

HOWARD COUNTY

Capital Project #D-1159

Emily Fox Court

Principal Spillway Replacement Project

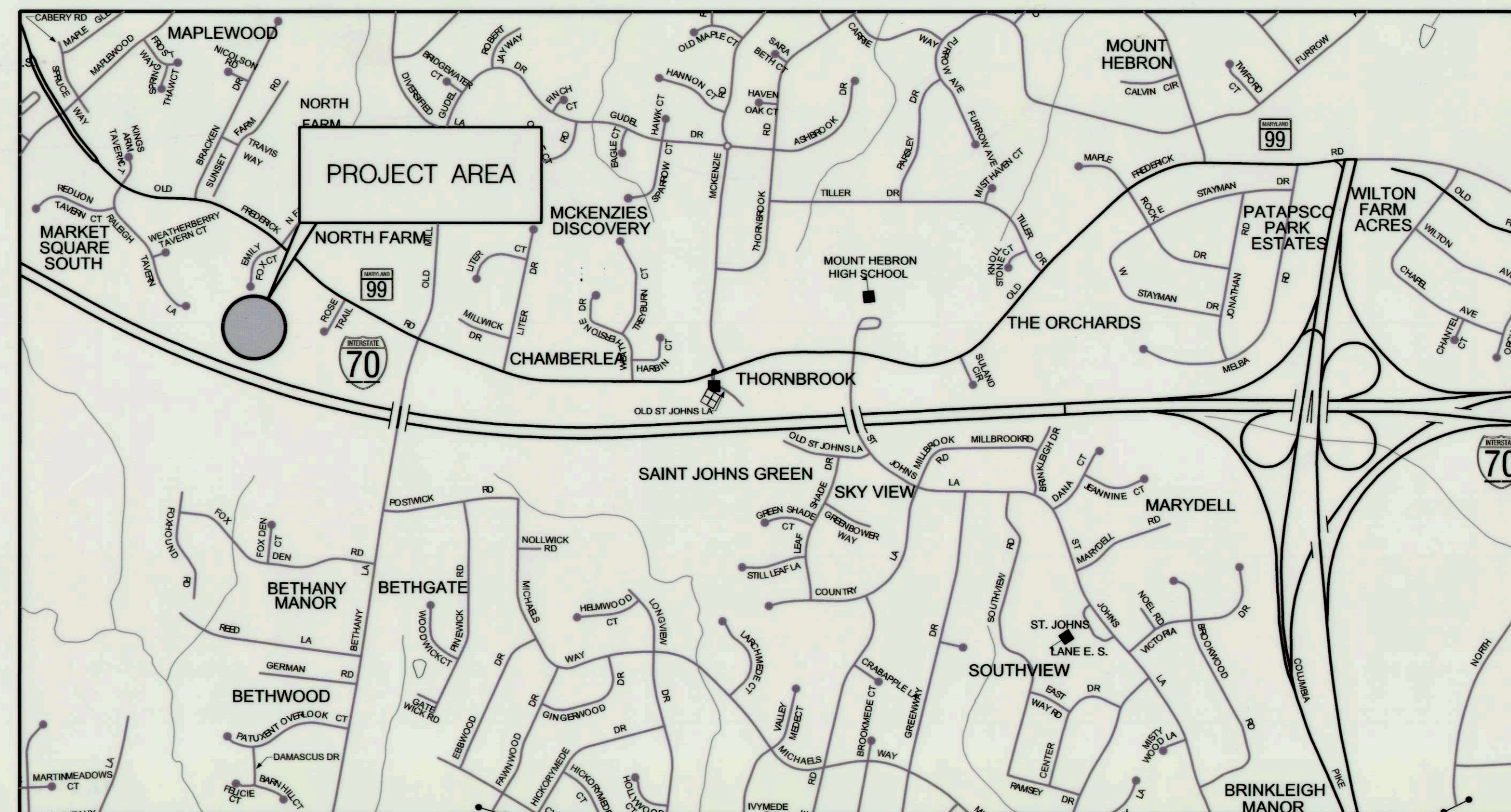
Storm Water Management Division
Bureau Of Environmental Services

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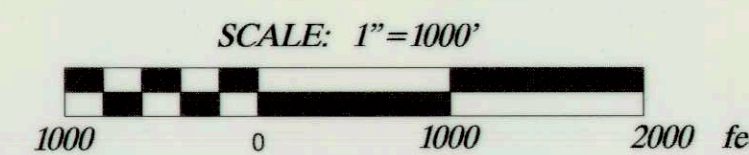
SHEET NO.	TITLE
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LEGEND

PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	
FLOW LINE	
STATE, COUNTY OR CITY LINES	
PROPOSED TRAFFIC BARRIER	
EXISTING TRAFFIC BARRIER	
PROPOSED FENCE LINE	
EXISTING FENCE LINE	
RIGHT OF WAY LINE	
EXISTING ROADWAY	
BASE OR SURVEY LINE	
TRAVERSE POINT	
APPROXIMATE LIMITS OF CUT AND/OR FILL	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
LIMIT OF DISTURBANCE	
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
HEDGE / TREE LINE	
BUSH / TREE	
CONIFEROUS TREE	
LIGHT POLE	



HORIZONTAL DATUM	NAD 83 / 91
VERTICAL DATUM	NAVD 88



GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC-AUGUST 2010.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS INC.
- WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR JULY 2010.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTORS'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE CONSTRUCTION PLANS FOR FOXWOOD LOTS 1-17 (F-88-232).
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201061583)
- PROJECT IMPACTS INCLUDE WORK IN A USE 1-P STREAM. WORK MAY NOT BE CONDUCTED DURING THE PERIOD BETWEEN MARCH 1 THROUGH JUNE 15.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 32013, EXPIRATION DATE: 7/5/2015

AS-BUILT CERTIFICATION

I CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DESIGN CERTIFICATION

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John P. Roberts
HOWARD SOIL CONSERVATION DISTRICT
DATE: 9/5/13

Amy L. Hribar
SIGNATURE
PE No. 32013
DATE: 9/09/2014
MARYLAND REGISTRATION NUMBER: 32013

8/28/13
DATE
Amy L. Hribar
DESIGNER'S SIGNATURE
AMY L. HRIBAR
PRINTED NAME

8/29/13
DATE
Mark S. Richmond
OWNER / DEVELOPER SIGNATURE
Mark S. Richmond, Acting Division Chief
PRINTED NAME AND TITLE

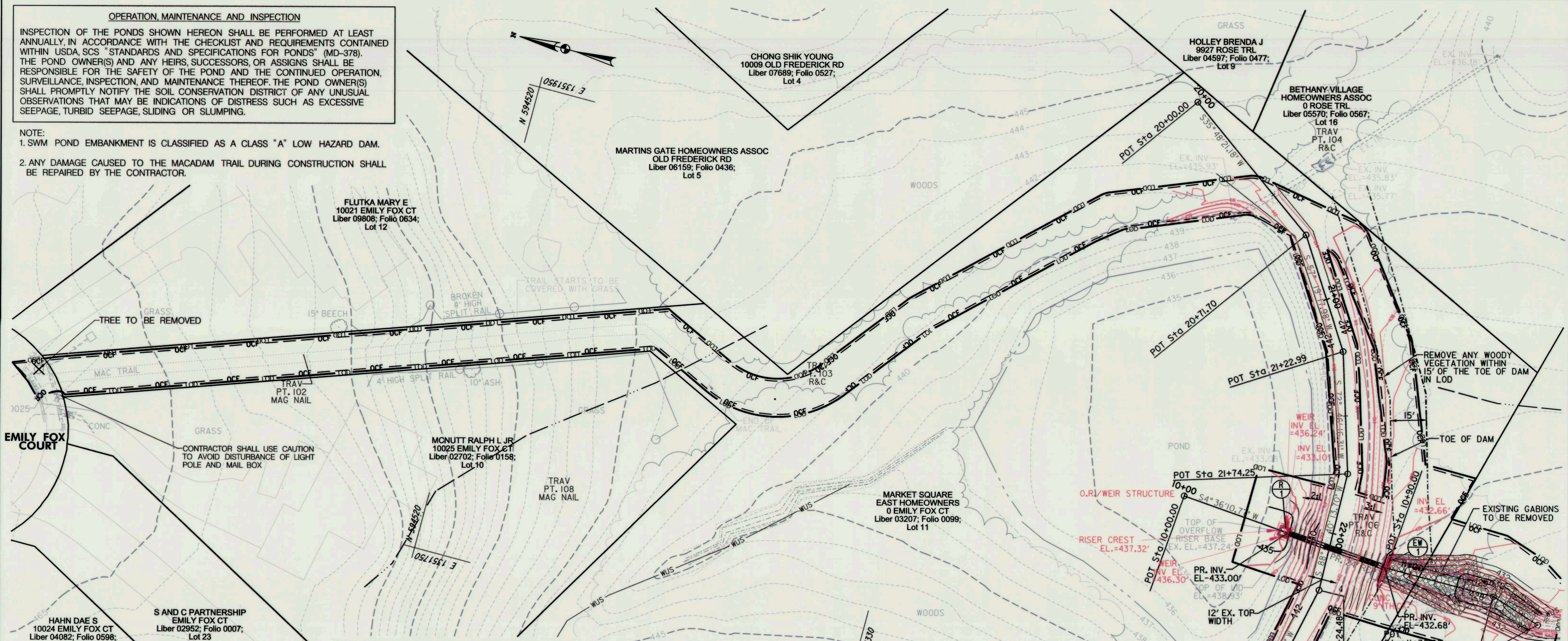


DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>Mark S. Richmond</i> DIRECTOR OF PUBLIC WORKS DATE: 8/29/13 <i>Mark S. Richmond</i> CHIEF, STORMWATER MANAGEMENT DIVISION DATE: 8/29/13	McCormick & Taylor Engineers & Planners Since 1946 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444	DES: AH	AS-BUILT PLANS	992014	EMILY FOX COURT PRINCIPAL SPILLWAY REPLACEMENT PROJECT CAPITAL PROJECT D 1159 HOWARD COUNTY TITLE SHEET	SCALE AS SHOWN
			DRN: MR				SHEET 1 OF 9
			CHK: CB				
			DATE: 8/28/13	REVISION	DATE		

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE PONDS SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

- NOTE:
 1. SWM POND EMBANKMENT IS CLASSIFIED AS A CLASS "A" LOW HAZARD DAM.
 2. ANY DAMAGE CAUSED TO THE MACADAM TRAIL DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR.



