

HOWARD COUNTY

Capital Project #D-1159

Fairest Dream

Principal Spillway Replacement and Channel Stabilization Project

Storm Water Management Division
Bureau Of Environmental Services

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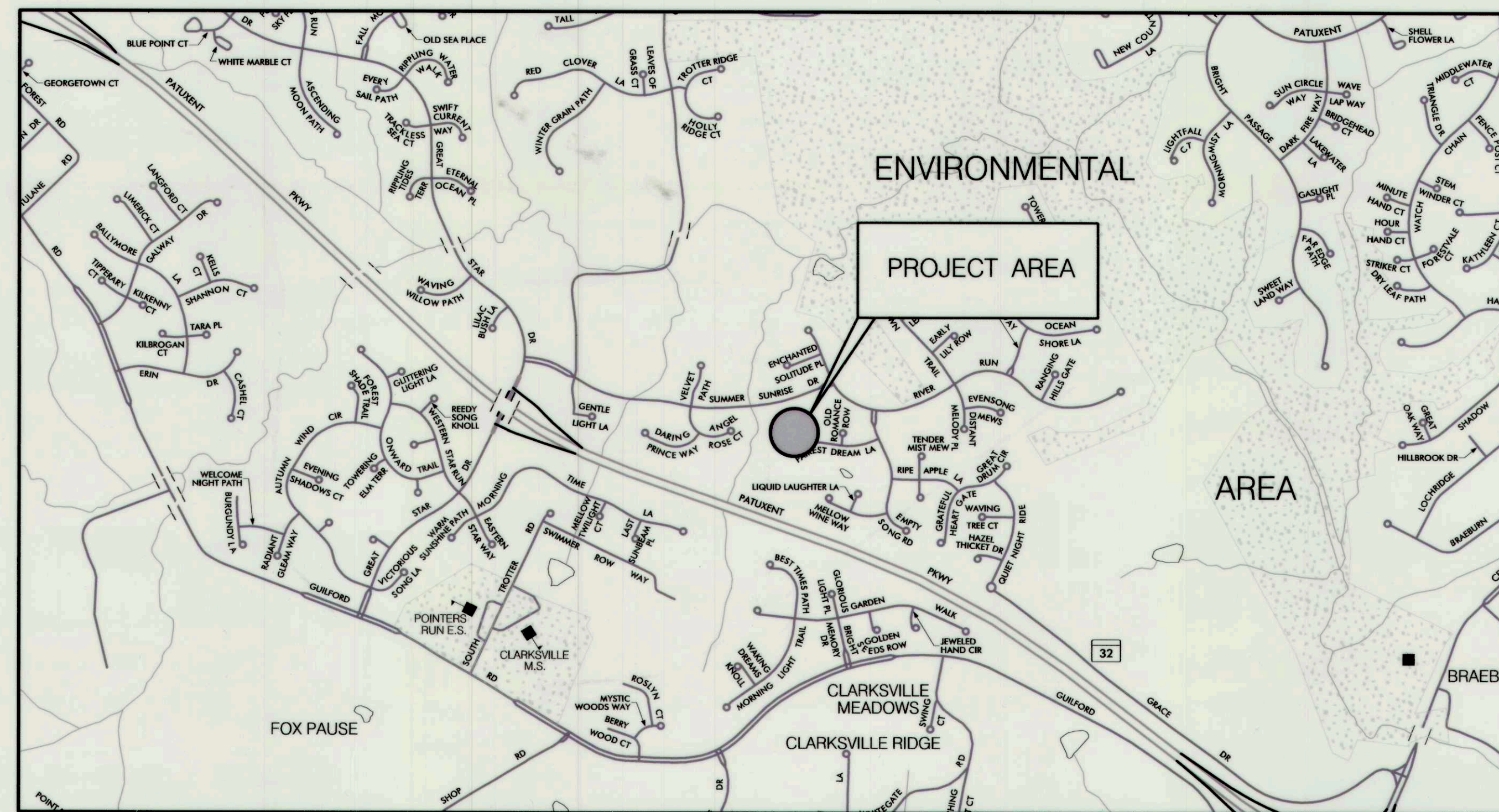
LEGEND

PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	H.B.
FLOW LINE	
STATE, COUNTY OR CITY LINES	
PROPOSED TRAFFIC BARRIER	
EXISTING TRAFFIC BARRIER	
PROPOSED FENCE LINE	X-X
EXISTING FENCE LINE	
RIGHT OF WAY LINE	
EXISTING ROADWAY	
BASE OR SURVEY LINE	
TRAVERSE POINT	
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EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
HEDGE / TREE LINE	
BUSH / TREE	
CONIFEROUS TREE	
LIGHT POLE	

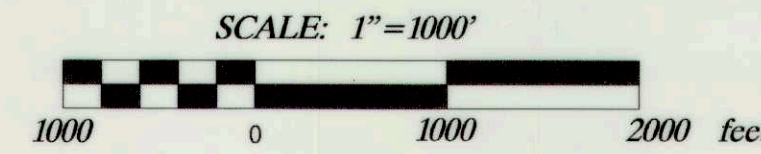
PERMITS/APPROVALS			
AGENCY	PERMIT #	DATE APPLIED	DATE APPROVED
MDE JOINT PERMIT APPLICATION	#201660618	04 /12 /2016	5 /24 /2016
MDE DAM SAFETY	N /A	N /A	N /A
HOWARD SOIL CONSERVATION DISTRICT	EP-16-017	30% 01 /13 /2016 65% 03 /23 /2016 90% 07 /05 /2016 Final 09 /28 /2016	30% 02 /04 /2016 65% 04 /26 /2016 90% 07 /19 /2016 Final 11 /30 /2016

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSA 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) 313-1855 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC- SEPT 2015
- 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- OCT 2015.
- 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 CONTRACTOR'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 THE VILLAGE OF RIVER HILL (F-93-18).
- A JOINT PERMIT APPLICATION HAS BEEN APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201660618)
- 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 PROJECT IS NOT LOCATED WITHIN A TIER II WATERSHED AND THE MIDDLE PATUXENT WATERSHED. THE PROJECT CONTRIBUTES TO RECEIVED WQA APPROVAL FOR SEDIMENT (2012).
- CONTRACTOR SHALL PROVIDE STRUCTURAL SHOP DRAWINGS FOR RISER, TRASH RACK AND HEADWALL FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88



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: 7/5/2017

AS-BUILT CERTIFICATION

I HEREBY 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 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.

10/24/16
DATE

Amr Hribar
DESIGNER'S SIGNATURE

MARYLAND
REGISTRATION
NUMBER 32013

AMY HRIBAR
PRINTED NAME

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 (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT 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 ALSO CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

11/4/16
DATE

Mark S. Richmond
OWNER /DEVELOPER SIGNATURE

Mark S. Richmond, Chief Storm Division
PRINTED NAME AND TITLE



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.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Howard County Soil Conservation District
HOWARD COUNTY SOIL CONSERVATION DISTRICT

11/20/16
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Mark S. Richmond
DIRECTOR OF PUBLIC WORKS DATE 11/4/16
Mark S. Richmond
CHIEF, STORMWATER MANAGEMENT DIVISION DATE 11/4/16

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

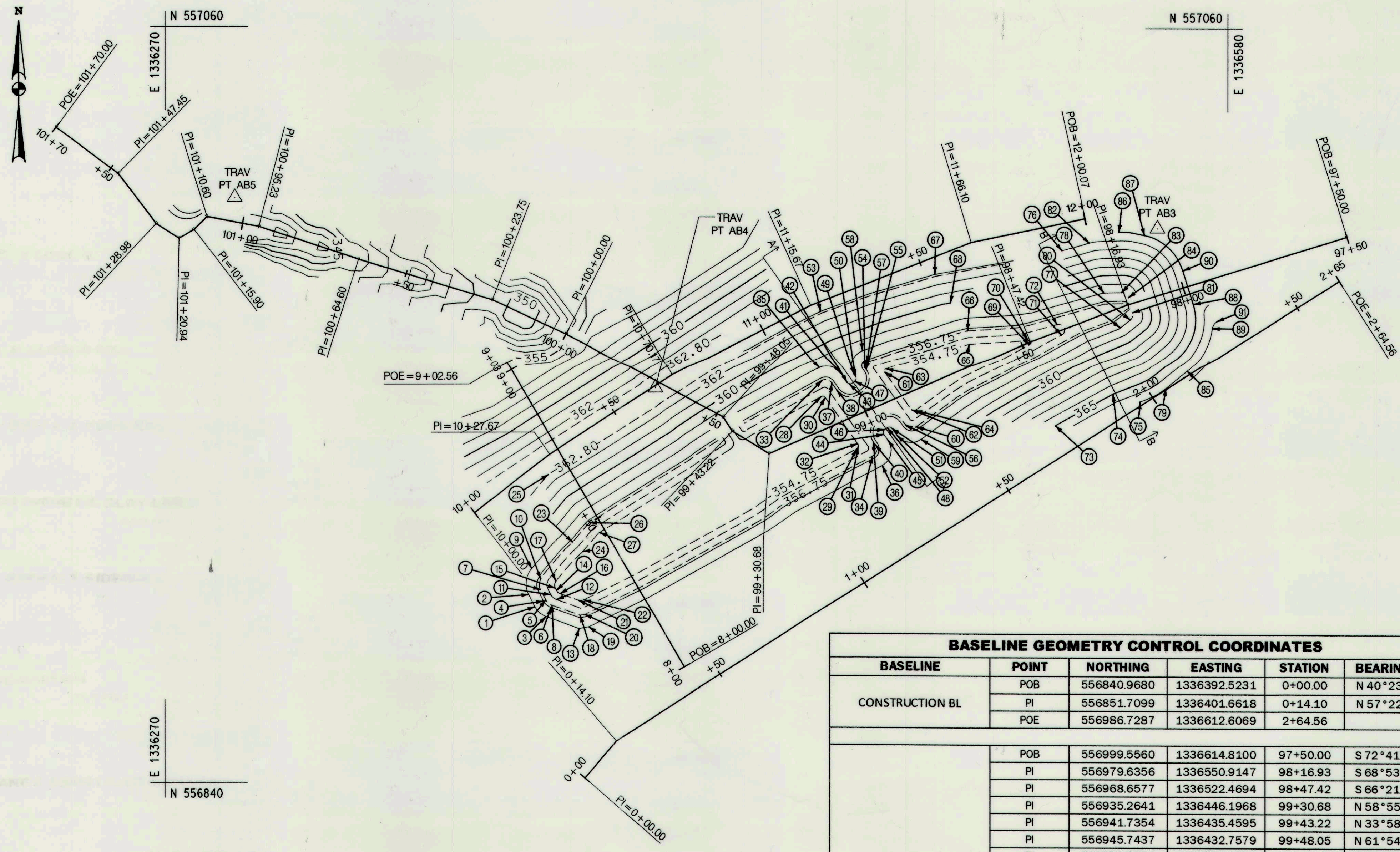


DES: CL	ADM	<input checked="" type="checkbox"/>	AS-BUILT SURVEY	8/29/17
DRN: MR				
CHK: AH				
DATE: 09/28/16	BY	NO.	REVISION	DATE

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

TITLE SHEET

SCALE AS SHOWN
SHEET 1 OF 22



TRAVERSE CONTROL COORDINATES

POINT	NORTHING	EASTING	ELEVATION
AB3	557001.8534	1336559.4769	365.72
AB4	556954.1838	1336412.9676	362.93
AB5	557010.3607	1336290.2660	347.78

BASELINE GEOMETRY CONTROL COORDINATES

BASELINE	POINT	NORTHING	EASTING	STATION	BEARING AH
CONSTRUCTION BL	POB	556840.9680	1336392.5231	0+00.00	N 40°23'22" E
	PI	556851.7099	1336401.6618	0+14.10	N 57°22'41" E
	POE	556896.7287	1336612.6069	2+64.56	
POND AND CHANNEL PROFILE BL	POB	556999.5560	1336614.8100	97+50.00	S 72°41'04" W
	PI	556979.6356	1336550.9147	98+16.93	S 68°53'49" W
	PI	556968.6577	1336522.4694	98+47.42	S 66°21'19" W
	PI	556935.2641	1336446.1968	99+30.68	N 58°55'22" W
	PI	556941.7354	1336435.4595	99+43.22	N 33°58'48" W
	PI	556945.7437	1336432.7579	99+48.05	N 61°54'30" W
	PI	556970.2054	1336386.9291	100+00.00	N 64°51'55" W
	PI	556980.2935	1336365.4271	100+23.75	N 73°03'00" W
	PI	556992.2036	1336326.3490	100+64.60	N 71°37'07" W
	PI	557001.8606	1336297.2876	100+95.23	N 79°20'57" W
	PI	557004.7012	1336282.1827	101+10.60	S 44°56'06" W
	PI	557000.9466	1336278.4365	101+15.90	S 59°45'38" W
	PI	556998.4072	1336274.0803	101+20.94	N 57°08'43" W
PI	557002.7691	1336267.3262	101+28.98	N 36°53'24" W	
PI	557017.5356	1336256.2432	101+47.45	N 53°29'06" W	
POE	557030.9558	1336238.1168	101+70.00		
POND CROSS SECTION BL	POB	556873.1138	1336421.5238	8+00.00	N 30°19'14" W
	POE	556961.6467	1336369.7464	9+02.56	
POND EMBANKMENT BL	POB	556917.9246	1336360.3436	10+00.00	N 52°16'14" E
	PI	556934.8596	1336382.2318	10+27.67	N 56°59'21" E
	PI	556958.0105	1336417.8661	10+70.17	N 62°38'38" E
	PI	556978.9205	1336458.2813	11+15.67	N 68°20'19" E
	PI	556997.5338	1336505.1464	11+66.10	N 77°52'55" E
POE	557004.6657	1336538.3626	12+00.07		

POND CONTROL COORDINATES

POINT	NORTHING	EASTING	ELEVATION
1	556890.4637	1336377.9534	358.00
2	556894.0714	1336376.1204	358.00
3	556887.5493	1336381.2340	358.00
4	556892.1729	1336380.4500	357.00
5	556892.5126	1336381.1187	356.75
6	556890.2299	1336382.6371	357.00
7	556895.5181	1336379.5917	356.75
8	556890.9340	1336382.8957	356.75
9	556901.7508	1336377.0065	358.00
10	556898.5804	1336379.6548	356.75
11	556894.0315	1336382.5903	355.75
12	556892.5743	1336384.2306	355.75
13	556884.0411	1336390.8274	358.00
14	556895.2877	1336384.1954	354.75
15	556895.9462	1336383.8608	354.75
16	556894.3162	1336385.2889	354.75
17	556898.0291	1336384.0269	354.75
18	556887.9271	1336391.0825	356.75
19	556884.5442	1336393.5963	358.00
20	556888.1516	1336392.4949	356.75
21	556892.3751	1336390.5741	354.75
22	556892.4677	1336392.1662	354.75
23	556909.2887	1336388.9049	356.75
24	556906.5546	1336391.8369	354.75
25	556928.8544	1336381.8516	362.80
26	556915.0093	1336393.8245	356.75
27	556912.1410	1336396.7085	354.75
28	556951.7927	1336461.3081	354.75
29	556936.7792	1336471.7402	354.75
30	556951.4945	1336462.6073	354.75
31	556937.4382	1336472.2390	354.75
32	556938.2476	1336472.0714	354.75
33	556956.5172	1336461.6679	356.75
34	556934.7613	1336476.4103	356.75
35	556960.2650	1336460.8164	358.00
36	556932.0096	1336479.2027	358.00
37	556955.7851	1336464.4715	356.75
38	556953.7904	1336465.8828	356.75
39	556938.7844	1336476.6310	356.75
40	556938.0652	1336477.1556	356.75
41	556958.6381	1336467.0466	358.00
42	556955.9563	1336468.9441	358.00
43	556955.5483	1336469.5916	358.00
44	556940.9944	1336479.6605	358.00
45	556939.3517	1336480.8588	358.00
46	556942.3916	1336479.8791	358.00

POND CONTROL COORDINATES

POINT	NORTHING	EASTING	ELEVATION
47	556956.2952	1336471.1543	358.00
48	556942.9810	1336480.6870	358.00
49	556958.1676	1336471.0545	358.00
50	556957.6891	1336471.3931	358.00
51	556942.7624	1336482.0842	358.00
52	556940.7573	1336483.5469	358.00
53	556977.2207	1336461.1851	363.00
54	556960.3336	1336474.1157	356.75
55	556959.8550	1336474.4543	356.75
56	556943.7700	1336485.9909	356.75
57	556962.2280	1336474.7027	356.75
58	556965.7453	1336473.4022	358.00
59	556939.6457	1336490.5071	358.00
60	556943.2698	1336489.1230	356.75
61	556958.9493	1336479.9318	354.75
62	556948.0833	1336487.8052	354.75
63	556960.0165	1336480.2559	354.75
64	556947.9270	1336488.7825	354.75
65	556967.8195	1336504.5945	354.75
66	556971.7961	1336504.0984	356.75
67	556988.2231	1336494.5439	363.00
68	556979.9524	1336499.1159	360.00
69	556967.8330	1336522.1385	354.75
70	556969.1426	1336521.7248	354.75
71	556970.6898	1336531.5077	355.75
72	556973.8154	1336530.2250	355.75
73	556943.8551	1336529.7544	365.00
74	556953.0138	1336546.5892	365.00
75	556950.8194	1336554.5085	367.00
76	556995.2699	1336531.6338	364.00
77	556972.9207	1336548.7232	358.00
78	556983.0641	1336543.8749	358.00
79	556954.7466	1336562.0298	367.00
80	556975.2418	1336551.5999	358.00
81	556977.3306	1336552.2718	358.00
82	556997.5469	1336539.6393	364.00
83	556983.2340	1336549.0534	358.00
84	556981.7674	1336551.0469	358.00
85	556959.7463	1336568.2263	367.00
86	557000.7692	1336548.2780	365.00
87	556999.8268	1336555.7157	365.00
88	556979.7759	1336569.9874	365.00
89	556972.7511	1336575.5026	367.00
90	556989.6189	1336566.9187	365.00
91	556974.8774	1336576.8352	367.00

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. D. Luca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

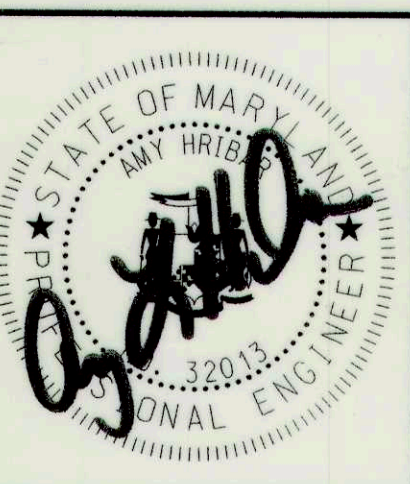
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DATE

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: CL					
DRN: MR					
CHK: AH					
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FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT
AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

GEOMETRY LAYOUT

SCALE
NOT TO
SCALE

SHEET
2 OF 22

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.

- NOTES:**
1. SWM POND IS CLASSIFIED AS A CLASS "A" LOW HAZARD DAM.
 2. CONTRACTOR SHALL CLEAR "NO WOODY VEGETATION ZONE" WITHIN 15' OF TOE OF DAM. NO MECHANICAL EQUIPMENT CAUSING EARTH DISTURBANCE SHALL BE OUTSIDE THE LOD FOR TREE REMOVAL ACTIVITIES.
 3. CONTRACTOR SHALL ENSURE 1' MINIMUM CLEARANCE BETWEEN EMBANKMENT AND RISER TRASH RACK.

MIX NO. 6 CONCRETE

QTY (CY)	REMARKS
35	CONCRETE CRADLE
4	ANTI-SEEP COLLAR

SIDEWALK CLOSED SIGN

QTY (EA)	REMARKS
4	

OUTFALL POOL (OP)

FROM	TO	STRUCTURE
STA. 100+04	STA. 100+24	OP-1

GEOSYNTHETIC CLAY LINER

QTY (SY)	REMARKS
352	FOR LINING UPSTREAM EMBANKMENT

ASPHALT SIDEWALK

FROM	TO	QTY (LF)
0+27.81'LT	2+56.25'LT	266
1+89.132'RT	2+55.1'RT	155

EXCAVATION

QTY (CY)	REMARKS
795 +	TOTAL EXCAVATION

*INCLUDES 97 CY EXCAVATION FOR PRINCIPAL SPILLWAY INSTALLATION AND 649 CY EXCAVATION FOR POND AND CHANNEL

ORANGE CONSTRUCTION FENCE

FROM	TO	QTY (LF)	REMARKS
STA. 2+01.60, 141'RT	STA. 0+14.04, 232'LT	1220	AROUND ENTIRE LOD

PIPE SCHEDULE

FROM	TO	DIA. (IN)	LENGTH (LF)	REMARKS
STA. 0+90.99, 63'LT	STA. 0+62.57, 108'LT	42	46	CLASS B-25 ASTM 361

CASCADE STRUCTURE (CS) TABLE

STRUCTURE	STATION FROM	STATION TO
CS-1	100+24	100+37
CS-2	100+53	100+66

CLASS I RIP RAP

STATION	QTY (SY)	REMARKS
STA. 1+91.00, 31'LT	76	19" DEPTH
STA. 1+28.64, 42'LT	33	WEIR PROTECTION, 19" DEPTH

DRAINAGE STRUCTURES

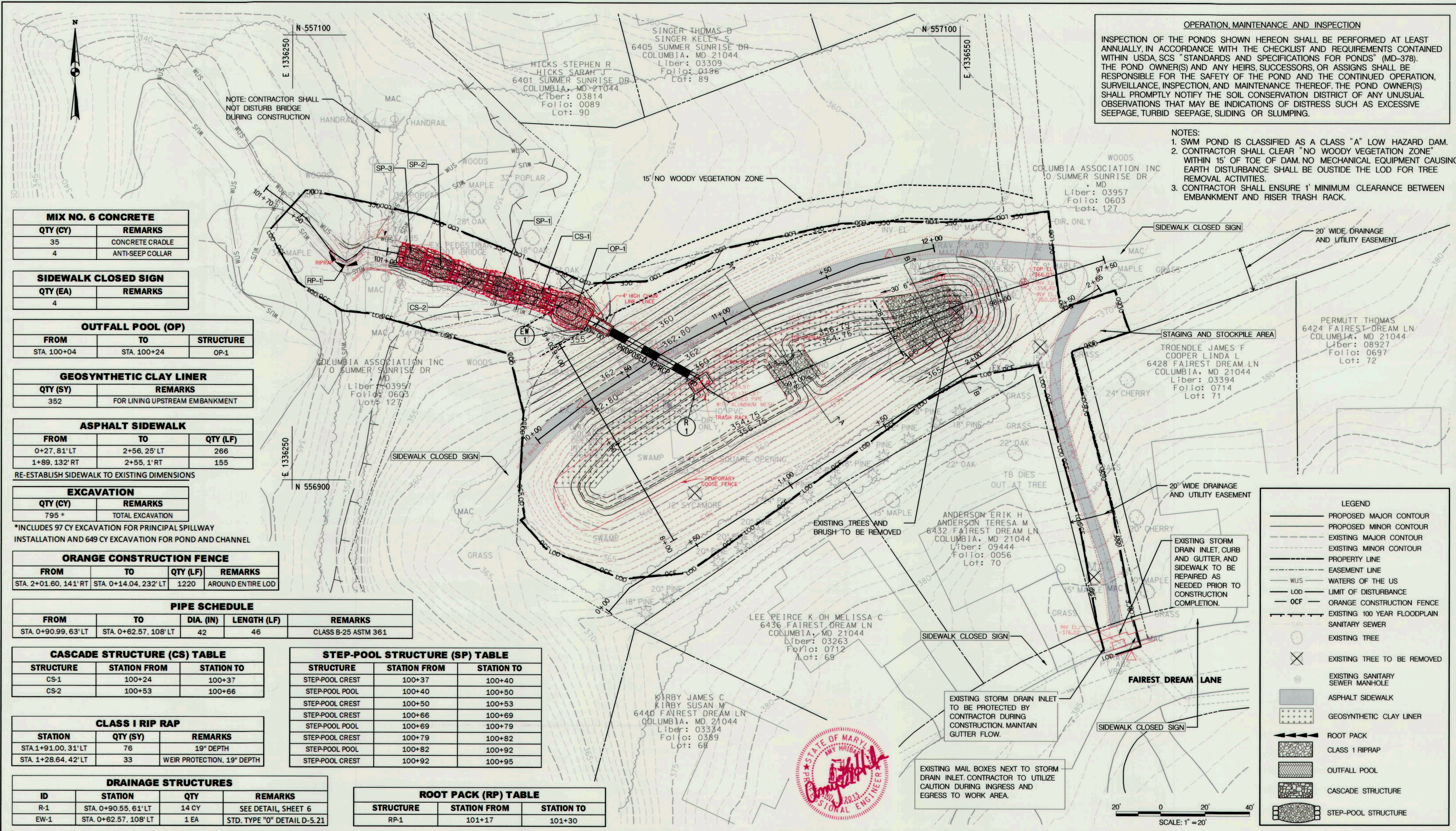
ID	STATION	QTY	REMARKS
R-1	STA. 0+90.55, 61'LT	14 CY	SEE DETAIL, SHEET 6
EW-1	STA. 0+62.57, 108'LT	1 EA	STD. TYPE "O" DETAIL D-5.21

