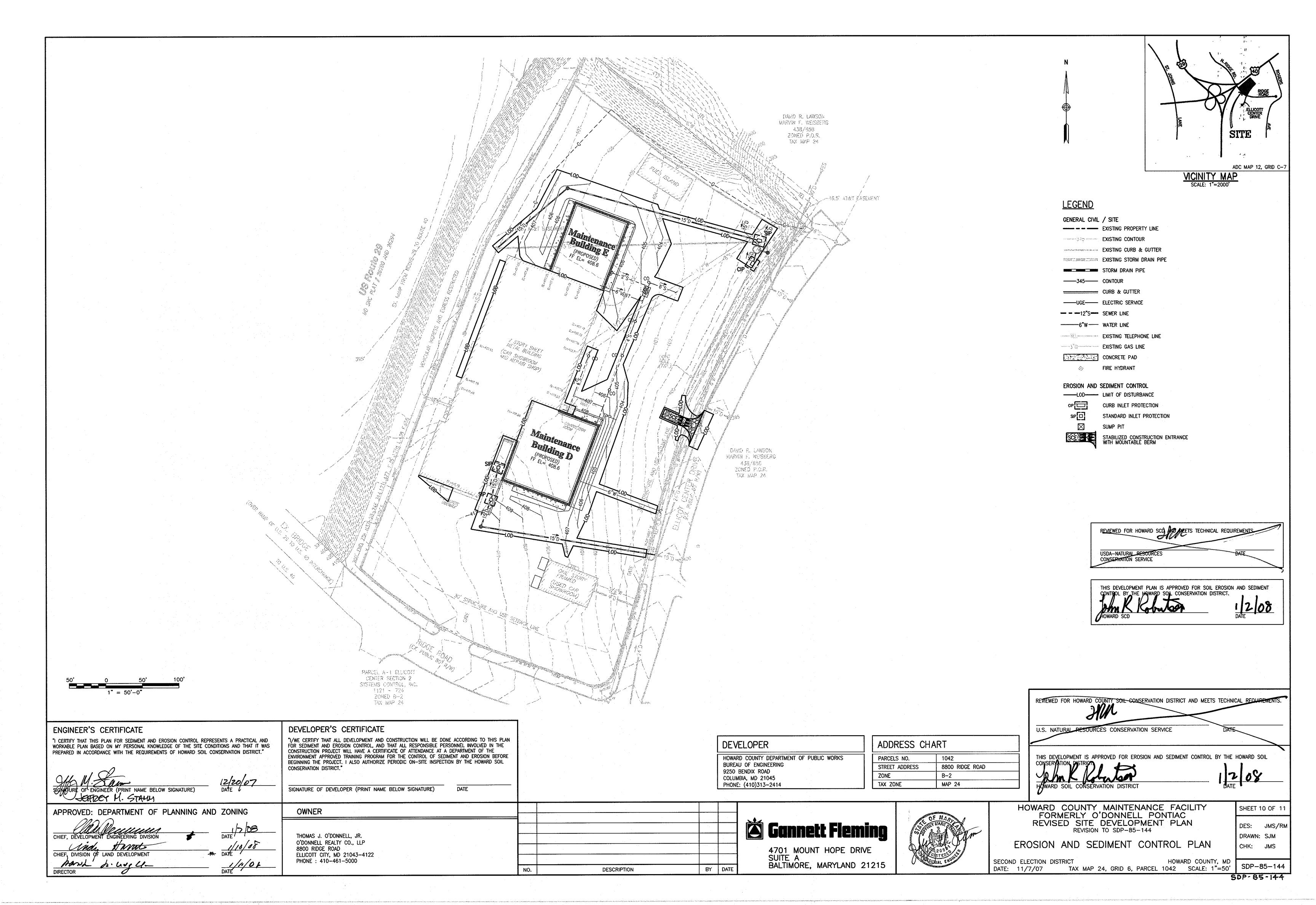
SDP-85-144

SHEET 9 OF 11

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STANDARD SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS

ALTOIS:	
TOTAL AREA OF SITE	ACRES
AREA DISTURBED	ACRES
AREA TO BE ROOFED OR PAVED	ACRES
AREA TO BE VEGETATIVELY STABILIZED	ACRES
TOTAL CUT	CU. YDS
TOTAL FILL	CU. YDS
OFFSITE WASTE/BORROW AREA LOCATION:	**

