

# HOWARD COUNTY

## Capital Project #D-1159

# Excelsior Springs Court Principal Spillway Replacement Project

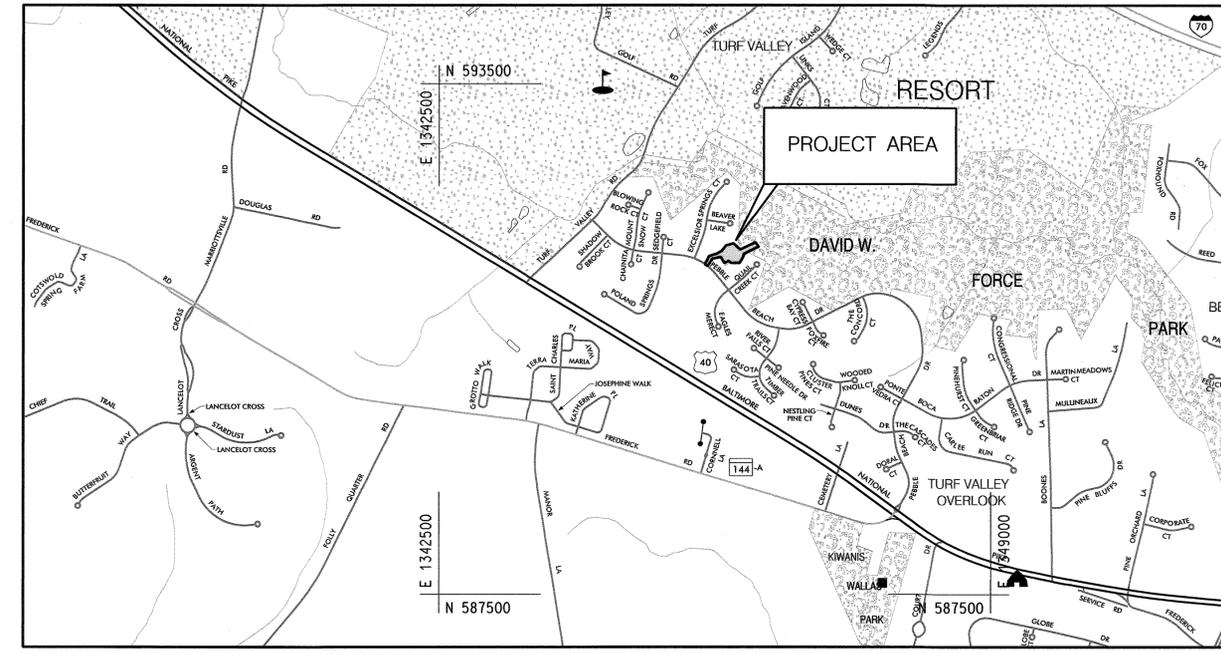
Storm Water Management Division  
Bureau Of Environmental Services

### INDEX OF SHEETS

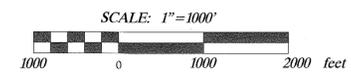
SHEET NO.	TITLE
1	TITLE SHEET
2	GEOMETRY SHEET
3	SITE PLAN
4	PROFILE AND DETAIL SHEET
5	PROFILE SHEET
6	RISER DETAIL SHEET
7	STANDARD DETAIL SHEET
8-9	STABILIZATION DETAIL SHEETS
10	EROSION AND SEDIMENT CONTROL PLAN - PHASE 1
11	EROSION AND SEDIMENT CONTROL PLAN - PHASE 2
12	EROSION AND SEDIMENT CONTROL NOTES
13	POND CONSTRUCTION SPECIFICATIONS
14-15	EROSION AND SEDIMENT CONTROL DETAIL SHEETS
16-18	CROSS SECTIONS

### LEGEND

PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	
FLOW LINE	
STATE, COUNTY OR CITY LINES	
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	
WATERS OF THE US	
HEDGE /TREE LINE	
BUSH /TREE	
CONIFEROUS TREE	
LIGHT POLE	
SANITARY LINE	
BUSH /TREE TO BE REMOVED	



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 - APRIL 2014
- 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.
- WETLANDS AND WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR - JUNE 2014.
- 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 AS-BUILT PLANS FOR TURF VALLEY OVERLOOK SECTION TWO AREA TWO (F-90-001) APPROVED SEPT. 26, 1996.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201561646)
- PROJECT IMPACTS INCLUDE WORK IN A USE IV-P STREAM. WORK MAY NOT BE CONDUCTED DURING THE PERIOD BETWEEN MARCH 1 AND MAY 31. THE SITE IS LOCATED WITHIN THE LITTLE PATUXENT RIVER WATERSHED WHICH HAS NO TIER II STREAM SEGMENTS REQUIRING THE IMPLEMENTATION OF MARYLAND'S ANTI-DEGRADATION POLICY. HOWEVER, THE LITTLE PATUXENT RIVER WATERSHED HAS BEEN IDENTIFIED AS IMPAIRED AND IS CURRENTLY UNDER A TMDL FOR SEDIMENT.
- CONTRACTOR SHALL PROVIDE STRUCTURAL SHOP DRAWINGS FOR RISER, TRASHRACK, AND HEADWALL FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

THIS EROSION AND SEDIMENT CONTROL PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

*John C. Peltz*  
2/11/16

### 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: 7/6/2017

### DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT 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 ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A MARYLAND 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 CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

### 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.

**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.

DATE: 2-1-16  
MARYLAND REGISTRATION NUMBER: 32013  
DESIGNER'S SIGNATURE: *Amy L. Hribak*  
PRINTED NAME: AMY L. HRIBAK

DATE: 2/2/16  
OWNER/DEVELOPER SIGNATURE: *Mark L. Friedman*  
PRINTED NAME AND TITLE: Mark L. Friedman, President



### PERMITS

- MDE JOINT PERMIT APPLICATION: AUTHORIZED 12/4/15; EXPIRES 12/4/18
- HSCD SMALL POND: PENDING-2 / 2 / 16
- GRADING PERMIT: REQUIRED

**REVIEWED FOR HOWARD 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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT DATE: \_\_\_\_\_

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: \_\_\_\_\_  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: \_\_\_\_\_

CHIEF, STORMWATER MANAGEMENT DIVISION DATE: \_\_\_\_\_

**McCORMICK TAYLOR**  
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: AM					
DRN: MR					
CHK: AH	ADM		AS-BUILT	6/29/16	
DATE: 02/01/16	ADM		SEQUENCE AND MINOR DETAIL REVISIONS	2/18/16	
	BY	NO.	REVISION	DATE	

**EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14**

**TITLE SHEET**

SCALE: AS SHOWN  
SHEET: 1 OF 18

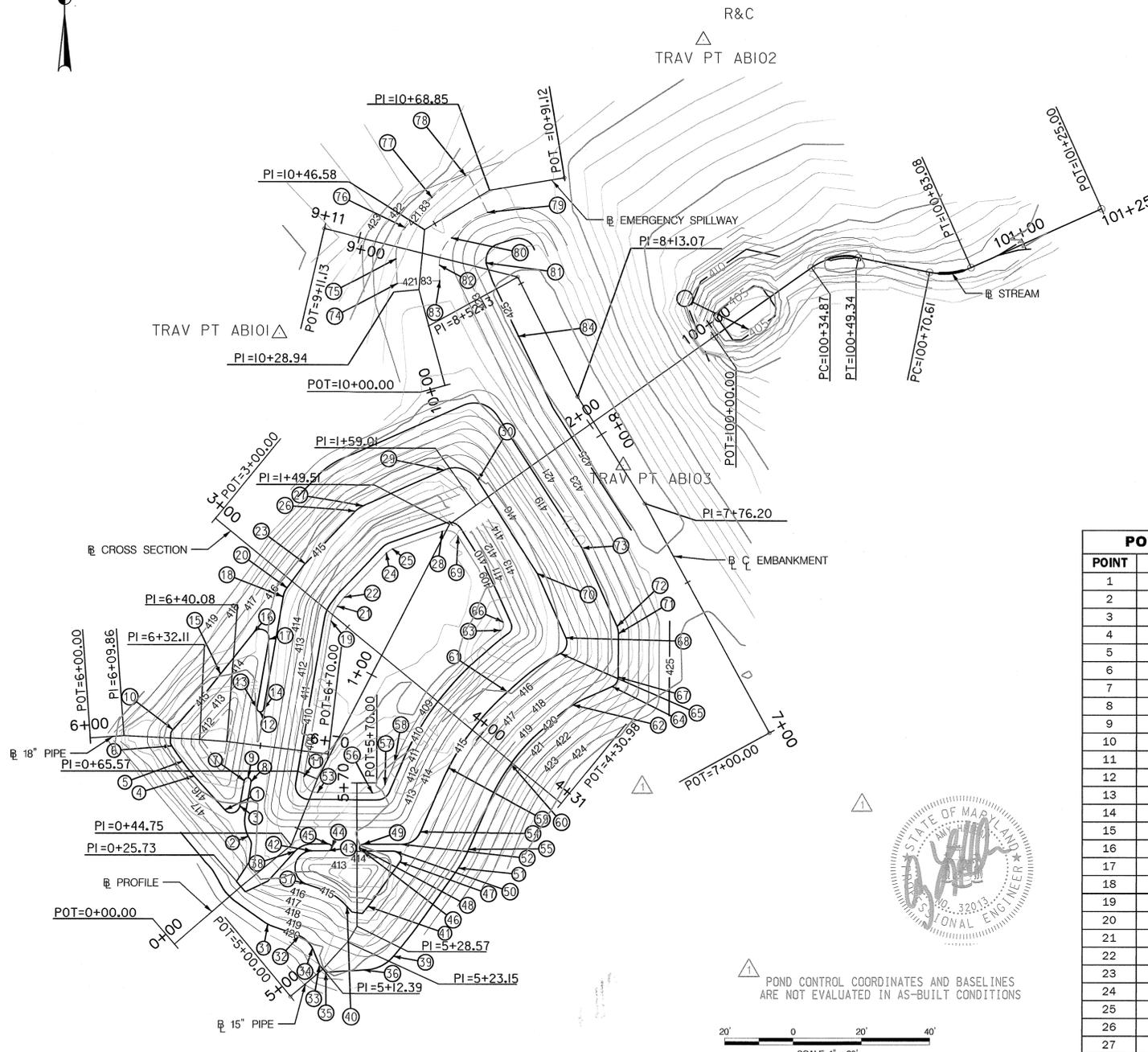


BASELINE CURVE DATA								
CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE	
							NORTH	EAST
C-1	46°48'39"	323°42'18"	17.70'	7.66'	14.46'	1.59	591544.0525	1345999.3213
C-2	35°43'14"	286°28'44"	20.00'	6.44'	12.47'	1.01	591576.7346	1346027.7095

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
AB101	591538.9528	1345833.2183	432.24
AB102	591624.8849	1345957.3187	422.01
AB103	591500.7037	1345934.0172	425.71

E. SPILLWAY CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
74	591553.6491	1345867.6765	421.80
75	591560.8772	1345867.3174	421.80
76	591569.9812	1345870.0027	421.80
77	591578.7347	1345877.8561	421.80
78	591585.1884	1345887.6819	421.80
79	591574.4760	1345894.1233	421.80
80	591567.0105	1345883.5363	421.80
81	591559.7456	1345893.6412	425.00
82	591559.0729	1345880.0011	421.80
83	591554.5693	1345880.1383	421.80
84	591538.2979	1345903.2159	425.00

BASELINE GEOMETRY CONTROL COORDINATES						
BASILINE	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PROFILE BL	POB	591360.6257	1345802.7052	0+00.00	N 49°09'10" E	
	PI	591377.4565	1345822.1714	0+25.73	N 50°29'41" E	
	PI	591389.5507	1345836.8402	0+44.75	N 21°36'19" E	
	PI	591408.9110	1345844.5076	0+65.57	N 27°22'08" E	
CROSS SECTION BL	PI	591483.4599	1345883.0985	1+49.51	N 54°24'07" E	
	PI	591488.9898	1345890.8232	1+59.01	N 54°43'39" E	
	POB	591484.956	1345814.5856	3+00.00	S 50°43'15" E	
	POE	591402.0331	1345915.9726	4+30.98		
15" PIPE BL	POB	591345.4182	1345836.7348	5+00.00	N 50°08'49" E	
	PI	591353.3551	1345846.2430	5+12.39	N 41°44'38" E	
	PI	591361.3884	1345853.4115	5+23.15	N 30°58'41" E	
	PI	591366.0368	1345856.2021	5+28.57	N 0°10'32" W	
18" PIPE BL	POE	591407.9028	1345856.0739	5+70.44		
	POB	591420.8415	1345777.9780	6+00.00	N 85°55'47" E	
	PI	591421.5411	1345787.8093	6+09.86	S 87°08'09" E	
	PI	591420.4292	1345810.0339	6+32.11	S 85°33'47" E	
CL EMBANKMENT BL	PI	591419.8127	1345817.9791	6+40.08	S 83°03'33" E	
	POE	591416.1967	1345847.6822	6+70.00		
	POB	591422.7444	1345976.9361	7+00.00	N 28°41'11" W	
	PI	591489.5889	1345940.3605	7+76.20	N 32°19'29" W	
STREAM BL	PI	591520.7488	1345920.6432	8+13.07	N 26°42'52" W	
	PI	59155.6406	1345903.0834	8+52.13	N 76°13'31" W	
	POE	591569.5477	1345846.3553	9+10.54		
	POB	591538.3640	1345960.6278	100+00.00	N 54°43'39" E	17.70'
EMERGENCY SPILLWAY BL	PC	591558.5030	1345989.1001	100+34.87	N 54°43'39" E	
	PI	591562.9273	1345995.3550	100+42.54	S 78°27'42" E	
	CC	591544.0525	1345999.3213			
	PT	591561.3948	1346002.8617	100+49.34	S 78°27'42" E	
EMERGENCY SPILLWAY BL	PC	591557.1388	1346023.7090	100+70.61	S 78°27'42" E	
	PI	591555.8498	1346030.0233	100+77.06	N 65°49'04" E	
	CC	591576.7346	1346027.7095			20.00'
	PT	591558.4897	1346035.9023	100+83.08	N 65°49'04" E	
EMERGENCY SPILLWAY BL	POE	591575.6610	1346074.1419	101+25.00		
	POB	591523.9323	1345881.6694	10+00.00	N 15°18'05" W	
	PI	591551.8425	1345874.0333	10+28.94	N 5°17'35" E	
	PI	591569.4098	1345875.6608	10+46.58	N 58°50'45" E	
EMERGENCY SPILLWAY BL	PI	591580.9324	1345894.7213	10+68.85	N 80°31'57" E	
	POE	591584.4020	1345916.1430	10+91.12		