STEP-POOL STRUCTURE (SP) TABLE

STRUCTURE	STATION FROM	STATION TO
STEP-POOL CREST	100+37	100+40
STEP-POOL POOL	100+40	100+50
STEP-POOL CREST	100+50	100+53
STEP-POOL CREST	100+66	100+69
STEP-POOL POOL	100+69	100+79
STEP-POOL CREST	100+79	100+82
STEP-POOL POOL	100+82	100+92
STEP-POOL CREST	100+92	100+95

ROOT PACK (RP) TABLE

STRUCTURE	STATION FROM	STATION TO
RP-1	101+17	101+30



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- EASEMENT LINE
- WUS - WATERS OF THE US
- LOD - LIMIT OF DISTURBANCE
- OCF - ORANGE CONSTRUCTION FENCE
- EXISTING 100 YEAR FLOODPLAIN
- SANITARY SEWER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING SANITARY SEWER MANHOLE
- ASPHALT SIDEWALK
- GEOSYNTHETIC CLAY LINER
- ROOT PACK
- CLASS 1 RIPRAP
- OUTFALL POOL
- CASCADE STRUCTURE
- STEP-POOL STRUCTURE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. Luca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/18/16
DATE

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

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Storm Water Management Division
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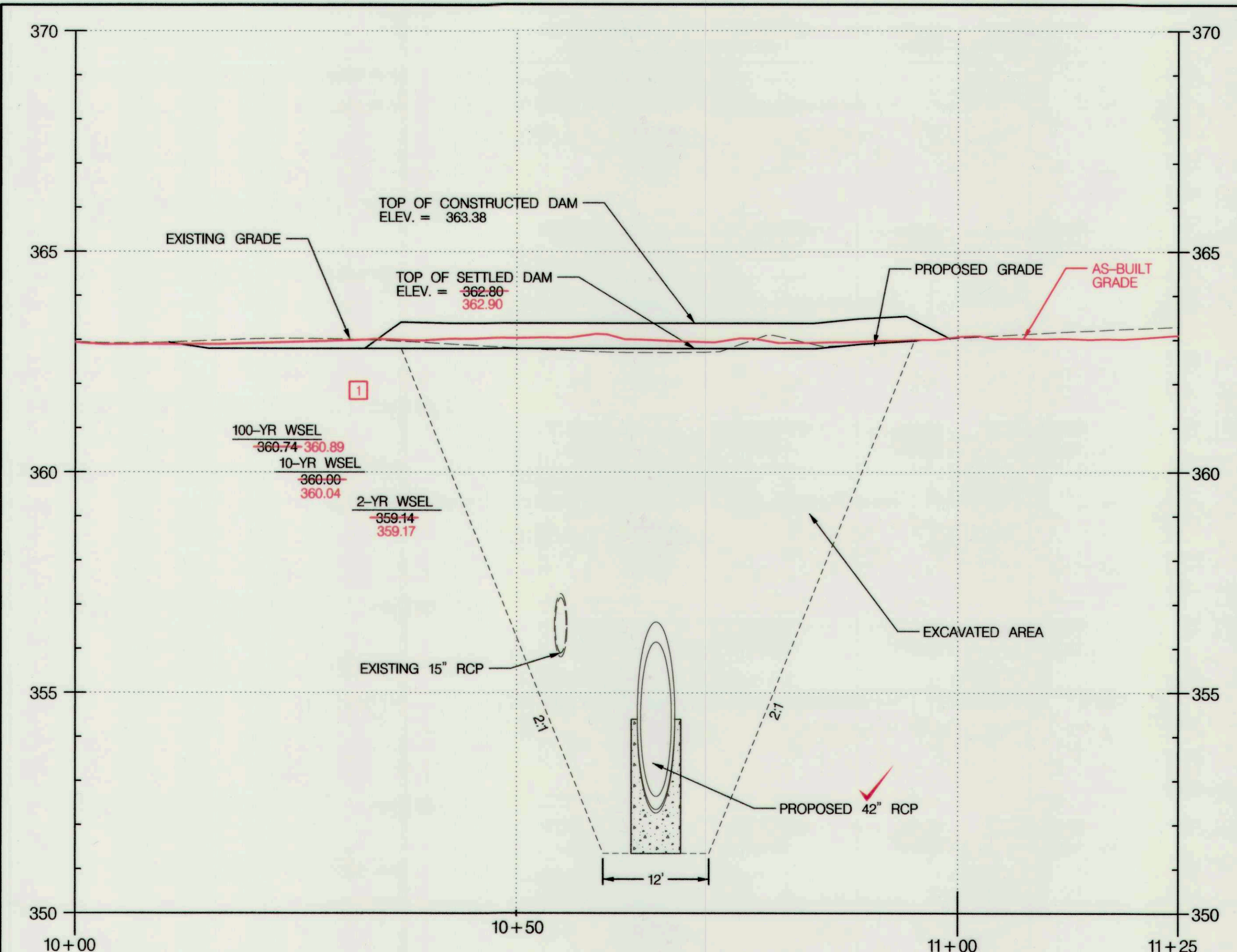


DES: CL	ADM	1	AS-BUILT SURVEY	8/29/17
DRN: MR				
CHK: AH				
DATE: 09/28/16	BY	NO.	REVISION	DATE

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

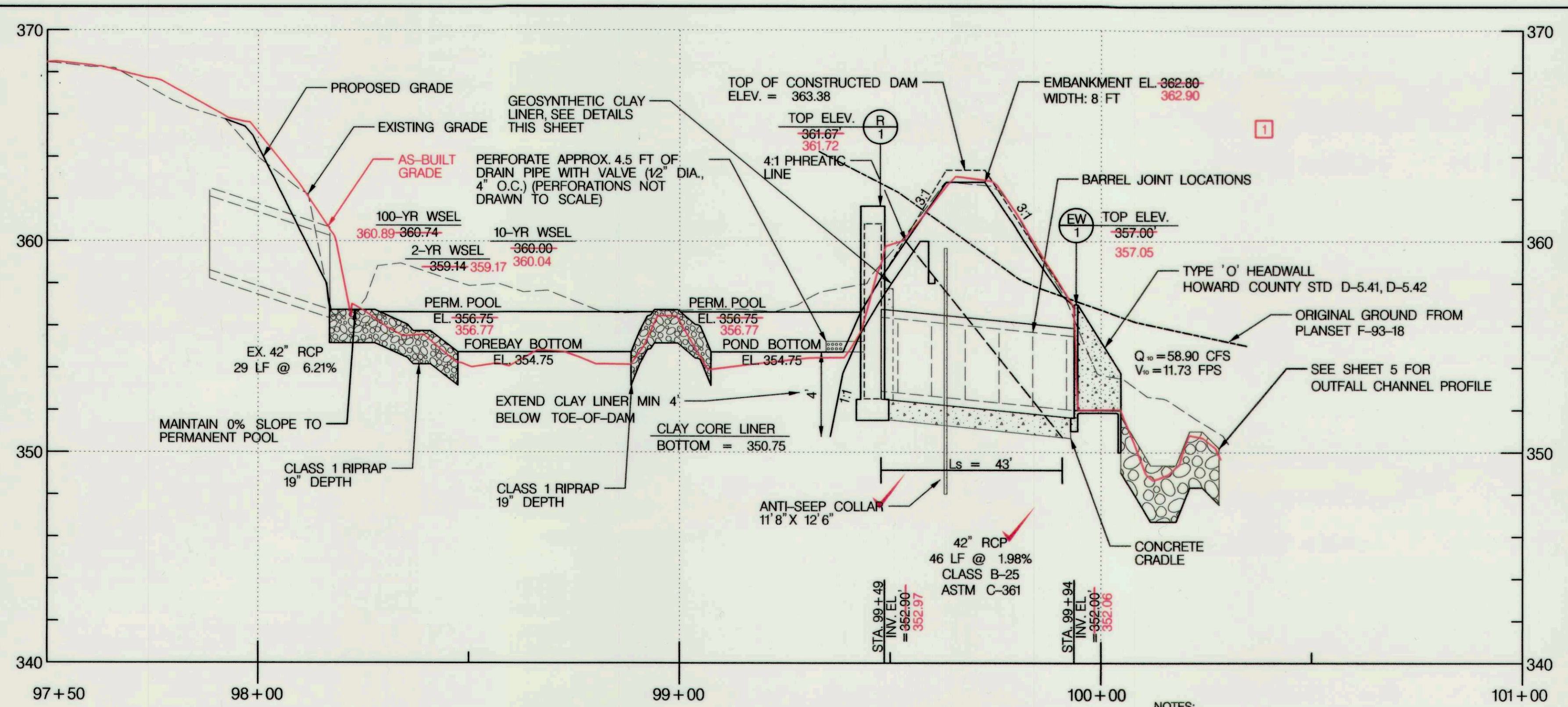
SITE PLAN

SCALE
1" = 20'
SHEET
3 OF 22



CENTERLINE OF EMBANKMENT PROFILE

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 2'



**POND PROFILE AND PRINCIPAL SPILLWAY PROFILE
(STA 5+00 TO STA 7+12)**

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

- 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.
 - ASPHALT SIDEWALK TO BE INSTALLED ALONG EMBANKMENT FOLLOWING POND RETROFIT. CONTRACTOR TO MAINTAIN ELEVATIONS SHOWN.

GEOSYNTHETIC CLAY LINER SPECIFICATIONS

THE GEOSYNTHETIC CLAY LINER (GCL) SHALL BE BENTOMAT CL OR EQUIVALENT AND SHALL FOLLOW THE DETAILED GUIDELINES AND REQUIREMENTS SPECIFIED BY THE MANUFACTURER.

THE GCL SHALL HAVE THE FOLLOWING MINIMUM STRUCTURAL VALUES WHEN TESTED IN ACCORDANCE WITH THE NOTED METHODS.

MATERIAL PROPERTY	REQUIRED VALUES	TEST METHOD
BENTONITE SWELL INDEX	24mL /2 g min.	ASTM D 5890
BENTONITE FLUID LOSS	18mL max.	ASTM D 5891
BENTONITE MASSAREA	0.75 lb /ft2 min.	ASTM D 5993
GCL GRAB (TENSILE) STRENGTH	45 lbs /in MARV	ASTM D 6768
GCL PEEL STRENGTH	3.5 lbs /in min.	ASTM D 6496
GCL HYDRAULIC CONDUCTIVITY	5 x 10 ⁻¹⁰ cm/sec max.	ASTM D 5887
GCL HYDRATED INTERNAL SHEAR STRENGTH	500 psf typ.	ASTM D 5324/6243

MATERIALS:

BENTONITE SHALL BE HIGH SWELLING WITH A MINIMUM SWELL INDEX OF 24 mL/g AND A MAXIMUM FLUID LOSS OF 18 mL. BENTONITE SHALL BE CG-50 GRANULAR BENTONITE, MINE AND PROCESSED BY AMERICAN COLLOID COMPANY.

BENTONITE SHALL HAVE A GRANULAR CONSISTENCY OF (1 PERCENT MAX. PASSING A NO. 200 SIEVE) TO ENSURE UNIFORM DISTRIBUTION THROUGHOUT THE GCL.

STRUCTURAL REQUIREMENTS:

THE PRODUCT SHALL CONSIST OF A LAYER OF GRANULAR SODIUM BENTONITE BETWEEN TWO GEOTEXTILES NEEDLEPUNCHED TOGETHER. PRODUCT IS LAMINATED TO A THIN FLEXIBLE MEMBRANE LINER.

INSTALLATION:

THE EARTHEN SURFACE UPON WHICH THE GCL IS INSTALLED SHALL BE PREPARED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND DRAWINGS. THE SURFACE SHALL BE SMOOTH, FIRM, UNYIELDING, AND FREE FROM VEGETATION, SHARP ROCKS, VOID SPACES, STANDING WATER, ABRUPT ELEVATION CHANGES, AND CRACKS LARGER THAN ONE INCH.

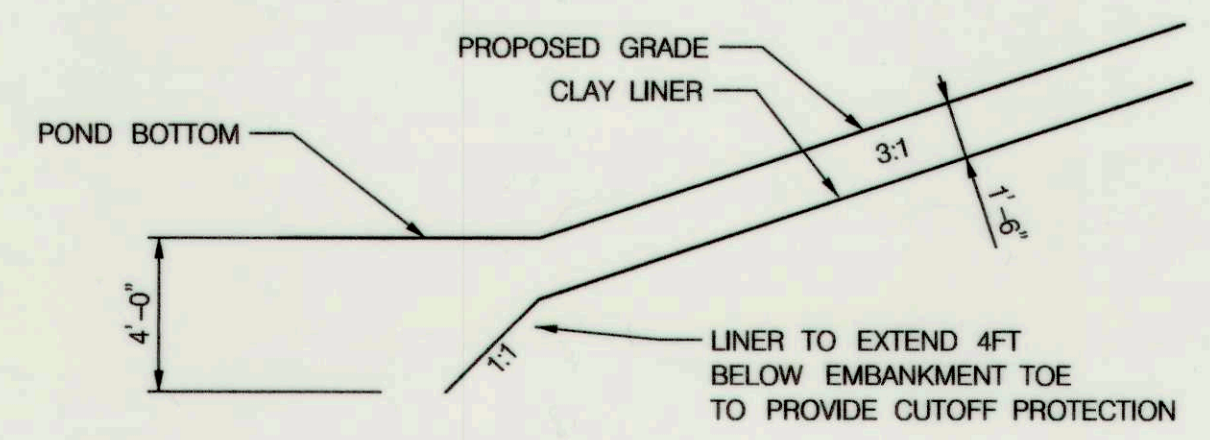
IMMEDIATELY PRIOR TO GCL DEPLOYMENT, SUBGRADE SHALL BE FINAL-GRADED AND SMOOTH-ROLLED TO PROVIDE BEST PRACTICABLE SURFACE FOR INSTALLATION. NO WHEEL RUTS, FOOTPRINTS, OR OTHER IRREGULARITIES SHALL BE PRESENT. ALL PROTRUSIONS EXTENDING MORE THAN ONE-HALF INCH FROM THE SURFACE SHALL BE REMOVED OR PUNCHED IN THE SURFACE.

AT THE TOP OF THE SLOPED AREAS, AN ANCHOR TRENCH FOR THE GCL SHALL BE EXCAVATED OR AN EQUIVALENT RUNOUT SHALL BE UTILIZED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

MINIMIZE THE EXTENT TO WHICH THE GCL IS DRAGGED ACROSS THE SUBGRADE. A SLIP SHEET MAY BE USED TO REDUCE DAMAGE DURING PLACEMENT.

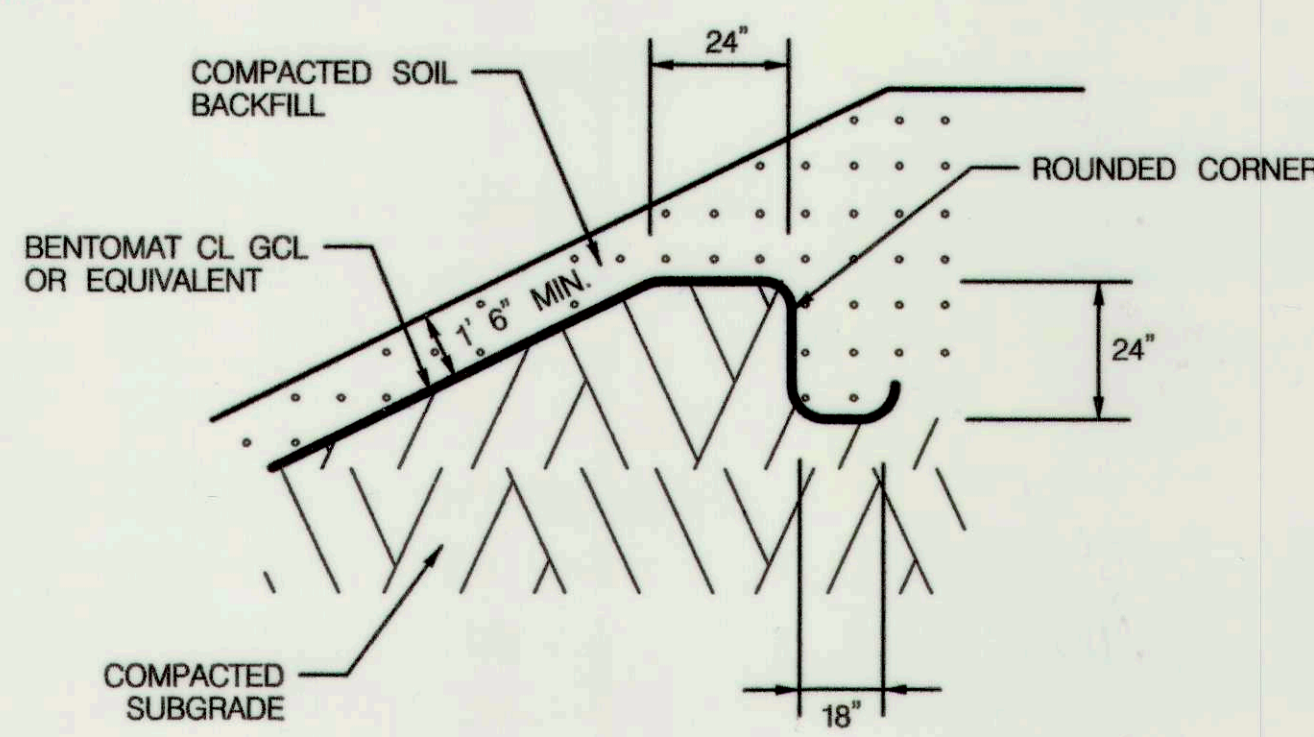
GCL PANELS SHALL BE PLACED PARALLEL TO THE DIRECTION OF THE SLOPE AND SHOULD LIE FLAT WITH NO WRINKLES OR FOLDS. GCL SHALL NOT BE LEFT UNCOVERED OVERNIGHT.

COVER SOIL SHALL BE FREE OF ANGULAR STONES OR OTHER DAMAGING FOREIGN MATTER. SOIL SHALL BE PLACED A MINIMUM OF 1.5 FOOT THICKNESS OVER THE GCL AND SHALL BE PUSHED UP SLOPES TO MINIMIZE TENSILE FORCE ON THE GCL.



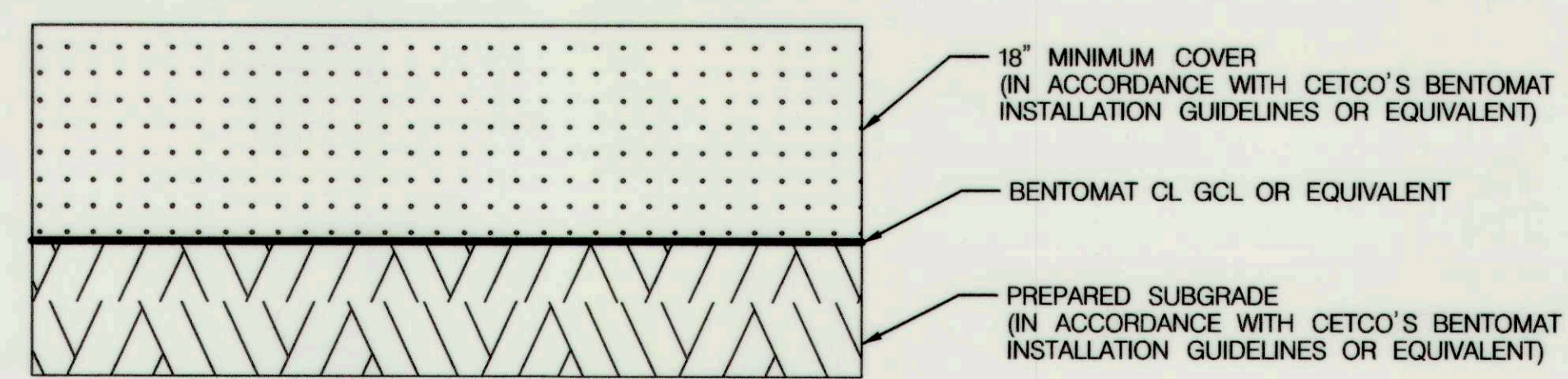
CLAY LINER TIE-IN DETAIL

NOT TO SCALE



GEOSYNTHETIC CLAY LINER ANCHOR DETAIL

NOT TO SCALE



GEOSYNTHETIC CLAY LINER DETAIL

NOT TO SCALE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark DeLuca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

W. J. ...
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Howard County
MARYLAND

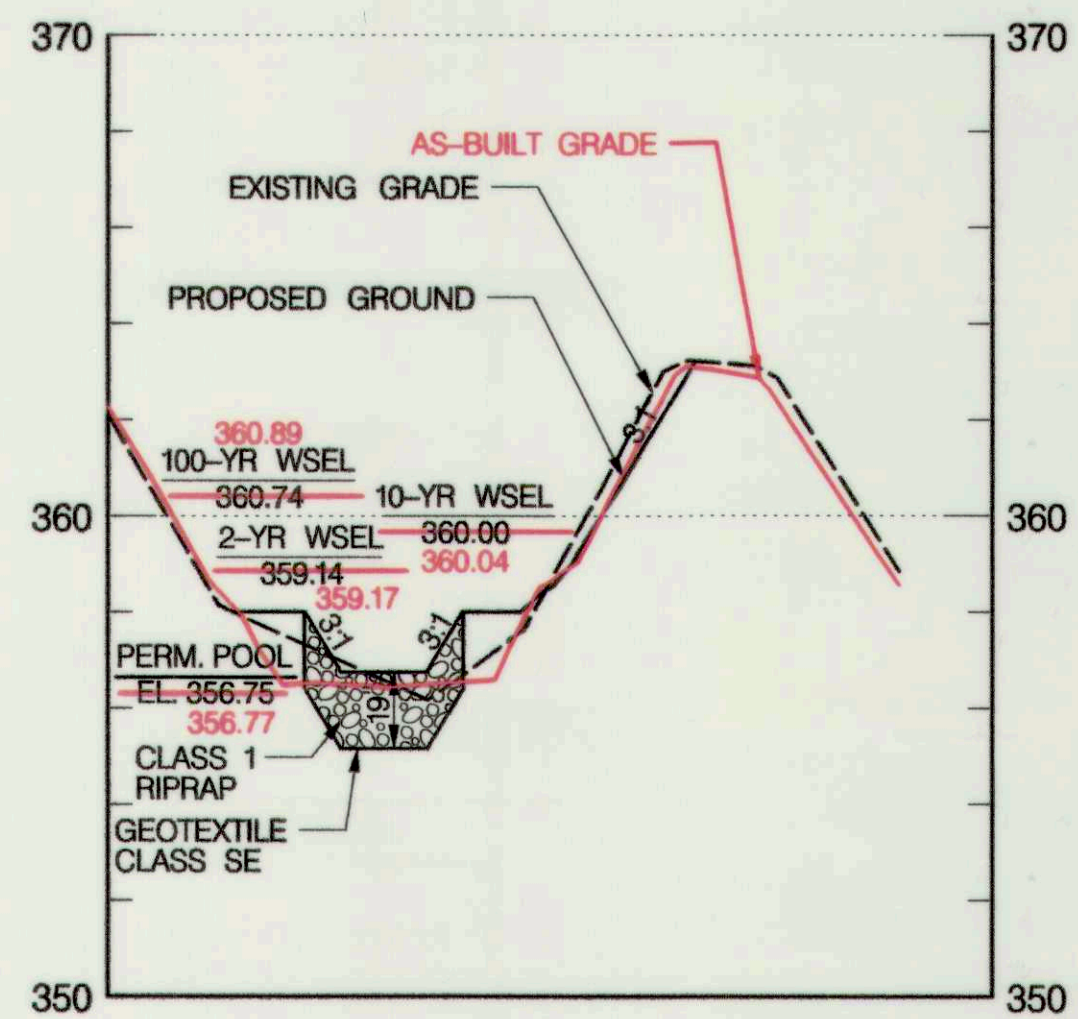
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Bureau of Environmental Services
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Columbia, Maryland 21046-3143
(410) 313-6444