SURVEY CONTROL

TRAVERSE POINT	ELEVATION	NORTHING	EASTING
102	461.34	594585.9199	1351815.9671
103	442.47	594385.0637	1351865.9075
104	440.50	594197.2740	1352006.8510
106	441.38	594148.2181	1351856.4552
108	446.98	594465.9827	1351782.4368

CONSTRUCTION BASELINE CONTROL COORDINATES

POINT	STATION	NORTHING	EASTING
POT	10+00.00	594215.2150	1351854.8465
POT	10+90.00	594125.5052	1351847.6239
POT	11+36.00	594079.5052	1351847.6239
POT	11+58.00	594058.5414	1351840.9517
POT	20+00.00	594252.6898	1352015.6378
POT	20+71.70	594194.5427	1351973.6917
POT	21+22.99	594166.8476	1351930.5164
POT	21+74.25	594151.6642	1351881.5540
POT	22+24.48	594150.4990	1351831.3453
POT	23+29.66	594172.6111	1351728.5102

CLASS I RIPRAP

QUANTITY (CF)	REMARKS
180	

CLASS II RIPRAP

QUANTITY (CF)	REMARKS
2,621	FOR STABILIZATION AND PLUNGE POOL

24" RCP - ASTM C-361, CLASS B-25

STATION	QTY (L.F.)
STA. 10+46 TO STA. 10+89	43

TYPE C ENDWALL FOR 24" RCP, EW-1

STATION	QTY (EA)	REMARKS
STA. 10+89, 0' LT	1	SEE DETAIL D-5.21 ON SHEET 4

**RISER STRUCTURE R-1
SEE DETAIL, SHEET 4**

STATION	QTY (EA)
STA. 10+46, 0' LT	1

TOP SOIL

QUANTITY (CY)	REMARKS

SOIL STABILIZATION MATTING

QUANTITY (SY)	REMARKS
305	BIODEGRADABLE STRAW MATTING FOR EMBANKMENT

EMBANKMENT CLAY

QUANTITY (CY)	REMARKS
100	FOR CLAY CORE

EXCAVATION

QUANTITY (CY)	REMARKS
360	EMBANKMENT AND OUTFALL

REMOVE GABION BASKETS*

STATION FROM	STATION TO	QUANTITY (LF)
10+89, LT	10+95, LT	37 LF

*CONTRACTOR TO FIELD VERIFY DIMENSIONS OF EXISTING GABIONS

TREE REMOVAL

QUANTITY (EA)	REMARKS
1	LOCATED IN EASEMENT

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- TOE OF DAM
- PROPERTY LINE
- EXISTING TREE
- WUS - WATERS OF THE US
- LOD - LIMIT OF DISTURBANCE
- OCF - ORANGE CONSTRUCTION FENCE
- 24" RCP
- CLASS II RIPRAP
- CLASS I RIPRAP
- EX. GABION WALL

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

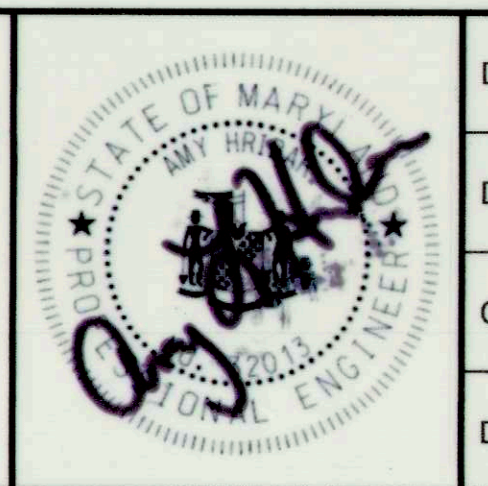
8/29/13

McCormick Taylor
Engineers & Planners
Since 1946

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



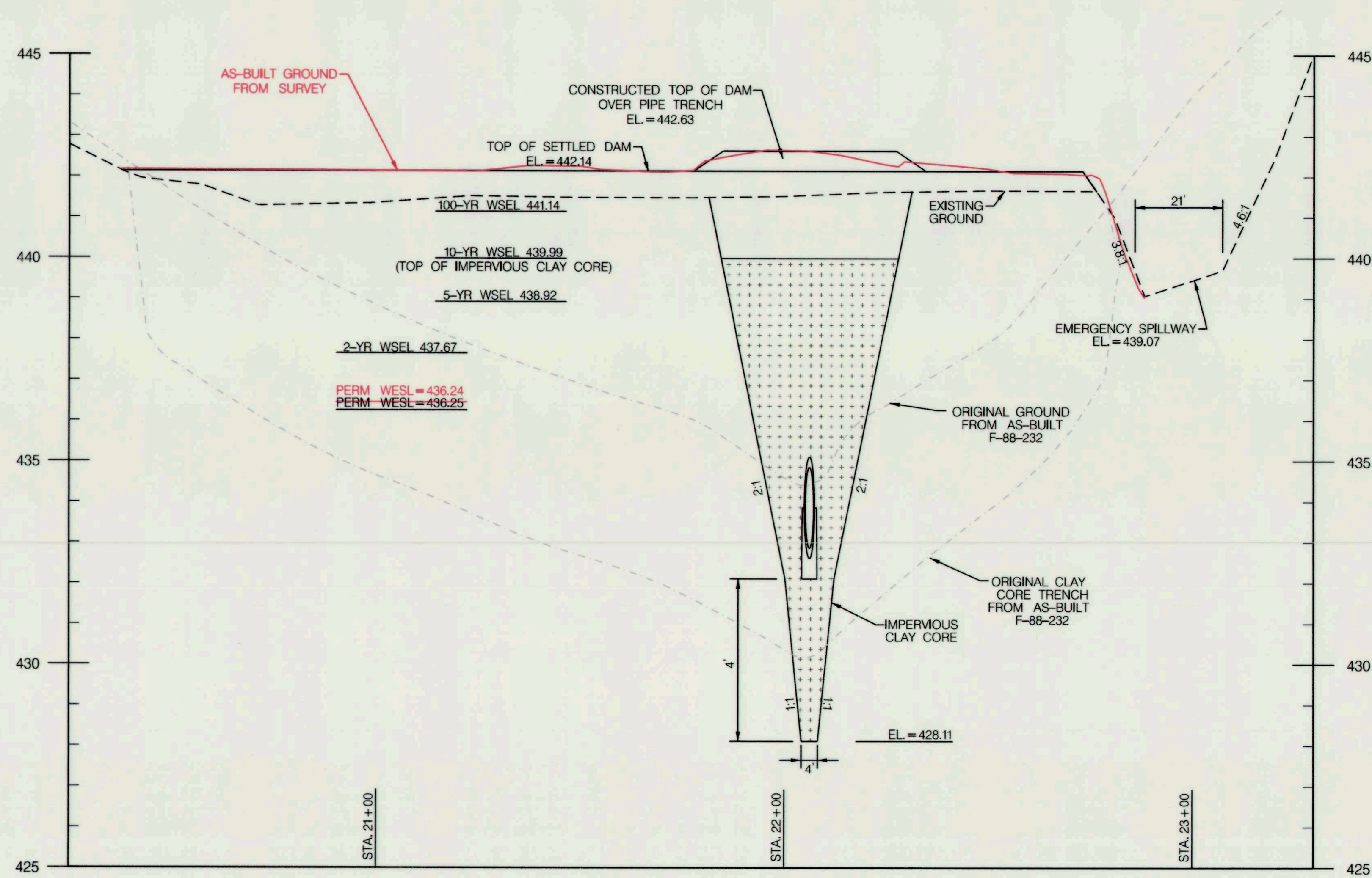
DES:	AS-BUILT PLANS	01/30/2015	
AH			
DRN: MR			
CHK: CB			
DATE: 8/28/13			
BY	NO.	REVISION	DATE