POND CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
1	591399.8074	1345817.4464	415.00
2	591392.1616	1345824.2631	415.00
3	591400.9904	1345821.8225	415.00
4	591409.7620	1345808.4176	415.00
5	591414.0382	1345804.9592	415.00
6	591418.5589	1345801.8269	415.00
7	591408.4079	1345823.1075	415.00
8	591408.0664	1345825.0782	415.00
9	591409.2197	1345824.2807	415.00
10	591423.3128	1345802.1565	415.00
11	591409.5939	1345840.5663	409.00
12	591428.4981	1345827.6031	415.00
13	591429.6542	1345826.7885	415.00
14	591429.3127	1345828.7591	415.00
15	591439.5243	1345816.1115	415.00
16	591451.6010	1345825.7906	415.00
17	591449.6795	1345830.2578	415.00
18	591462.1131	1345834.4418	415.00
19	591455.0766	1345848.4461	409.00
20	591464.6765	1345835.5444	415.00
21	591459.3488	1345850.2838	409.00
22	591461.9853	1345852.3021	409.00
23	591471.7464	1345840.8870	415.00
24	591475.0341	1345864.5984	409.00
25	591476.2010	1345866.4078	409.00
26	591487.1943	1345855.5214	415.00
27	591488.7810	1345857.7696	415.00
28	591481.4153	1345880.9728	409.00
29	591499.2476	1345881.4125	415.00
30	591496.2718	1345891.3717	415.00

POND CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
31	591366.3558	1345830.0307	420.00
32	591363.0921	1345839.2945	420.00
33	591354.5291	1345845.2368	420.00
34	591359.4381	1345843.1373	420.00
35	591352.4247	1345846.9989	420.00
36	591353.2775	1345858.1019	420.00
37	591378.1600	1345841.4677	415.00
38	591387.7165	1345837.9471	415.00
39	591357.2793	1345866.8231	420.00
40	59137.16893	1345853.2476	415.00
41	59137.18402	1345859.3724	415.00
42	591387.9082	1345843.0251	415.00
43	591387.9171	1345847.7548	415.00
44	591388.9189	1345848.7529	415.00
45	591389.9171	1345847.7510	415.00
46	591387.9359	1345857.8334	415.00
47	591384.8019	1345868.6857	415.00
48	591388.9340	1345856.8316	415.00
49	591389.9359	1345857.8297	415.00
50	591387.9531	1345867.0464	415.00
51	591383.0680	1345885.8083	420.00
52	591389.9571	1345869.2022	415.00
53	591404.9110	1345844.5150	409.00
54	591393.5929	1345874.7056	415.00
55	591388.5143	1345888.8487	420.00
56	591404.9411	1345860.6206	409.00
57	591407.3650	1345864.2895	409.00
58	591413.9739	1345867.1229	409.00
59	591412.3779	1345882.9257	415.00
60	591413.5642	1345901.1758	420.00

POND CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
61	591434.5377	1345900.1268	415.00
62	591430.7497	1345919.4019	420.00
63	591452.5452	1345898.1718	409.00
64	591436.1953	1345930.8570	420.00
65	591445.7886	1345915.6595	415.00
66	591454.9604	1345898.7882	409.00
67	591438.9132	1345932.6261	420.00
68	591450.3655	1345917.3057	415.00
69	591479.9475	1345885.5949	409.00
70	591469.0646	1345908.9386	415.00
71	591451.6007	1345932.7023	420.00
72	591453.6829	1345932.2619	420.00
73	591476.5033	1345921.9906	420.00

▲ POND CONTROL COORDINATES AND BASELINES ARE NOT EVALUATED IN AS-BUILT CONDITIONS

SCALE: 1" = 20'



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

**McCORMICK TAYLOR**  
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

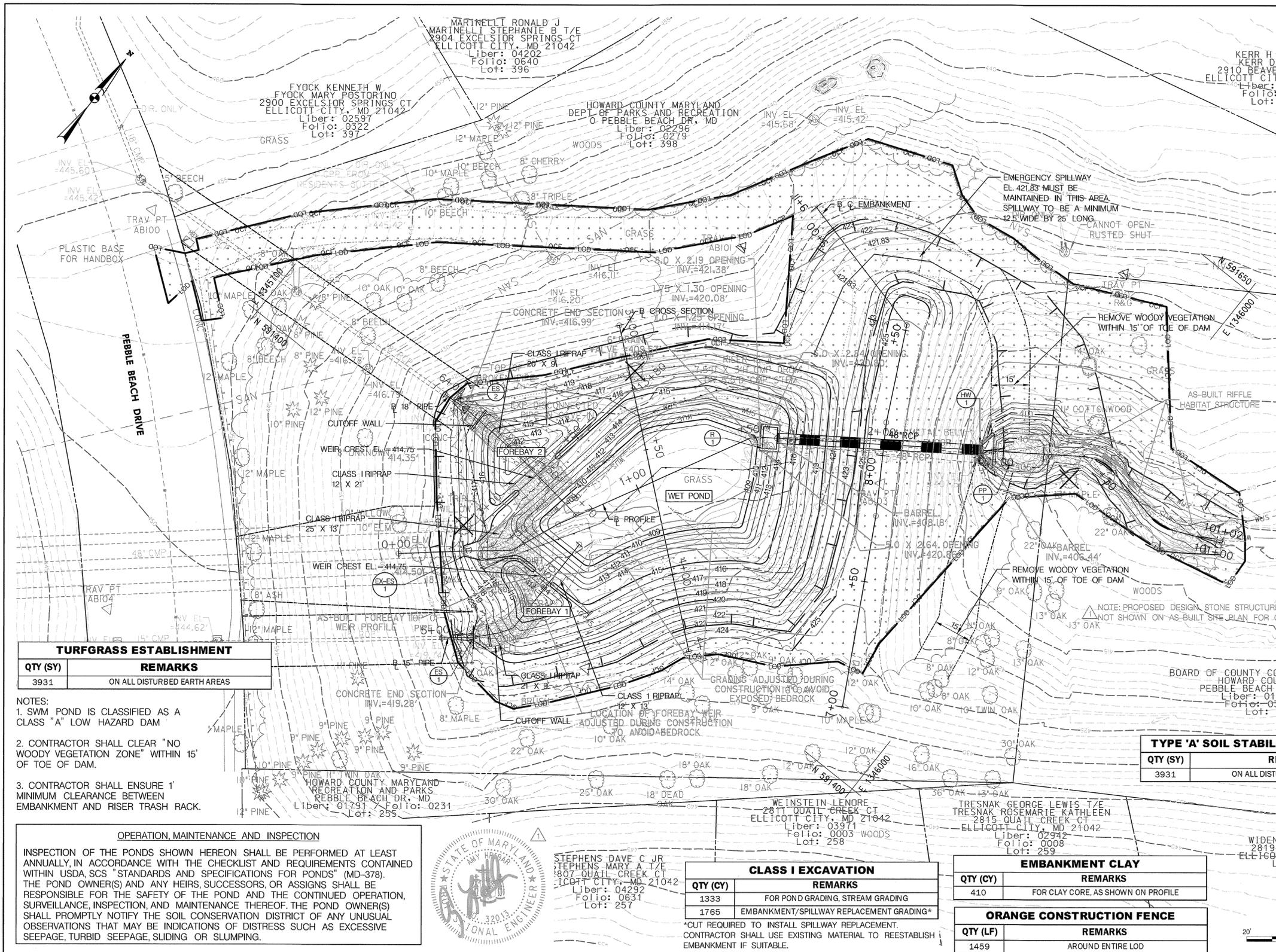
DES: AM,JS  
DRN: MR  
CHK: AH  
DATE: 02/01/16

ADM	NO.	AS-BUILT	REVISION	DATE
▲				6/29/16

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

**GEOMETRY SHEET**

SCALE: 1" = 20'  
SHEET: 2 OF 18



DRAINAGE STRUCTURE SCHEDULE			
LOCATION	STATION	QTY (EA)	REMARKS
ES-1	5+06	1	15" CONCRETE END SECTION
ES-2	6+05	1	18" CONCRETE END SECTION
HW-1	2+40	1	TYPE 'A' HEADWALL

STORM DRAIN PIPE SCHEDULE			
FROM	TO	QTY (LF)	REMARKS
R-1	HW-1	81	48" RCP ASTM C-361, B-25

PLUNGE POOL			
LOCATION	STATION	QTY (SY)	REMARKS
PP-1	2+57	57	CLASS II RIPRAP

RISER STRUCTURE SCHEDULE			
LOCATION	STATION	QTY (EA)	REMARKS
R-1	1+56	1	SEE RISER DETAIL SHEET 6

MIX NO 1 CONCRETE FOR CUTOFF WALL		
STATION	QTY (CY)	REMARKS
5+18	1	3' DEEP X 8" THICK X 9' LONG
6+17	1	3' DEEP X 8" THICK X 9' LONG

CLASS I RIPRAP PROTECTION			
LOCATION	LENGTH (FT)	WIDTH (FT)	QTY (SY)
ES-1	21	9	28
ES-2	20	9	24
EX-ES-1	25	13	40
FOREBAY 1 WEIR	12	13	18
FOREBAY 2 WEIR	12	21	29

MIX NO 6 CONCRETE FOR EMBANKMENT STRUCTURES		
STATION	QTY (CY)	REMARKS
1+83; 2+16	8	ANTI-SEEP COLLARS
BELOW PIPE	42	CONCRETE CRADLE

TOPSOIL - 4" DEPTH	
QTY (SY)	REMARKS
2529	ON ALL GRADED AREAS OUTSIDE PERMANENT POOL

TURFGRASS ESTABLISHMENT	
QTY (SY)	REMARKS
3931	ON ALL DISTURBED EARTH AREAS

- NOTES:
- SWM POND IS CLASSIFIED AS A CLASS "A" LOW HAZARD DAM
  - CONTRACTOR SHALL CLEAR "NO WOODY VEGETATION ZONE" WITHIN 15' OF TOE OF DAM.
  - CONTRACTOR SHALL ENSURE 1' MINIMUM CLEARANCE BETWEEN EMBANKMENT AND RISER TRASH RACK.

**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.



STEPHENS DAVE C JR  
 STEPHENS MARY A T/E  
 3007 QUAIL CREEK CT  
 ELLICOTT CITY, MD 21042  
 Liber: 04292  
 Folio: 0631  
 Lot: 257

CLASS I EXCAVATION	
QTY (CY)	REMARKS
1333	FOR POND GRADING, STREAM GRADING
1765	EMBANKMENT/SPILLWAY REPLACEMENT GRADING*

\*CUT REQUIRED TO INSTALL SPILLWAY REPLACEMENT. CONTRACTOR SHALL USE EXISTING MATERIAL TO REESTABLISH EMBANKMENT IF SUITABLE.