DES: CL	ADM	1	AS-BUILT SURVEY	8/29/17
DRN: MR				
CHK: AH				
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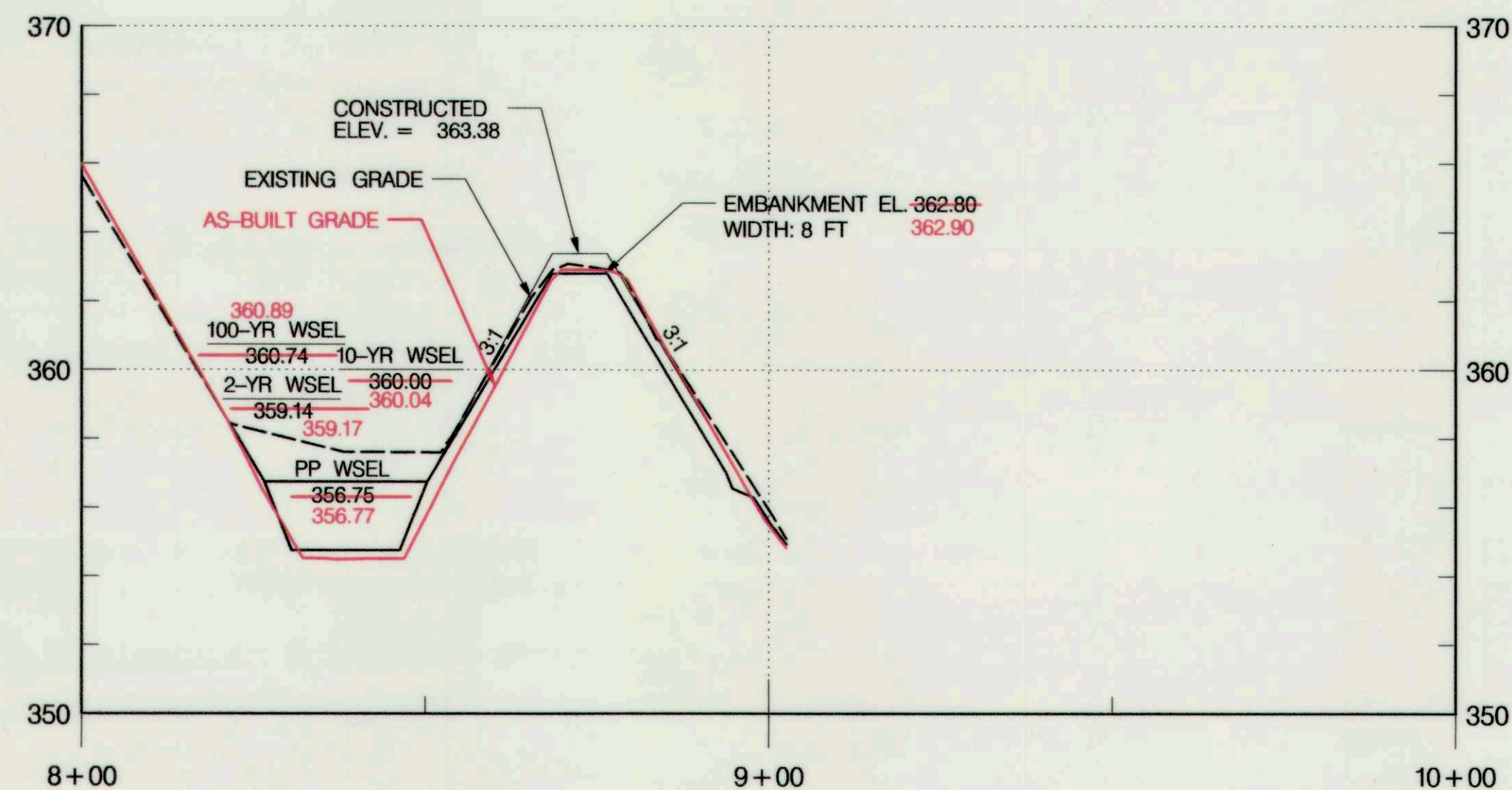
FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

POND PROFILE AND GEOSYNTHETIC CLAY LINER DETAIL SHEET

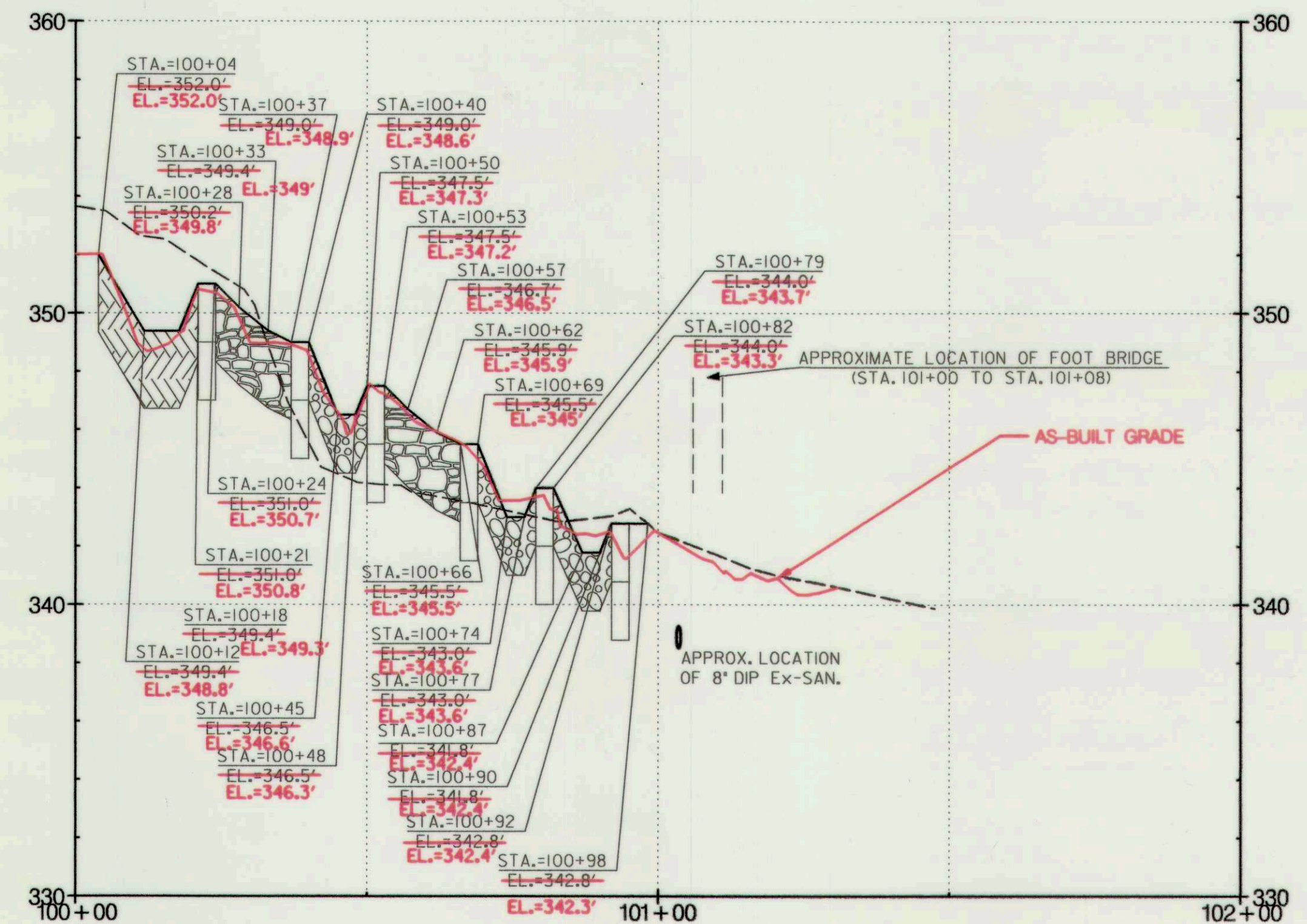
SCALE: SHEET 4 OF 22



CROSS SECTION A-A: FOREBAY WEIR
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 4'

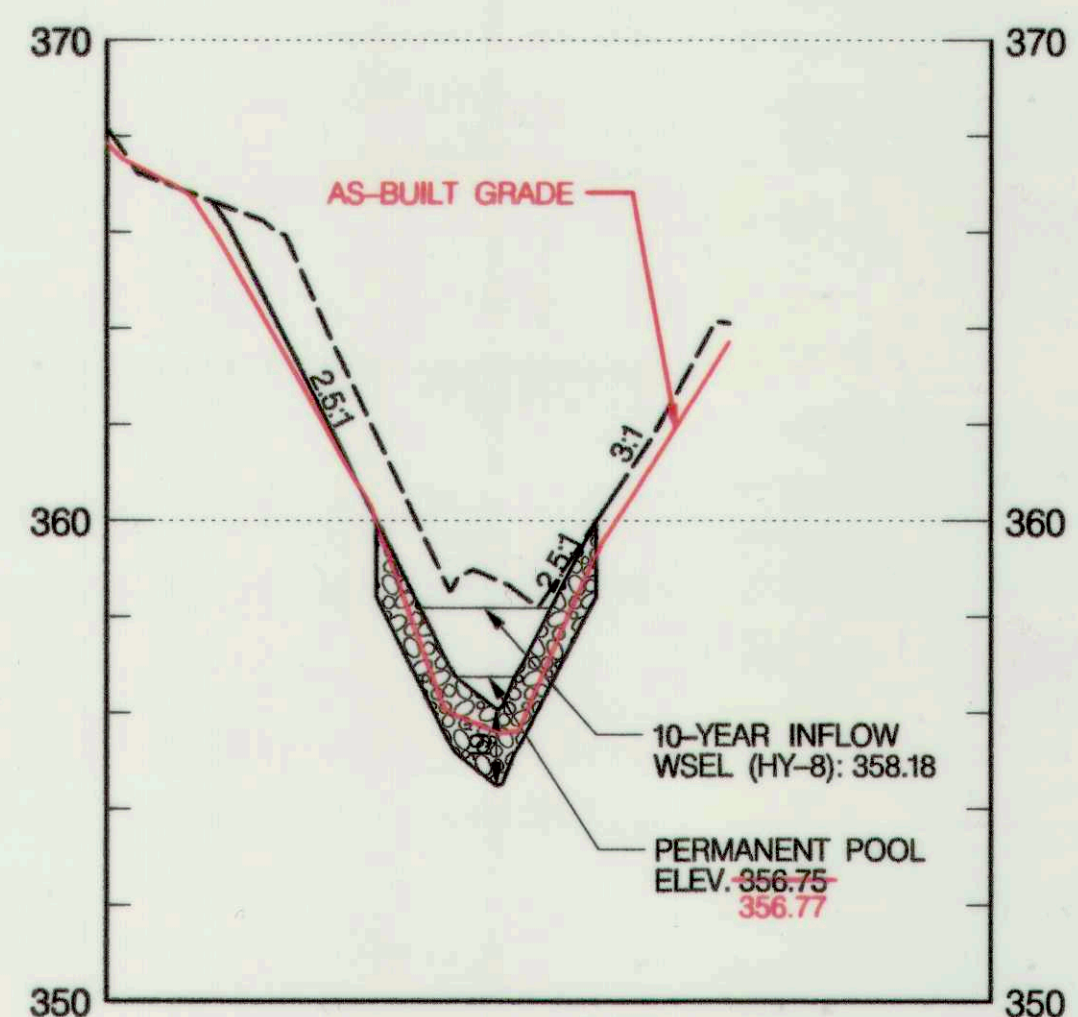


**POND CROSS SECTION
 (STA 8+00 TO STA 9+03)**
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 4'



CHANNEL STABILIZATION PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 4'

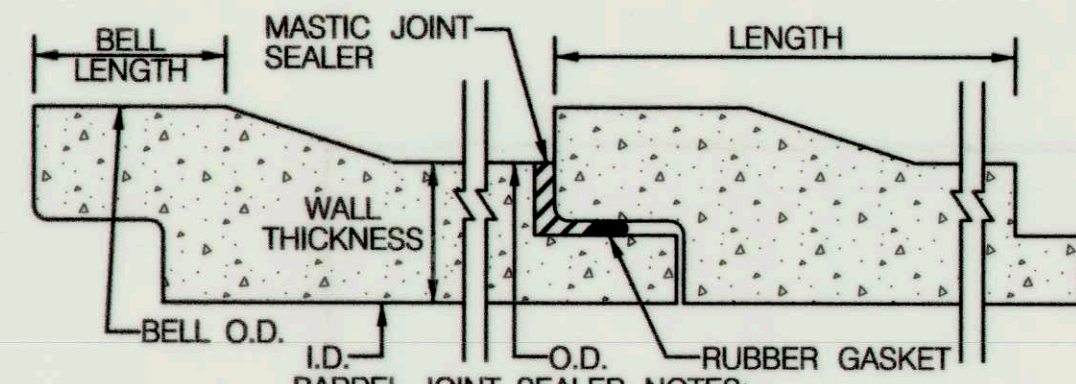
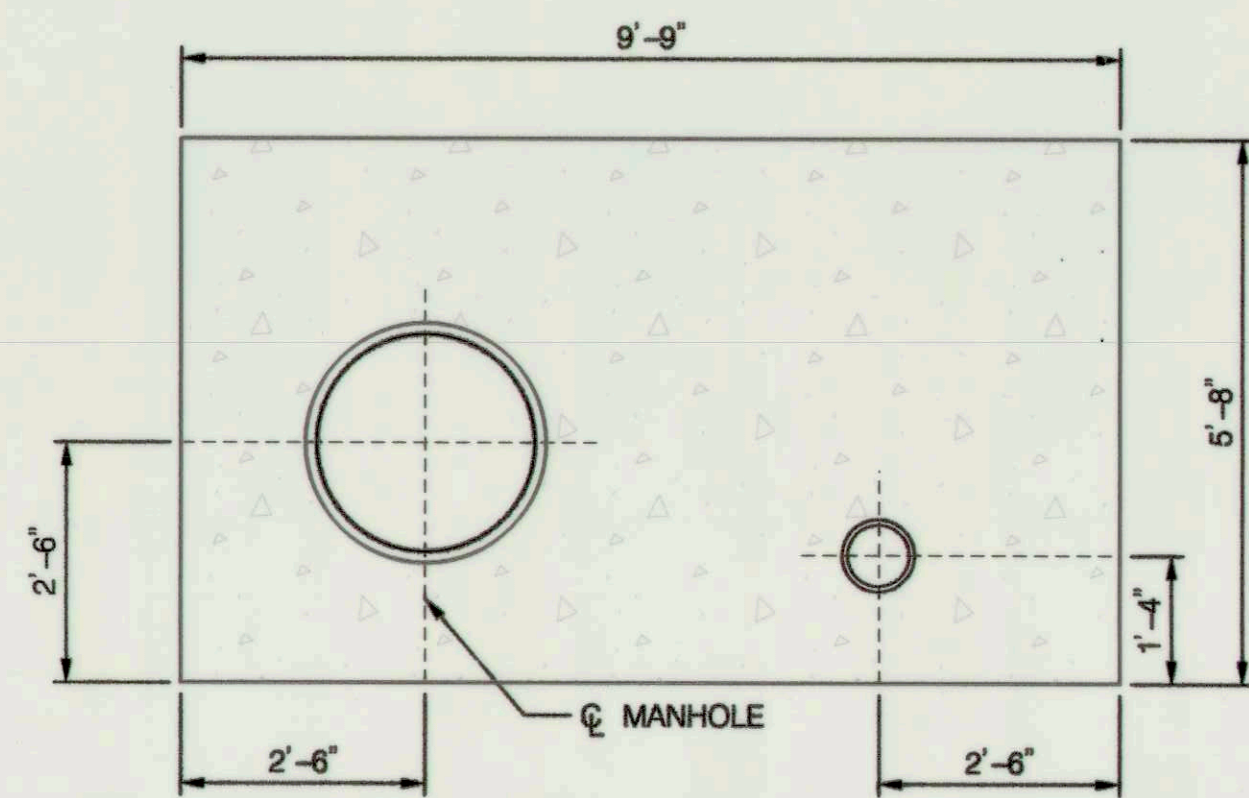
LEGEND			
--- EXISTING GROUND 2015	[Symbol]	CREST STONES	[Symbol]
--- PROPOSED GRADE	[Symbol]	POOL PAVEMENT	[Symbol]
	[Symbol]	CASCADE STRUCTURE	[Symbol]
	[Symbol]	OUTFALL POOL	



CROSS SECTION B-B: INFLOW
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 4'



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENVIRONMENTAL SERVICES	 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	 Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444		DES: CL	ADM	[1]	AS-BUILT SURVEY	8/29/17	FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT CAPITAL PROJECT #D-1159 HOWARD COUNTY HSCD # EP-16-017 CHANNEL STABILIZATION PROFILE AND POND CROSS SECTIONS	SCALE
				DRN: MR						
				CHK: AH						5 OF 22
				DATE: 09/28/16	BY	NO.	REVISION	DATE		

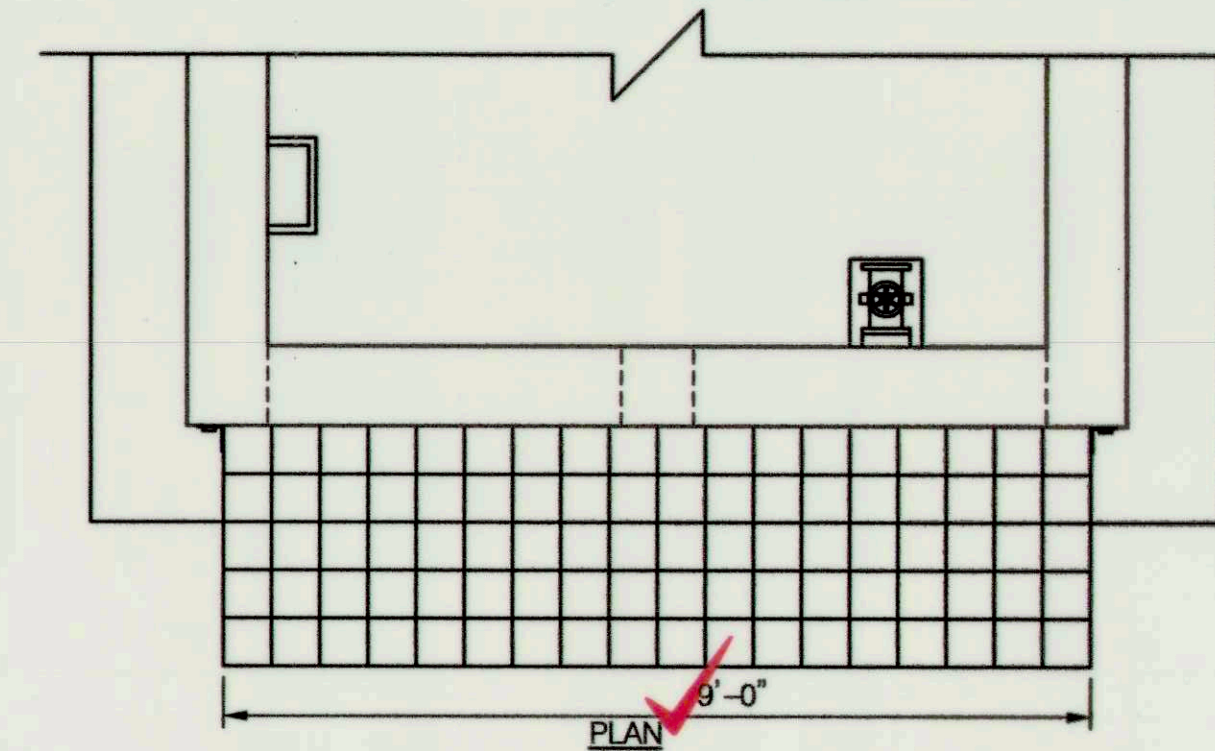


THE SEALER SHALL CONFORM TO THE FOLLOWING:

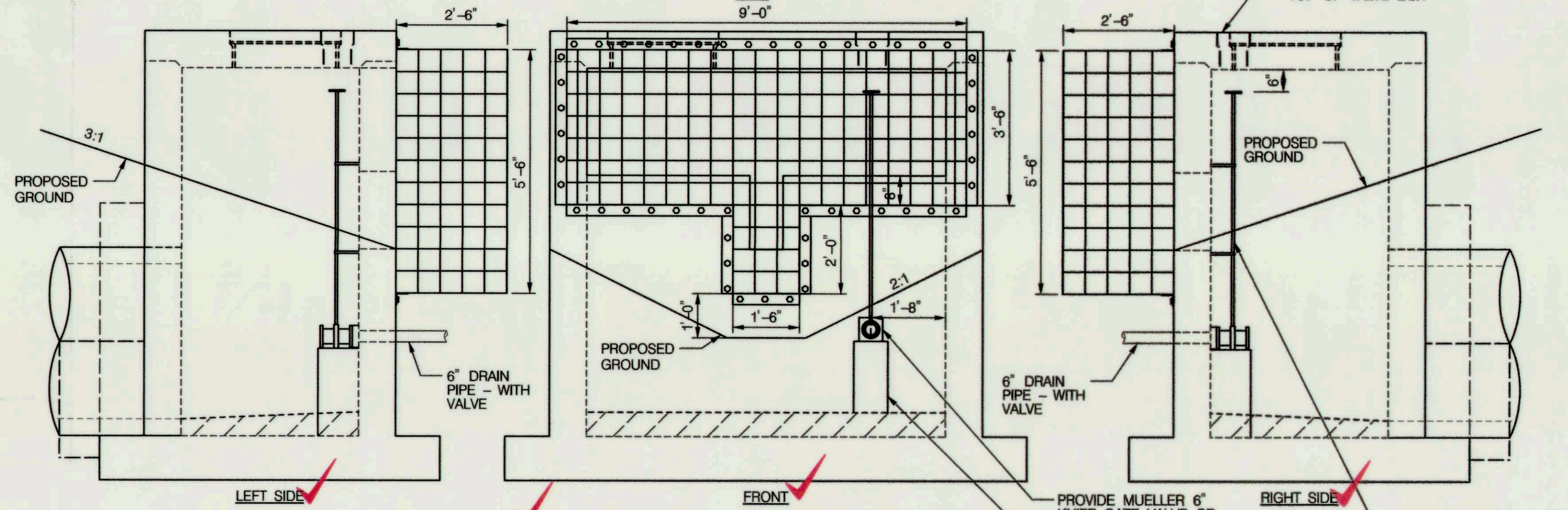
TEST AND METHOD	SPECIFICATION LIMITS
RESIDUES BY EVAPORATION, NONVOLATILE MATTER, D 2939, % MIN.	70
INORGANIC FILLER ON IGNITION, ASH CONTENT, D 2939, %	15-45

- 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.