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED. IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN A GRADING PERMIT.
- 2. THE CONTRACTOR SHALL CONTACT THE HOWARD SOIL CONSERVATION DISTRICT AT LEAST 7 DAYS PRIOR TO BEGINNING EARTH DISTURBANCE ACTIVITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777 FOR THE LOCATION OF ALL PUBLIC AND PRIVATE UTILITY LINES. PIPES, CABLES AND ASSOCIATED FEATURES AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION WORK, NO WORK MAY BEGIN WITHOUT CLEAR UTILITY
- INSTALL SEDIMENT CONTROLS AS SHOWN ON PLAN IN ACCORDANCE WITH DETAILS.
- 5. THE CONTRACTOR SHALL ESTABLISH THE LIMIT OF DISTURBANCE LINE AND CLEARLY IDENTIFY THE LIMIT IN THE FIELD, NO DISTURBANCE OUTSIDE THE LOD SHALL OCCUR WITHOUT PRIOR AUTHORIZATION.
- 6. STAKOUT STRUCTURE LOCATIONS.
- 7. CONSTRUCT NEW STORM DRAIN, INLETS, STORMCEPTOR AND NEW STORM DRAIN MANHOLE CONNECTION TO EXISTING STORM DRAIN.
- 8. INSTALL INLET PROTECTION AT NEW INLETS.
- 9. REMOVE EXISTING PAVING TO BE DEMOLISHED.
- 10. EXCAVATE FOR STRUCTURE CONSTRUCTION.
- 11. CONSTRUCT NEW UTILITIES.
- 12. CONSTRUCT NEW BUILDINGS.
- 13. INSTALL PAVING.

ENGINEER'S CERTIFICATE

DIRECTOR

- 14. CONSTRUCT BIORETENTION FACILITY. 15. STABILIZE ALL DISTURBED AREAS.
- 16. AFTER THE SITE IS PERMANENTLY STABILIZED AND PERMISSION IS GRANTED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROLS AND STABILIZE ANY REMAINING DISTURBED AREAS.

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND

WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS

PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT."

OF ENGINEER (PRINT NAME BELOW SIGNATURE)

CARREN M. STAMM

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- 1. PREFERRED APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.)
- ACCEPTABLE APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING, HARROW OR DISK INTO UPPER THREE INCHES OF

SEEDING - FOR THE PERIODS MARCH 1 - APRIL 30, AND AUGUST 1 - OCTOBER 15, SEED WITH 60 LBS/ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE, FOR THE PERIOD MAY 1 - JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (.05 LBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 - FEBRUARY 28, PROTECT SITE

- OPTION 1 TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.
- OPTION 2 USE SOD. OPTION 3 - SEER: WITH 60 LBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.)

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING. DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY

SOIL AMENDMENTS: APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000

SEEDING: FOR PERIODS MARCH 1 - APRIL 30 AND FROM AUGUST 15 - OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.) FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ. FT.) FOR THE PERIOD NOVEMBER 16 - FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FT. OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ. FT.) FOR

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STABILIZED CONSTRUCTION ENTRANCE BERM (6" MIN.) EXISTING PAVEMENT EARTH FILL ** GEOTEXTILE CLASS 'C' ------ PIPE AS NECESSARY OR BETTER MINIMUM 6" OF 2"-3" AGGREGATE OVER LENGTH AND WIDTH OF STRUCTURE L EXISTING GROUND **PROFILE** PLAN VIEW STANDARD SYMBOL XX SCEXX CONSTRUCTION SPECIFICATION 1. LENGTH - MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT). 2. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING

3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.

4. STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE

5. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.

6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A - STANDARD INLET PROTECTION EDGE OF ROADWAY OR TOP OF EARTH DIKE 2" X 4" FRAMING 6" MINIMUM / EXCAVATE, BACKFILL AND GEOTEXTILE CLASS E MAX. DRAINAGE AREA = 1/4 ACRE Construction Specifications Excavate completely around the inlet to a depth of 18" below the

flooding and safety issues may arise.

STANDARD SYMBOL

SIP

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the injet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The