EMBANKMENT CLAY	
QTY (CY)	REMARKS
410	FOR CLAY CORE, AS SHOWN ON PROFILE

ORANGE CONSTRUCTION FENCE	
QTY (LF)	REMARKS
1459	AROUND ENTIRE LOD

TYPE 'A' SOIL STABILIZATION MATTING	
QTY (SY)	REMARKS
3931	ON ALL DISTURBED EARTH AREAS

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED 100-YR FLOODPLAIN
- ORANGE CONSTRUCTION FENCE
- LOD LIMIT OF DISTURBANCE
- WUS WATERS OF THE US
- WETLAND BOUNDARY
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- TOE BOULDERS
- SOIL STABILIZATION MATTING
- CLASS I RIPRAP
- CLASS II RIPRAP
- RIFFLE HABITAT STRUCTURE



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

**McCORMICK TAYLOR**  
 509 South Exeter Street  
 4th Floor  
 Baltimore, Maryland 21202  
 (410) 682-7400

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



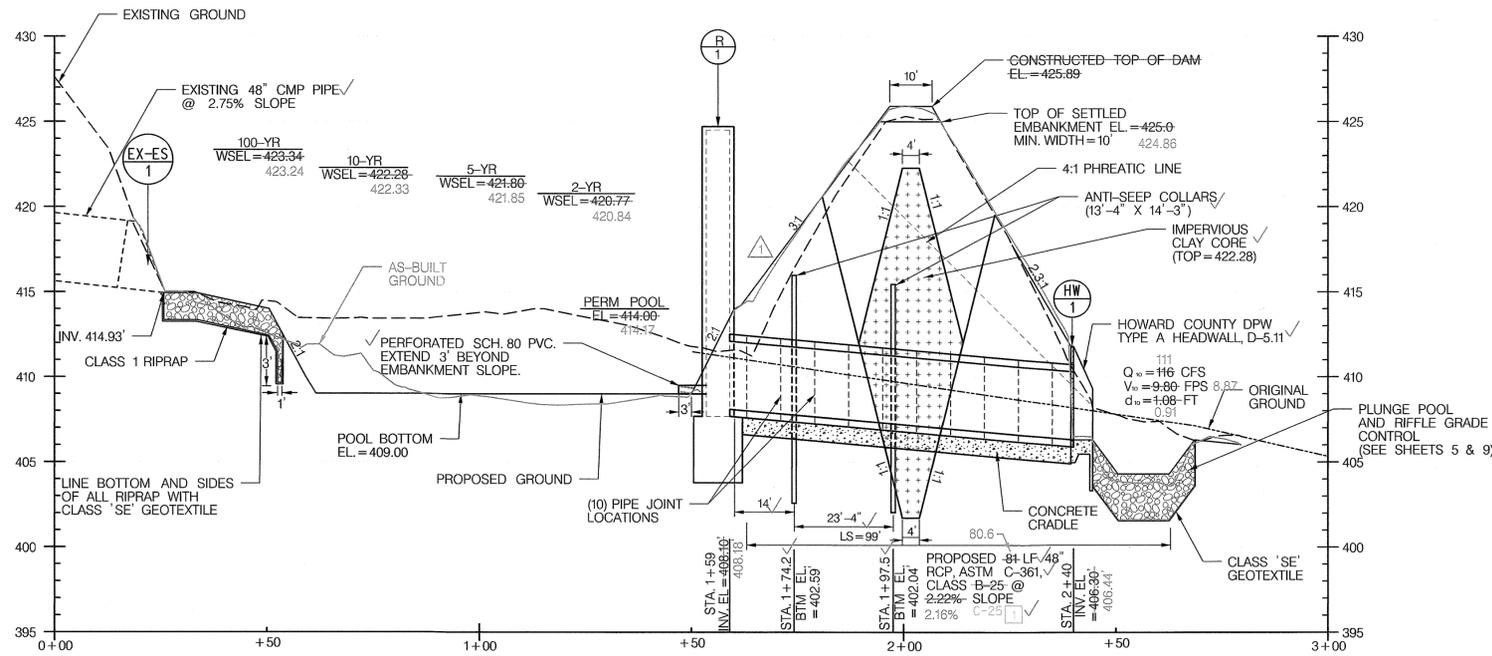
DES: AM,JS				
DRN: MR				
CHK: AH	ADM	AS-BUILT	6/29/16	
DATE: 02/01/16	ADM	SEQUENCE AND MINOR DETAIL REVISIONS	7/18/16	
	BY	NO.	REVISION	DATE

EXCELSIOR SPRINGS COURT  
 PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
 CAPITAL PROJECT #D-1159  
 HOWARD COUNTY  
 HSCD #: EP-16-14

**SITE PLAN**

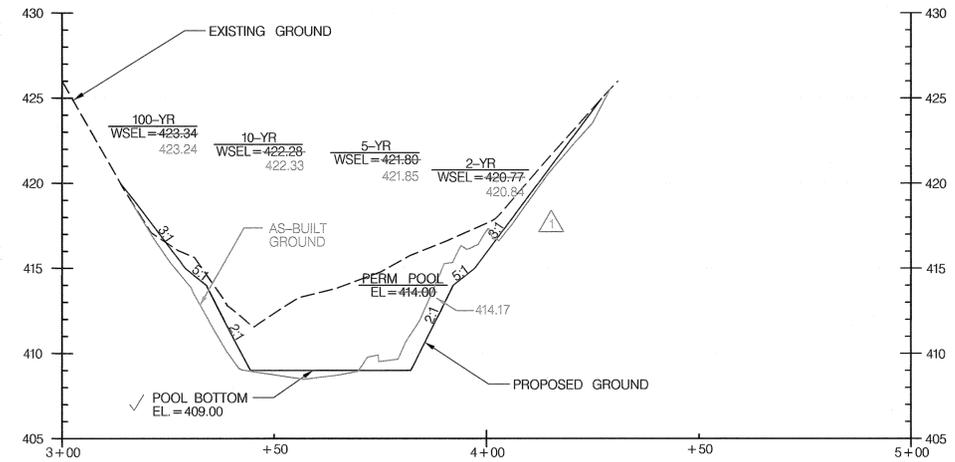
SCALE: 1" = 20'

SHEET 3 OF 18



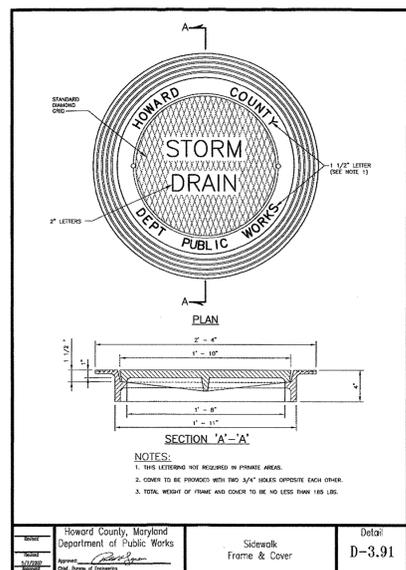
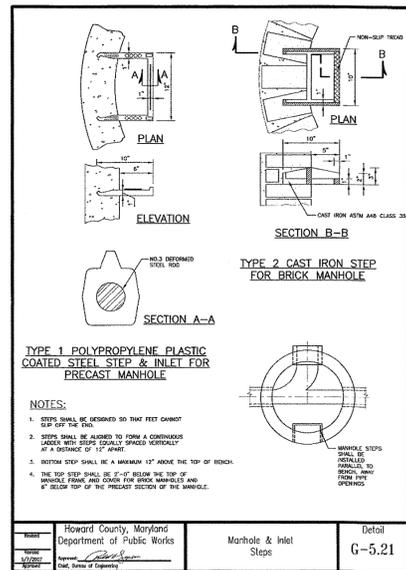
**SPILLWAY PIPE PROFILE**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 5'

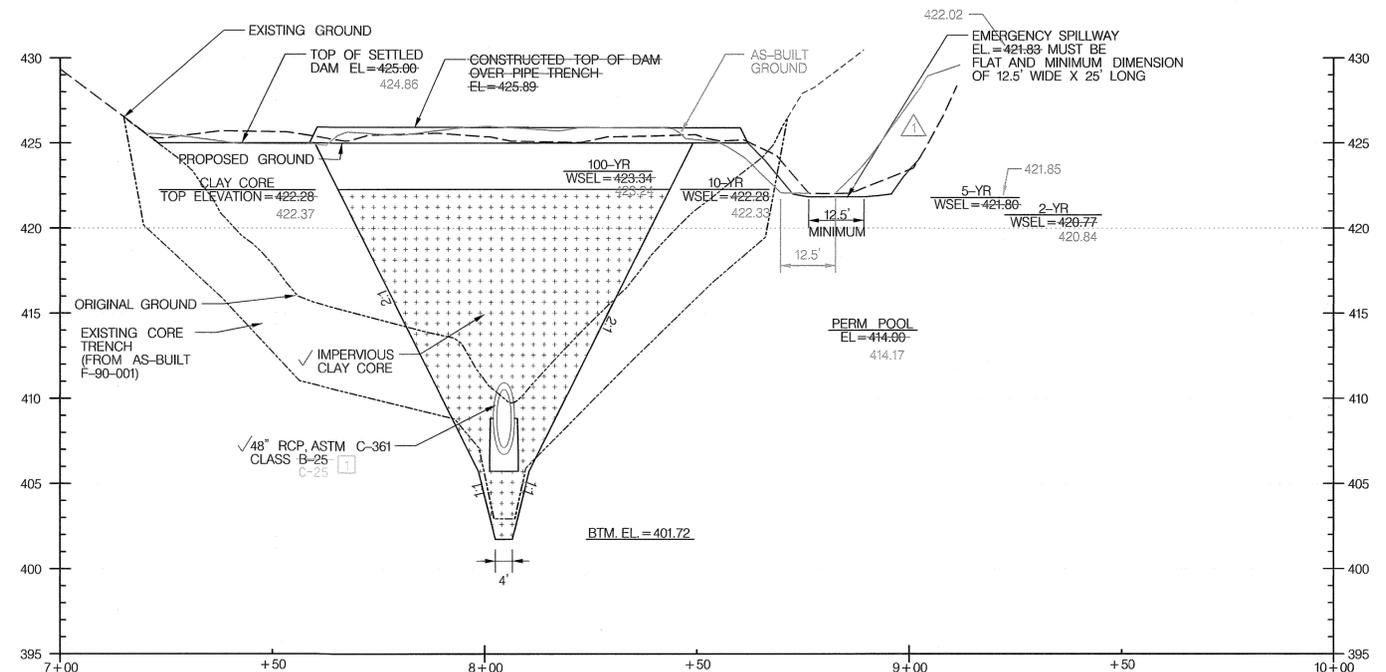


**CROSS SECTION**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 5'



**RISER DETAILS**



**CENTERLINE OF EMBANKMENT PROFILE**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 5'



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

**McCormick Taylor**  
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



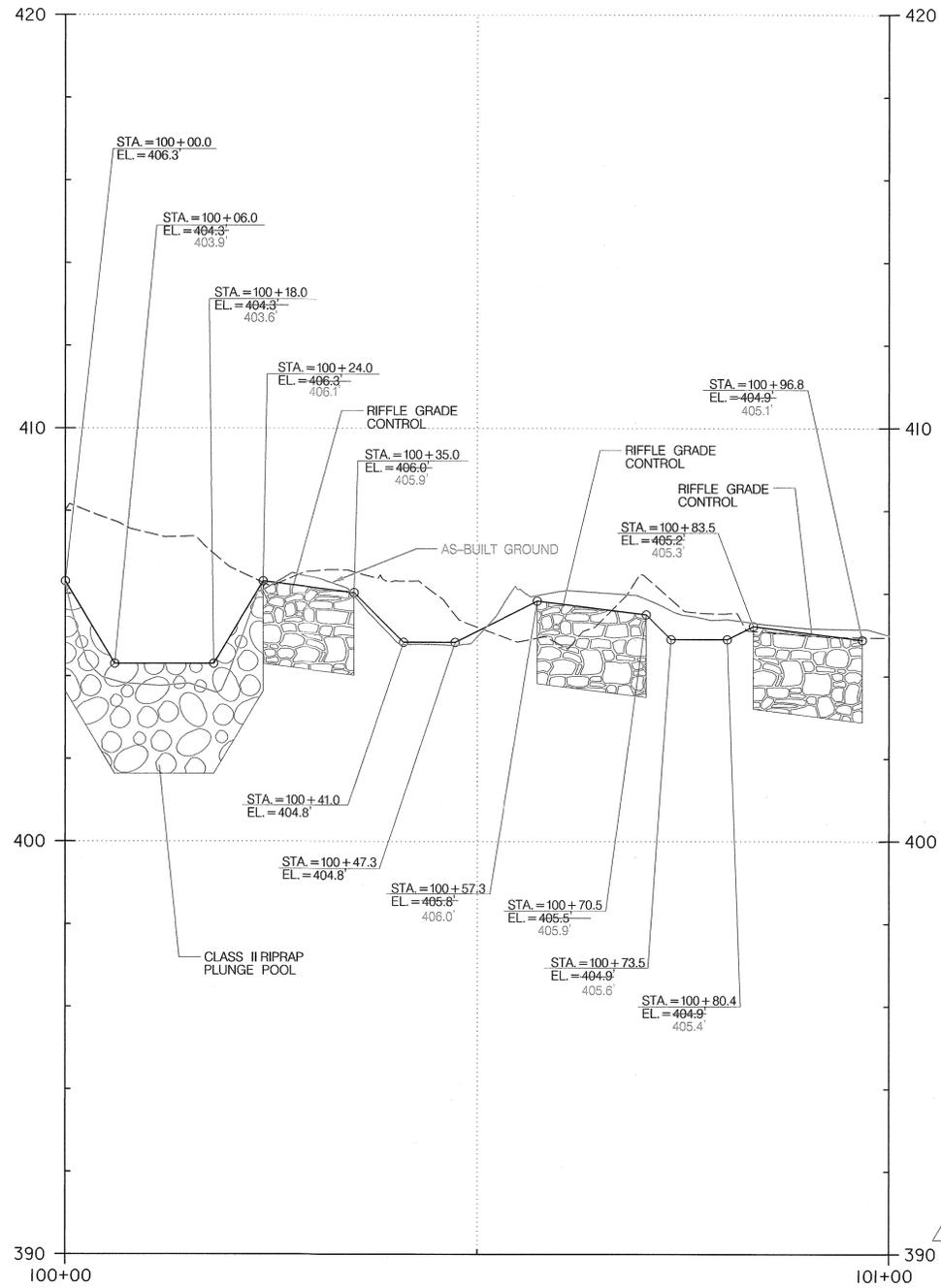
DES:	AM,JS				
DRN:	MR				
CHK:	AH	ADM	AS-BUILT	6/29/16	
		ADM	SEQUENCE AND MINOR DETAIL REVISIONS	12/18/16	
DATE:	02/01/16	BY	NO.	REVISION	DATE