**EMILY FOX COURT
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT D 1159
HOWARD COUNTY**

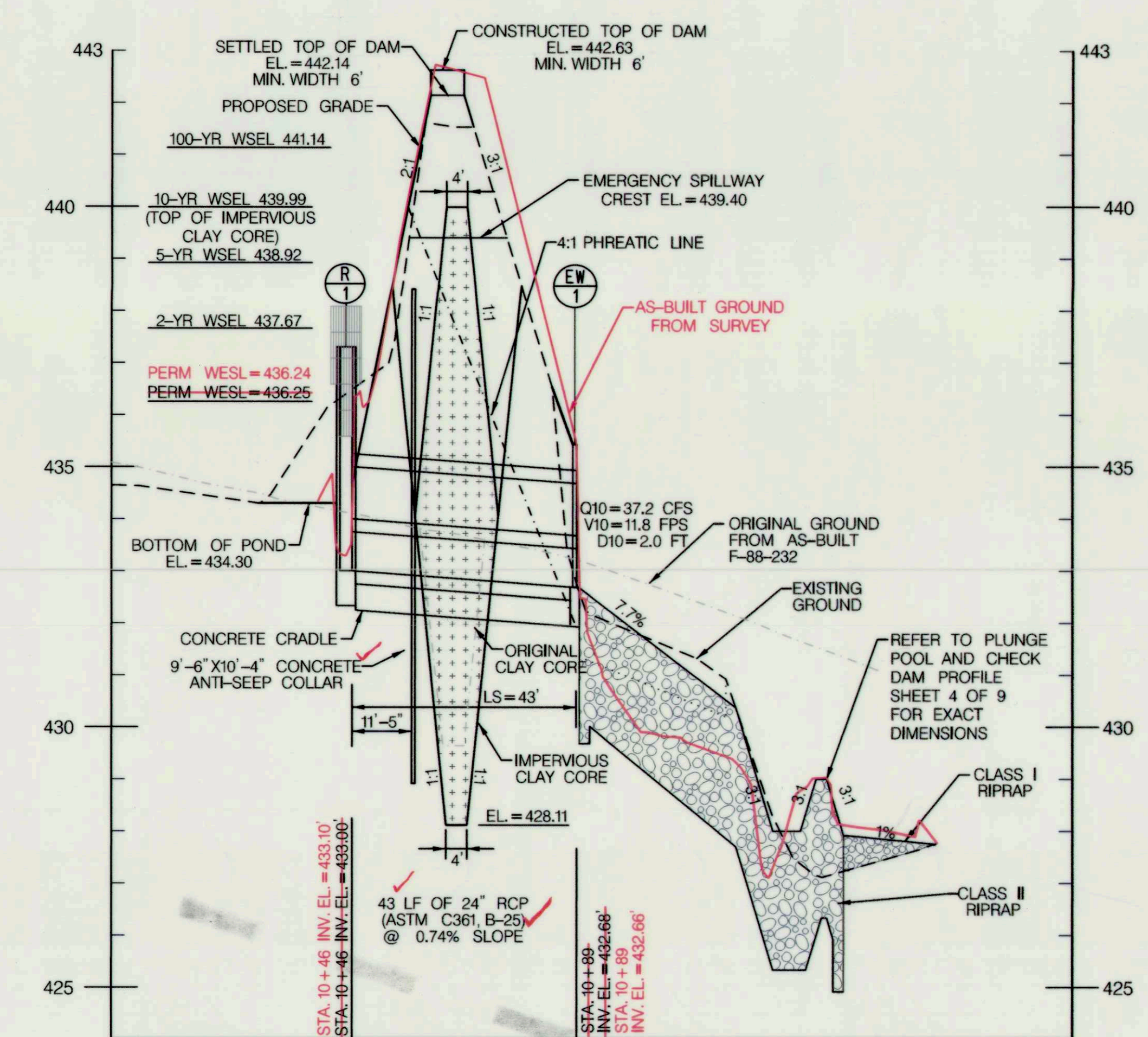
SITE PLAN

SCALE: 1" = 20'

SHEET 2 OF 9



CENTERLINE EMBANKMENT PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'



SPILLWAY PIPE PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'

*EMBANKMENT TOP WAS RE-SURVEYED
 01/30/2015. GRADES AND ELEVATIONS SHOWN
 REFLECT MERGED AS-BUILT SURFACE FROM
 SURVEYS CONDUCTED 9/9/2014 AND 1/30/2015.

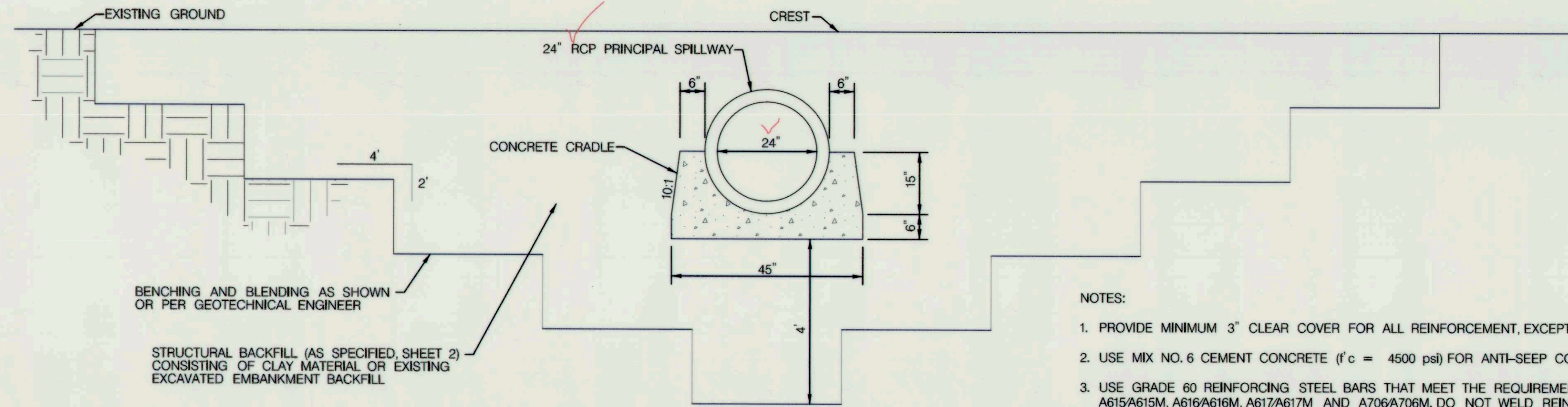


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EMILY FOX COURT
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT D 1159
HOWARD COUNTY