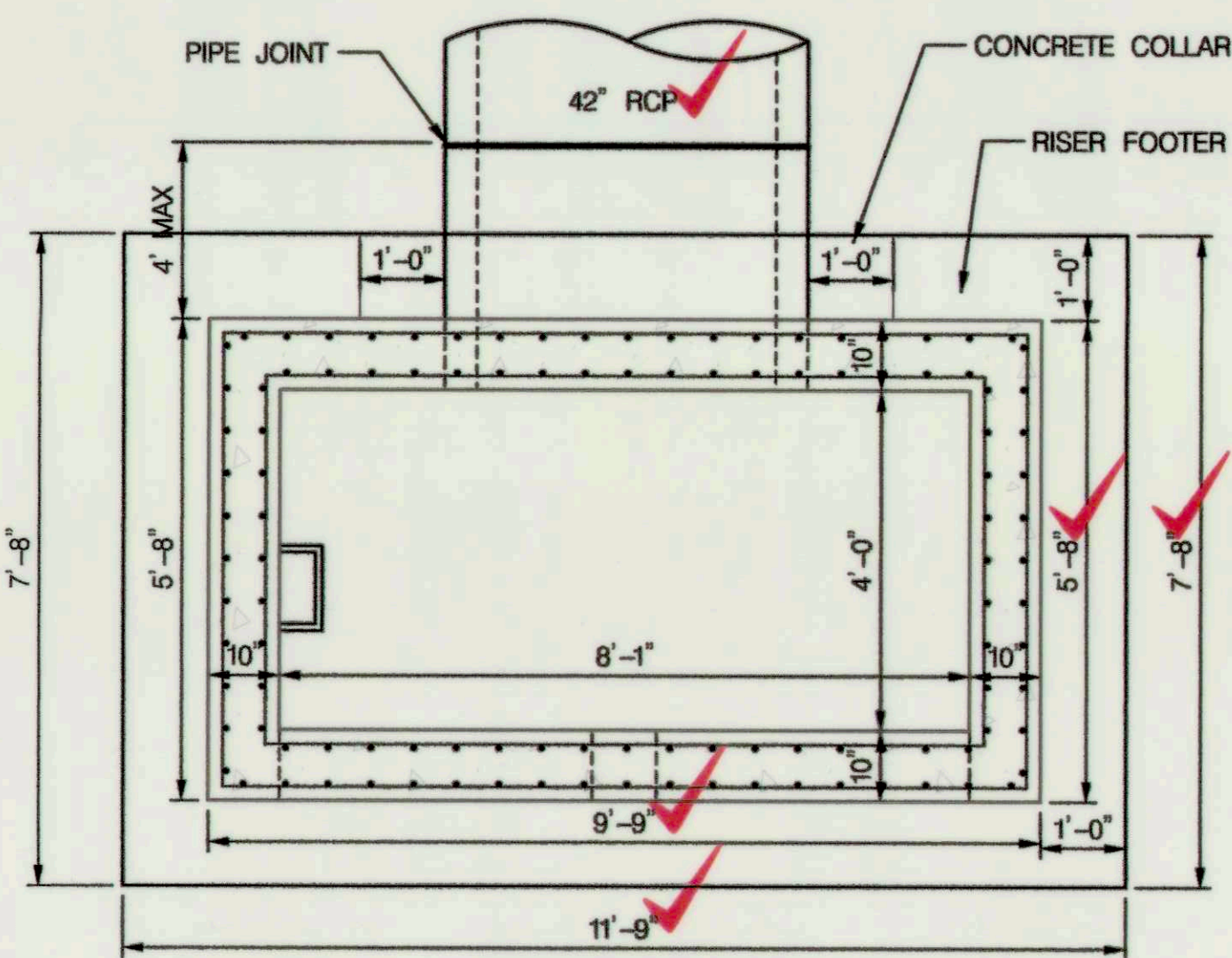
BARREL JOINT SEAL DETAIL
NOT TO SCALE



- TRASH RACK 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.
 - TRASH RACK STRUCTURAL SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

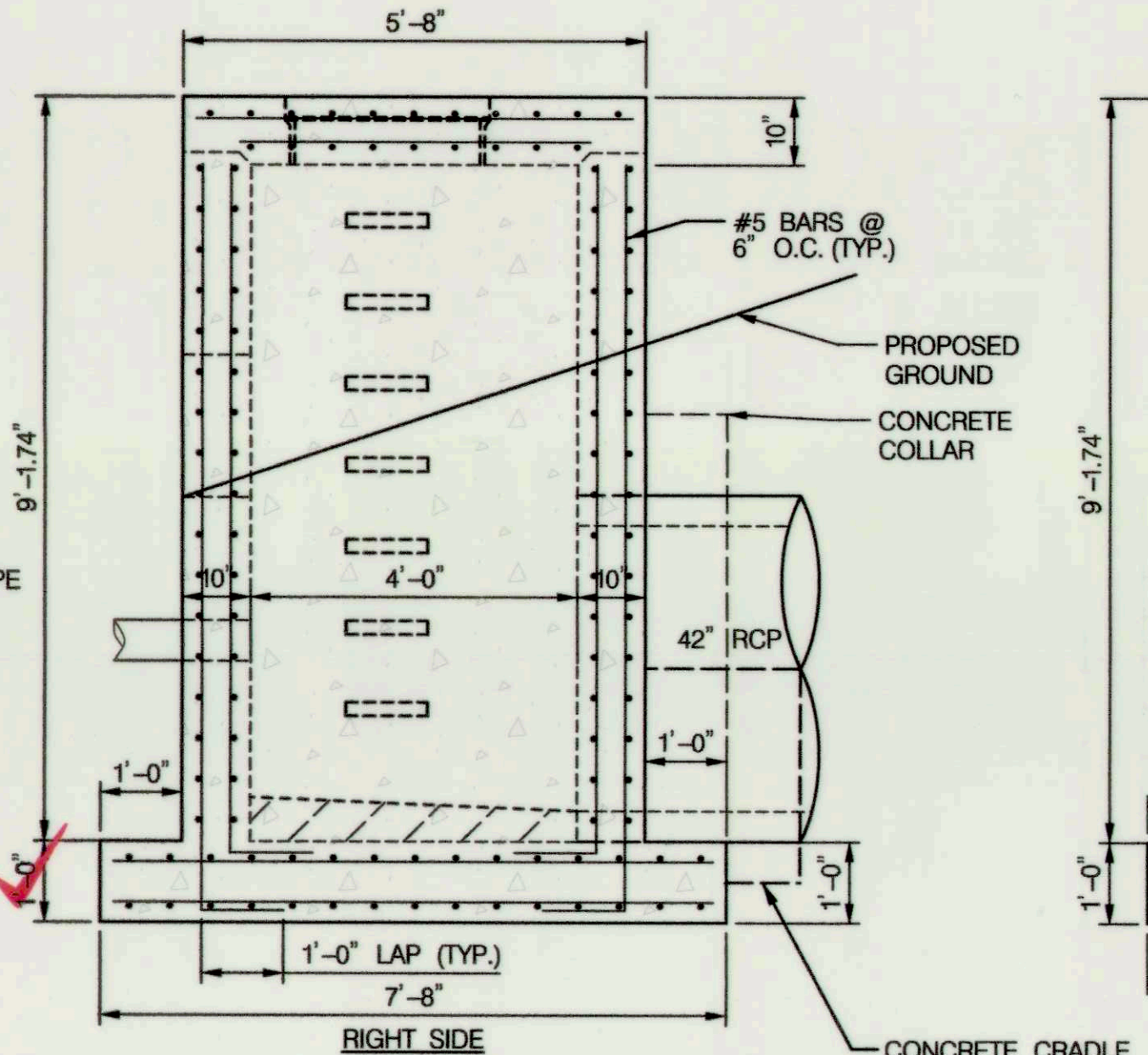
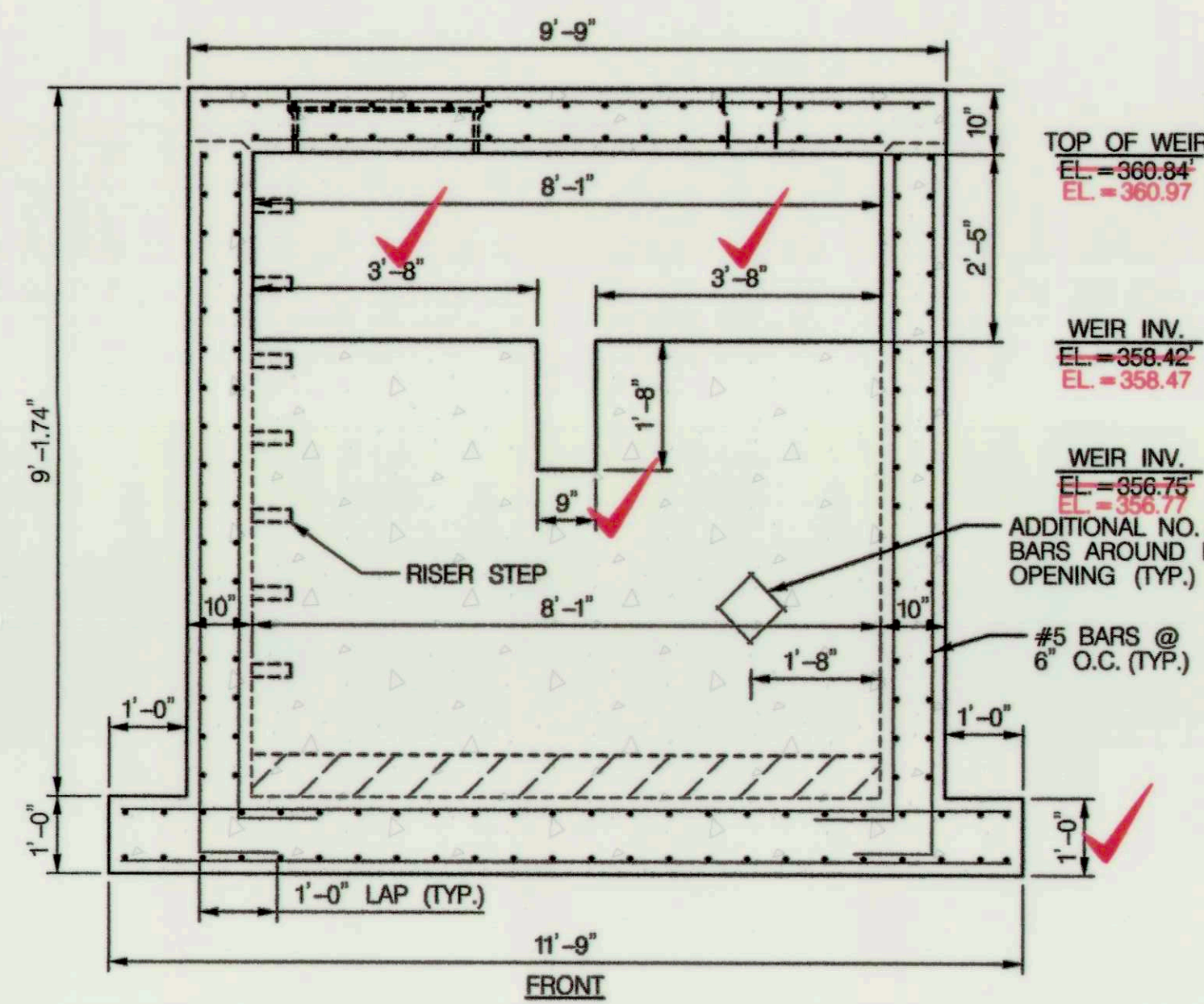


TRASH RACK AND VALVE DETAIL
SCALE: 1" = 2'

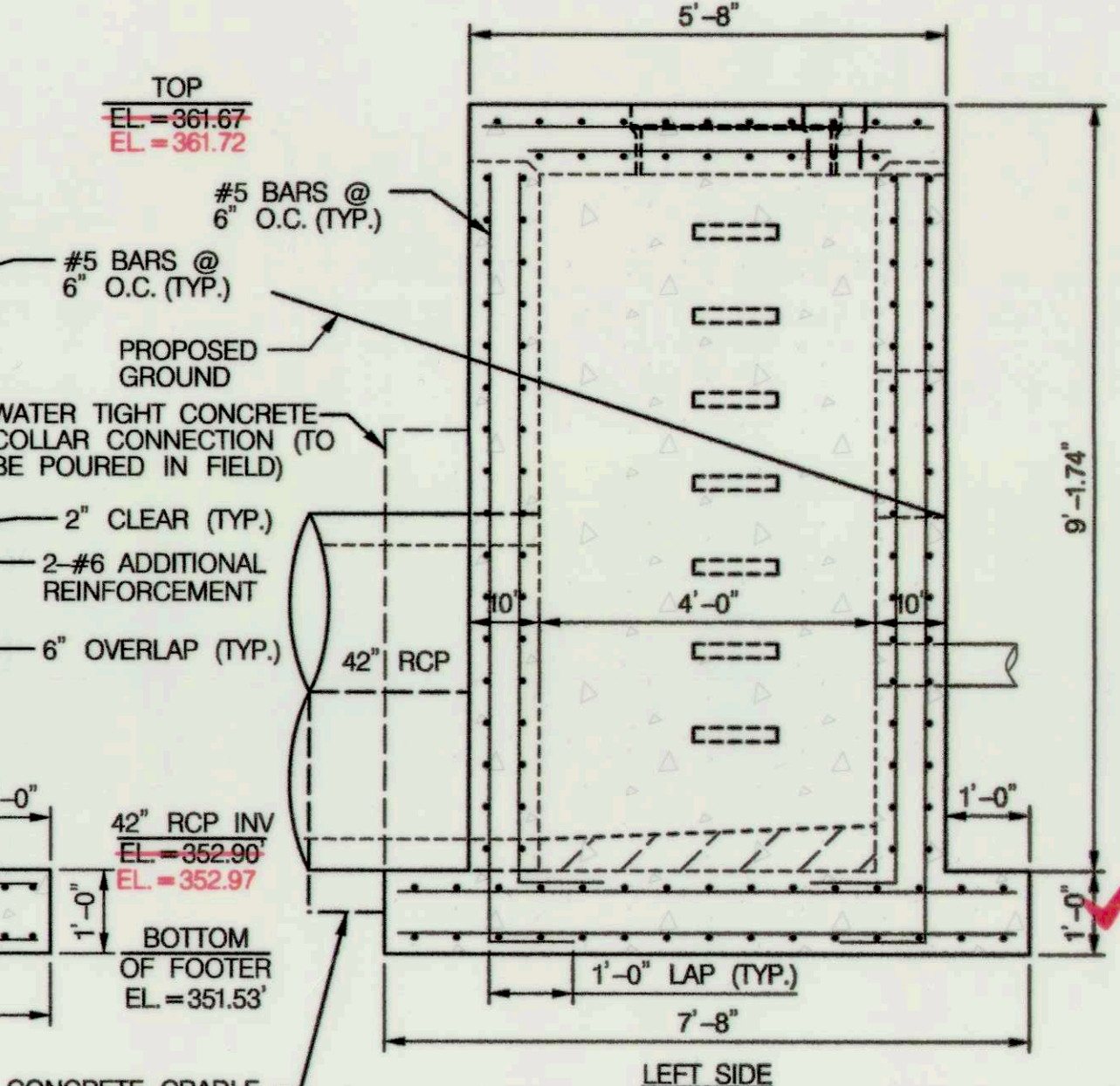
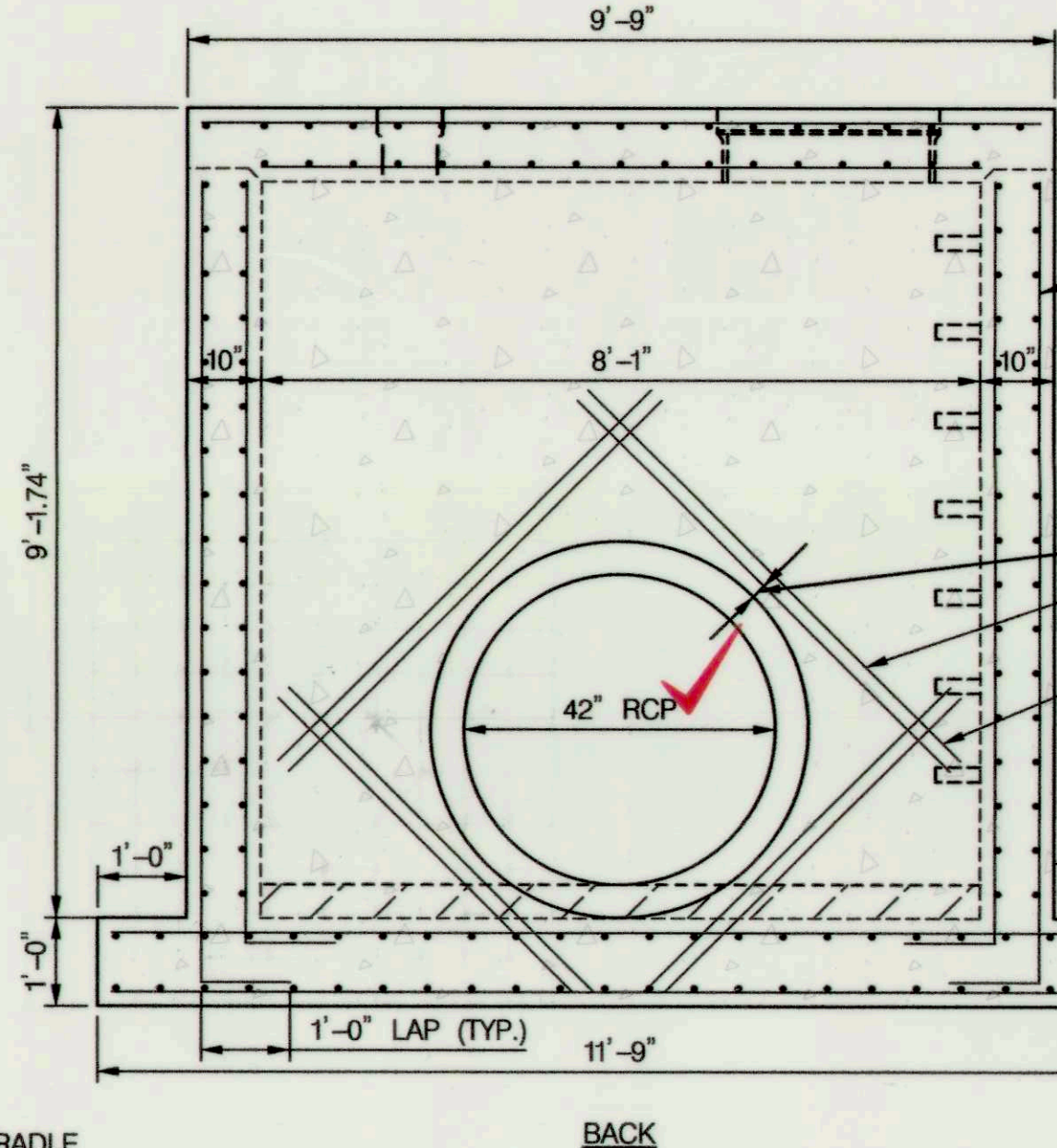


- RISER CONSTRUCTION NOTES:**
- RISER STEPS SHALL FOLLOW DETAIL G-5.21 FOR MANHOLE AND INLET STEPS
 - SHA MIX NO. 3 CONCRETE SHALL BE USED AND SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 301 AND ACI 318.
 - RISER STRUCTURE SHALL BE DESIGNED IN ACCORDANCE TO LOADING SPECIFIED IN LATEST 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 AS SHOWN ON PLAN, OR AS DIRECTED.
 - 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.
 - 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.

RISER PLAN
SCALE: 1" = 2'



RISER ELEVATION
SCALE: 1" = 2'



- WEIR ELEVATIONS:**
- TOP OF WEIR EL = 360.84' (361.72')
 - WEIR INV. EL = 358.42' (358.47')
 - WEIR INV. EL = 358.75' (358.70')
 - ADDITIONAL NO. 5 BARS AROUND PIPE OPENING (TYP.)
 - #5 BARS @ 6" O.C. (TYP.)
 - CONCRETE CRADLE
 - CONCRETE COLLAR
 - PROPOSED GROUND
 - WATER TIGHT CONCRETE COLLAR CONNECTION (TO BE POURED IN FIELD)
 - 2" CLEAR (TYP.)
 - 2-#6 ADDITIONAL REINFORCEMENT
 - 6" OVERLAP (TYP.)
 - 42" RCP INV EL = 352.90' (352.97')
 - BOTTOM OF FOOTER EL = 351.53'
 - 100-YR WSEL 360.74'
 - 10-YR WSEL 360.00'
 - 2-YR WSEL 359.14'



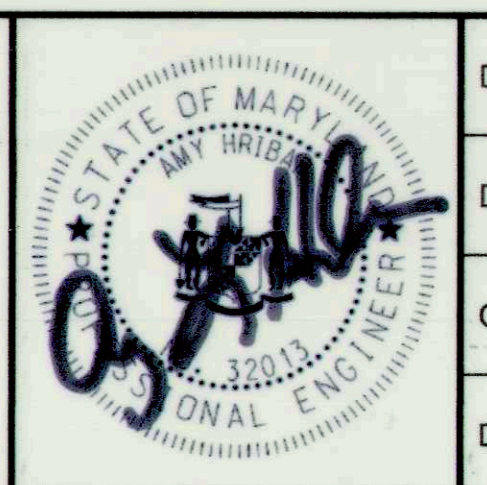
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark DeLuca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/16/16
DATE