**EXCELSIOR SPRINGS COURT**  
**PRINCIPAL SPILLWAY REPLACEMENT PROJECT**  
**CAPITAL PROJECT #D-1159**  
**HOWARD COUNTY**  
**HSCD #: EP-16-14**

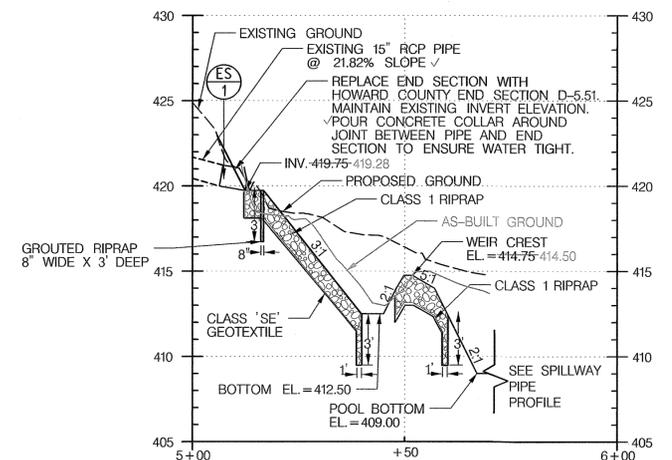
**PROFILE AND DETAIL SHEET**

SCALE  
AS SHOWN  
SHEET  
4 OF 18

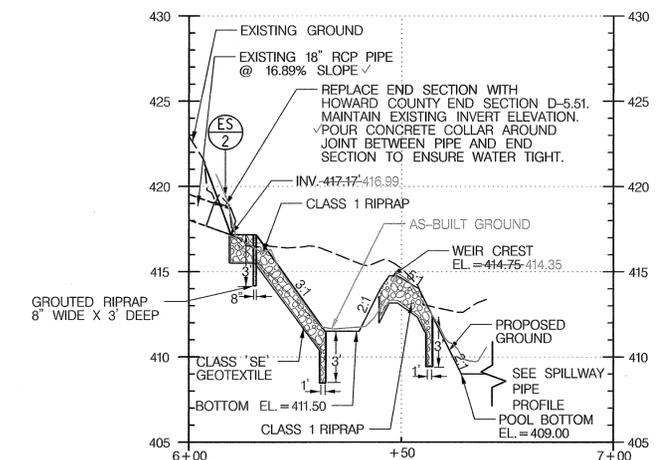
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE



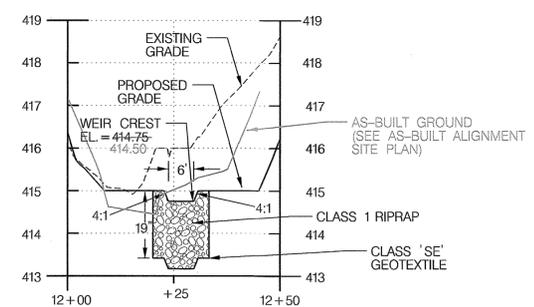
**CHANNEL STABILIZATION PROFILE**  
 HORIZONTAL SCALE: 1" = 10'  
 VERTICAL SCALE: 1" = 2'



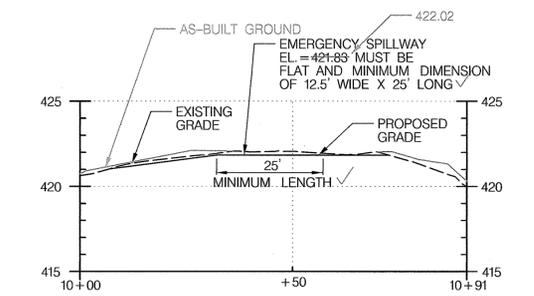
**15" PIPE PROFILE (FOREBAY 1)**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 5'



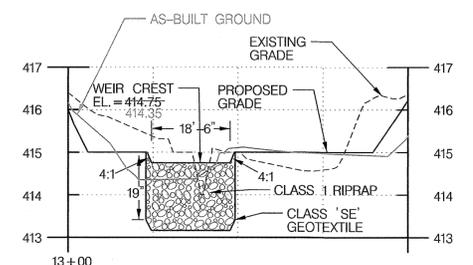
**18" PIPE PROFILE (FOREBAY 2)**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 5'



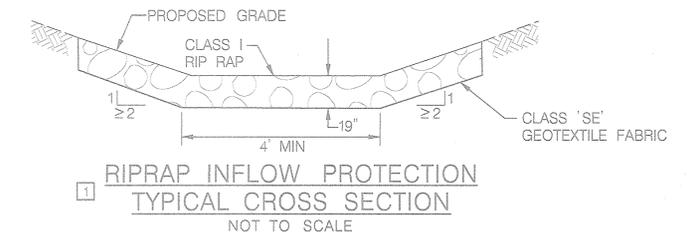
**FOREBAY 1 WEIR PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'



**EMERGENCY SPILLWAY PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 5'



**FOREBAY 2 WEIR PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'



**RIPRAP INFLOW PROTECTION**  
 TYPICAL CROSS SECTION  
 NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

**McCORMICK TAYLOR**  
 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



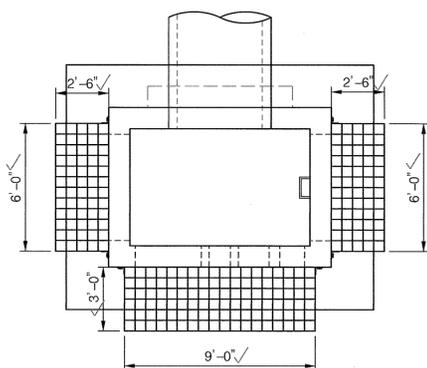
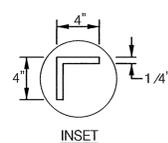
DES:	AM,JS				
DRN:	MR				
CHK:	AH	ADM	AS-BUILT	6/29/16	
DATE:	02/01/16	ADM	SEQUENCE AND MINOR DETAIL REVISIONS	2/18/16	
		BY	NO.	REVISION	DATE

**EXCELSIOR SPRINGS COURT**  
**PRINCIPAL SPILLWAY REPLACEMENT PROJECT**  
**CAPITAL PROJECT #D-1159**  
**HOWARD COUNTY**  
**HSCD #: EP-16-14**

**PROFILE SHEET**

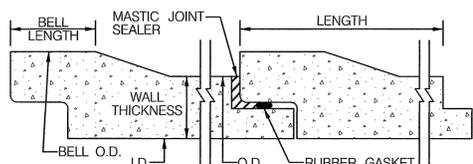
SCALE  
 AS SHOWN  
 SHEET  
 5 OF 18

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE



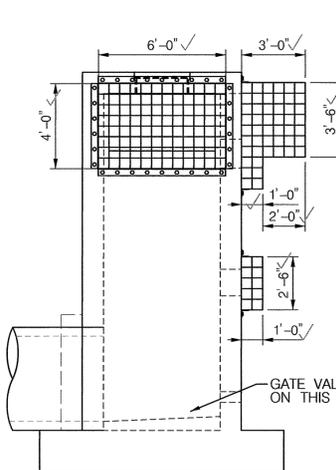
- TRASH RACK AND GATE VALVE CONSTRUCTION NOTES:**
- FRAME SHALL BE CONSTRUCTED OF 4" X 4" X 1/4" STEEL ANGLE WITH THE CORNERS MITRED AND BUTT WELDED.
  - THE FRAME SHALL BE PAINTED WITH TWO COATS OF COLD GALVANIZED COMPOUND IN "BATTLESHIP GREY".
  - BARS SHALL BE #6 REBAR AT 6" CC EACH WAY, HOT-DIPPED 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 MUELLER 6" KNIFE GATE VALVE OR APPROVED EQUIVALENT. PLACE VALVE ON MIX NO. 3 CONCRETE BASE. SHALL INCLUDE VALVE STEM AND WHEEL INSTALLATION. WHEEL SHALL BE "OPEN LEFT" AND AN "OPEN" ARROW MARKED.
  - GATE VALVE TO CONNECT TO 6" SCHEDULE 80 PVC. THE PVC PIPE SHALL HAVE PERFORATIONS EXTENDING A MINIMUM OF 3' BEYOND THE EMBANKMENT SLOPE.
  - PVC DRAIN PIPE SHALL HAVE 12" DIAMETER PERFORATIONS AT 4" OC. SEAL END OF PIPE WITH FITTING.

TEST AND METHOD	SPECIFICATION LIMITS
RESIDUES BY EVAPORATION, NONVOLATILE MATTER, D 2939, % MIN.	70
INORGANIC FILLER ON IGNITION, ASH CONTENT, D 2939, %	15-45

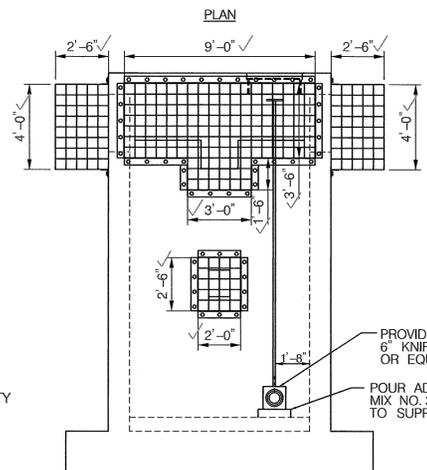


- BARREL JOINT SEALER NOTES:**
- MASTIC JOINT SEALER TO BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
  - JOINT SEALER SHOULD HAVE WATERTIGHT CONNECTION.
  - THE SEALER SHALL BE A MIXTURE OF ASPHALT, MINERAL FILLER, AND PETROLEUM SOLVENTS AND SHALL HAVE ADHESIVE AND COHESIVE PROPERTIES.
- THE SEALER SHALL CONFORM TO THE FOLLOWING:

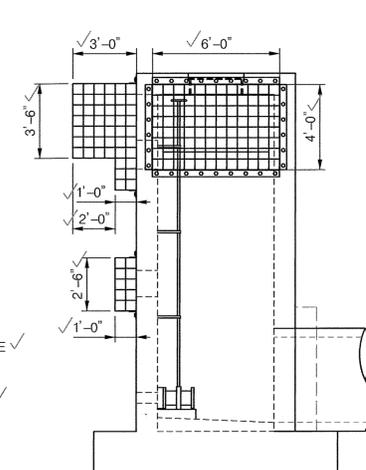
**BARREL JOINT SEALER DETAIL**  
NOT TO SCALE