STORMDRAIN PROFILE SHEET

SCALE
 AS SHOWN
 SHEET
 3 OF 9

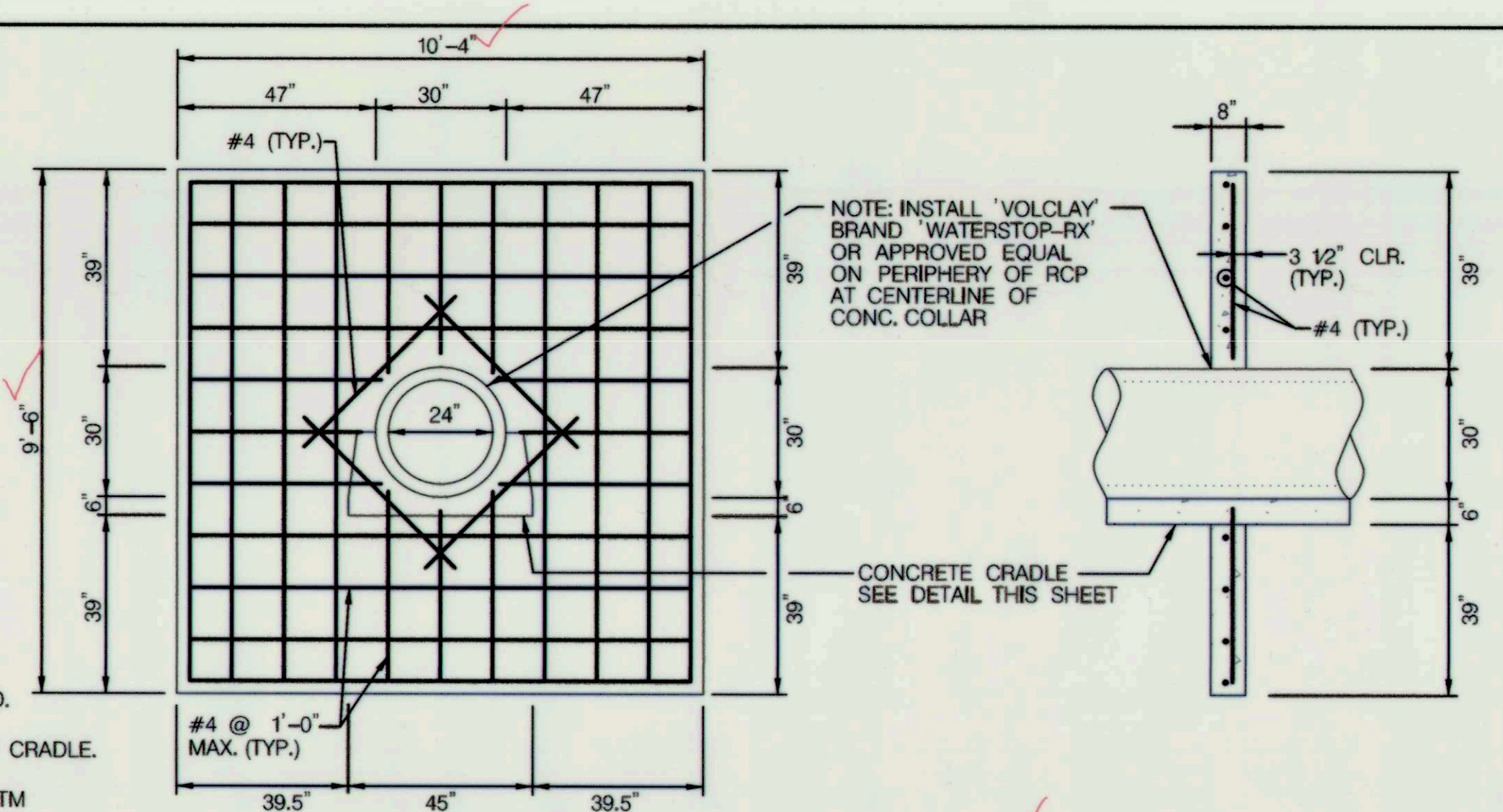


PIPE TRENCH AND CONCRETE CRADLE DETAIL

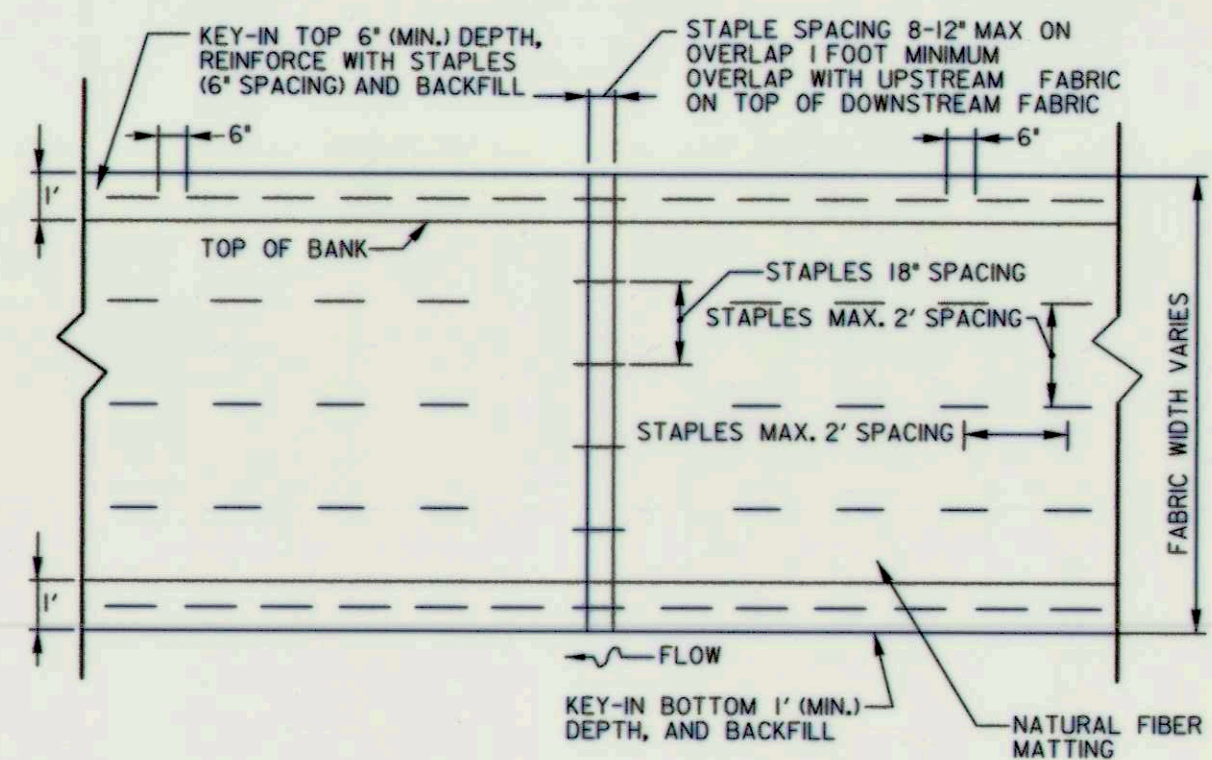
NOT TO SCALE

NOTES:

1. PROVIDE MINIMUM 3" CLEAR COVER FOR ALL REINFORCEMENT, EXCEPT AS NOTED.
2. USE MIX NO. 6 CEMENT CONCRETE (f'c = 4500 ps) FOR ANTI-SEEP COLLAR AND CRADLE.
3. USE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A615/A615M, A616/A616M, A617/A617M AND A706/A706M. DO NOT WELD REINFORCING STEEL BARS UNLESS SPECIFIED.



CONCRETE ANTI-SEEP COLLAR



SOIL STABILIZATION MATTING

NOT TO SCALE

CONSTRUCTION

1. The Contractor shall furnish Howard County with specifications and a source of soil stabilization matting for review and approval.
2. Topsoil and Seeding shall be completed before the soil stabilization matting is installed. The matting shall be placed within 24 hours after seeding operations have been completed. Matting shall be laid smoothly and securely upon the seeded bed in the direction of water flow. Strutting shall be avoided.
3. Where more than one width of matting is required, the ends of each strip shall overlap 1 foot for both vertical and horizontal overlaps. Overlapping shall be done with the higher mat overlapping the lower mat and upstream matting overlapping downstream matting. Matting shall be firmly fastened in place with staples driven vertically into the soil and flush with the surface. Staples shall be placed a maximum of 2 feet apart along the edges and throughout the matting.
4. On all overlapping edges, staples shall be placed 18 inches apart. At all ends of matting, staples shall be placed 12 inches apart.
5. The Contractor shall excavate a 1 foot deep trench along all edges of the matting. The matting shall be placed into the trench, pinned, and the trench backfilled and tamped.

DESCRIPTION

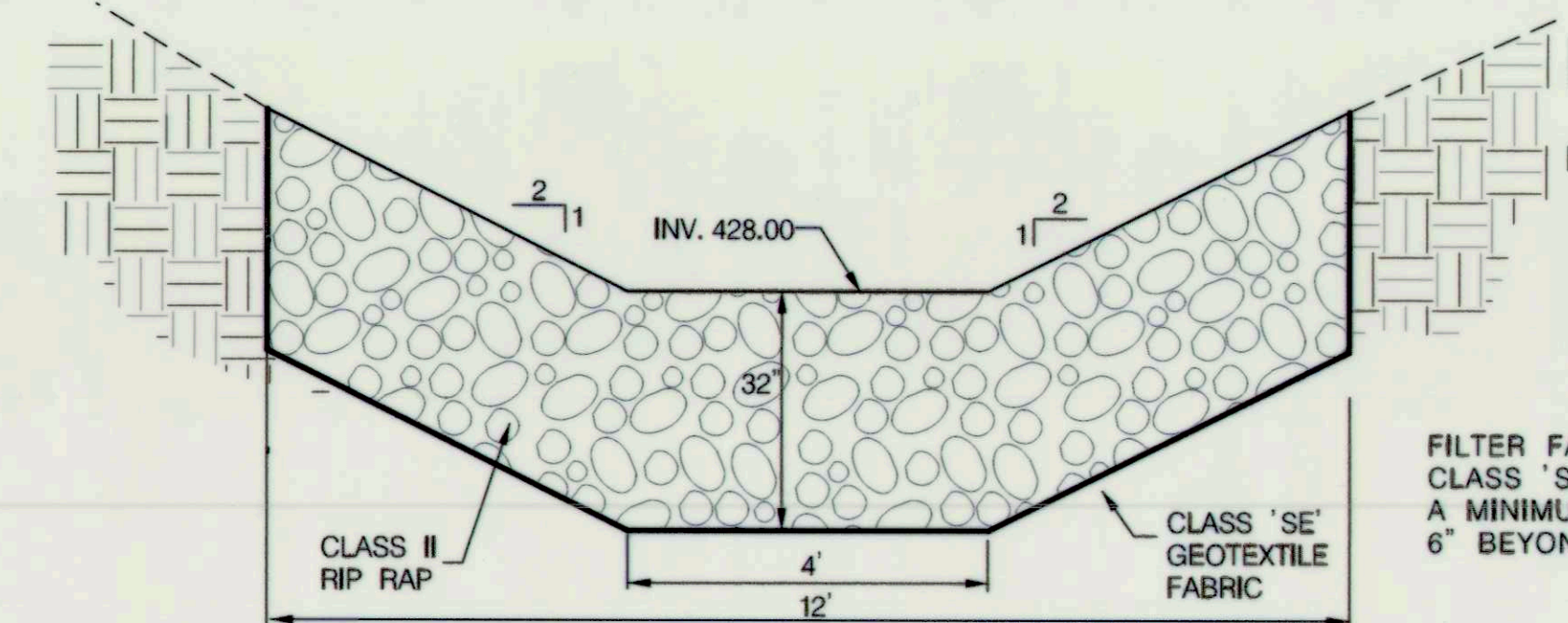
Soil stabilization matting shall be placed to the details on the Construction Plans and as directed by the Engineer.