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Storm Water Management Division
Bureau of Environmental Services
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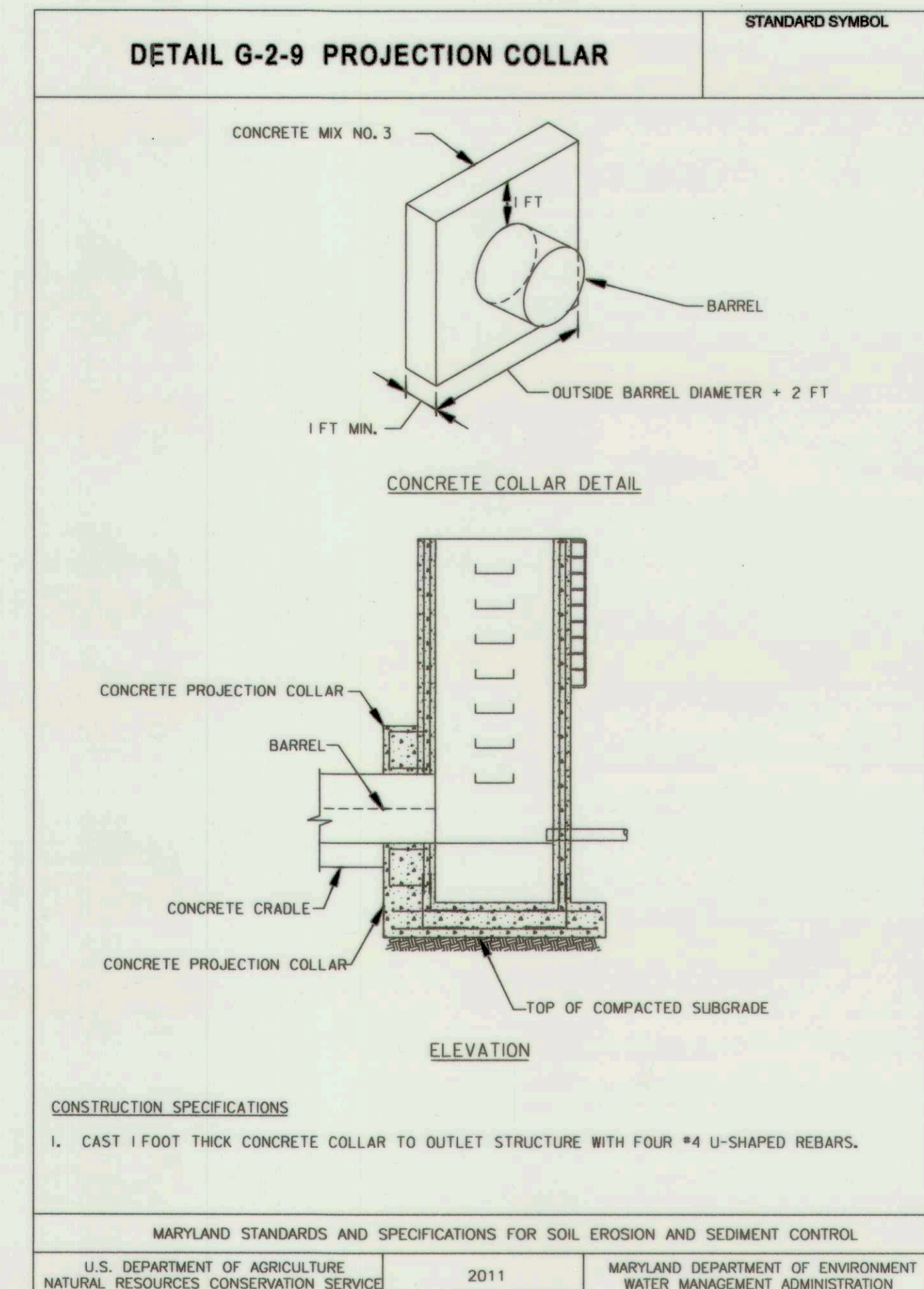
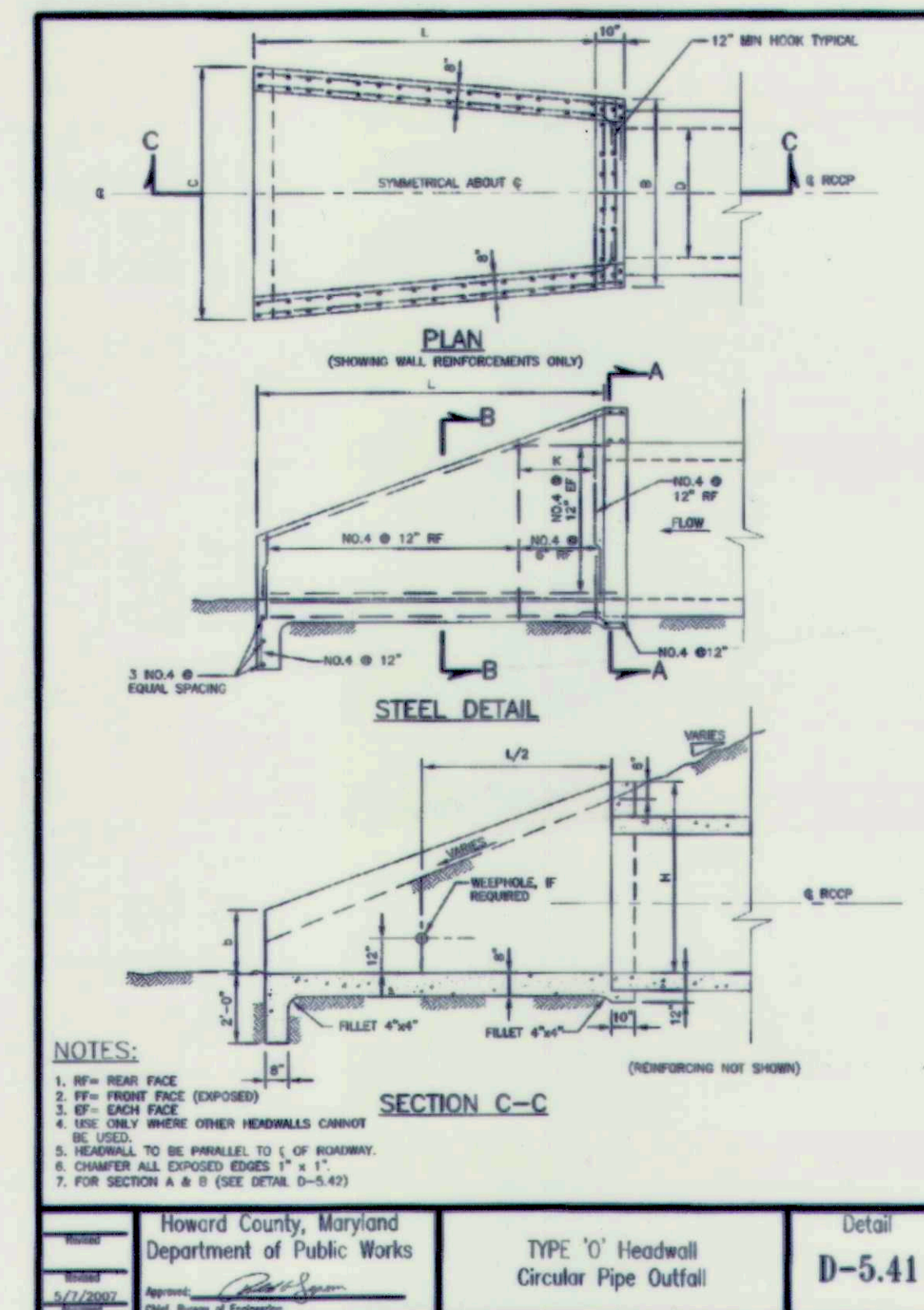
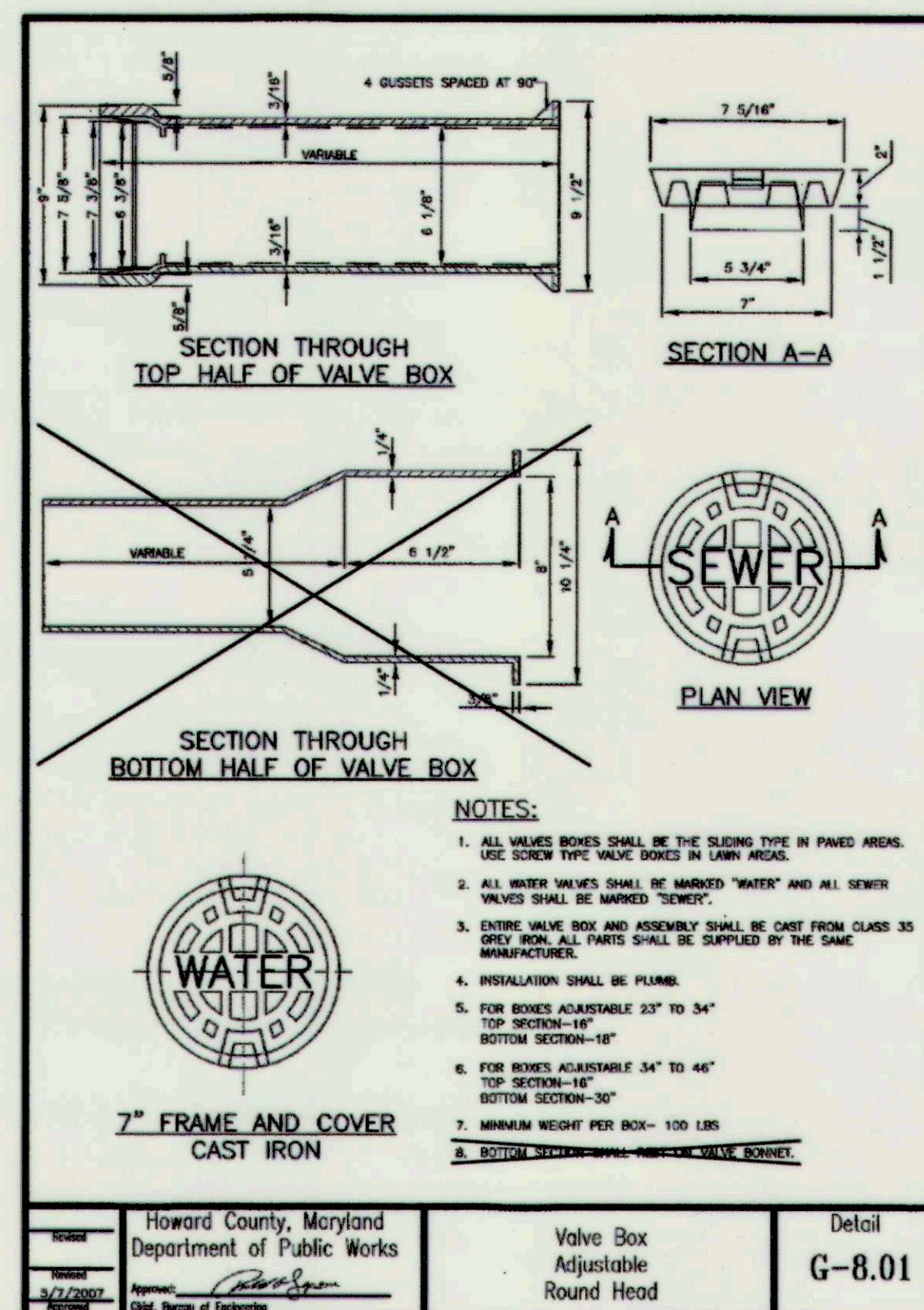
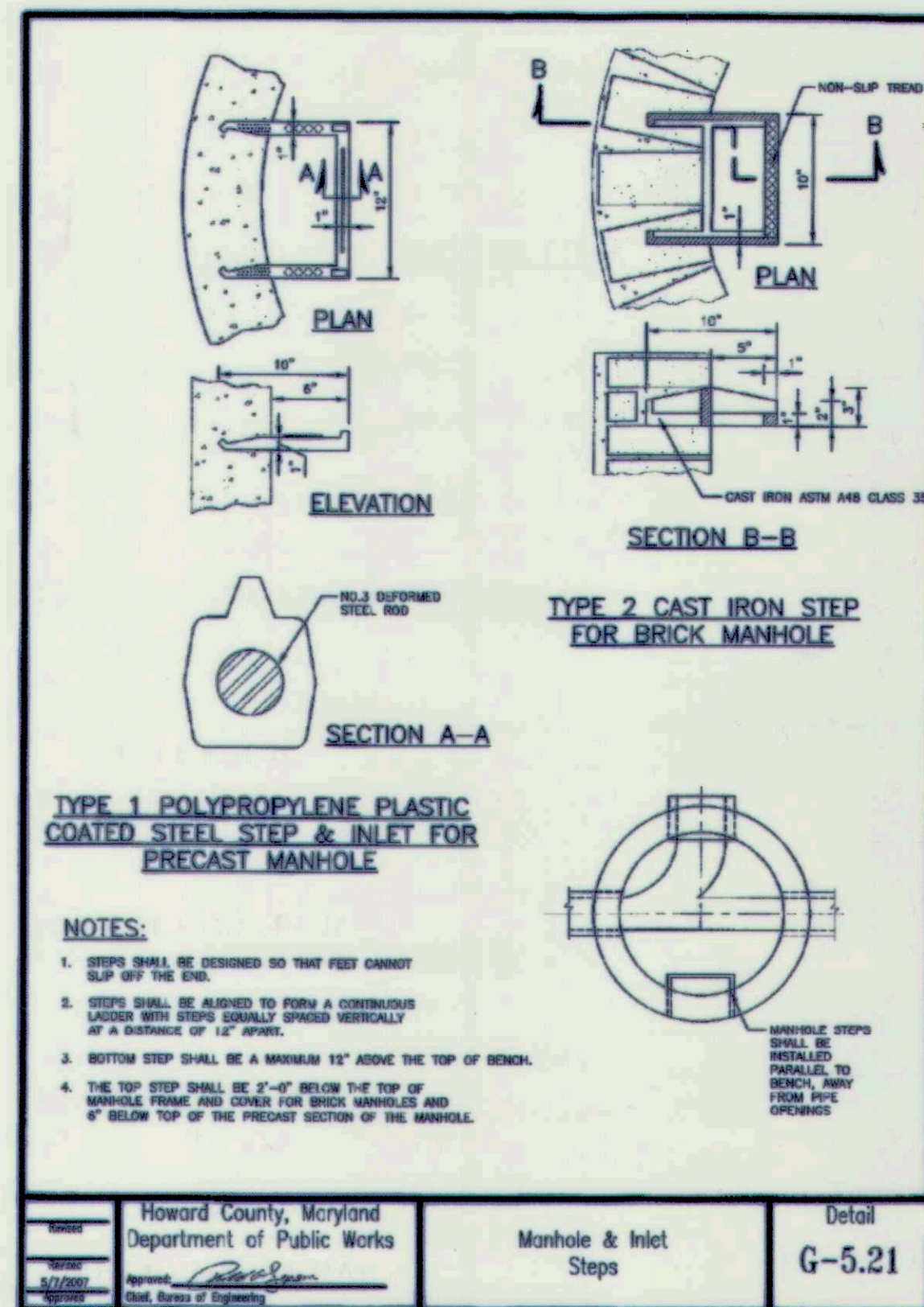


DES: CL	ADM	1	AS-BUILT SURVEY	8/29/17
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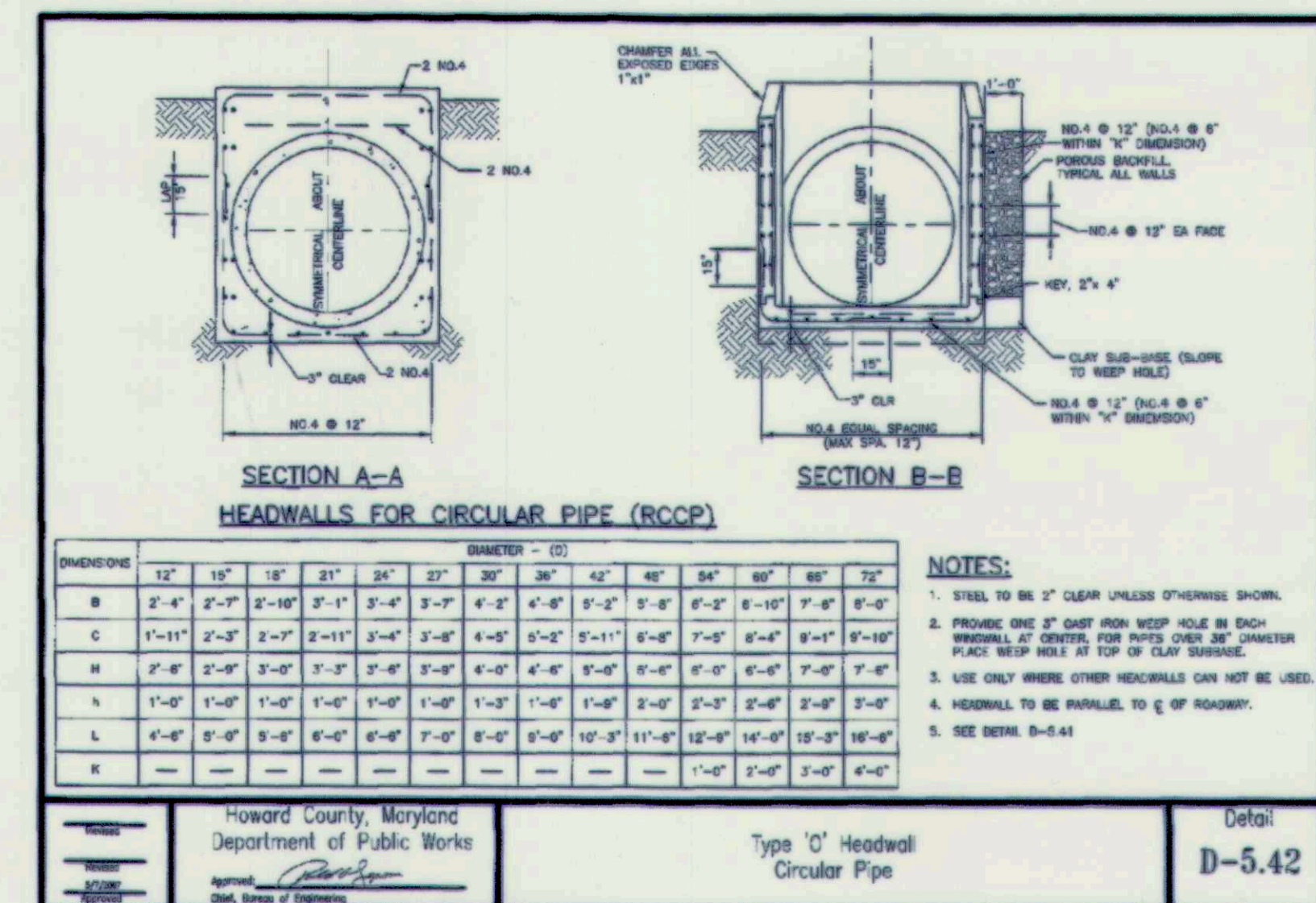
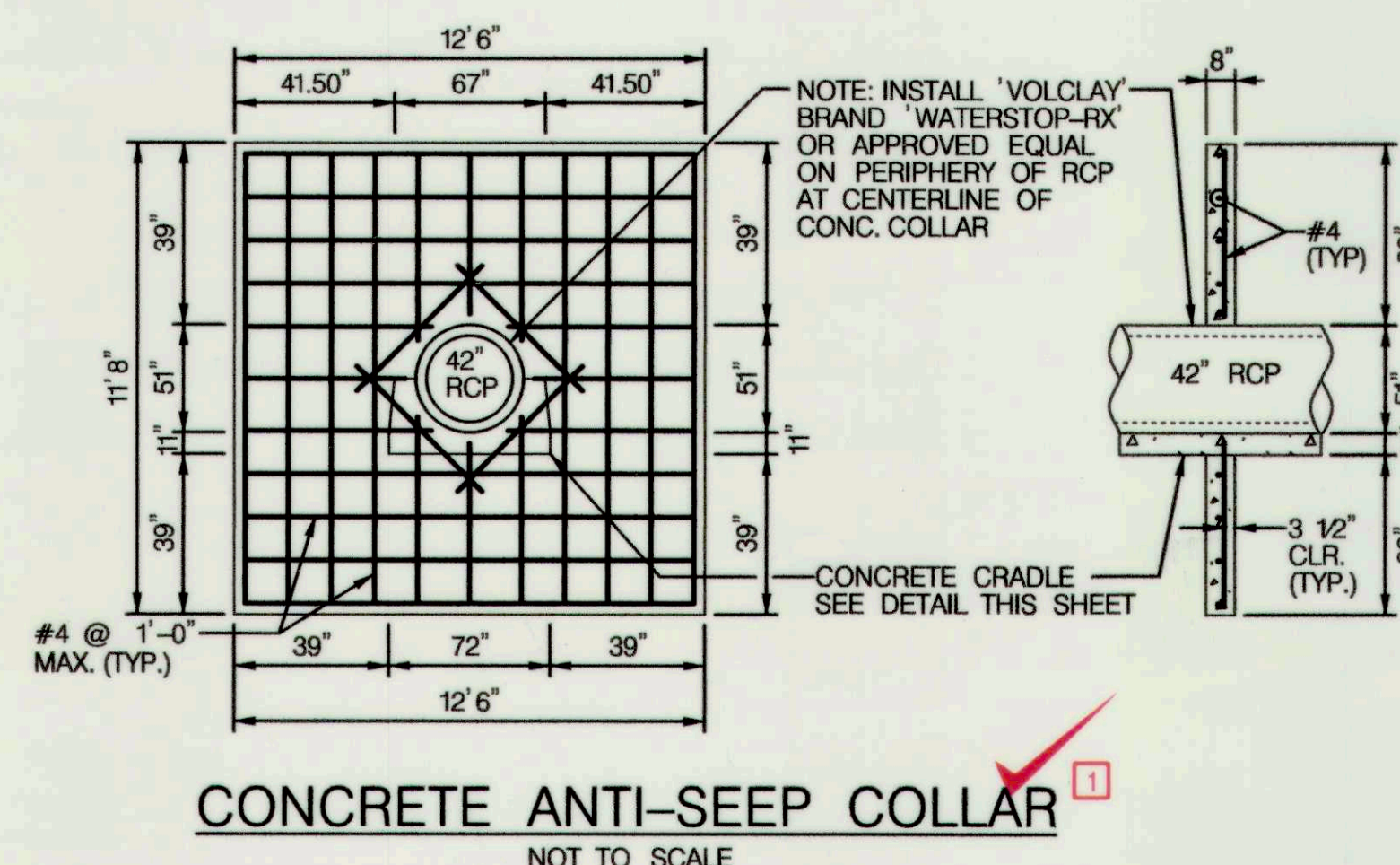
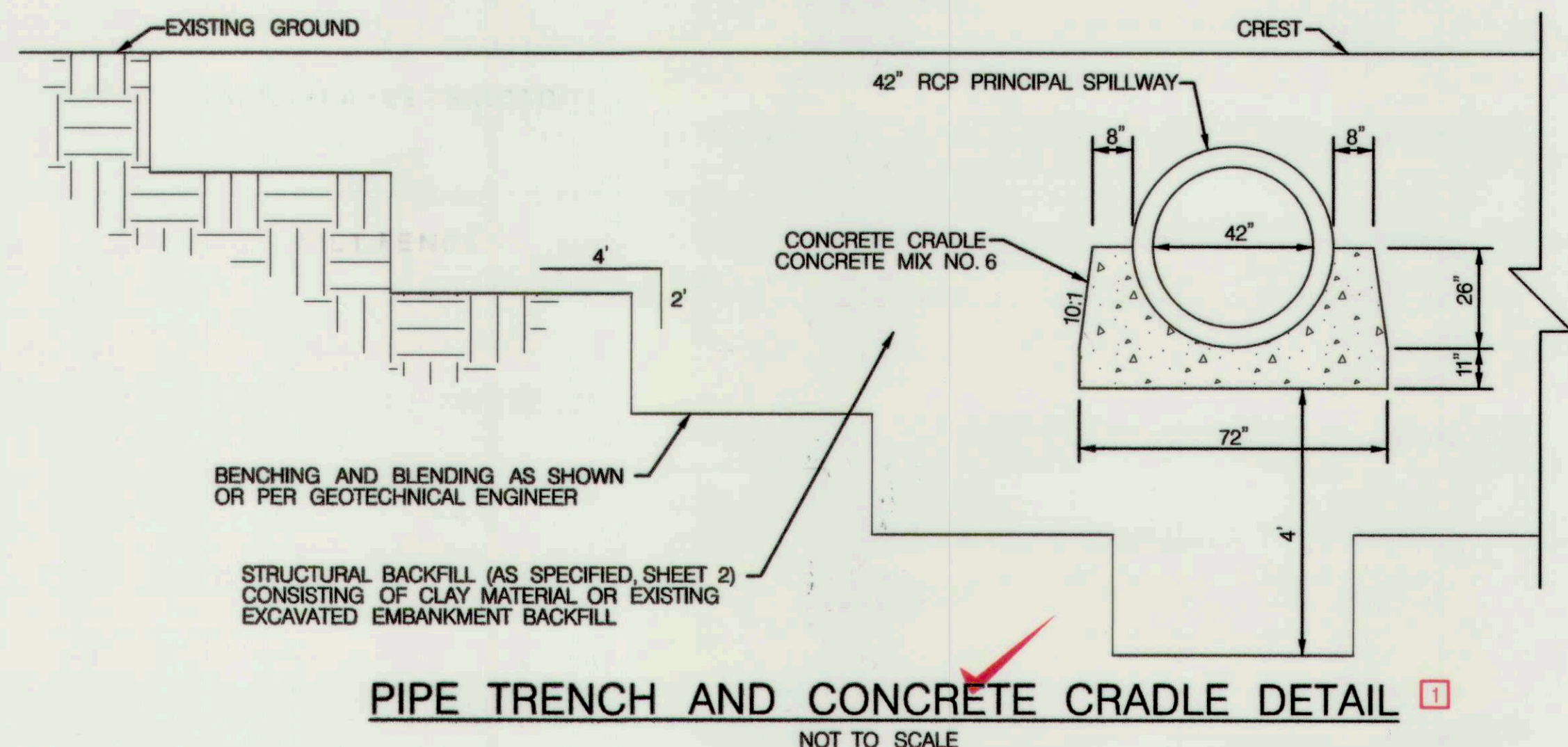
RISER DETAILS

SCALE
AS SHOWN
SHEET
6 OF 22



NOTE: VALVE BOX SHALL ONLY EXTEND THROUGH RISER LID

- NOTES:
1. PROVIDE MINIMUM 2" CLEAR COVER FOR ALL REINFORCEMENT, EXCEPT AS NOTED.
 2. USE MIX NO. 6 CEMENT CONCRETE (f'c = 4500 psi) 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.