LEFT SIDE



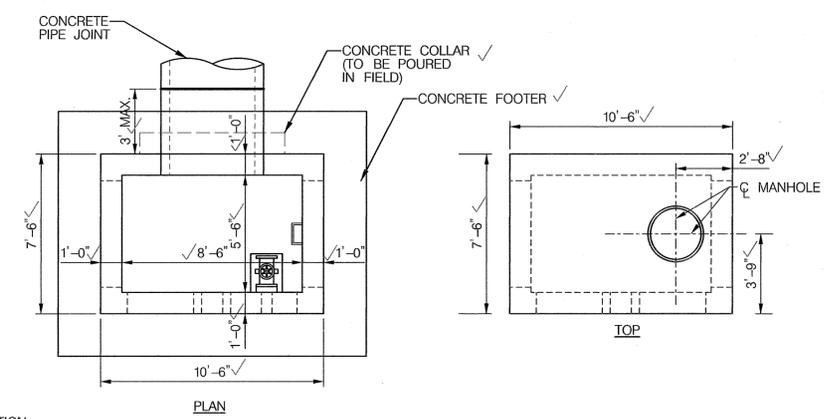
FRONT



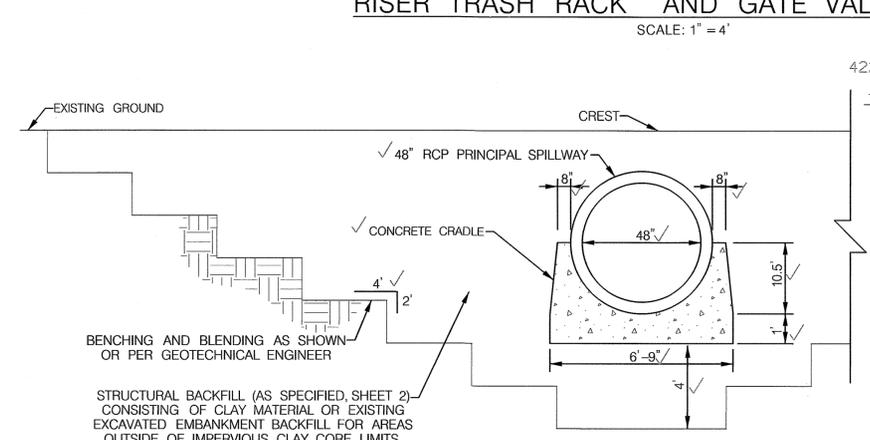
RIGHT SIDE

**RISER TRASH RACK AND GATE VALVE DETAIL**  
SCALE: 1" = 4'

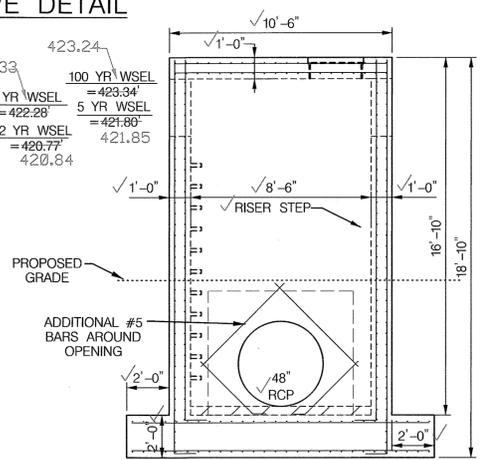
- RISER CONSTRUCTION NOTES:**
- RISER STEPS SHALL FOLLOW DETAIL G-5.21 FOR MANHOLE AND INLET STEPS.
  - SHA MIX NO. 3 CONCRETE SHALL BE USED AND SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 301 AND ACI 318.
  - RISER STRUCTURE SHALL BE DESIGNED IN ACCORDANCE TO LOADING SPECIFIED IN LATEST EDITIONS OF ASTM C857 AND ASTM C890.
  - RISER STRUCTURE 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.
  - INVERT SHALL BE APPROVED SHA MIX NO. 3 CONCRETE. INVERT TO SLOPE DOWN TOWARD OUTLET AT THE RATE OF 1/2" PER FOOT AS SHOWN ON PLAN, OR AS DIRECTED.
  - REFER TO DETAIL D-4.10 FOR REBAR PLACEMENT AROUND OPENINGS.
  - REFER TO DETAIL G-2-9 FOR CONCRETE PROJECTION COLLAR.
  - CONSTRUCT CONCRETE COLLARS TO ENSURE WATERTIGHT SEALS AT RISER AND PIPE CONNECTIONS.
  - CONTRACTOR TO ENSURE A SUITABLE SUBBASE IS PROVIDED FOR THE RISER. NO GRAVEL SHALL BE USED FOR THE RISER SUBBASE. LEAN CONCRETE IS RECOMMENDED TO IMPROVE SUBBASE STABILITY IF NECESSARY.
  - RISER AND TRASHRACK STRUCTURAL SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.
  - THE RISER WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH RISER. THE PAYMENT WILL BE FULL COMPENSATION FOR ALL EXCAVATION CONCRETE, MASONRY SPECIAL OR PRECAST UNITS REINFORCEMENT LADDER RUNGS DRIP STONES, AGGREGATE UNDERDRAIN STUBS FRAMES GRATES AND COVERS GRADE AND SLOPE ADJUSTMENTS BACKFILL GASKET WATERTIGHT SEALS PROJECTION COLLAR TRASH RACKS, DRAIN VALVES VALVE STEMS AND FOR ALL MATERIAL LABOR EQUIPMENT TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.



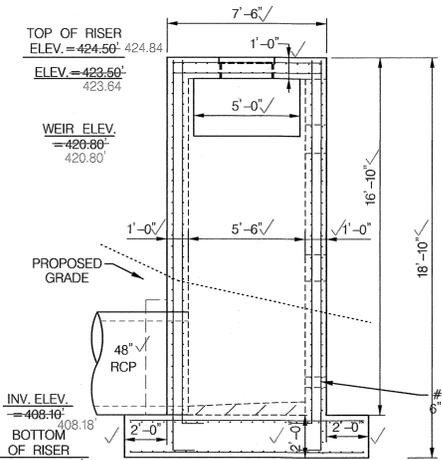
PLAN



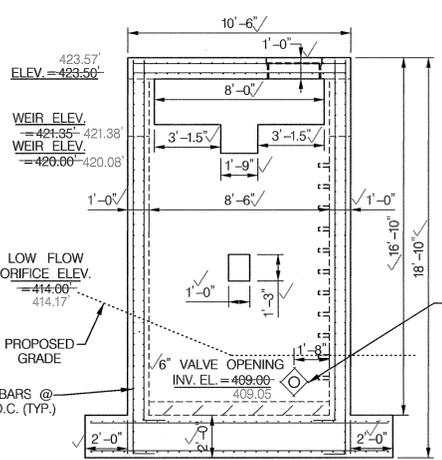
**PIPE TRENCH AND CONCRETE CRADLE DETAIL**  
NOT TO SCALE



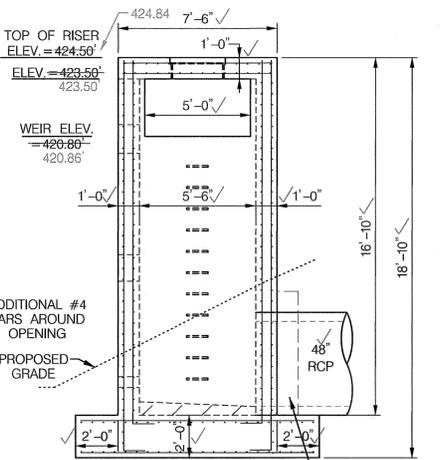
BACK



LEFT SIDE



FRONT



RIGHT SIDE

**RISER ELEVATION**  
SCALE: 1" = 4'

NOTE: CONCRETE CRADLE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARDS OF MIX NO. 6 CONCRETE FOR MISCELLANEOUS STRUCTURES. PAYMENT WILL BE FULL COMPENSATION FOR ALL MIX NO. 6 CONCRETE, WELDED WIRE FABRIC, REINFORCEMENT, EXCAVATION, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS REQUIRED TO SATISFACTORILY COMPLETE THE WORK.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

**McCORMICK TAYLOR**  
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:	AM,JS				
DRN:	MR				
CHK:	AH				
DATE:	02/01/16	ADM	AS-BUILT	6/29/16	
		BY	NO.	REVISION	DATE

**EXCELSIOR SPRINGS COURT**  
**PRINCIPAL SPILLWAY REPLACEMENT PROJECT**  
**CAPITAL PROJECT #D-1159**  
**HOWARD COUNTY**  
**HSCD #: EP-16-14**

**RISER DETAIL SHEET**

SCALE  
AS SHOWN  
SHEET  
6 OF 18

**CONCRETE END SECTION**

**NOTES:**

- END SECTIONS MUST BE REINFORCED TO CONFORM WITH CLASS IV PIPE.
- CONCRETE FOOTER SHALL BE USED WHEN SPECIFIED ON THE PLANS. COST OF CONCRETE FOOTER TO BE INCLUDED IN PRICE OF END SECTION. CONCRETE TO BE MIX NO. 2, REINFORCEMENT TO BE NO. 3 BARS.

INVERT ELEVATION TO BE AT THE PIPE END OF THE STANDARD END SECTION. ELEVATIONS TO BE NOTED ON THE CONSTRUCTION PLANS.

OPTIONAL CONCRETE FOOTER

SECTION A-A

QUANTITIES FOR ESTIMATING PURPOSES ONLY

DIMENSIONS		QUANTITIES	
DIA	SLOPE	CONCRETE END SECTION	CONCRETE FOOTER
12"	3:1	4'	0.08
15"	3:1	4'	0.10
18"	3:1	4'	0.11
21"	3:1	4'	0.13
24"	3:1	4'	0.17
27"	3:1	4'	0.19
30"	3:1	4'	0.21
33"	3:1	4'	0.23
36"	3:1	4'	0.25
42"	3:1	4'	0.27
48"	3:1	4'	0.47
54"	3:1	4'	0.50
60"	3:1	4'	0.53
66"	3:1	4'	0.56
72"	3:1	4'	0.60

Howard County, Maryland  
Department of Public Works  
Concrete End Section  
Circular Concrete Pipe  
Detail  
D-5.11

**DETAIL D-4-2 PLUNGE POOL**

**CONSTRUCTION SPECIFICATIONS:**

- USE SPECIFIED CLASS OF RIPRAP.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
- PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
- STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
- AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOGGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011  
MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION  
D.25

**DETAIL G-2-9 PROJECTION COLLAR**

**CONSTRUCTION SPECIFICATIONS:**

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011  
MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION  
G.51

**NOTES:**

- CONTRACTOR SHALL PROVIDE 3"-45° BEVEL AROUND PIPE OPENINGS UPSTREAM HEADWALLS.

D	E	F	G	H	J	K	L	N	R	Δ VOL. CY
12"	2'-8"	7'-2"	3'-0"	2'-8"	2'-0"	8"	8"	8"	#5-12" O/C	1.50
15"	2'-11"	7'-5"	3'-0"	2'-8"	2'-0"	8"	8"	8"	#5-12" O/C	1.60
18"	3'-0"	7'-6"	3'-0"	3'-0"	2'-0"	8"	8"	8"	#5-12" O/C	1.70
21"	3'-4"	7'-9"	3'-0"	3'-3"	2'-0"	8"	8"	8"	#5-12" O/C	1.80
24"	3'-8"	8'-0"	3'-0"	3'-6"	2'-0"	8"	8"	8"	#5-12" O/C	1.90
27"	3'-11"	8'-3"	3'-0"	3'-9"	2'-0"	8"	8"	8"	#5-12" O/C	2.00
30"	4'-2"	8'-6"	3'-0"	4'-0"	2'-1 1/2"	8"	8"	10"	#5-12" O/C	2.85
36"	4'-8"	10'-0"	3'-6"	4'-6"	2'-3"	8"	10"	10"	#5-12" O/C	3.15
42"	5'-3"	11'-6"	4'-0"	5'-0"	2'-9"	8"	10"	10"	#5-12" O/C	3.87
48"	5'-10"	13'-0"	4'-6"	5'-6"	3'-0"	8"	10"	12"	#5-12" O/C	5.08
54"	6'-5"	14'-8"	5'-0"	6'-0"	3'-3"	9"	12"	12"	#6-8" O/C	6.50
60"	7'-0"	16'-0"	5'-6"	6'-6"	3'-6"	9"	12"	12"	#6-8" O/C	7.98
66"	7'-7"	17'-6"	6'-0"	7'-0"	3'-9"	9"	12"	14"	#6-8" O/C	9.14
72"	8'-2"	19'-0"	6'-6"	7'-6"	4'-3"	9"	12"	14"	#6-8" O/C	11.10

Howard County, Maryland  
Department of Public Works  
Type 'A' Headwall  
Circular Pipe  
Detail  
D-5.11

**ANTI-SEEP COLLAR DETAIL**

NOTE: INSTALL 'VOLCLAY' BRAND 'WATERSTOP-RX' OR APPROVED EQUAL ON PERIPHERY OF RCP AT CENTERLINE OF CONC. COLLAR.

CONCRETE CRADLE - SEE DETAIL ON SHEET 6

ANTI-SEEP COLLAR DETAIL  
NOT TO SCALE

**DRAINAGE STRUCTURE STAKEOUT LOCATION DETAILS**

**PLUNGE POOL PROFILE**  
NOT TO SCALE

**PLUNGE POOL CROSS SECTION**  
NOT TO SCALE

ANTI-SEEP COLLAR CONSTRUCTION NOTES:

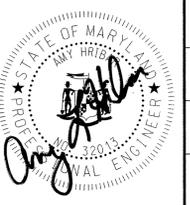
- PROVIDE MINIMUM 3" CLEAR COVER FOR ALL REINFORCEMENT, EXCEPT AS NOTED.
- USE MIX NO. 6 CEMENT CONCRETE (f'c = 4500 psi) FOR ANTI-SEEP COLLAR AND CONCRETE CRADLE.
- USE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A615/A615M, A616/A616M, A617/A617M AND A706/A706M. DO NOT WELD REINFORCING STEEL BARS UNLESS SPECIFIED.
- BARREL JOINTS SHALL BE LOCATED A MINIMUM OF 2' FROM THE CONCRETE ANTI-SEEP COLLAR.
- ANTI-SEEP COLLAR SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARDS OF MIX NO. 6 CONCRETE FOR MISCELLANEOUS STRUCTURES. PAYMENT WILL BE FULL COMPENSATION FOR ALL MIX NO. 6 CONCRETE, WELDED WIRE FABRIC, REINFORCEMENT, EXCAVATION, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS REQUIRED TO SATISFACTORILY COMPLETE THE WORK.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

**MCCORMICK TAYLOR**  
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

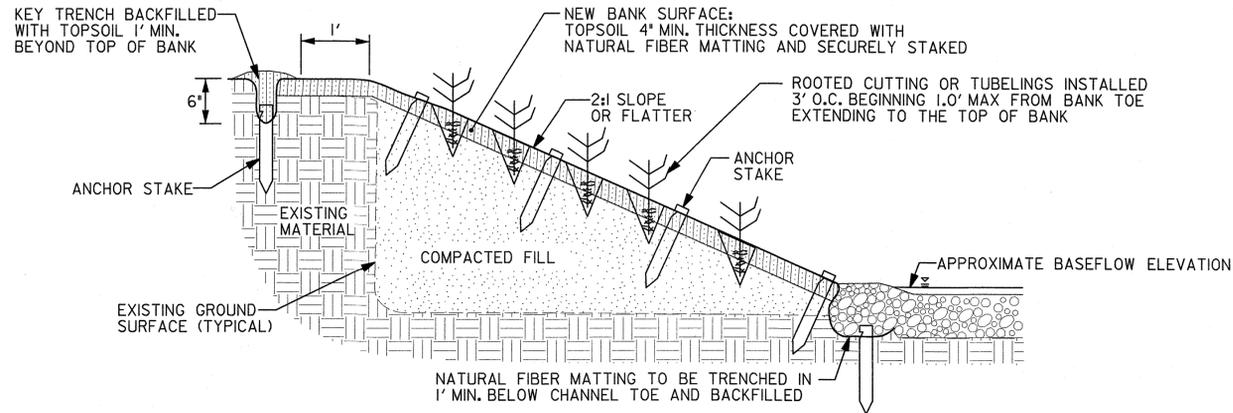


DES:	AMJS				
DRN:	MR				
CHK:	AH				
DATE:	02/01/16				
BY	NO.	REVISION	DATE		

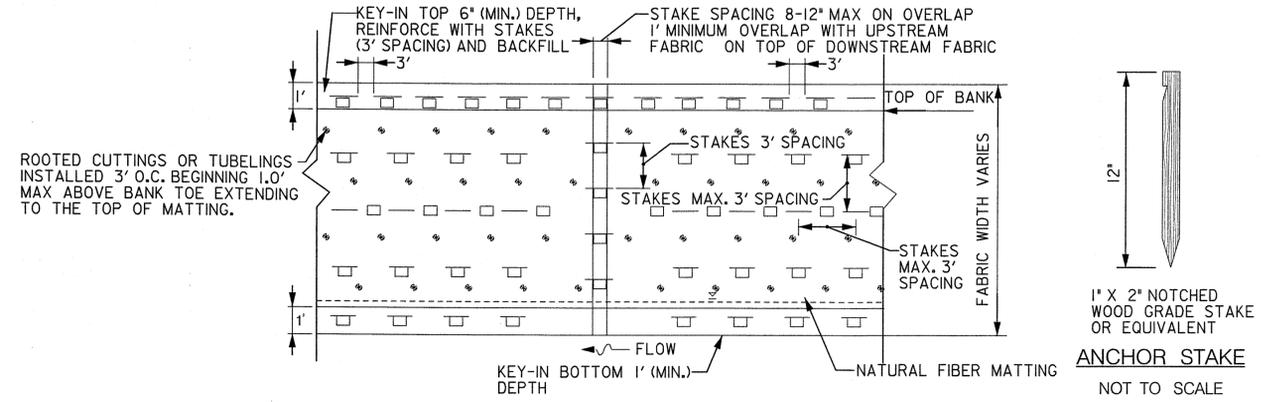
EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