3. Stretch the $1/2" \times 1/2"$ wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a

top of the frame (weir) must be 6" below adjacent roadways where

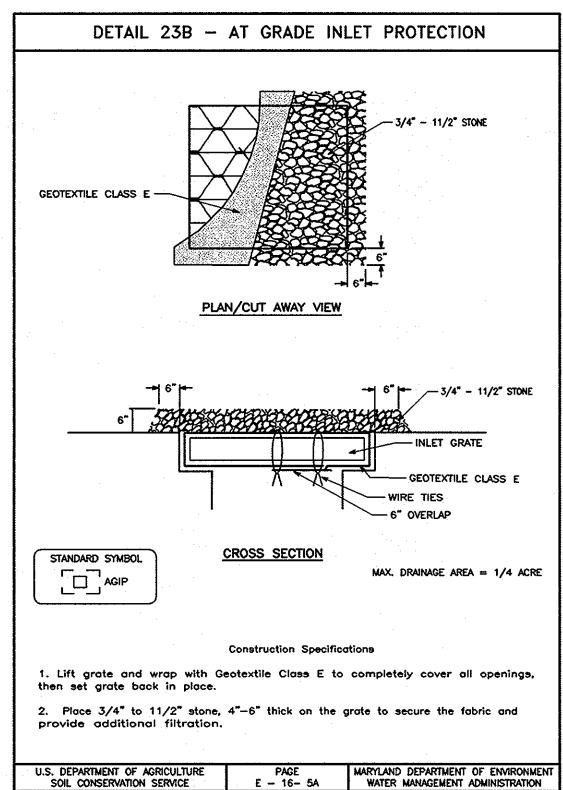
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

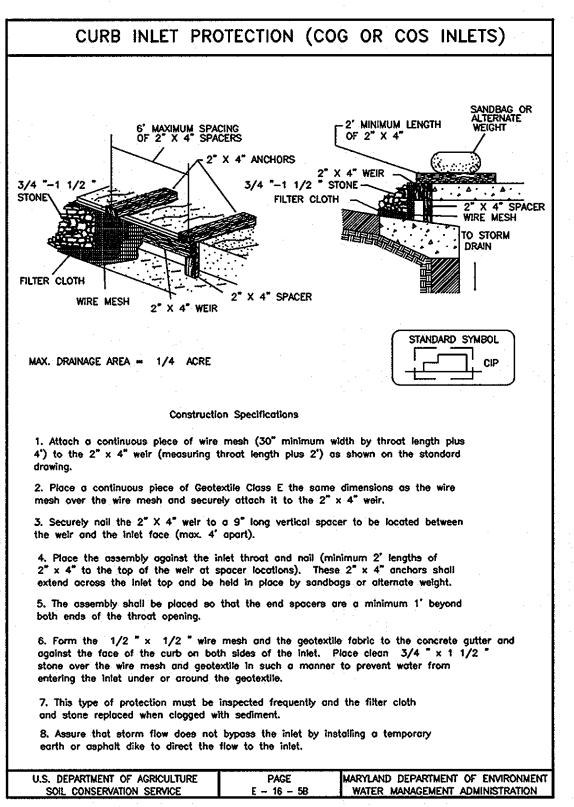
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

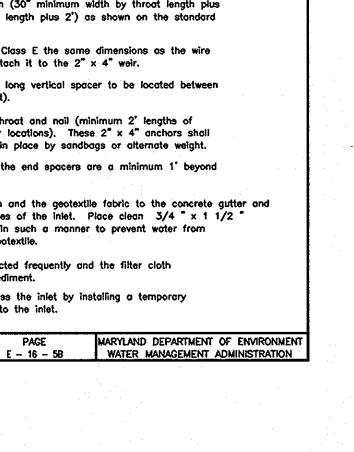
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the aeotextile replaced when it becomes cloqued.

PAGE E - 16 - 5 MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION







DEVELOPER

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: (410)313-2414

ADDRESS CHART PARCELS NO. STREET ADDRESS 8800 RIDGE ROAD ZONE B-2 TAX ZONE MAP 24

REVIEWED FOR MOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL <u>REQUIR</u> ES CONSERVATION SERVIC

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL

HOWARD COUNTY MAINTENANCE FACILITY FORMERLY O'DONNELL PONTIAC REVISED SITE DEVELOPMENT PLAN

HOWARD SOIL CONSERVATION DISTRICT

REVISION TO SDP-85-144

EROSION AND SEDIMENT CONTROL NOTES SECOND ELECTION DISTRICT

HOWARD COUNTY, MD SDP-85-144 TAX MAP 24, GRID 6, PARCEL 1042 SCALE: NONE

5DP-85-144

SHEET 11 OF 11

DES: JMS/RM

DRAWN: SJM

CHK: JMS

APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT parke to leyelle

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)

OWNER

THOMAS J. O'DONNELL, JR. O'DONNELL REALTY CO., LLP 8800 RIDGE ROAD ELLICOTT CITY, MD 21043-4122 PHONE: 410-461-5000

DEVELOPER'S CERTIFICATE

NO. BY DATE **DESCRIPTION**

Gannett Fleming

4701 MOUNT HOPE DRIVE BALTIMORE, MARYLAND 21215

DATE: 11/7/07