PIPE TRENCH AND CONCRETE CRADLE DETAIL □
NOT TO SCALE

CONCRETE ANTI-SEEP COLLAR □
NOT TO SCALE

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MARYLAND
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DES: CL
ADM □
AS-BUILT SURVEY
8/29/17

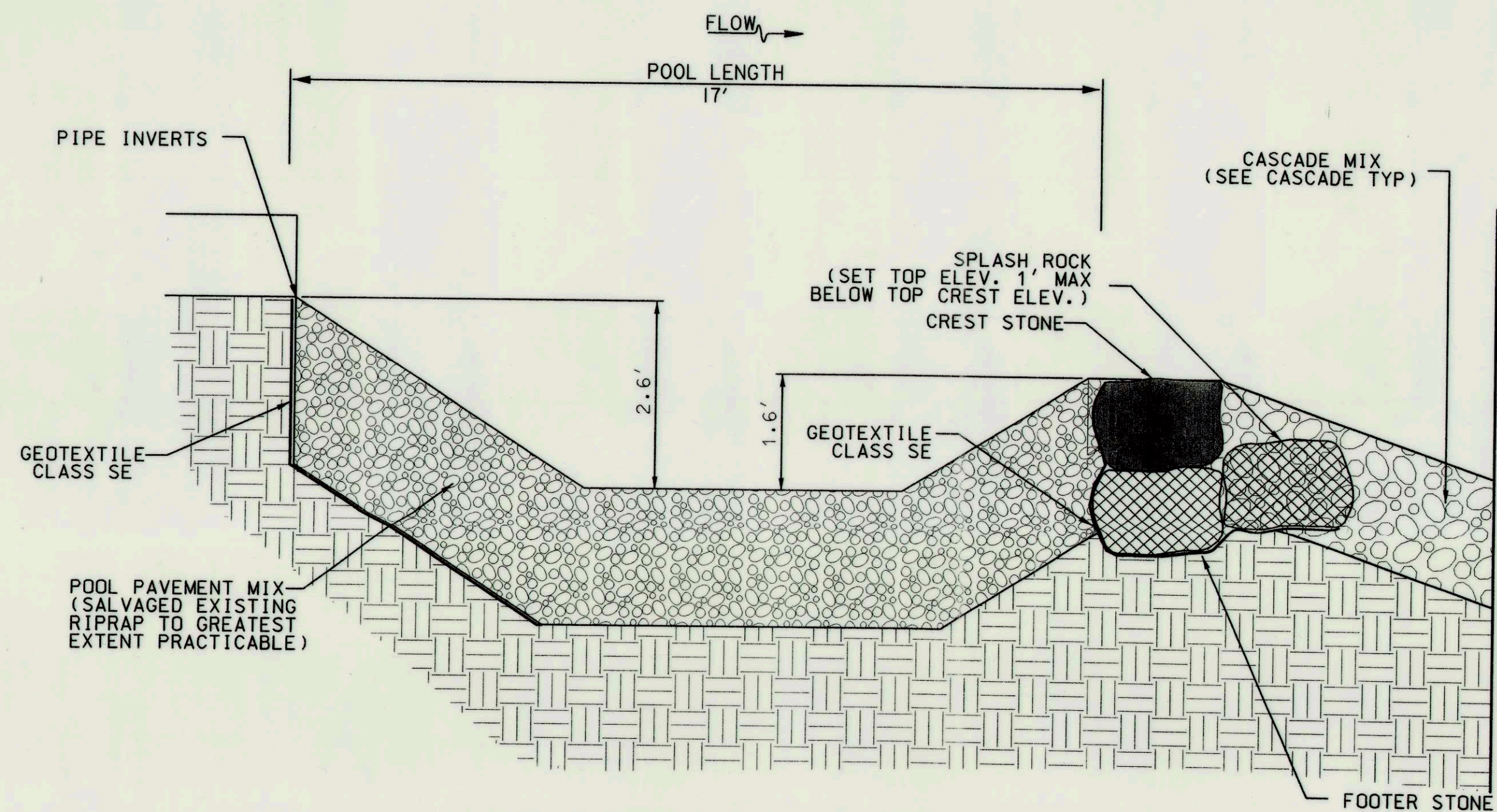
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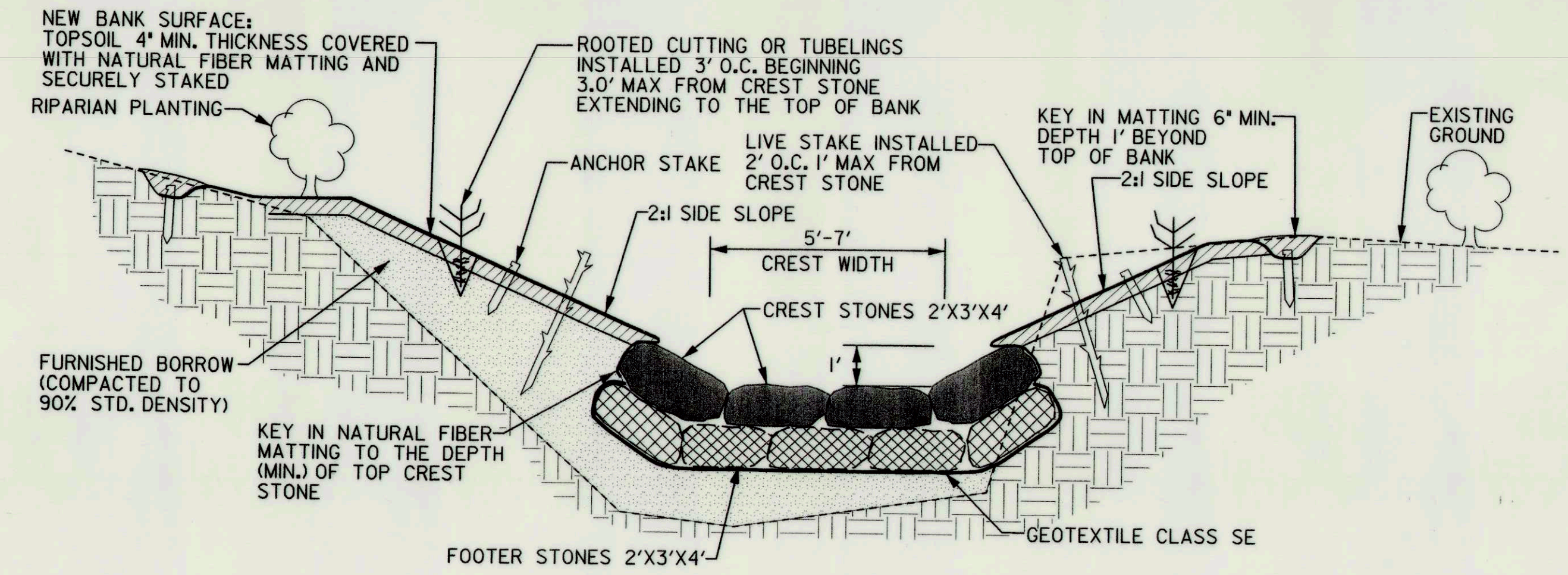
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STORMWATER MANAGEMENT DETAILS

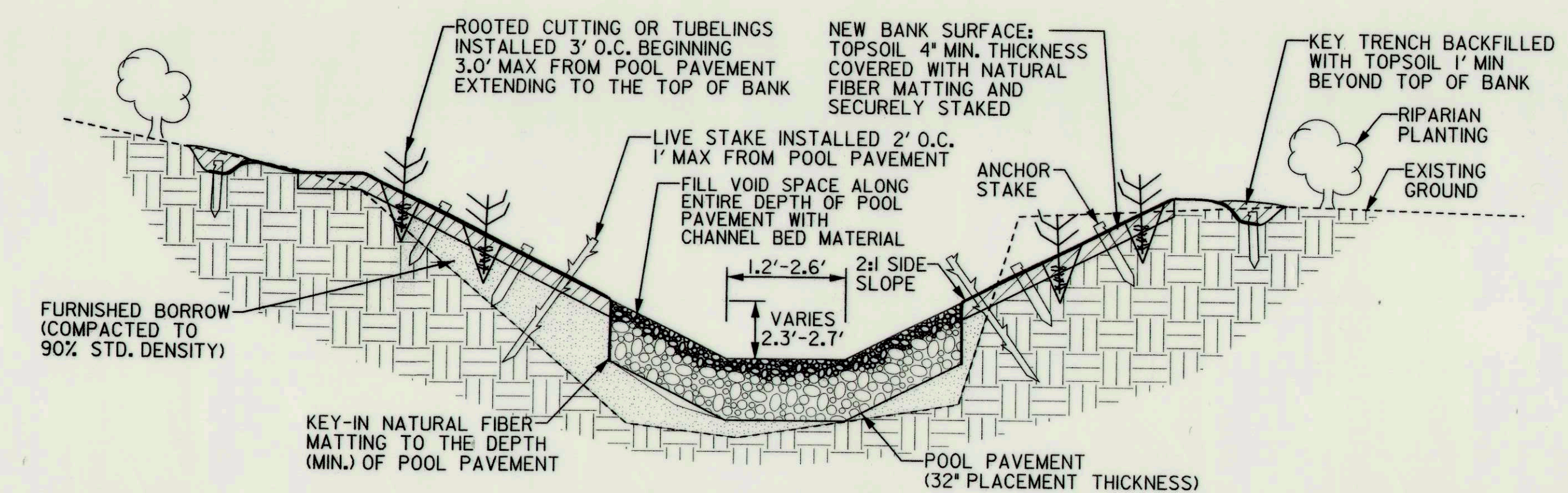
SCALE
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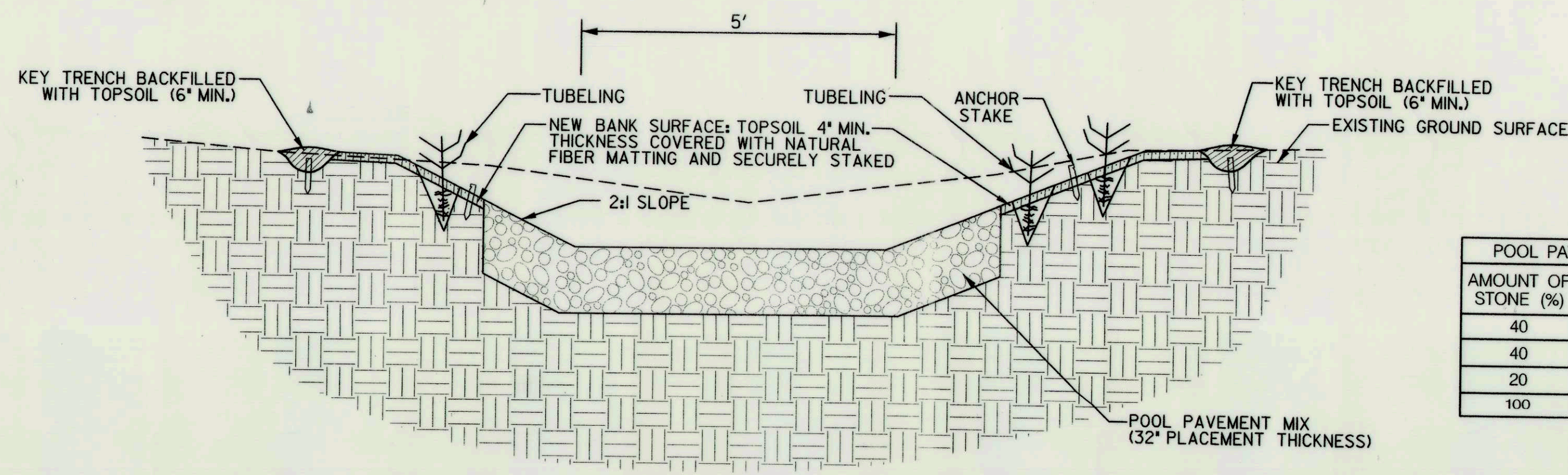
TYPICAL PROFILE THROUGH OUTFALL POOL
NOT TO SCALE



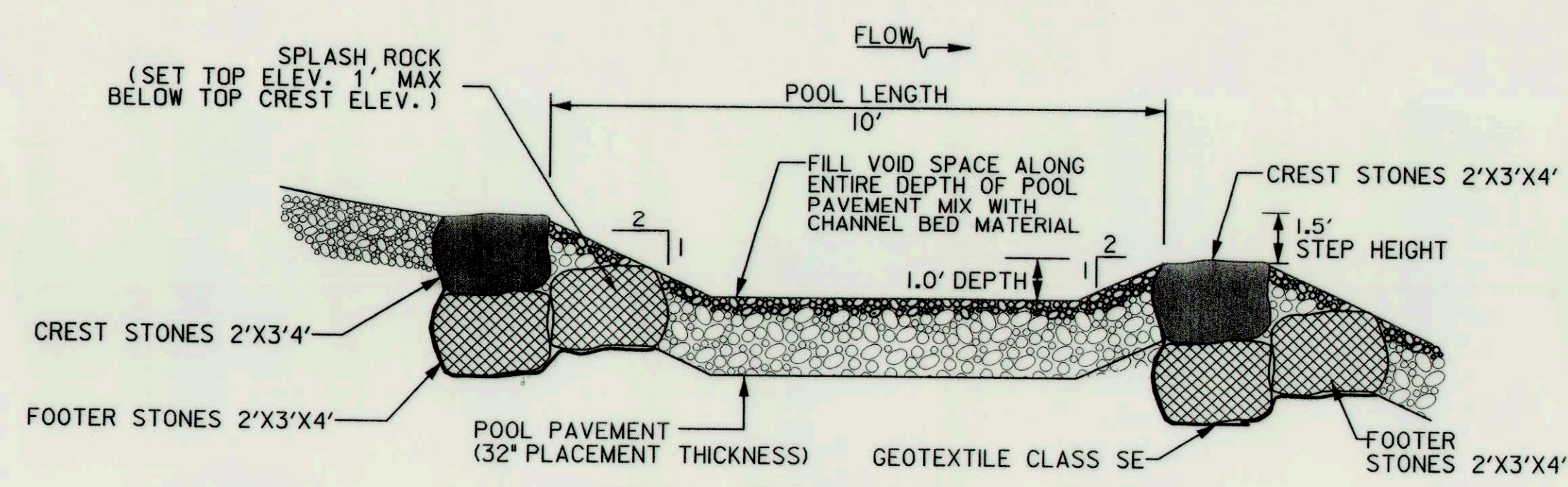
TYPICAL CROSS SECTION OF STEP-POOL CREST
NOT TO SCALE



TYPICAL CROSS SECTION OF STEP-POOL POOL
NOT TO SCALE



TYPICAL OUTFALL POOL SECTION
NOT TO SCALE



TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE

POOL PAVEMENT MIX	
AMOUNT OF STONE (%)	TYPE
40	SHA CLASS 0
40	SHA CLASS 1
20	SHA CLASS 2
100	TOTAL

- NOTES:
1. CHANNEL BED MATERIAL SHALL BE SALVAGED FROM THE EXISTING STREAM CHANNEL IN AREAS TO BE FILLED OR IN AREAS WHERE STREAM BED GRADING IS TO OCCUR.
 2. ALL STONE IS TO APPEAR NATURAL IN COLOR, WHITE STONE IS NOT ACCEPTABLE.

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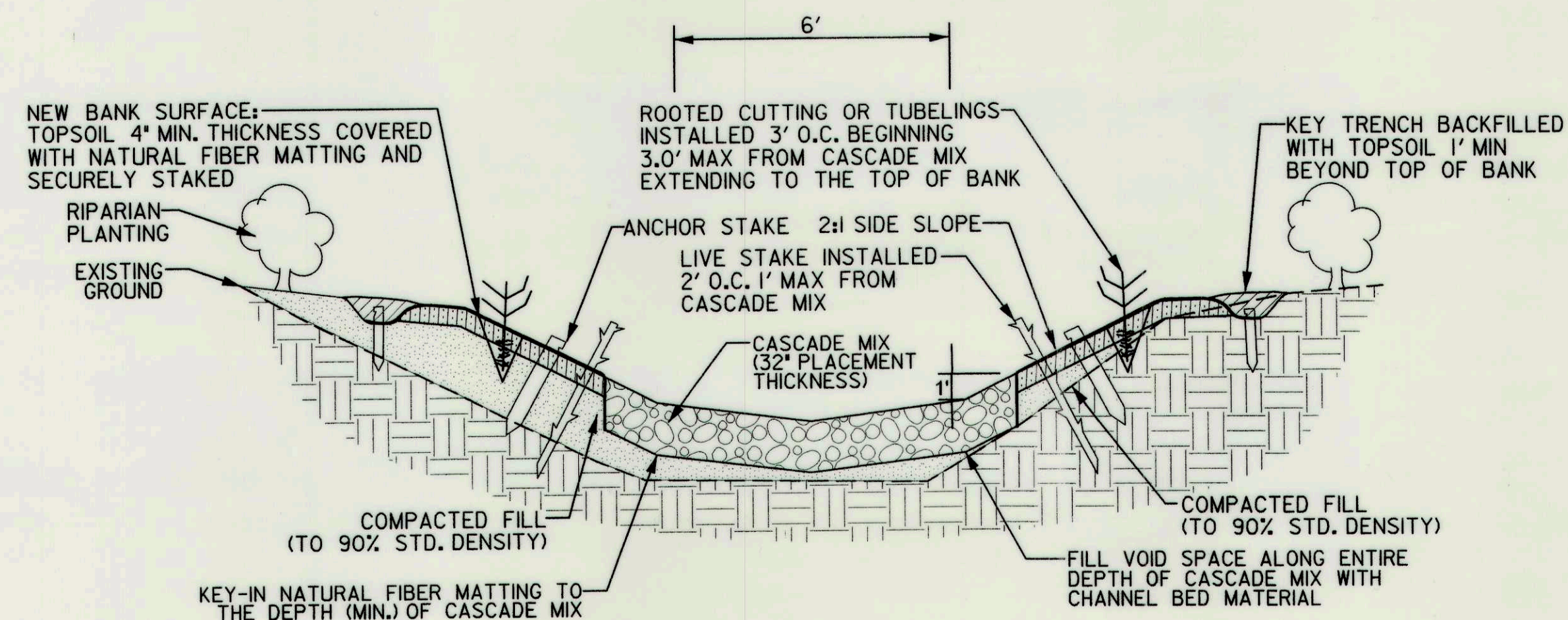
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CHANNEL STABILIZATION DETAILS

SCALE
NTS
SHEET
8 OF 22

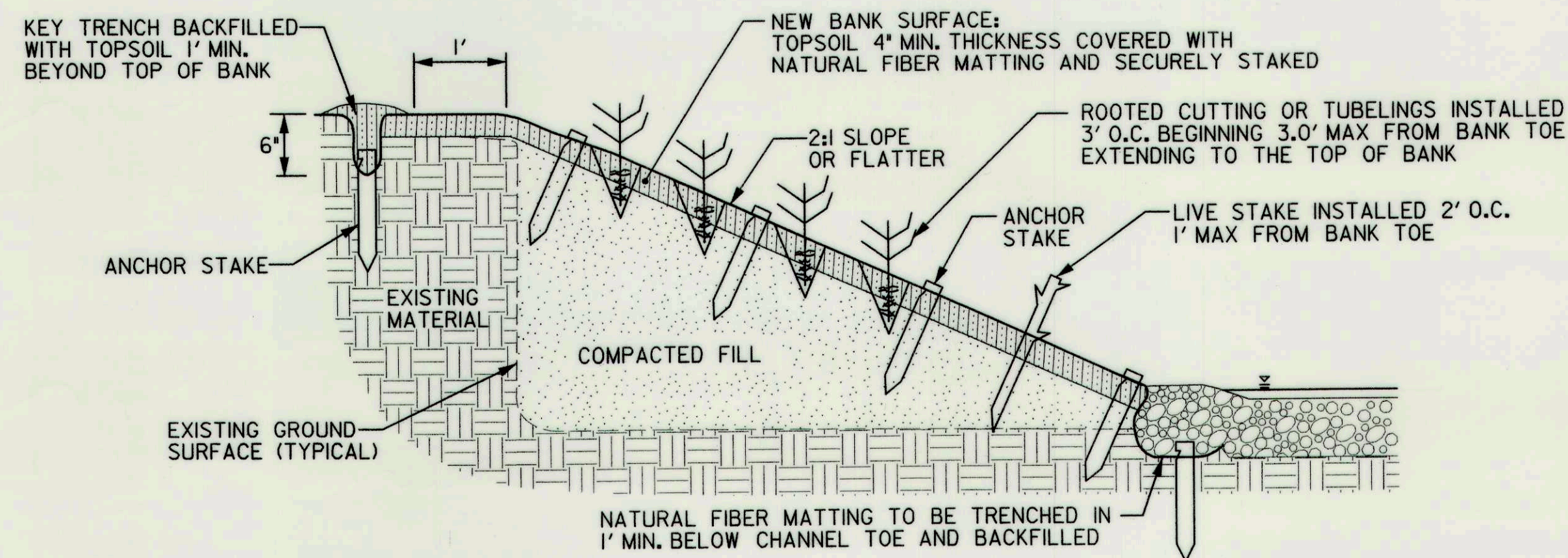
Mark DeLuca
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11/18/16
DATE