**STANDARD DETAIL SHEET**

SCALE  
AS SHOWN  
SHEET  
Z OF 18



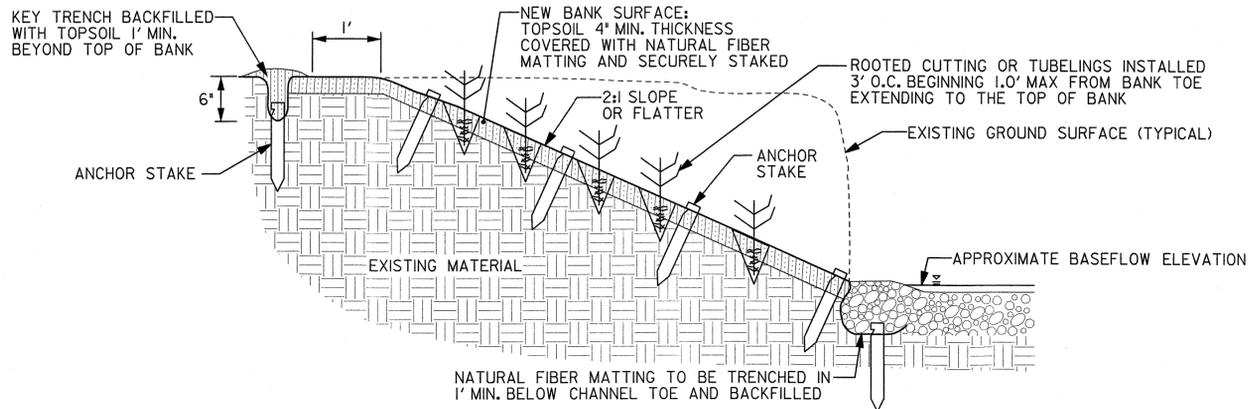
TYPICAL STREAMBANK STABILIZATION IN FILL  
NOT TO SCALE



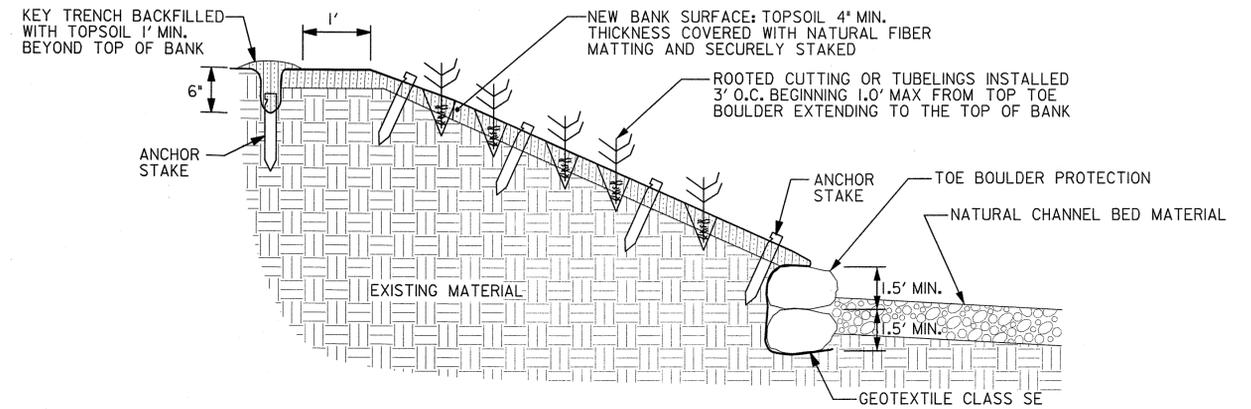
NATURAL FIBER MATTING - PLAN VIEW  
NOT TO SCALE

USE NEDIA KOIR MAT 700 TYPE MATTING, ECO MESH CM 700, GEOCOIR DEKOWE 900 TYPE MATTING, OR AN EQUIVALENT MATTING CONSISTING OF MACHINE PRODUCED MATTING MEETING THE FOLLOWING MINIMUM SPECIFICATIONS.

MATERIAL	WOVEN COIR MATTING
THICKNESS	0.3 IN.
WEIGHT	20 OZ/SY
WATER VELOCITY	12 FT/SEC
OPEN AREA	50%
TRACTIVE FORCE	4.5 LBS/SQ FT



TYPICAL STREAMBANK STABILIZATION IN CUT  
NOT TO SCALE



TOE BOULDER PROTECTION TYPICAL  
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

**McCORMICK TAYLOR**  
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: AM,JS				
DRN: MR				
CHK: AH				
DATE: 02/01/16	BY	NO.	REVISION	DATE

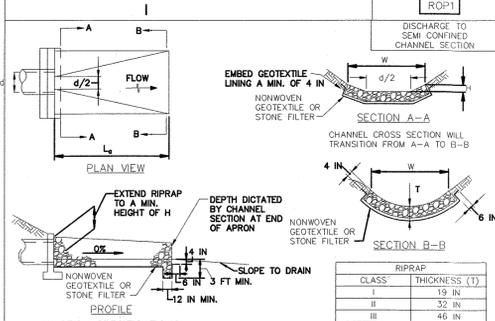
EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

STABILIZATION DETAIL SHEET

SCALE  
AS SHOWN  
SHEET  
8 OF 18

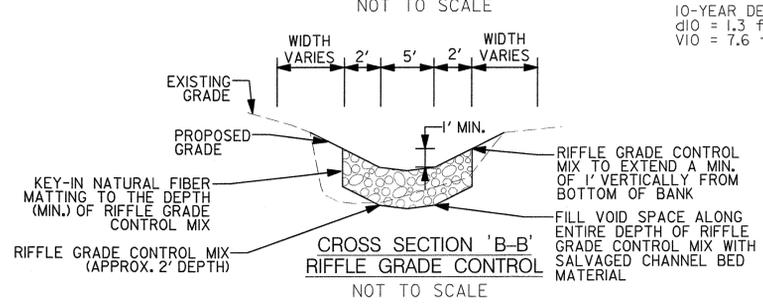
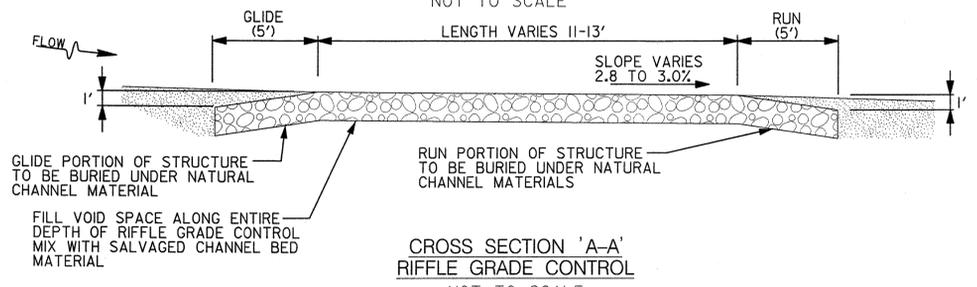
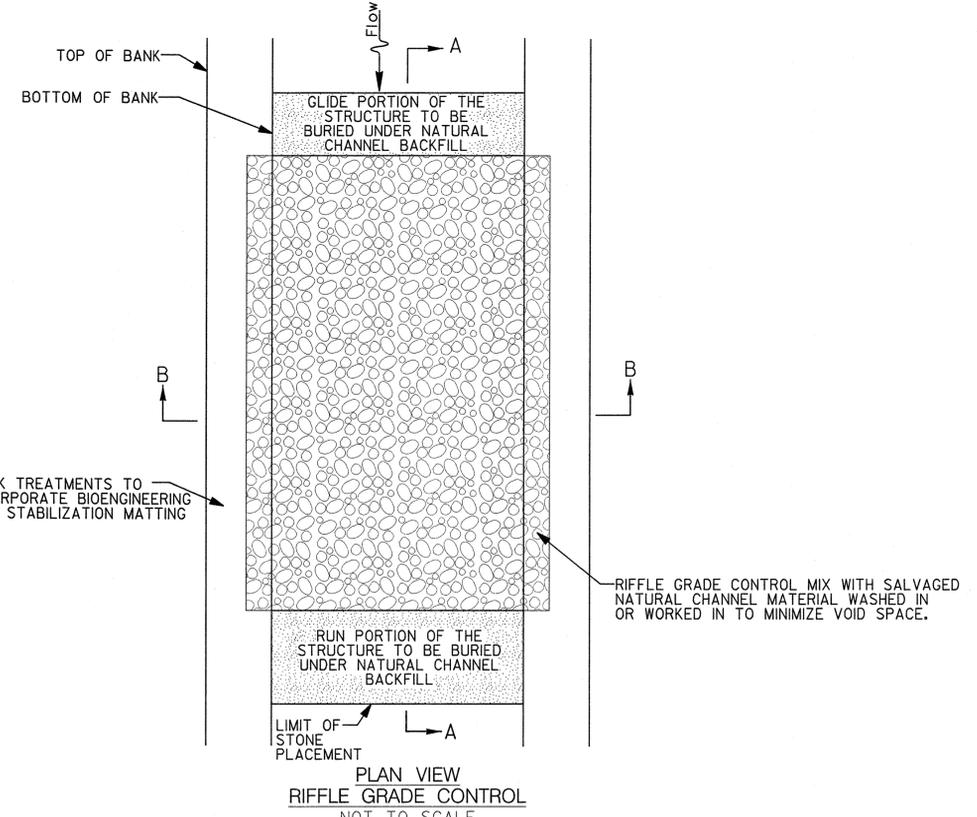
*Mark D. Rosen*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE

**DETAIL D-4-1-A ROCK OUTLET PROTECTION**



- CONSTRUCTION SPECIFICATIONS**
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
  2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
  3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (¾ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
  5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
  6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
  7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
  8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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



10-YEAR DESIGN INFORMATION  
 d10 = 1.3 ft  
 V10 = 7.6 ft/s

- NOTES:**
1. COMPACT NATURAL CHANNEL BACKFILL TO MATCH PRE-CONSTRUCTION GRADE UNLESS OTHERWISE SPECIFIED.
  2. IF CLAY OR UNSUITABLE MATERIAL IS FOUND IN IN SUBGRADE THEN OVER EXCAVATE AND PLACE 6" MIN. THICKNESS CHANNEL BED MATERIAL BELOW CONSTRUCTED RIFFLE MIX.
  3. CONTRACTOR SHALL USE NATURALLY APPEARING BROWN OR GRAY STONE. WHITE STONE IS NOT ACCEPTABLE.