MATERIALS

1. Soil stabilization matting shall be degradable matting or an equivalent matting consisting of machine produced matting meeting the following minimum specifications:

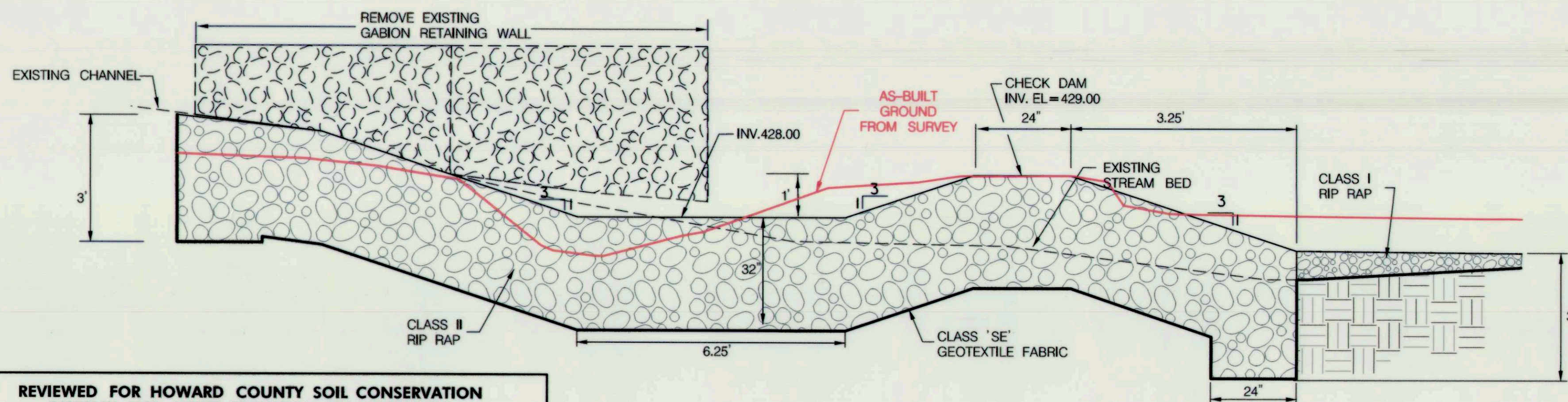
Material	Natural Fiber
Thickness	0.25 Inches
Weight	9.6 oz/SY
Tensile Strength	4.7 lb./ In.
Netting Opening	2.0 x 1.0 In. or less

2. Staples for securing the soil stabilization matting shall be U steel wire with a minimum gauge of 8. The U shaped staples shall average 1 to 1.5 inches wide. The length of the staples shall be 6 inches minimum.



PLUNGE POOL CROSS SECTION

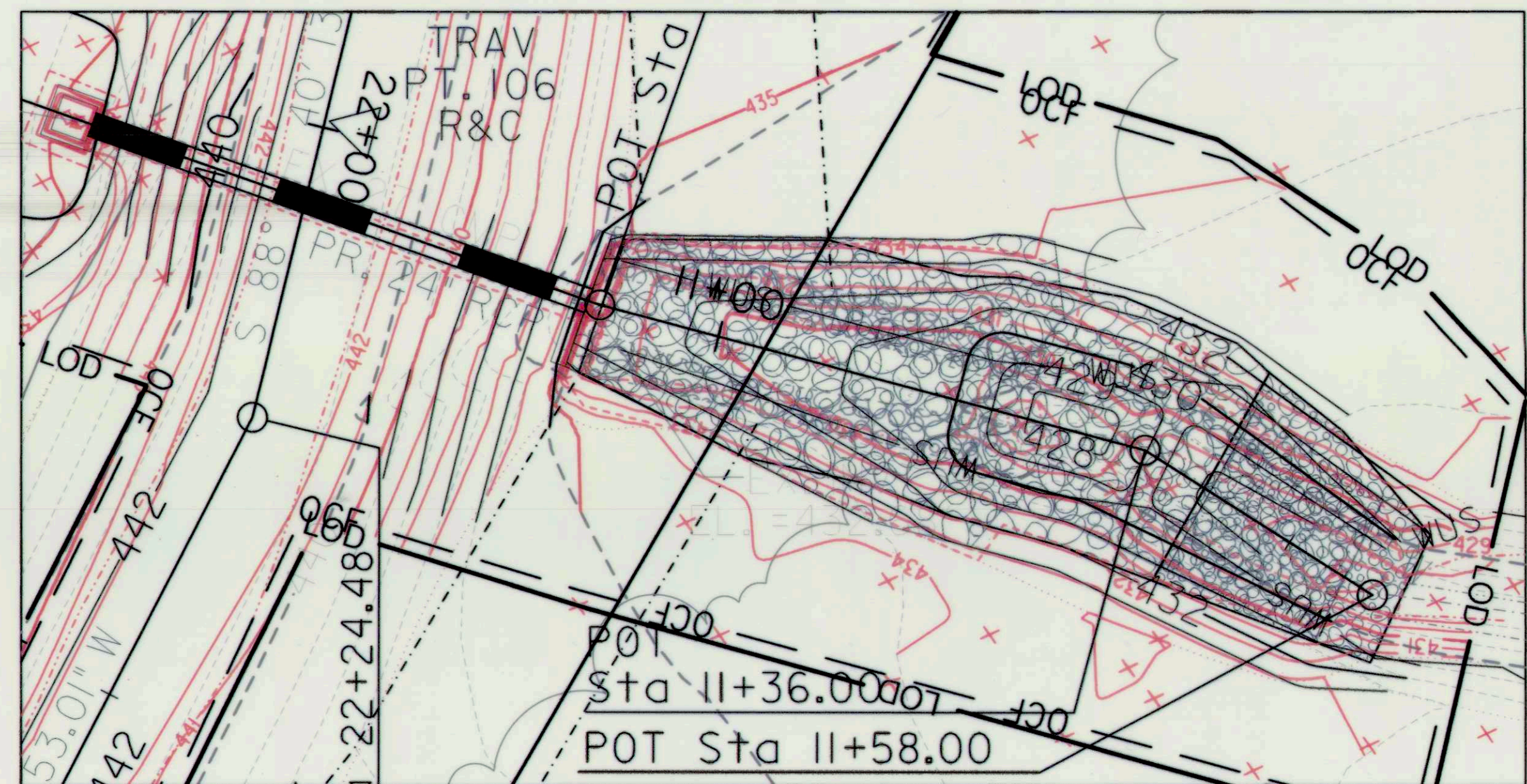
SCALE: 1" = 2'



PLUNGE POOL AND CHECK DAM PROFILE

SCALE: 1" = 2'

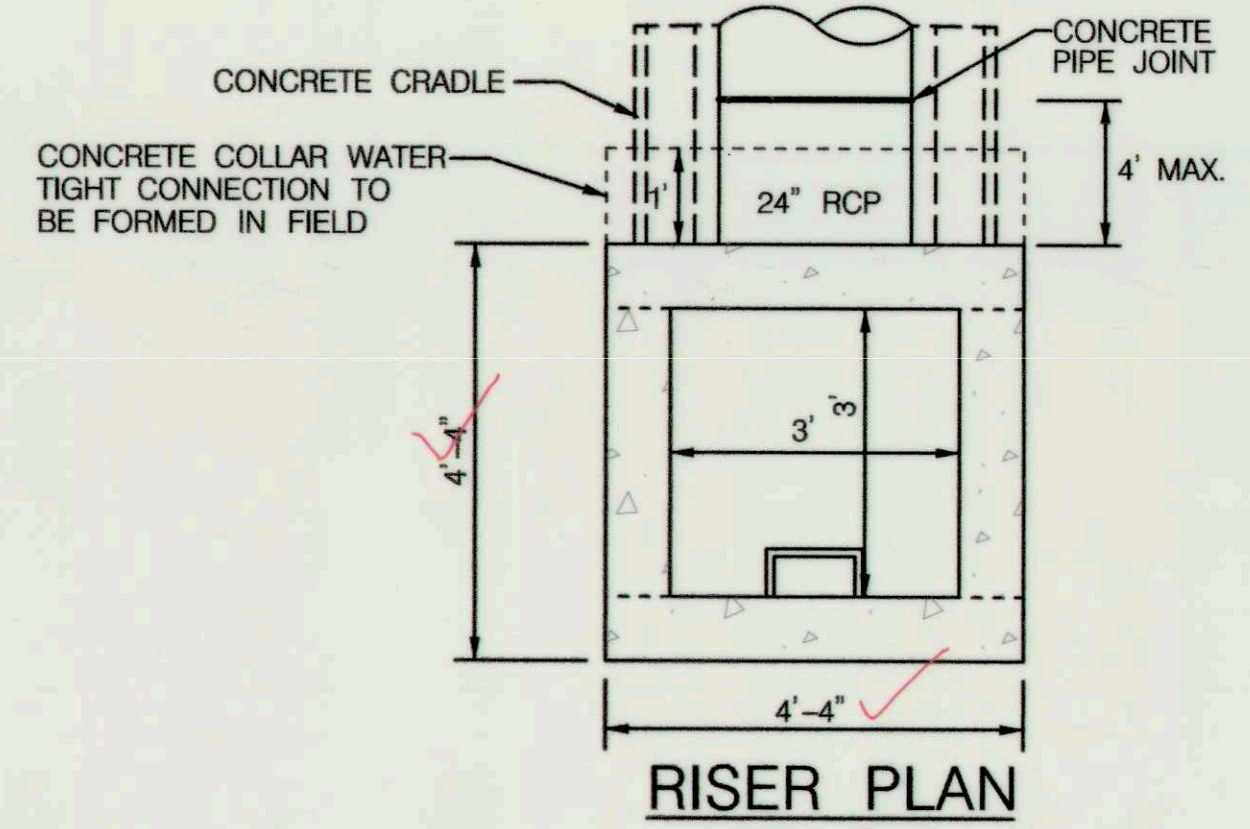
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 John P. Roberts
 HOWARD COUNTY SOIL CONSERVATION DISTRICT
 9/15/13
 DATE