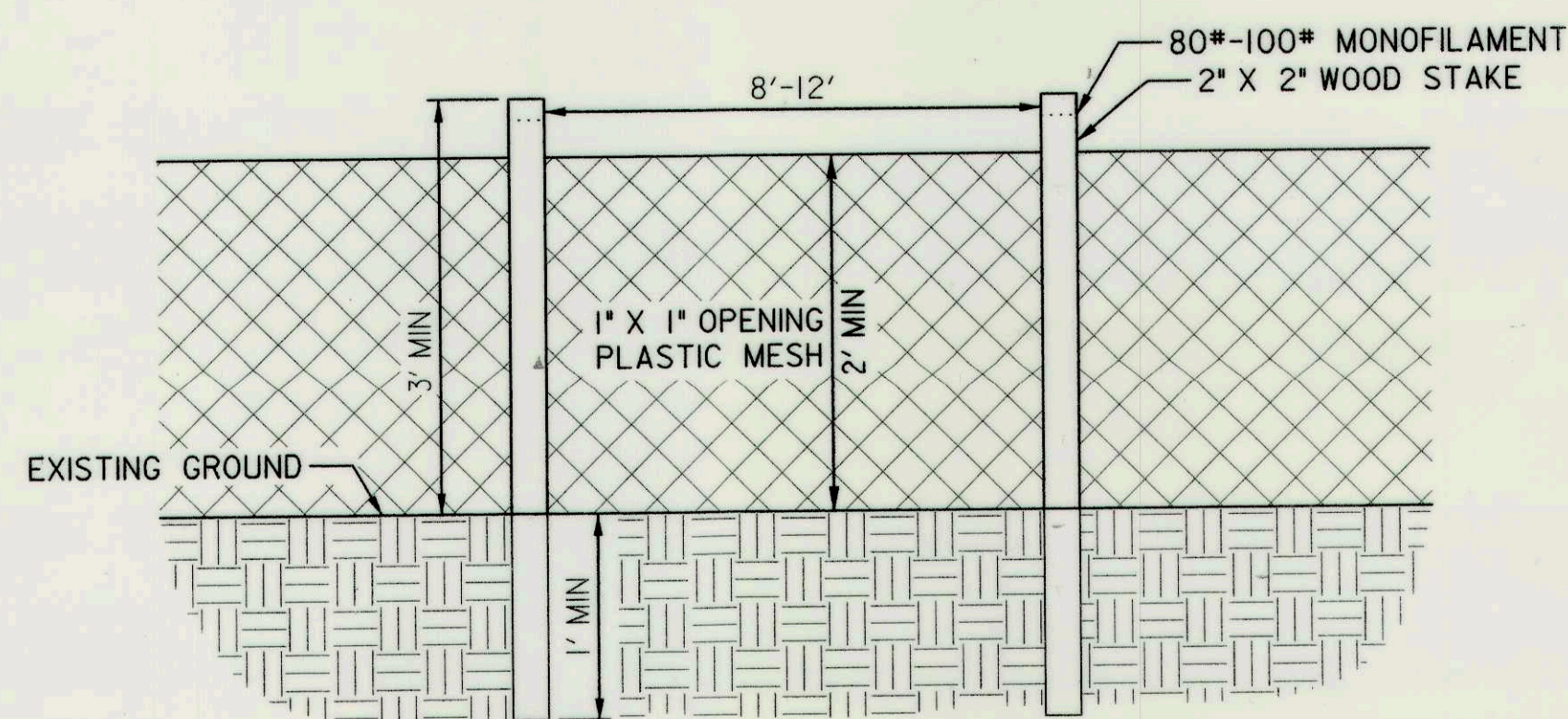
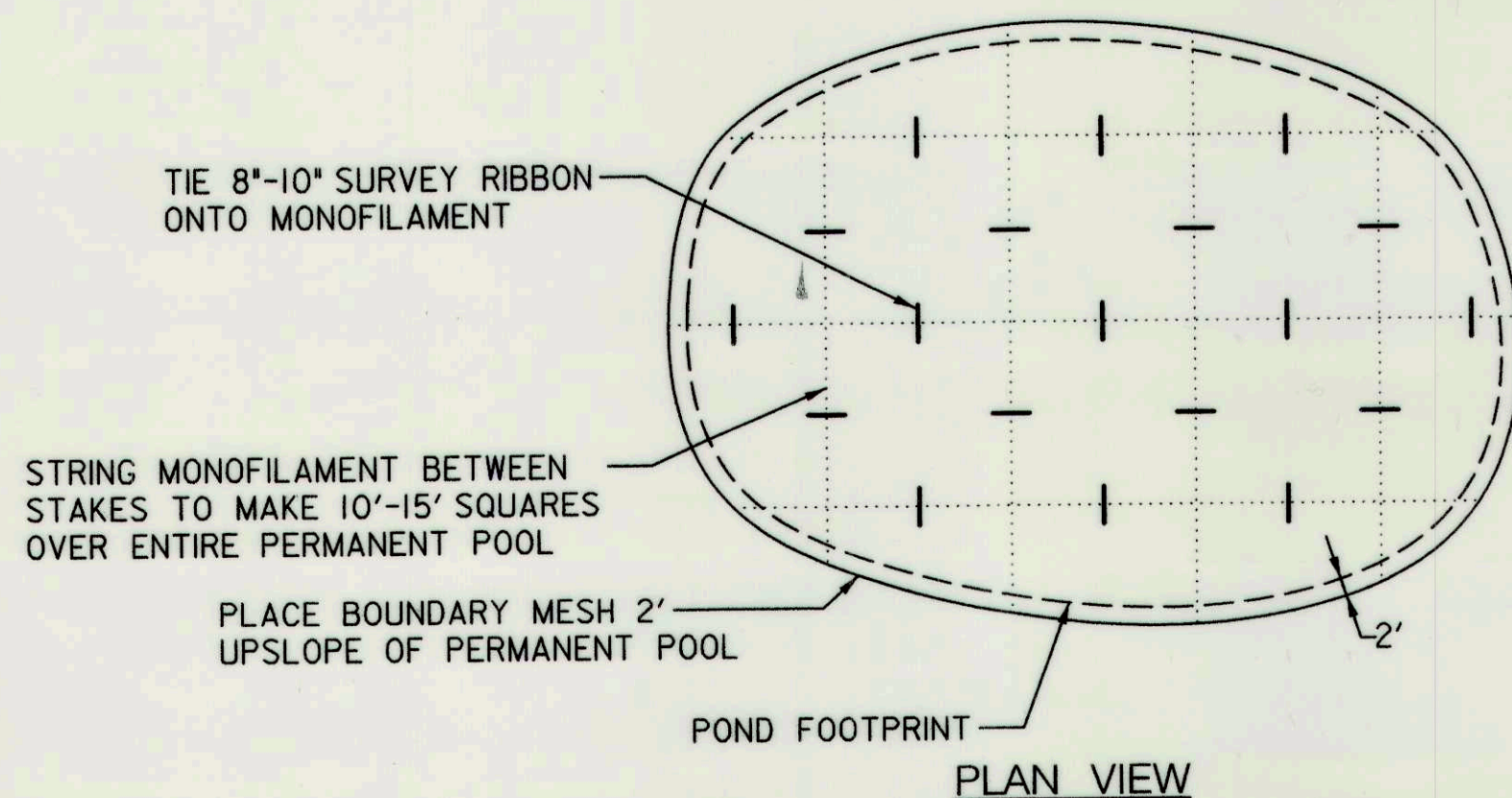


TYPICAL CROSS SECTION CASCADE STRUCTURE
NOT TO SCALE

CASCADE MIX	
AMOUNT OF STONE (%)	TYPE
20	SHA CLASS 0
30	SHA CLASS 1
50	SHA CLASS 2
100	TOTAL

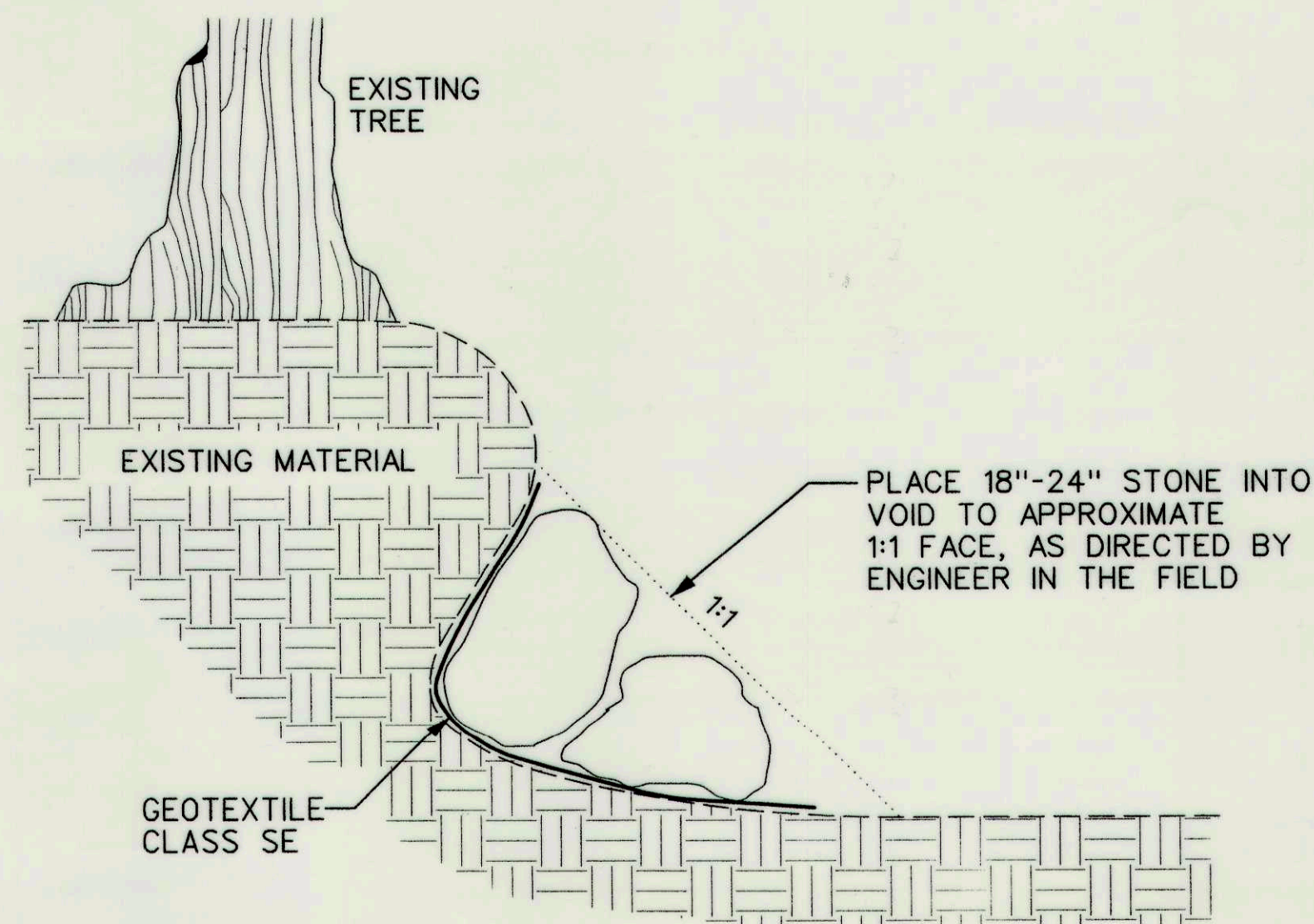


TYPICAL STREAMBANK STABILIZATION IN FILL
NOT TO SCALE

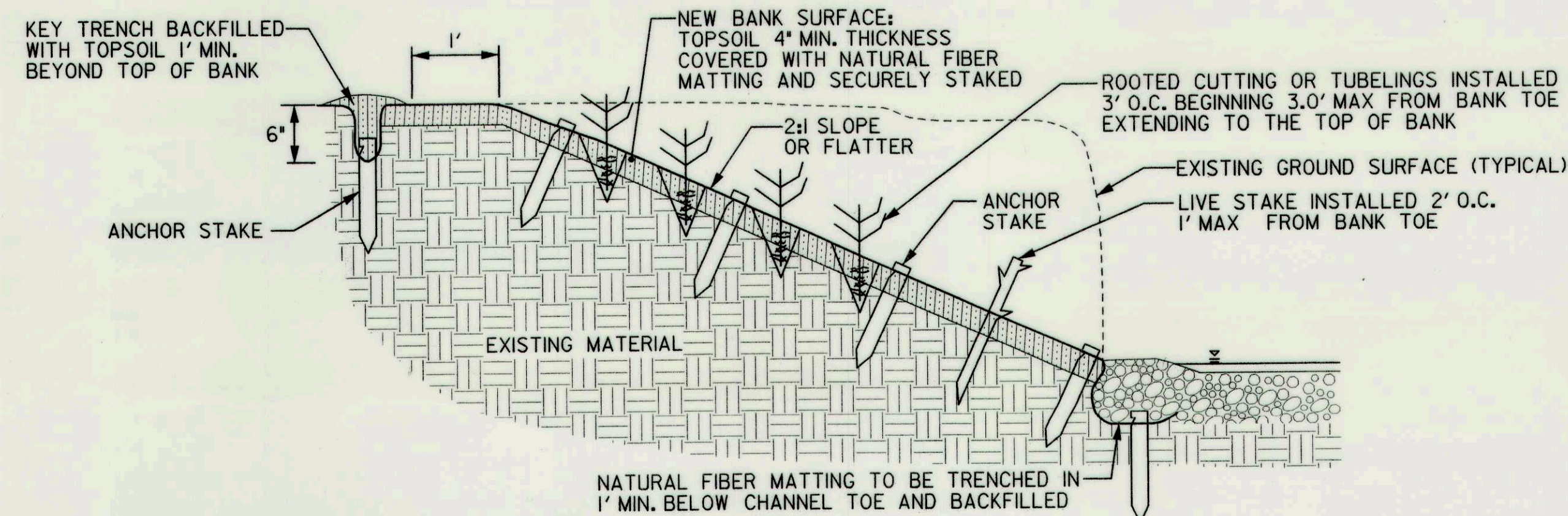


BOUNDARY MESH DETAIL

GOOSE FENCE DETAIL
NOT TO SCALE



ROOT PACK
NOT TO SCALE



TYPICAL STREAMBANK STABILIZATION IN CUT
NOT TO SCALE

- NOTES:
- CHANNEL BED MATERIAL SHALL BE SALVAGED FROM THE EXISTING STREAM CHANNEL IN AREAS TO BE FILLED OR IN AREAS WHERE STREAM BED GRADING IS TO OCCUR.
 - ALL STONE IS TO APPEAR NATURAL IN COLOR, WHITE STONE IS NOT ACCEPTABLE.

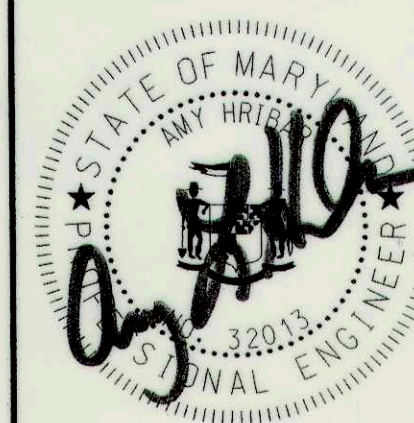
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Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
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DES: CL

DRN: MR

CHK: AH

DATE: 09/28/16

BY

NO.

REVISION

DATE

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT
AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

CHANNEL STABILIZATION DETAILS

SCALE

NTS

SHEET

9 OF 22

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

SEQUENCE OF CONSTRUCTION

1. A MINIMUM 5-DAY DRY WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE CENTER AND PERMISSION FROM THE INSPECTOR SHALL BE GRANTED PRIOR TO PROCEEDING WITH ANY WORK. OBTAIN MDE PERMIT 201660618 AND GRADING PERMIT. (1 DAY)
 2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410) 313-1855 A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. (1 DAY)
 3. STAKEOUT LIMITS OF DISTURBANCE (LOD). ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED AROUND THE PERIMETER OF THE LOD. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING. (1 DAY)
 4. THE CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. (1 DAY)
- PHASE 1
5. CONSTRUCT THE FOLLOWING PERIMETER CONTROLS AS SHOWN ON THE PLAN: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE, CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. INSTALL SIDEWALK CLOSED SIGNS. (2 DAYS)
 6. INSTALL THE MULCH ACCESS PATH AND PUMP AROUND PER PHASE 1, WHICH INCLUDES SB-1, SB-2, AND TEMPORARY RIP RAP. DEWATER ALL WORK AREAS AS NEEDED USING THE PUMP AND DEWATERING DEVICE DURING WORK HOURS. (2 DAYS)
 7. COMPLETE CHANNEL STABILIZATION FROM STA. 100+04 TO 101+30 FROM UPSTREAM TO DOWNSTREAM. FILL EXISTING CHANNEL WITH SPECIFIED MATERIAL AND GRADE CHANNEL, ONLY COMPLETING WHAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. WORK IN THE STREAM MAY NOT BE CONDUCTED FROM MARCH 1 TO MAY 31. (5 DAYS)
- PHASE 2
8. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR AND A 5-DAY CLEAR (NO-PRECIPITATION) WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE REMOVE PUMP AROUND, SB-1, SB-2, SF-1 AND SF-2. INSTALL REMAINING CONTROLS AS SHOWN ON THE PHASE 2 SEDIMENT CONTROL PLANS: DIVERSION FENCE, TEMPORARY RIPRAP, SUMP PIT, FILTER BAG, CLEAR WATER DIVERSION PIPE, FILTER BAG, SF-3, SF-4, SF-5, SF-6 AND RESET SANDBAG DAM AT SB-3 AND SB-4. (4 DAYS)
 9. EXCAVATE AND REMOVE RISER, SPILLWAY PIPE AND END SECTION. CONSTRUCT THE PROPOSED SPILLWAY PIPE, INCLUDING THE ENDWALL, ANTI-SEEP COLLAR AND RISER. ADJUST THE SILT FENCE ABOVE THE END SECTION AS NEEDED. CONSTRUCT THE EMBANKMENT OVERTOP THE SPILLWAY PIPE AND INSTALL THE CLAY LINER. ADJUST THE CLEAR WATER DIVERSION PIPE TO OUTFALL AT OPENING IN RISER BY PLACING SANDBAGS WITH SHEETING AROUND ENTRANCE TO RISER TO PROVIDE SECURE CONNECTION. DEWATER FROM THE SUMP PIT TO THE FILTER BAG AS NEEDED (10 DAYS).
 10. COMPLETE POND GRADING AND INSTALL RIPRAP AS SHOWN ON PLANS. ADJUST THE CLEAR WATER DIVERSION PIPE TO COMPLETE POND GRADING. DEWATER FROM THE SUMP PIT TO THE FILTER BAG AS NEEDED. STABILIZE WITH SEED AND MATTING (5 DAYS).
 11. CONSTRUCT PROPOSED ASPHALT SIDEWALK AND TIE IN TO EXISTING PATH. (1 DAY)
 12. INSTALL LANDSCAPING PER PLAN. 3 (DAYS)
 13. REMOVE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (2 DAYS)
 14. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS. (1 DAY)

HOWARD CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR MADE AVAILABLE UPON REQUEST IS PART OF EVERY INSPECTION AND SHALL INCLUDE ITEMS LISTED AT HOWARDCSD.ORG.
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY BE ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM INCREASE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25 MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2" IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
USE I AND IP MARCH 1 - JUNE 15 USE III AND IIIP OCTOBER 1 - APRIL 30 USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.
17. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

- A. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 - A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER SHALL BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - i. SOIL PH BETWEEN 6.0 AND 7.0.
 - ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - iv. SOIL CONTAINS 5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A MINIMUM OF 2 INCHES.
 - D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS DO NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.
- B. TOPSOILING
 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRASS, TWIGS, OR OTHER MATERIALS LARGER THAN 1 INCH IN DIAMETER.
 - B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
 6. TOPSOIL APPLICATION
 - A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 SEEDING AND MULCHING

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDER AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - i. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDS MUST BE FIRM AFTER PLANTING.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER)
 - i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
- B. MULCHING
 1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - B. WOOD CELLULOSE FIBER (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN UNIFORM SUSPENSIONS IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDINGS.
 - iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 2. APPLICATION
 - A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - B. WHEN STRAW MULCH IS USED, APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE. MIX THE WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 3. ANCHORING
 - A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 250 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOR LOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER, APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 TEMPORARY STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3)		6B		SEED MIXTURE (FROM TABLE B.3)		SEE BELOW		FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
	ANNUAL RYEGRASS	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT 15	0.5	436 LB/AC (10 LB/ 1000 SF)			2 TON/AC (90 LB/ 1000 SF)		
	FOXTAIL MILLET	30	MAY 16 TO JULY 31	0.5						

B-4-5 PERMANENT STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3)		6B		SEED MIXTURE (FROM TABLE B.3)		SEE BELOW		FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
	SWITCH GRASS	10	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.	45 LB/AC (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)		
1	CREeping RED FESCUE	15	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.	45 LB/AC (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)		
	PARTRIDGE PEA	4	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.						

NOTE: MAY 16 TO JUNE 15 ARE ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT

HARDINESS ZONE (FROM FIGURE B.3)		6B		SEED MIXTURE (FROM TABLE B.3)		SEE BELOW		FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
	TALL FESCUE	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.	45 LB/AC (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)		
6	PERENNIAL RYEGRASS	25	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.	45 LB/AC (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)		
	WHITE CLOVER	5	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.						

HOWARD CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - A. PRIOR TO THE START OF EARTH DISTURBANCE.
 - B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER DISTURBANCE OR GRADING.
 - C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.
- OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERE TO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH 1:1 OF CUT AND/OR FILL, STOCKPILES (SEC. B-4-8) IN EXCESS OF 20' MUST BE BENCHED WITH STABLE OUTLET, ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOILS STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:

TOTAL AREA OF SITE	0.78 ACRES
AREA DISTURBED	0.78 ACRES
AREA TO BE ROOFED OR PAVED	0.06 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.98 ACRES
TOTAL CUT	746 CY
TOTAL FILL	42 CY
OFFSITE WASTE/BORROW AREA LOCATION	SEE NOTE #17