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

*Michael D. ...*  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 2/2/16

**McCORMICK TAYLOR**

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

**Howard County**  
 MARYLAND

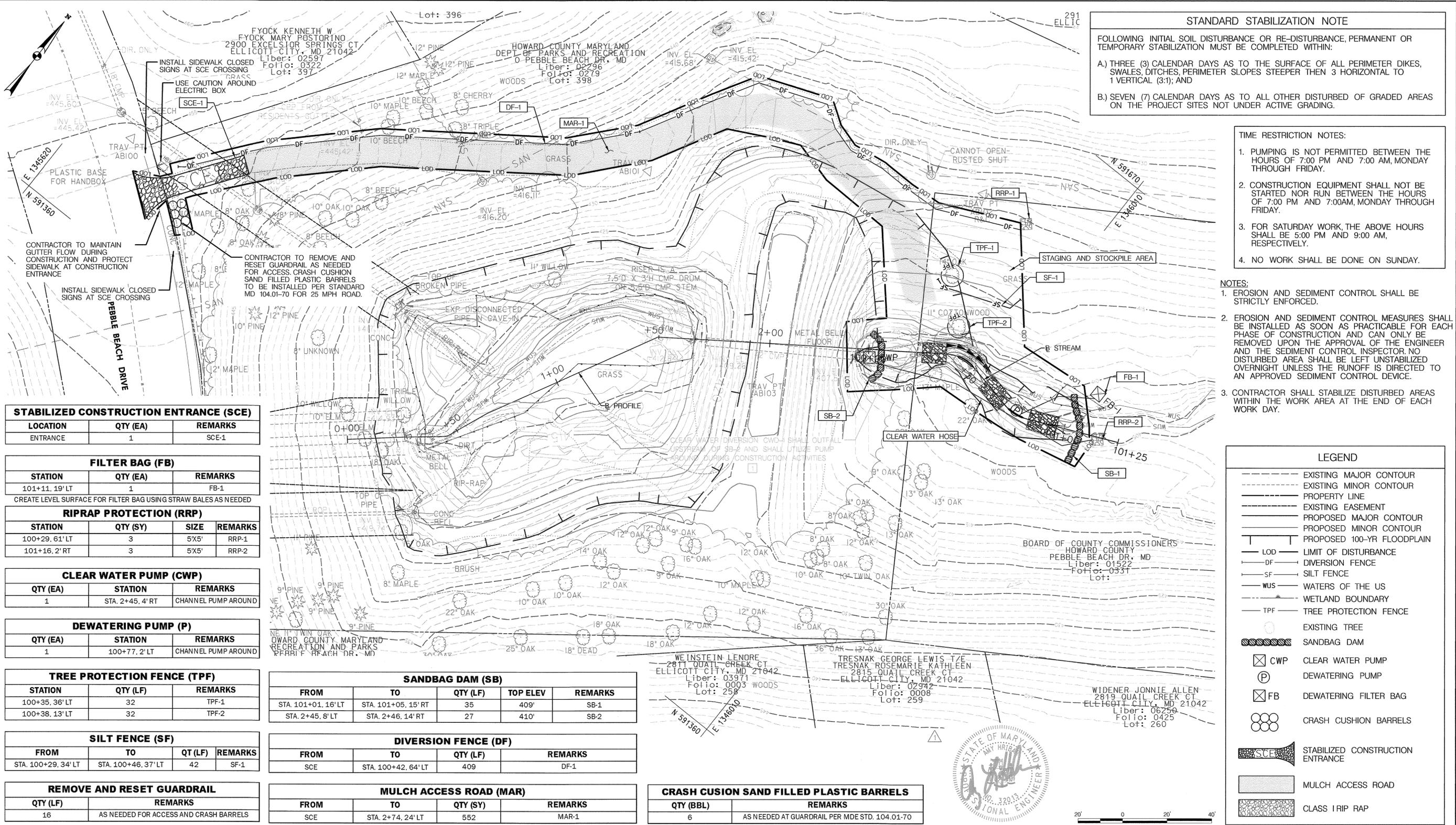
Storm Water Management Division  
 Bureau of Environmental Services  
 6751 Columbia Gateway Drive, Suite 514  
 Columbia, Maryland 21046-3143  
 (410) 313-6444

DES: AM,JS				
DRN: MR				
CHK: AH				
DATE: 02/01/16				
BY	NO.	REVISION	DATE	

**EXCELSIOR SPRINGS COURT**  
 PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
 CAPITAL PROJECT #D-1159  
 HOWARD COUNTY  
 HSCD #: EP-16-14

**STABILIZATION DETAIL SHEET**

SCALE: AS SHOWN  
 SHEET: 9 OF 18



**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

**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 7:00 AM, 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.

**NOTES:**

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.

**STABILIZED CONSTRUCTION ENTRANCE (SCE)**

LOCATION	QTY (EA)	REMARKS
ENTRANCE	1	SCE-1

**FILTER BAG (FB)**

STATION	QTY (EA)	REMARKS
101+11.19' LT	1	FB-1

CREATE LEVEL SURFACE FOR FILTER BAG USING STRAW BALES AS NEEDED

**RIPRAP PROTECTION (RRP)**

STATION	QTY (SY)	SIZE	REMARKS
100+29.61' LT	3	5X5'	RRP-1
101+16.2' RT	3	5X5'	RRP-2

**CLEAR WATER PUMP (CWP)**

QTY (EA)	STATION	REMARKS
1	STA. 2+45.4' RT	CHANNEL PUMP AROUND

**DEWATERING PUMP (P)**

QTY (EA)	STATION	REMARKS
1	100+77.2' LT	CHANNEL PUMP AROUND

**TREE PROTECTION FENCE (TPF)**

STATION	QTY (LF)	REMARKS
100+35.36' LT	32	TPF-1
100+38.13' LT	32	TPF-2

**SILT FENCE (SF)**

FROM	TO	QT (LF)	REMARKS
STA. 100+29.34' LT	STA. 100+46.37' LT	42	SF-1

**REMOVE AND RESET GUARDRAIL**

QTY (LF)	REMARKS
16	AS NEEDED FOR ACCESS AND CRASH BARRELS

**SANDBAG DAM (SB)**

FROM	TO	QTY (LF)	TOP ELEV	REMARKS
STA. 101+01.16' LT	STA. 101+05.15' RT	35	409'	SB-1
STA. 2+45.8' LT	STA. 2+46.14' RT	27	410'	SB-2

**DIVERSION FENCE (DF)**

FROM	TO	QTY (LF)	REMARKS
SCE	STA. 100+42.64' LT	409	DF-1

**MULCH ACCESS ROAD (MAR)**

FROM	TO	QTY (SY)	REMARKS
SCE	STA. 2+74.24' LT	552	MAR-1

**CRASH CUSION SAND FILLED PLASTIC BARRELS**

QTY (BBL)	REMARKS
6	AS NEEDED AT GUARDRAIL PER MDE STD. 104.01-70

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED 100-YR FLOODPLAIN
- LOD --- LIMIT OF DISTURBANCE
- DF --- DIVERSION FENCE
- SF --- SILT FENCE
- WUS --- WATERS OF THE US
- WETLAND BOUNDARY
- TPF --- TREE PROTECTION FENCE
- EXISTING TREE
- ▨ SANDBAG DAM
- ⊗ CWP CLEAR WATER PUMP
- ⊕ DEWATERING PUMP
- ⊗ FB DEWATERING FILTER BAG
- ⊙ CRASH CUSHION BARRELS
- ▨ SCE STABILIZED CONSTRUCTION ENTRANCE
- ▨ MULCH ACCESS ROAD
- ▨ CLASS I RIP RAP

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

**McCORMICK TAYLOR**  
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



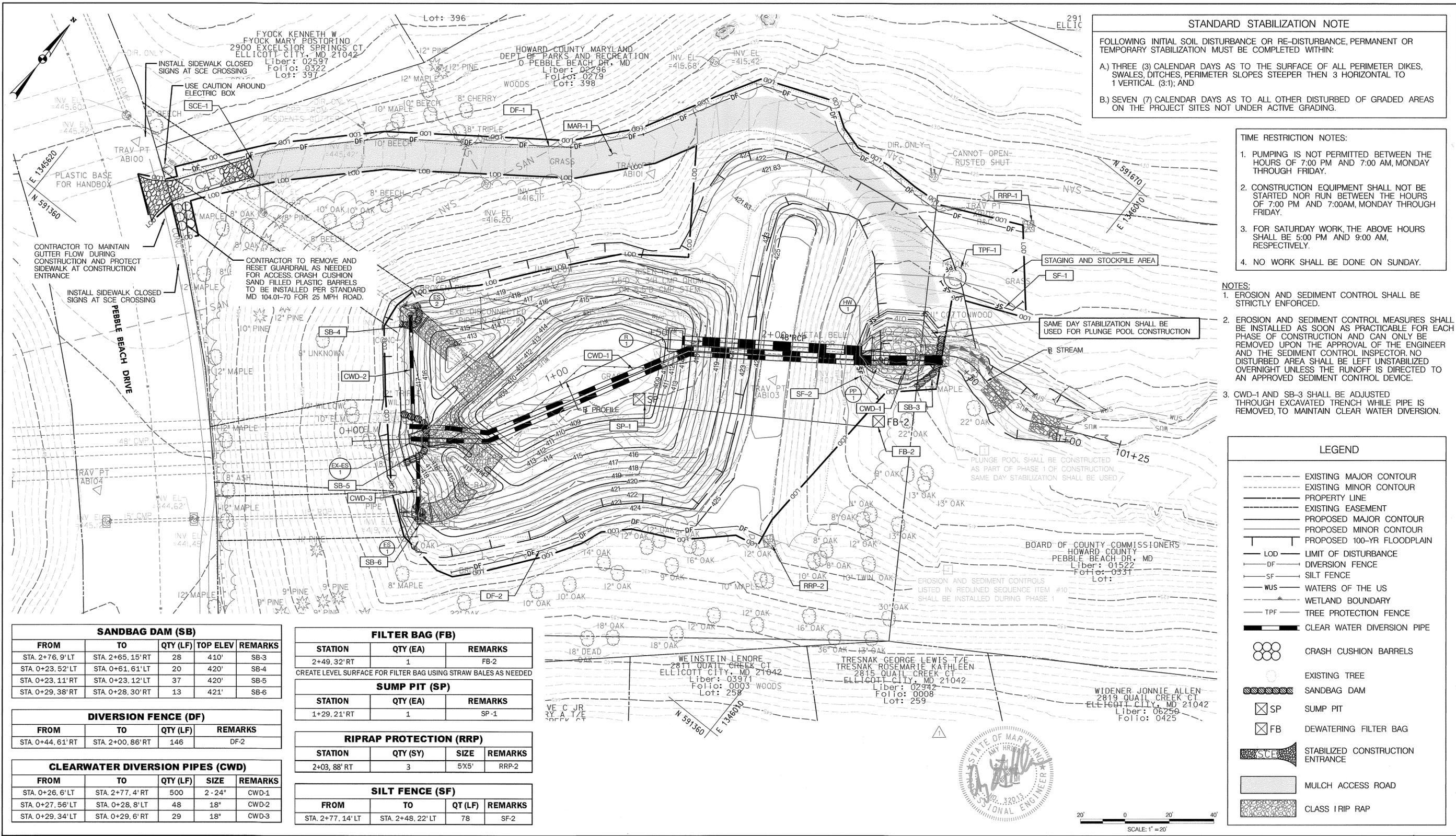
DES: AM,JS				
DRN: MR				
CHK: AH	ADM	AS-BUILT	6/29/16	
DATE: 02/01/16	ADM	SEQUENCE AND MINOR DETAIL REVISIONS	2/18/16	
	BY	NO.	REVISION	DATE

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

**EROSION AND SEDIMENT CONTROL PLAN**  
PHASE 1

SCALE: 1" = 20'

SHEET 10 OF 18



**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OF GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

**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.

**NOTES:**

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. CWD-1 AND SB-3 SHALL BE ADJUSTED THROUGH EXCAVATED TRENCH WHILE PIPE IS REMOVED, TO MAINTAIN CLEAR WATER DIVERSION.

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED 100-YR FLOODPLAIN
- LOD --- LIMIT OF DISTURBANCE
- DF --- DIVERSION FENCE
- SF --- SILT FENCE
- WUS --- WATERS OF THE US
- WETLAND BOUNDARY
- TPF --- TREE PROTECTION FENCE
- CLEAR WATER DIVERSION PIPE
- CRASH CUSHION BARRELS
- EXISTING TREE
- SANDBAG DAM
- SP --- SUMP PIT
- FB --- DEWATERING FILTER BAG
- SCE --- STABILIZED CONSTRUCTION ENTRANCE
- MULCH ACCESS ROAD
- CLASS I RIP RAP

**SANDBAG DAM (SB)**

FROM	TO	QTY (LF)	TOP ELEV	REMARKS
STA. 2+76.9'LT	STA. 2+65.15'RT	28	410'	SB-3
STA. 0+23.52'LT	STA. 0+61.61'LT	20	420'	SB-4
STA. 0+23.11'RT	STA. 0+23.12'LT	37	420'	SB-5
STA. 0+29.38'RT	STA. 0+28.30'RT	13	421'	SB-6

**FILTER BAG (FB)**

STATION	QTY (EA)	REMARKS
2+49.32'RT	1	FB-2

CREATE LEVEL SURFACE FOR FILTER BAG USING STRAW BALES AS NEEDED

**SUMP PIT (SP)**

STATION	QTY (EA)	REMARKS
1+29.21'RT	1	SP-1

**RIPRAP PROTECTION (RRP)**

STATION	QTY (SY)	SIZE	REMARKS
2+03.88'RT	3	5X5'	RRP-2

**SILT FENCE (SF)**

FROM	TO	QT (LF)	REMARKS
STA. 2+77.14'LT	STA. 2+48.22'LT	78	SF-2

**DIVERSION FENCE (DF)**

FROM	TO	QTY (LF)	REMARKS
STA. 0+44.61'RT	STA. 2+00.86'RT	146	DF-2

**CLEARWATER DIVERSION PIPES (CWD)**

FROM	TO	QTY (LF)	SIZE	REMARKS
STA. 0+26.6'LT	STA. 2+77.4'RT	500	2'-24"	CWD-1
STA. 0+27.56'LT	STA. 0+28.8'LT	48	18"	CWD-2
STA. 0+29.34'LT	STA. 0+29.6'RT	29	18"	CWD-3

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE

**McCormick Taylor**  
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:	AM,JS				
DRN:	MR				
CHK:	AH	ADM	AS-BUILT	6/29/16	
		ADM	SEQUENCE AND MINOR DETAIL REVISIONS	2/18/16	
DATE:	02/01/16	BY	NO.	REVISION	DATE

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

**EROSION AND SEDIMENT CONTROL PLAN  
PHASE 2**

SCALE: 1" = 20'

SHEET  
11 OF 18



# 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 Tired 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 (CONTINUED)

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 BEAD.