PLUNGE POOL PLAN

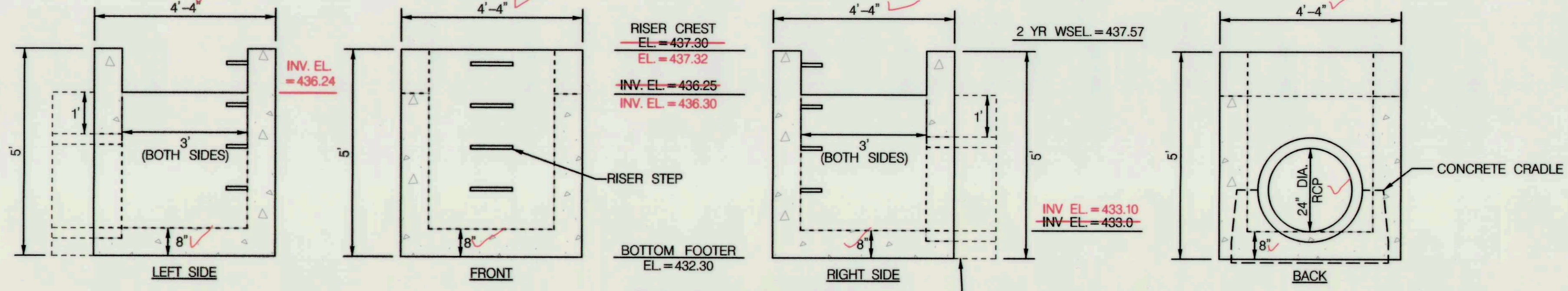
SCALE: 1" = 10'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 8/29/13 DATE	McCormick Taylor Engineers & Planners Since 1946 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444		DES: AH	AH	AS-BUILT PLANS	99/2014	EMILY FOX COURT PRINCIPAL SPILLWAY REPLACEMENT PROJECT CAPITAL PROJECT D 1159 HOWARD COUNTY STORMDRAIN DETAIL SHEET	SCALE
				DRN: MR					AS SHOWN
				CHK: CB				SHEET	
				DATE: 8/28/13	BY	NO.	REVISION	DATE	4 OF 9

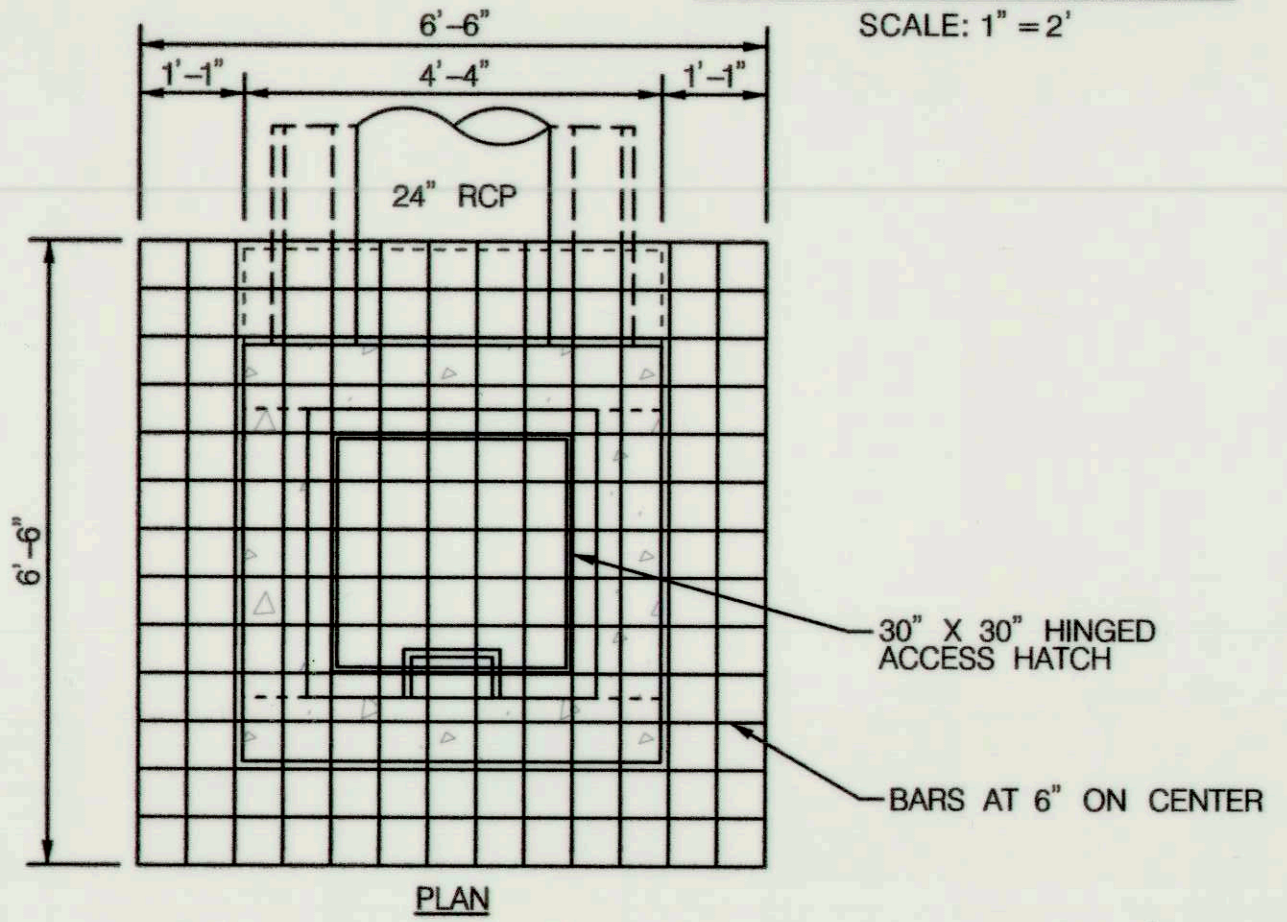
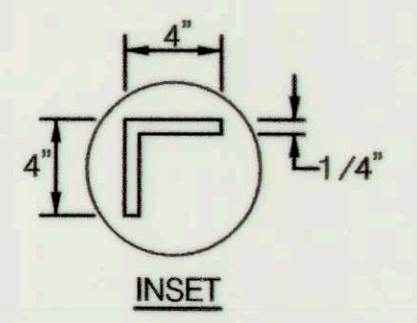


RISER PLAN
SCALE: 1" = 2'

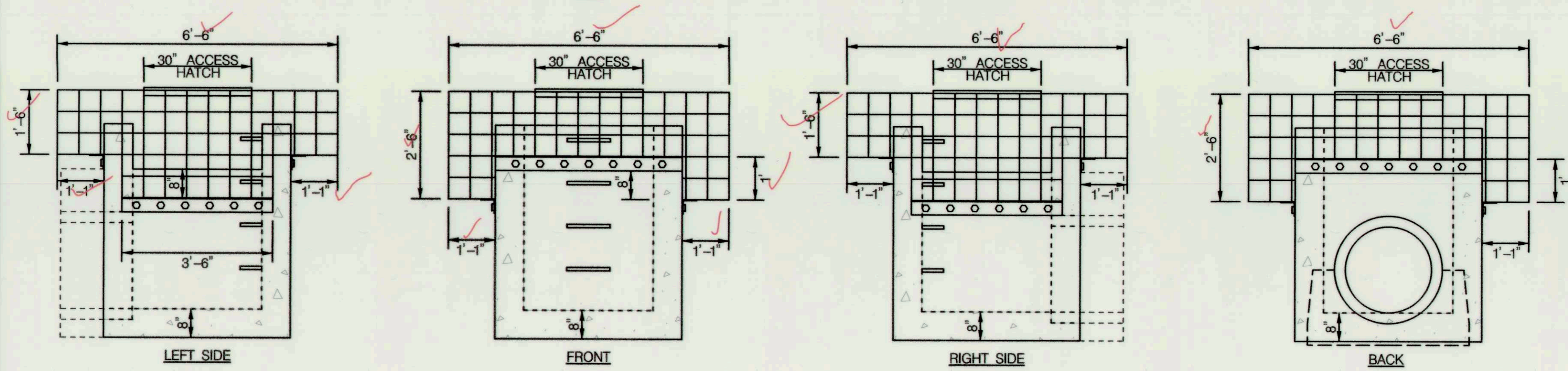
- RISER CONSTRUCTION NOTES:**
- RISER STEPS SHALL FOLLOW DETAIL G-5.21 FOR MANHOLE AND INLET STEPS
 - SHA MIX NO.3 CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 301 AND ACI 318.
 - PRECAST STRUCTURES SHALL BE DESIGNED BY A PRECAST CONCRETE STRUCTURES MANUFACTURER IN ACCORDANCE TO LOADING SPECIFIED IN LATEST EDITIONS OF ASTM C857 AND ASTM C890.
 - PRECAST STRUCTURES SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITIONS OF ASTM C858 AND MARYLAND NRCS POND CODE MD-378.
 - RESILIENT CONNECTORS BETWEEN MANHOLE STRUCTURES, PIPES AND LATERALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LATEST EDITIONS OF ASTM C923.
 - OVERALL HEIGHT OF PRECAST IS ADJUSTABLE IN 6" INCREMENTS, FINAL GRADE ADJUSTMENTS SHALL BE MADE BY THE CONTRACTOR WITH MIX NO. 3 CONCRETE.
 - INVERT SHALL BE APPROVED PRECAST PLAIN MIX NO. 3 CONCRETE. INVERT TO SLOPE DOWN TOWARD OUTLET AT THE RATE OF 2" PER FOOT, OR AS SHOWN ON PLAN OR AS DIRECTED.
 - REFER TO DETAIL D-4.10 FOR REBAR PLACEMENT.
 - FIRST BARREL JOINT OF CONCRETE PIPE SHALL HAVE A WATERTIGHT CONNECTION AND BE PLACED NO MORE THAN 4' FROM RISER.
 - A CONCRETE COLLAR SHALL BE PLACED AROUND THE CONCRETE PIPE AND RISER TO PROVIDE A WATERTIGHT CONNECTION.
 - USE NON-SHRINK GROUT TO PARGE THE PIPE CONNECTION INSIDE THE RISER.



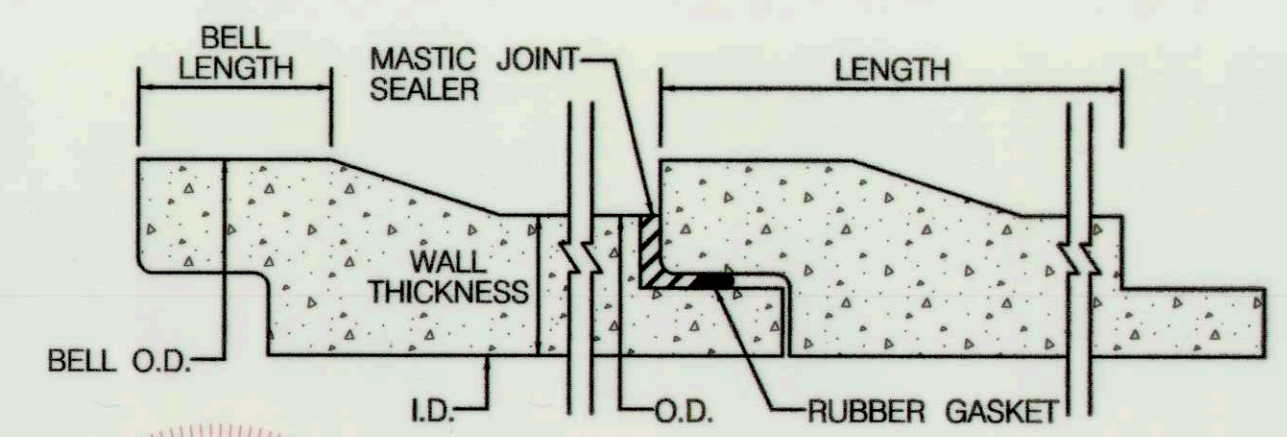
RISER ELEVATION
SCALE: 1" = 2'



- TRASH RACK CONSTRUCTION NOTES:**
- FRAME SHALL BE CONSTRUCTED OF 4" X 4" X 3/16" STEEL ANGLE WITH THE CORNERS MITRED AND BUTT WELDED.
 - THE FRAME SHALL BE PAINTED WITH TWO COATS OF COLD GALVANIZED COMPOUND IN "BATTLESHIP GREY".
 - BARS SHALL BE #6 REBAR AT 6" CC EACH WAY, HOT-DIPPED GALVANIZED AND FILLET WELDED TO THE ANGLE FRAME.
 - ALL STEEL SHALL BE ASTM A-36.
 - TRASH RACK SHALL BE BOLTED ONTO THE OUTSIDE FACE OF THE RISER USING 3/8" DIA STAINLESS STEEL EXPANSION BOLTS, @ 11" CC MIN. 4" FROM EDGE OF CONCRETE RISER. DRILL ANGLE FRAME TO ALLOW PASSAGE OF BOLTS.
 - ENSURE A 1' CLEARANCE BETWEEN TRASH RACK AND DAM EMBANKMENT SLOPE.
 - PROVIDE LOCKABLE HINGED ACCESS HATCH IN TOP OF TRASH RACK OVER RISER STEPS.



TRASH RACK DETAIL
SCALE: 1" = 2'



BARREL JOINT SEALER DETAIL
NOT TO SCALE

- BARREL JOINT SEALER NOTES:**
- MASTIC JOINT SEALER TO BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 - JOINT SEALER SHOULD HAVE WATERTIGHT CONNECTION.
 - THE SEALER SHALL BE A MIXTURE OF ASPHALT, MINERAL FILLER, AND PETROLEUM SOLVENTS, AND SHALL HAVE ADHESIVE AND COHESIVE PROPERTIES.
- THE SEALER SHALL CONFORM TO THE FOLLOWING:
- | TEST AND METHOD | SPECIFICATION LIMITS |
|---|----------------------|
| RESIDUES BY EVAPORATION, NONVOLATILE MATTER, D 2939, % MIN. | 70 |
| INORGANIC FILLER ON IGNITION, ASH CONTENT, D 2939, % | 15-45 |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

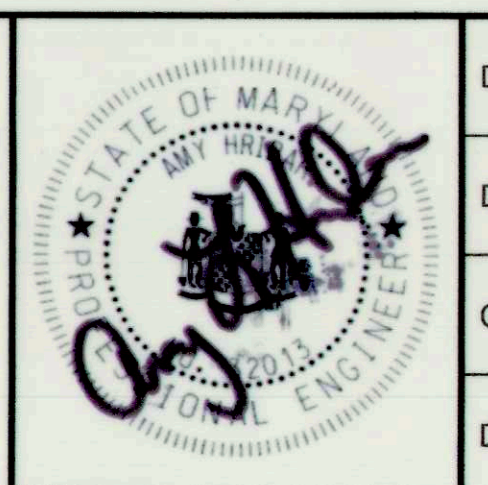
8/29/13
DATE

McCormick Taylor
Engineers & Planners
Since 1946

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES: AH	AH	AS-BUILT PLANS	9/9/2014
DRN: MR			
CHK: CB			
DATE: 8/28/13	BY	NO.	REVISION
			DATE

EMILY FOX COURT
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT D 1159
HOWARD COUNTY

RISER DETAIL SHEET

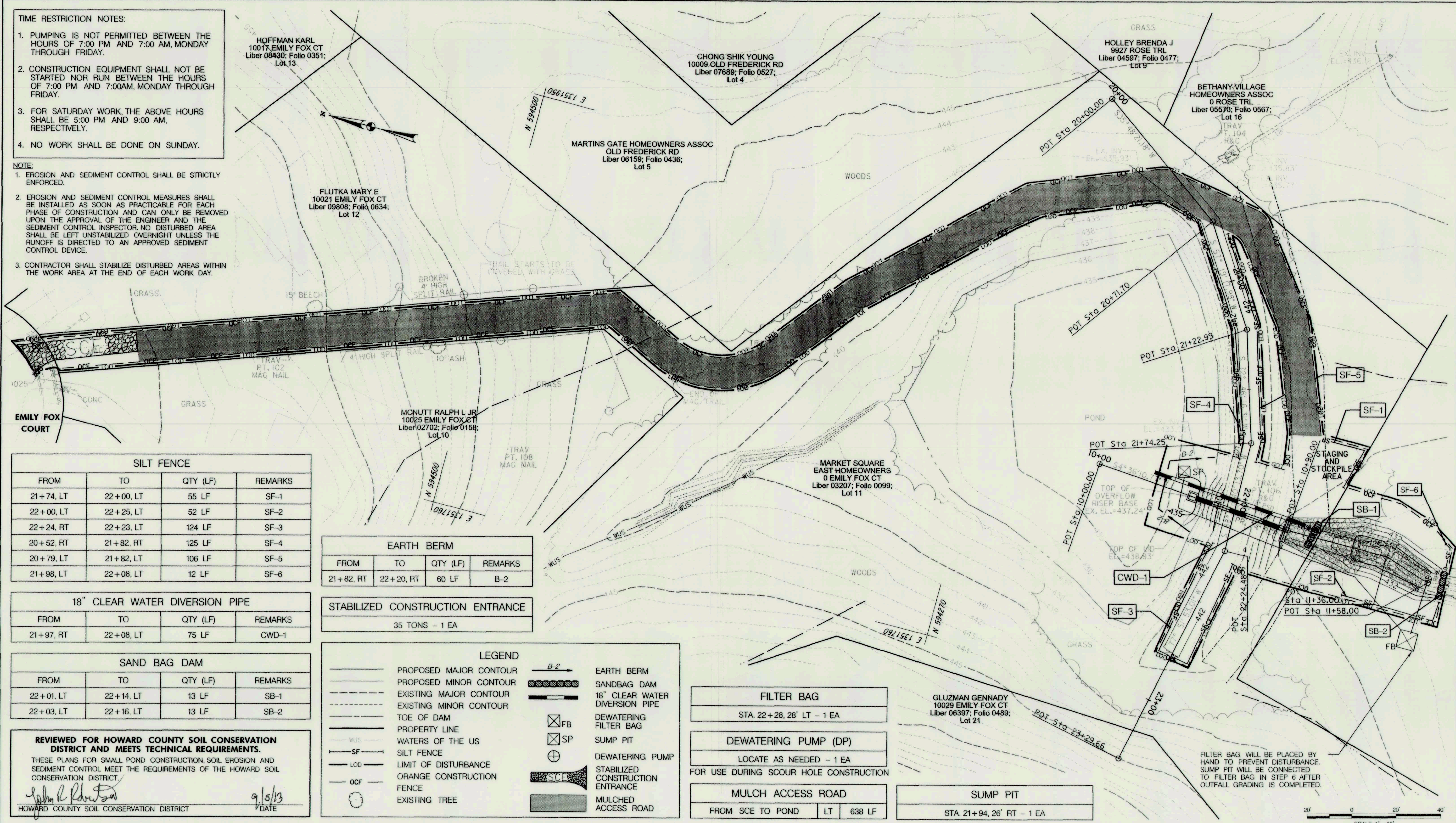
SCALE
AS SHOWN
SHEET
5 OF 9

TIME RESTRICTION NOTES:

1. PUMPING IS NOT PERMITTED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
2. CONSTRUCTION EQUIPMENT SHALL NOT BE STARTED NOR RUN BETWEEN THE HOURS OF 7:00 PM AND 7:00AM, MONDAY THROUGH FRIDAY.
3. FOR SATURDAY WORK, THE ABOVE HOURS SHALL BE 5:00 PM AND 9:00 AM, RESPECTIVELY.
4. NO WORK SHALL BE DONE ON SUNDAY.