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

**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 SIGHTLY 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.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

**McCORMICK  
TAYLOR**  
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: AMJS					
DRN: MR					
CHK: AH					
DATE: 02/01/16	BY	NO.	REVISION	DATE	

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY  
HSCD #: EP-16-14

**POND CONSTRUCTION SPECIFICATIONS**

SCALE  
NOT TO  
SCALE

SHEET

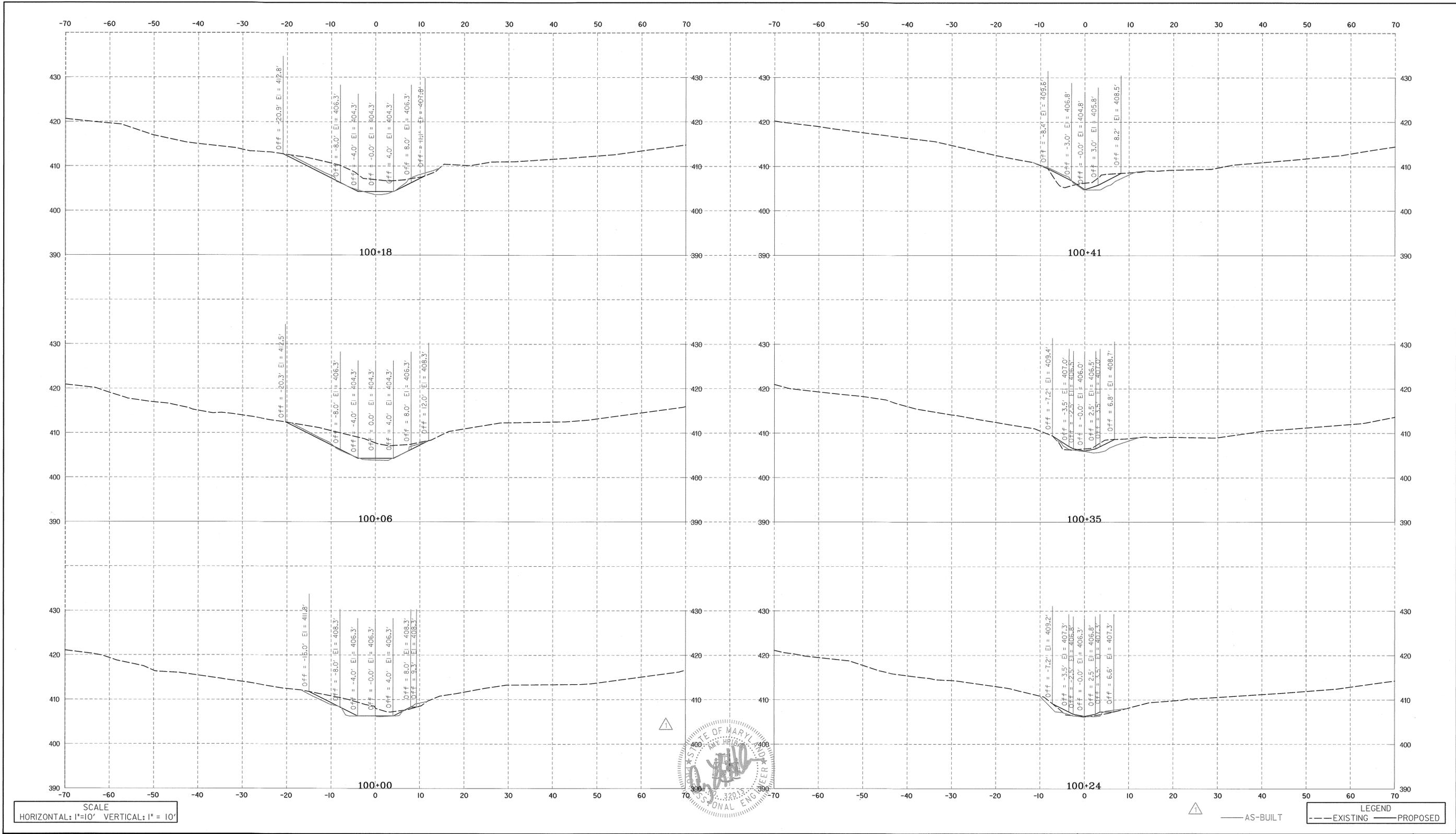
13 OF 18

*Mark J. ...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*zlf/...*  
DATE







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

*Mark Stinson*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*John*  
DATE

**McCORMICK TAYLOR**  
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

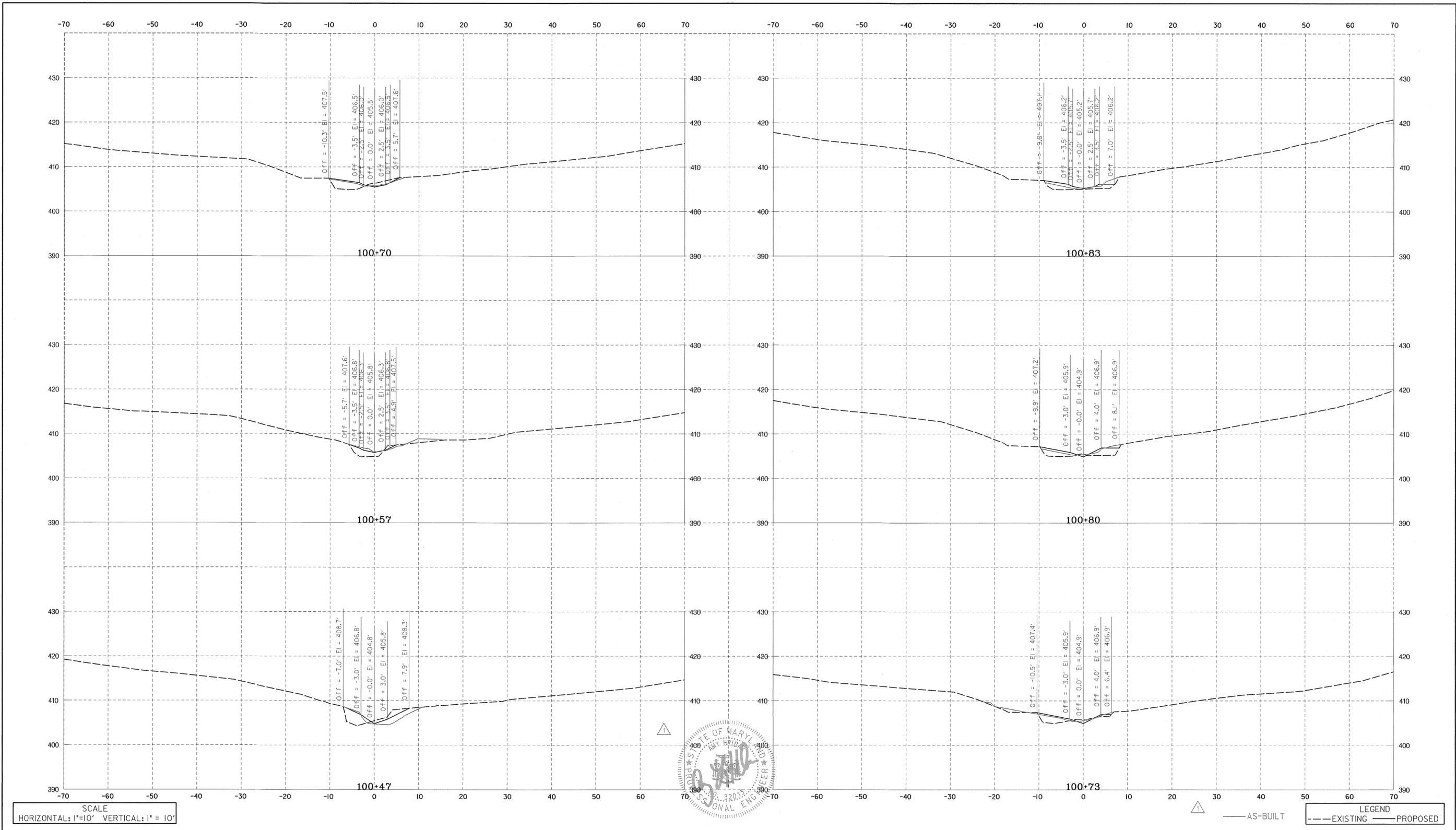


DES: LN/AM					
DRN: MR					
CHK: AH					
DATE: 02/01/16	ADM	AS-BUILT	6/29/16		
	BY	NO.	REVISION	DATE	

**EXCELSIOR SPRINGS COURT**  
**PRINCIPAL SPILLWAY REPLACEMENT PROJECT**  
**CAPITAL PROJECT #D-1159**  
**HOWARD COUNTY**

**CROSS SECTIONS**

SCALE  
AS SHOWN  
SHEET  
16 OF 18



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Mark Stegeman*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*ablc*  
DATE

**MCCORMICK TAYLOR**  
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

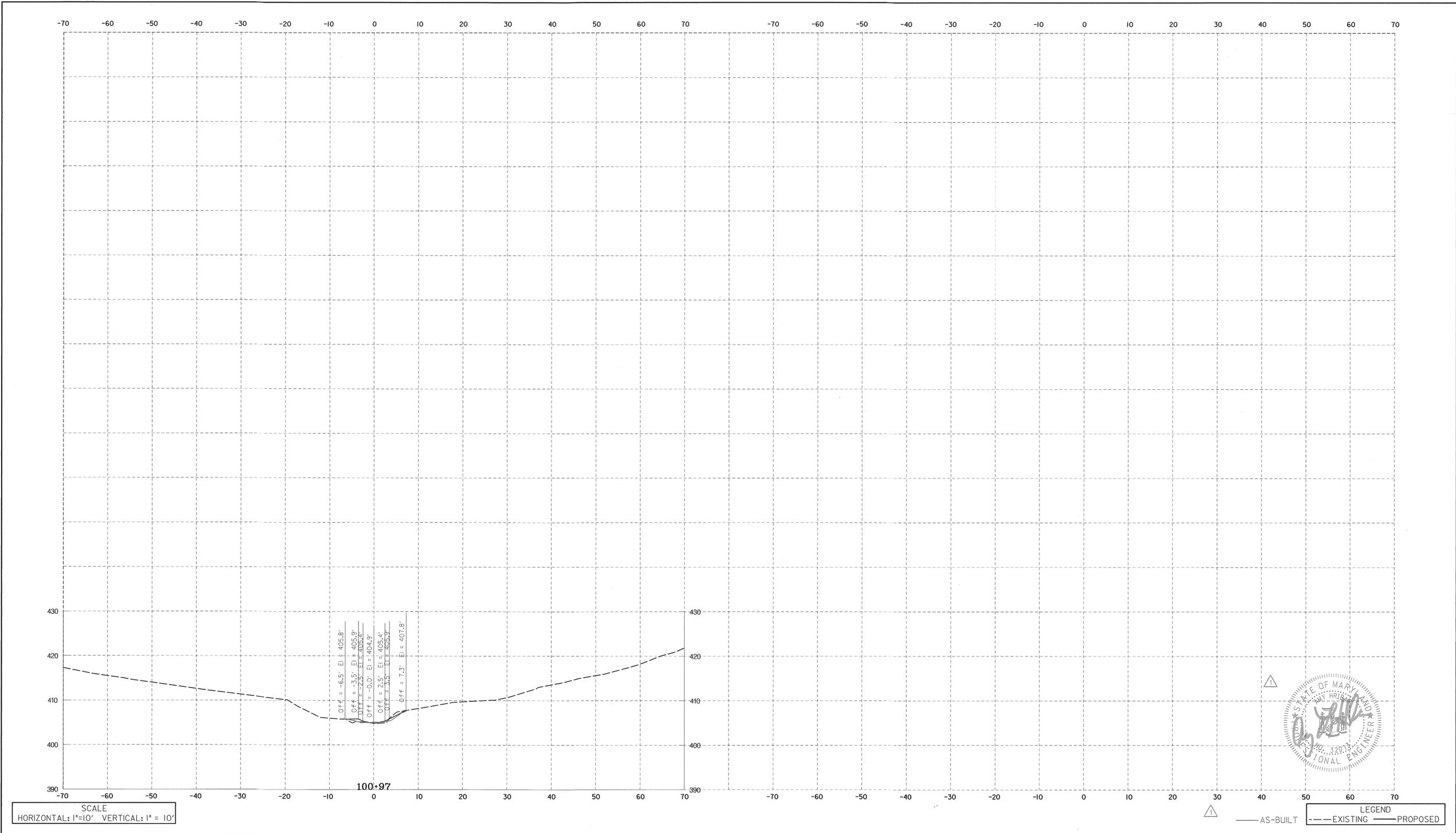
STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 32013  
*John J. [Signature]*

DES: LN/AM					
DRN: MR					
CHK: AH					
DATE: 02/01/16	ADM	AS-BUILT	6/29/16		
	BY	NO.	REVISION	DATE	

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY

**CROSS SECTIONS**

SCALE  
AS SHOWN  
SHEET  
17 OF 18



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Mark Johnson*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*2/26/16*  
DATE

**McCORMICK TAYLOR**  
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: LN/AM				
DRN: MR				
CHK: AH				
DATE: 02/01/16				
ADM	△	AS-BUILT	6/29/16	
BY	NO.	REVISION	DATE	

EXCELSIOR SPRINGS COURT  
PRINCIPAL SPILLWAY REPLACEMENT PROJECT  
CAPITAL PROJECT #D-1159  
HOWARD COUNTY

**CROSS SECTIONS**

SCALE  
AS SHOWN

SHEET  
18 OF 18