NOTE:

1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.



SILT FENCE			
FROM	TO	QTY (LF)	REMARKS
21+74, LT	22+00, LT	55 LF	SF-1
22+00, LT	22+25, LT	52 LF	SF-2
22+24, RT	22+23, LT	124 LF	SF-3
20+52, RT	21+82, RT	125 LF	SF-4
20+79, LT	21+82, LT	106 LF	SF-5
21+98, LT	22+08, LT	12 LF	SF-6

EARTH BERM			
FROM	TO	QTY (LF)	REMARKS
21+82, RT	22+20, RT	60 LF	B-2

18" CLEAR WATER DIVERSION PIPE			
FROM	TO	QTY (LF)	REMARKS
21+97, RT	22+08, LT	75 LF	CWD-1

STABILIZED CONSTRUCTION ENTRANCE	
35 TONS - 1 EA	

SAND BAG DAM			
FROM	TO	QTY (LF)	REMARKS
22+01, LT	22+14, LT	13 LF	SB-1
22+03, LT	22+16, LT	13 LF	SB-2

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- TOE OF DAM
- PROPERTY LINE
- WUS - WATERS OF THE US
- SF - SILT FENCE
- LOD - LIMIT OF DISTURBANCE
- OCF - ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- B-2 - EARTH BERM
- SANDBAG DAM
- 18" CLEAR WATER DIVERSION PIPE
- FB - DEWATERING FILTER BAG
- SP - SUMP PIT
- DP - DEWATERING PUMP
- SCE - STABILIZED CONSTRUCTION ENTRANCE
- MULCH ACCESS ROAD

FILTER BAG	
STA. 22+28, 28' LT	- 1 EA

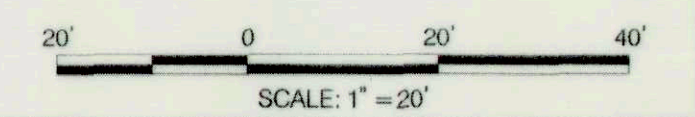
DEWATERING PUMP (DP)	
LOCATE AS NEEDED - 1 EA	

MULCH ACCESS ROAD	
FROM SCE TO POND	LT 638 LF

SUMP PIT	
STA. 21+94, 26' RT - 1 EA	

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 John K. [Signature] 9/15/13
 HOWARD COUNTY SOIL CONSERVATION DISTRICT DATE

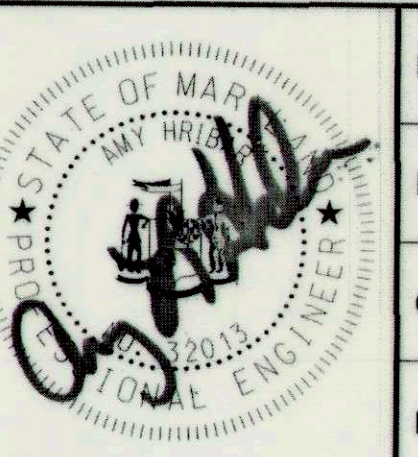
FILTER BAG WILL BE PLACED BY HAND TO PREVENT DISTURBANCE. SUMP PIT WILL BE CONNECTED TO FILTER BAG IN STEP 6 AFTER OUTFALL GRADING IS COMPLETED.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 [Signature] 8/29/13
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

McCormick Taylor
 Engineers & Planners Since 1946
 509 South Exeter Street
 4th Floor
 Baltimore, Maryland 21202
 (410) 662-7400

Howard County
 MARYLAND
 Storm Water Management Division
 Bureau of Environmental Services
 6751 Columbia Gateway Drive, Suite 514
 Columbia, Maryland 21046-3143
 (410) 313-6444



DES: AH				
DRN: MR				
CHK: CB				
DATE: 8/28/13	BY	NO.	REVISION	DATE

EMILY FOX COURT
 PRINCIPAL SPILLWAY REPLACEMENT PROJECT
 CAPITAL PROJECT D 1159
 HOWARD COUNTY

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=20'
 SHEET
 6 OF 9

SWM POND CONSTRUCTION SPECIFICATIONS (MARYLAND CODE 378 POND - JANUARY 2000)

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL: - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT: - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION: - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIERED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUTOFF TRENCH: - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION. WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE: - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM IMPERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

EARTH FILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH.

PIPE CONDUITS (CONTINUED)

THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH WIDE STANDARD LAP TYPE BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BED.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIAL - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4"-10" PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAGM - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTION OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

SEE EROSION AND SEDIMENT CONTROL SHEETS FOR DETAILED SEQUENCE OF CONSTRUCTION.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

John R. Roberts

HOWARD COUNTY SOIL CONSERVATION DISTRICT

9/5/13
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. ...

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

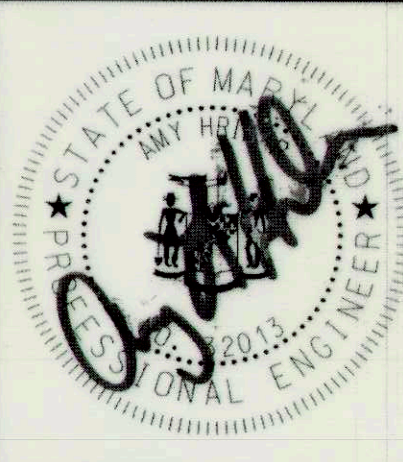
8/29/13
DATE

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Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES: AH

DRN: MR

CHK: CB

DATE: 8/28/13

BY	NO.	REVISION	DATE

EMILY FOX COURT
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT D 1159
HOWARD COUNTY

POND CONSTRUCTION SPECIFICATIONS

SCALE

NOT TO SCALE

SHEET

8 OF 9

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE

CONSTRUCTION SPECIFICATIONS

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (+30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5% SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FB

CONSTRUCTION SPECIFICATIONS

- TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
- PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
- CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
- REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
- USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:
- REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4853
FLOW RATE	70 GAL/MIN/FT	ASTM D-4431
PERMITTIVITY (SEC ⁻¹)	1/2 SEC ⁻¹	ASTM D-4431
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.5-0.8 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

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DETAIL 20B - SUMP PIT

STANDARD SYMBOL: SP

CONSTRUCTION SPECIFICATION

- PIT DIMENSIONS ARE VARIABLE, WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
- THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12" TO 24" DIAMETER CORRUGATED OR PVC PIPE. THEN WRAPPING WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE CLASS E. THE PERFORATIONS SHALL BE 1/2" X 6" SLITS OR 1" DIAMETER HOLES.
- A BASE OF FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR #57 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
- THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREEL ELEVATION (BASEIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.

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DETAIL 14: DIVERSION PIPE

STANDARD SYMBOL: SP

CONSTRUCTION SPECIFICATION

- PIT DIMENSIONS ARE VARIABLE, WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
- THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12" TO 24" DIAMETER CORRUGATED OR PVC PIPE. THEN WRAPPING WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE CLASS E. THE PERFORATIONS SHALL BE 1/2" X 6" SLITS OR 1" DIAMETER HOLES.
- A BASE OF FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR #57 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
- THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREEL ELEVATION (BASEIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.

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MULCH ACCESS ROAD DETAIL

STANDARD SYMBOL: SF

NOTES

- ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
- NATURAL FIBER MATTING SHALL BE PLACED WITH SEAMS PARALLEL TO THE FLOW OF TRAFFIC, OVERLAP FABRIC BY 18" MINIMUM AT SEAMS.
- NATURAL FIBER MATTING MAY BE ELIMINATED AT DIRECTION OF ENGINEER.
- CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE AT A MAXIMUM DEPTH OF 2".
- SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF HAUL ROAD, AT DIRECTION OF THE ENGINEER.
- THE HAUL ROAD IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 8 PSL. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, ADDITIONAL PROTECTION MEASURES MUST BE PROVIDED, AT NO ADDITIONAL COST TO THE ADMINISTRATION, AND THOSE MEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

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DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/2 X 1 1/2 X 1/4 INCH (MINIMUM SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

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DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

- CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS.

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DETAIL G-2-9 PROJECTION COLLAR

STANDARD SYMBOL: SP

CONSTRUCTION SPECIFICATIONS

- CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS.

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REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Roberts
HOWARD COUNTY SOIL CONSERVATION DISTRICT
9/5/13
DATE

SAND BAG DAM DETAIL

STANDARD SYMBOL: SP

CONSTRUCTION SPECIFICATION

- CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS.

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U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 8/29/13	McCormick & Taylor Engineers & Planners Since 1946 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444	DES: AH						EMILY FOX COURT PRINCIPAL SPILLWAY REPLACEMENT PROJECT CAPITAL PROJECT D 1159 HOWARD COUNTY EROSION AND SEDIMENT CONTROL DETAIL SHEET 9 OF 9	SCALE NOT TO SCALE SHEET
			DRN: MR	CHK: CB	DATE: 8/28/13	BY	NO.	REVISION		DATE