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

**McCORMICK
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Howard County
MARYLAND
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Bureau of Environmental Services
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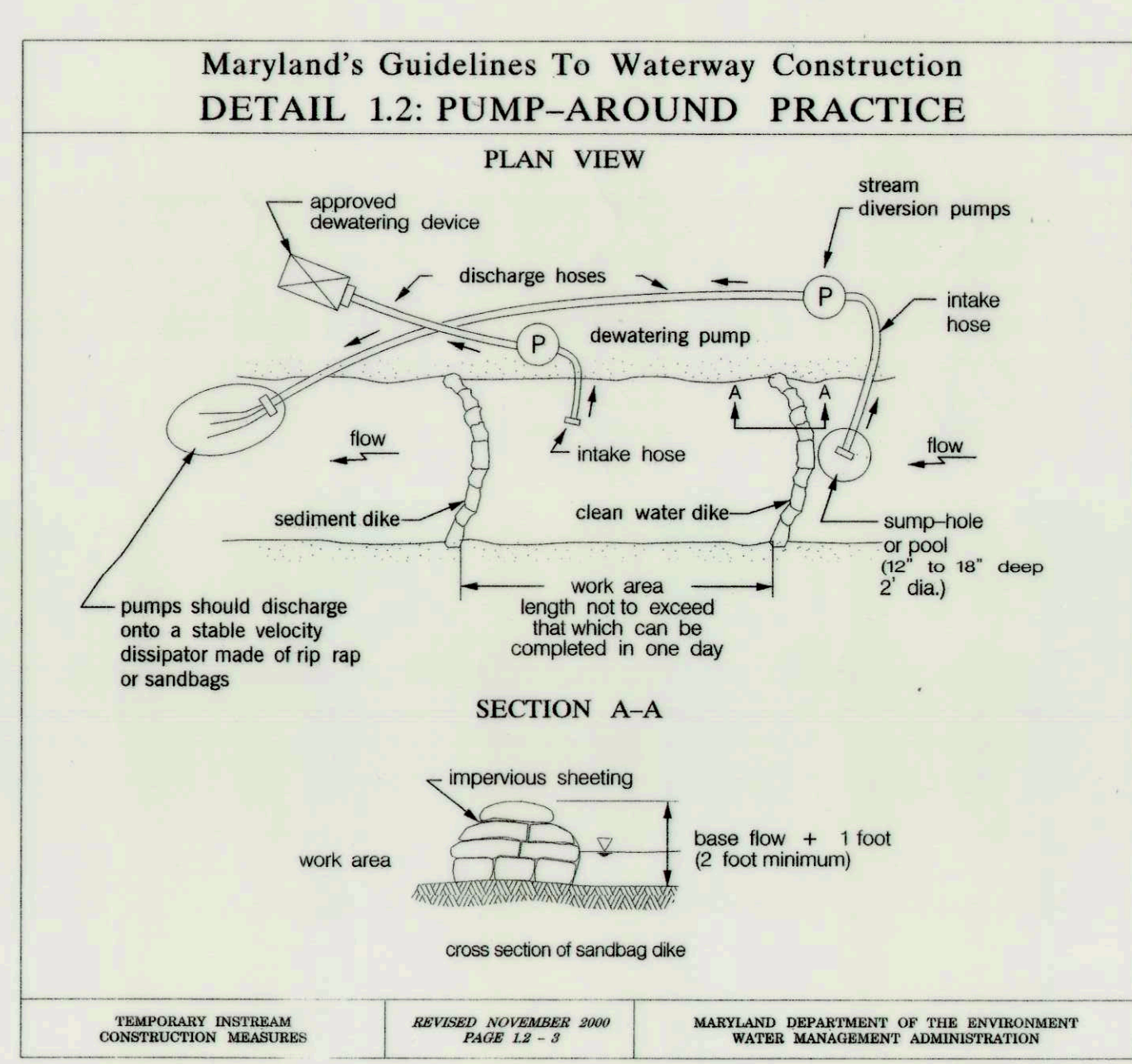
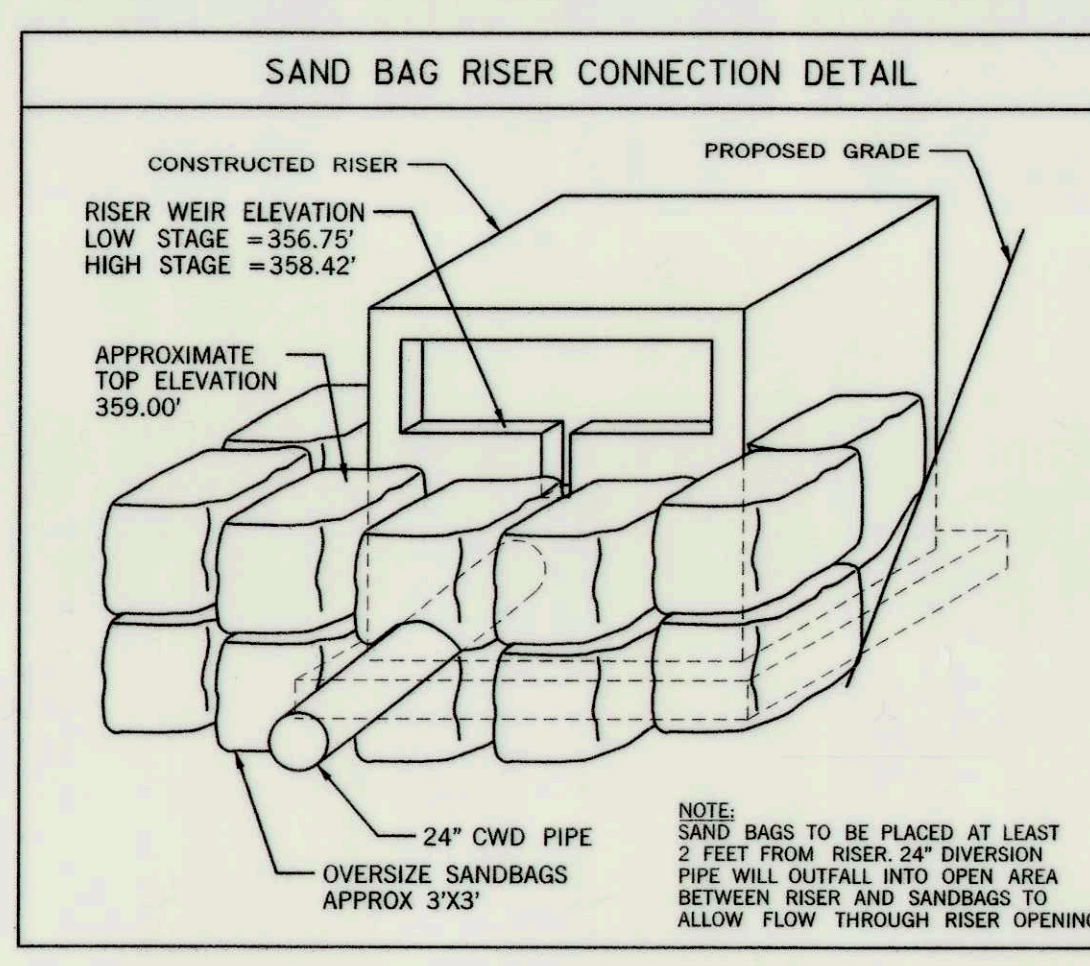
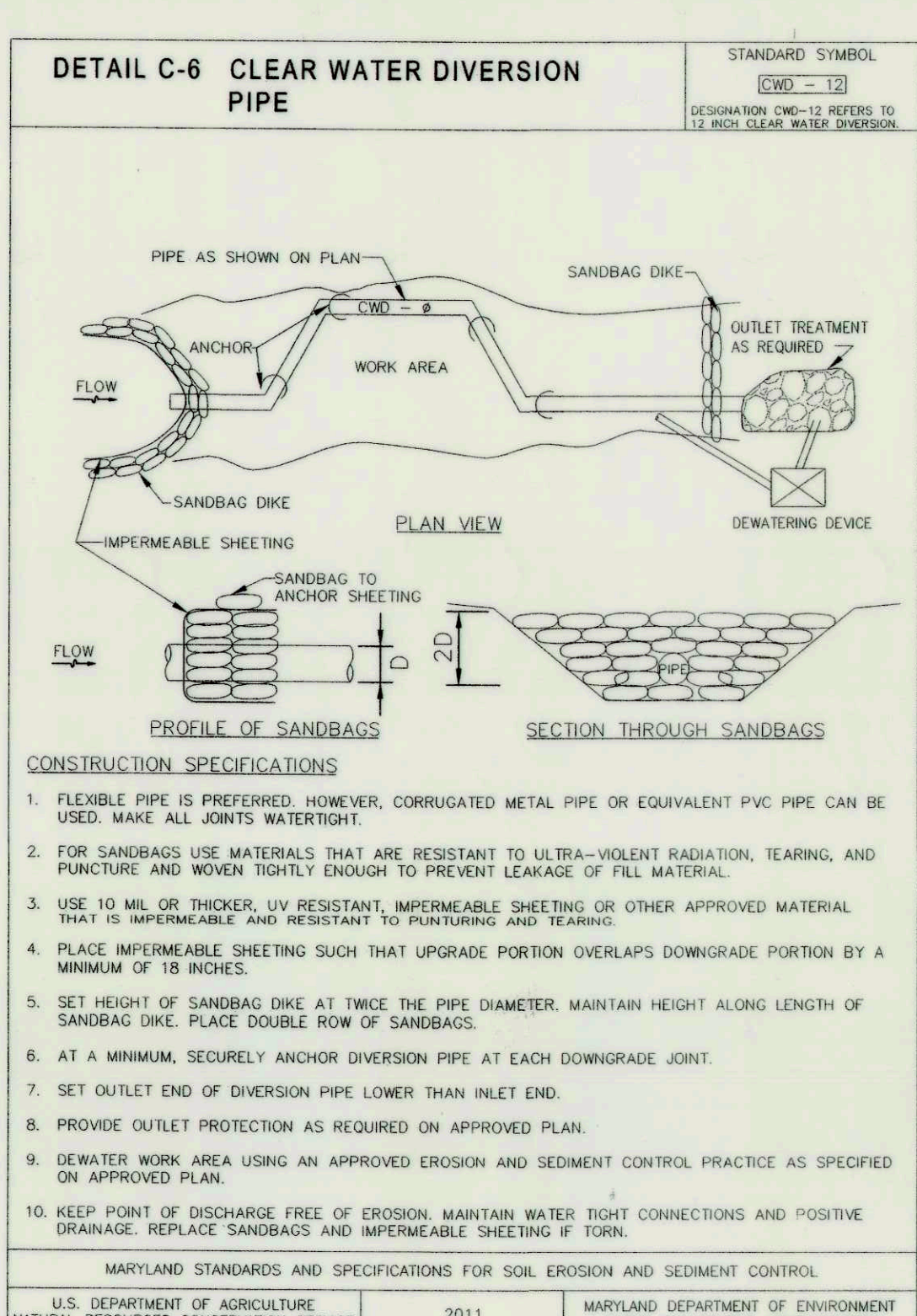
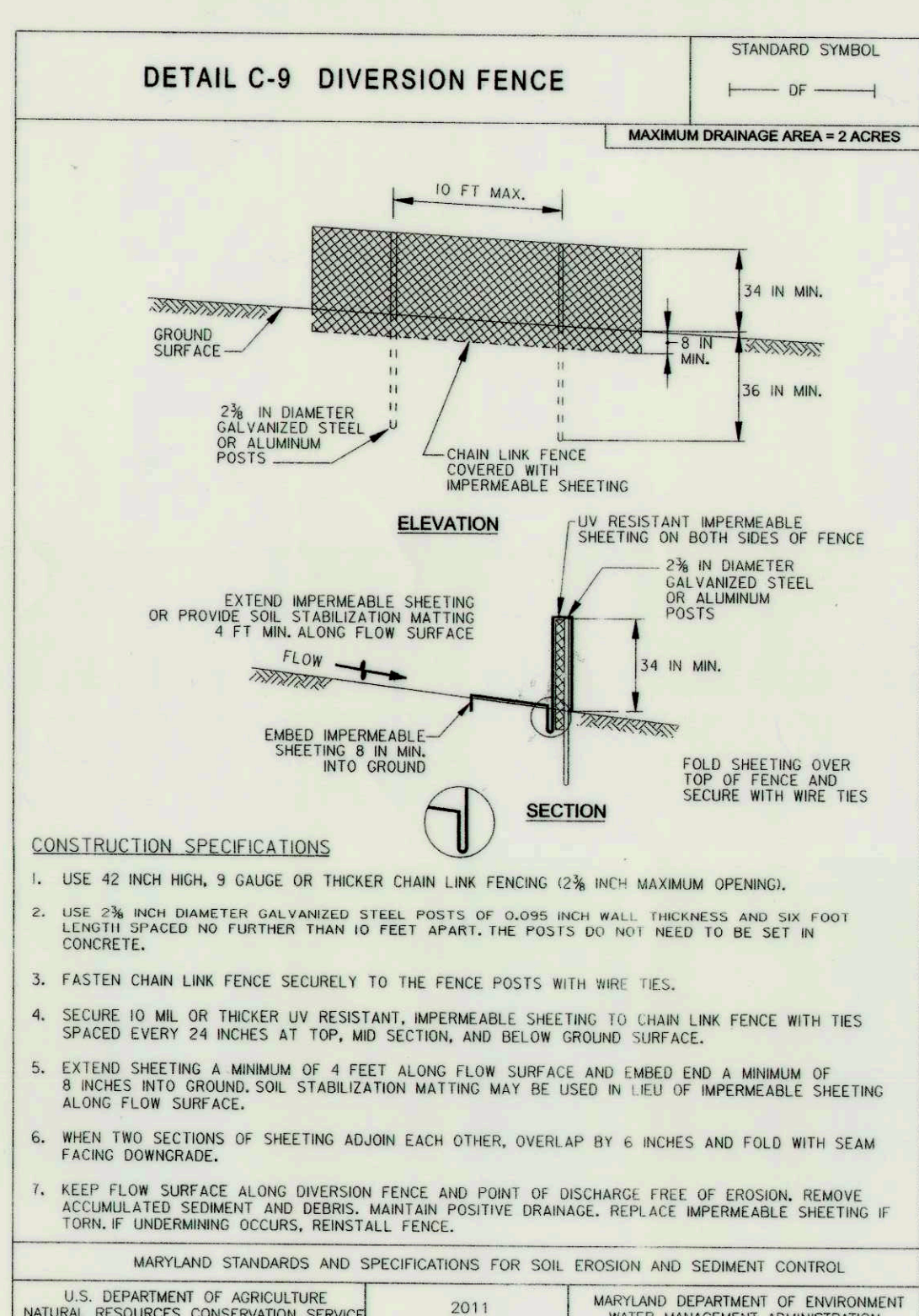
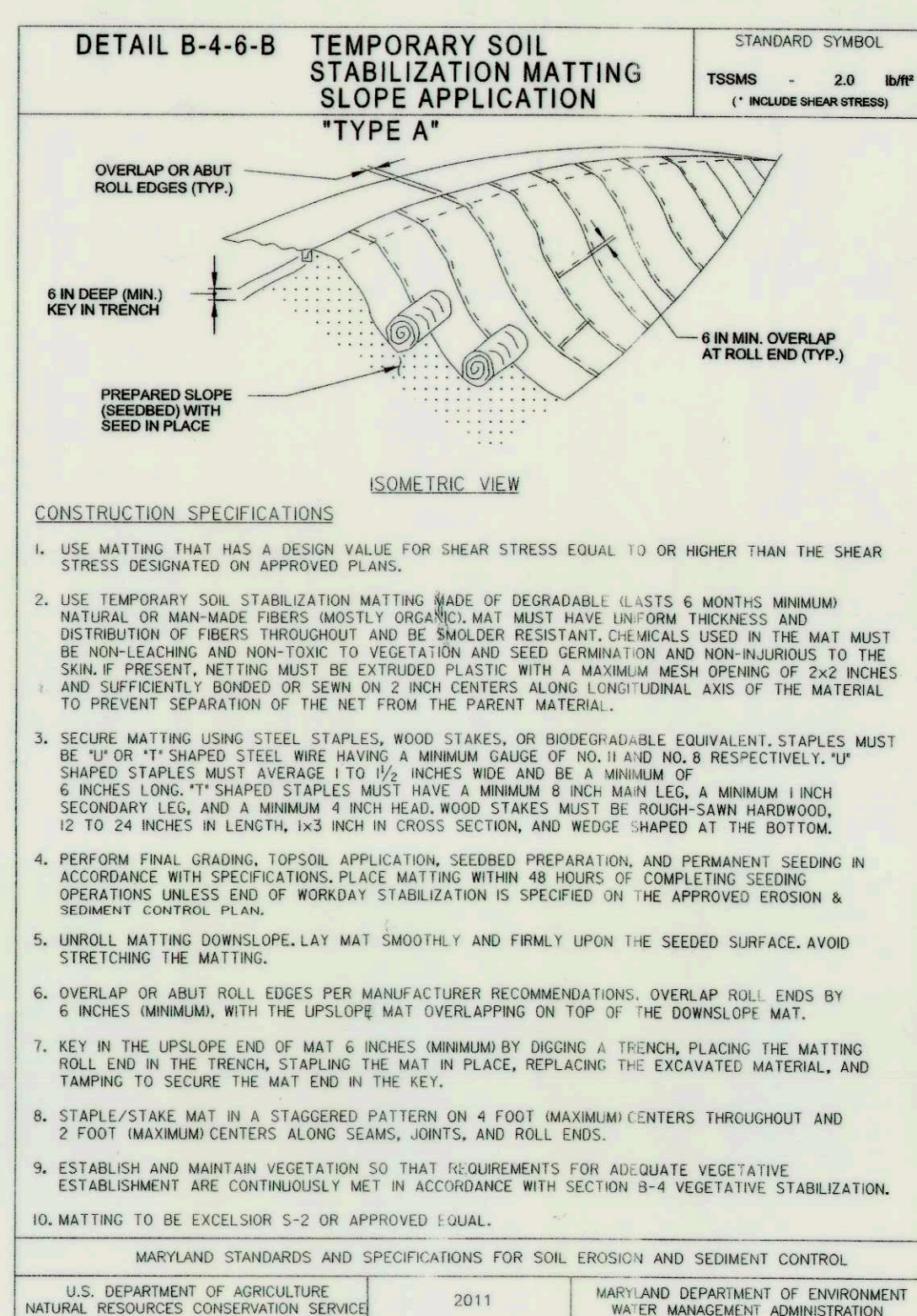
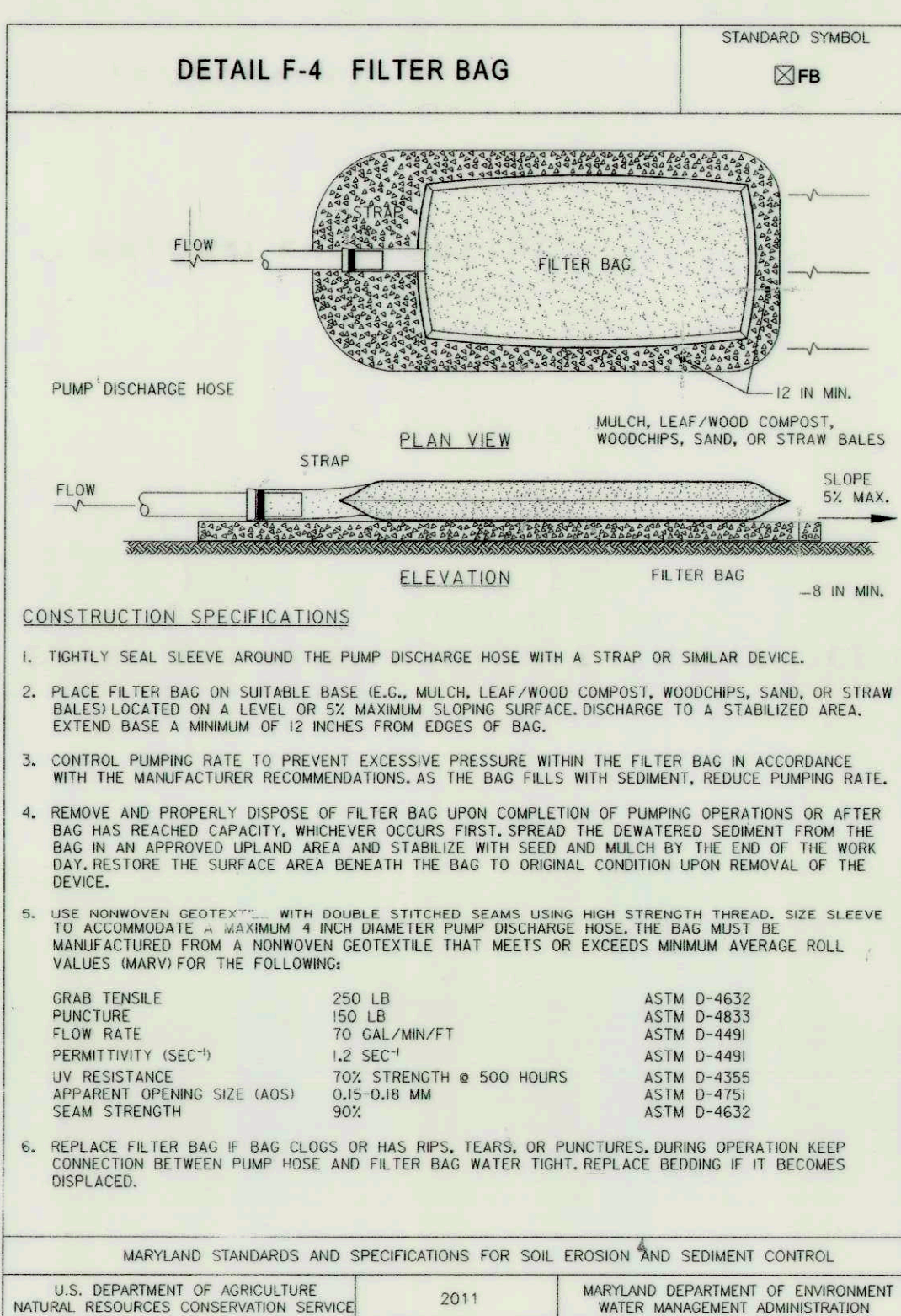
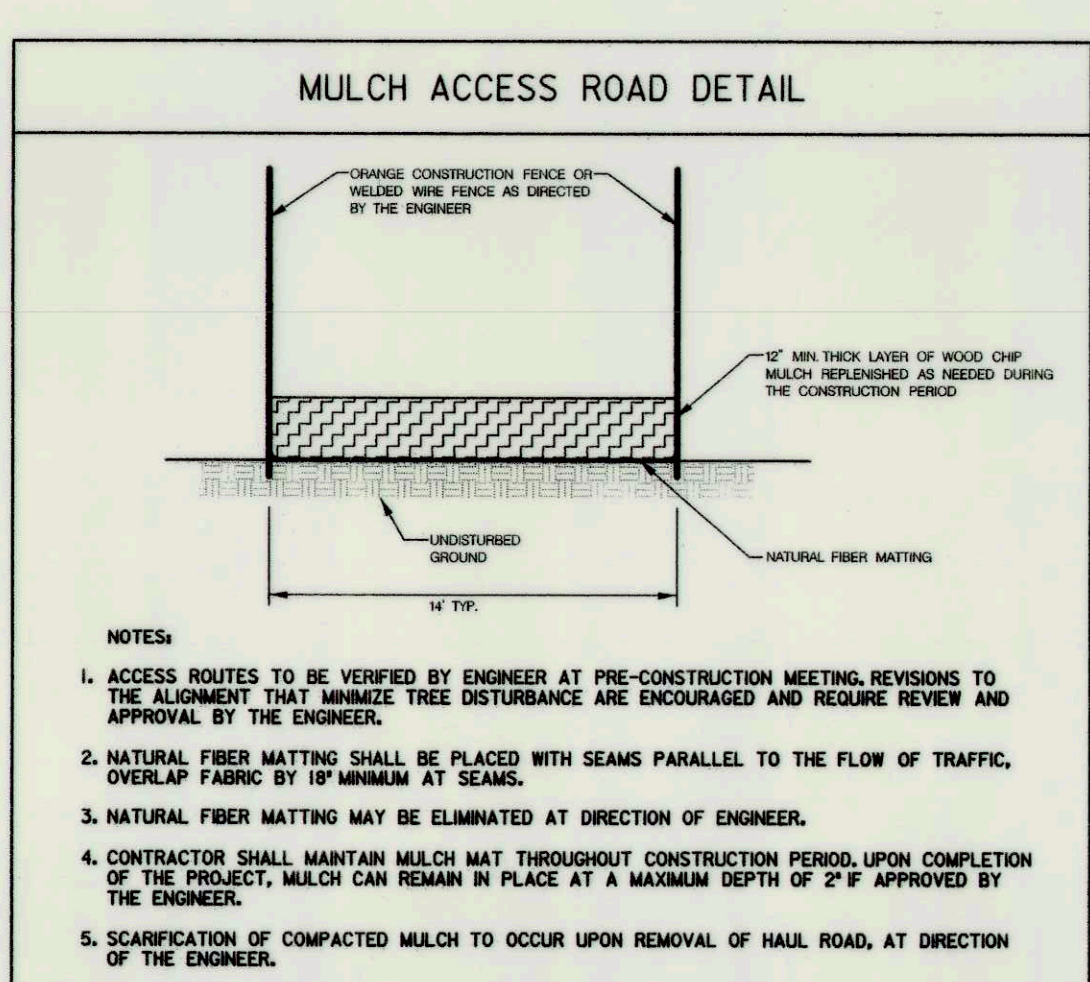
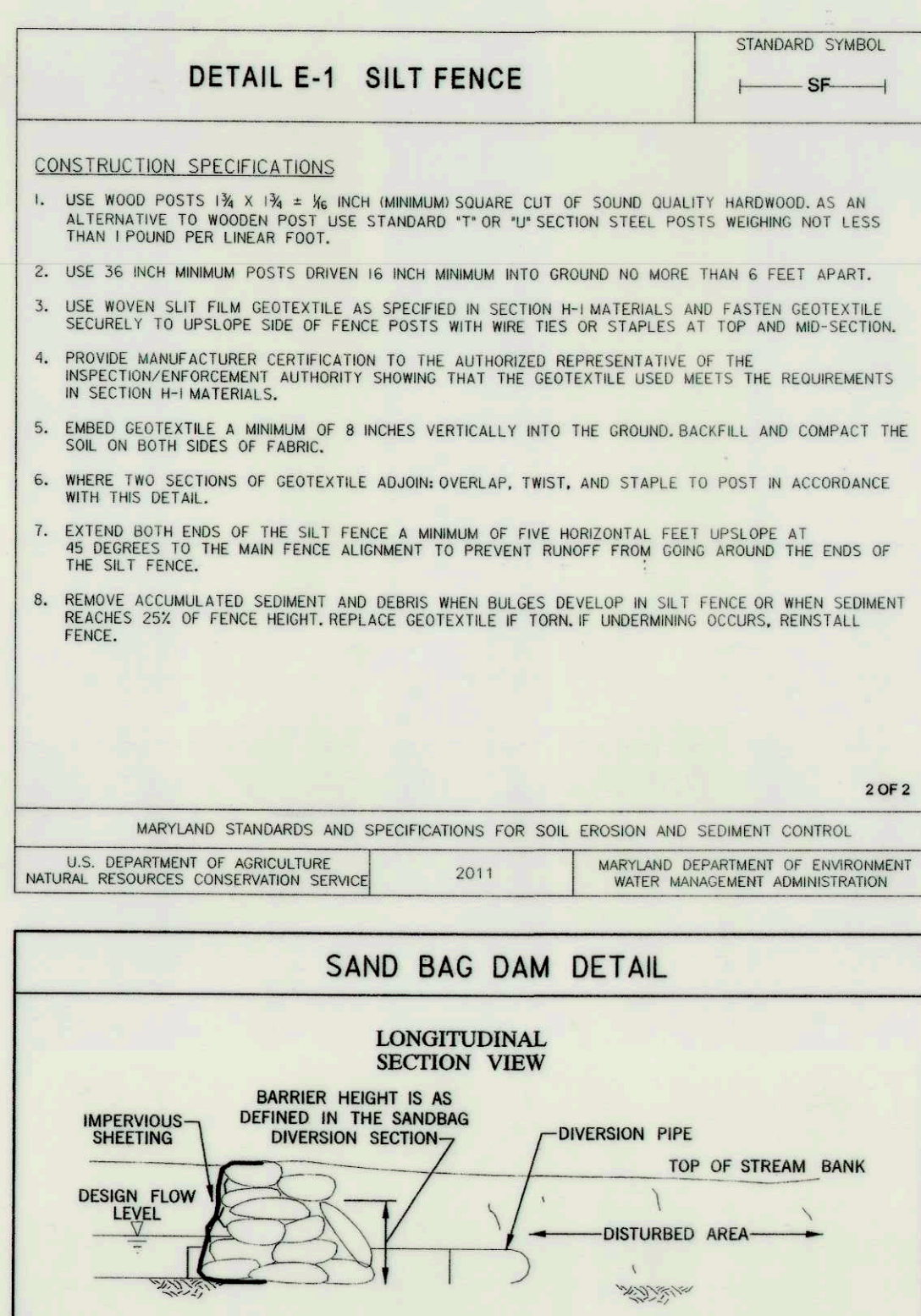
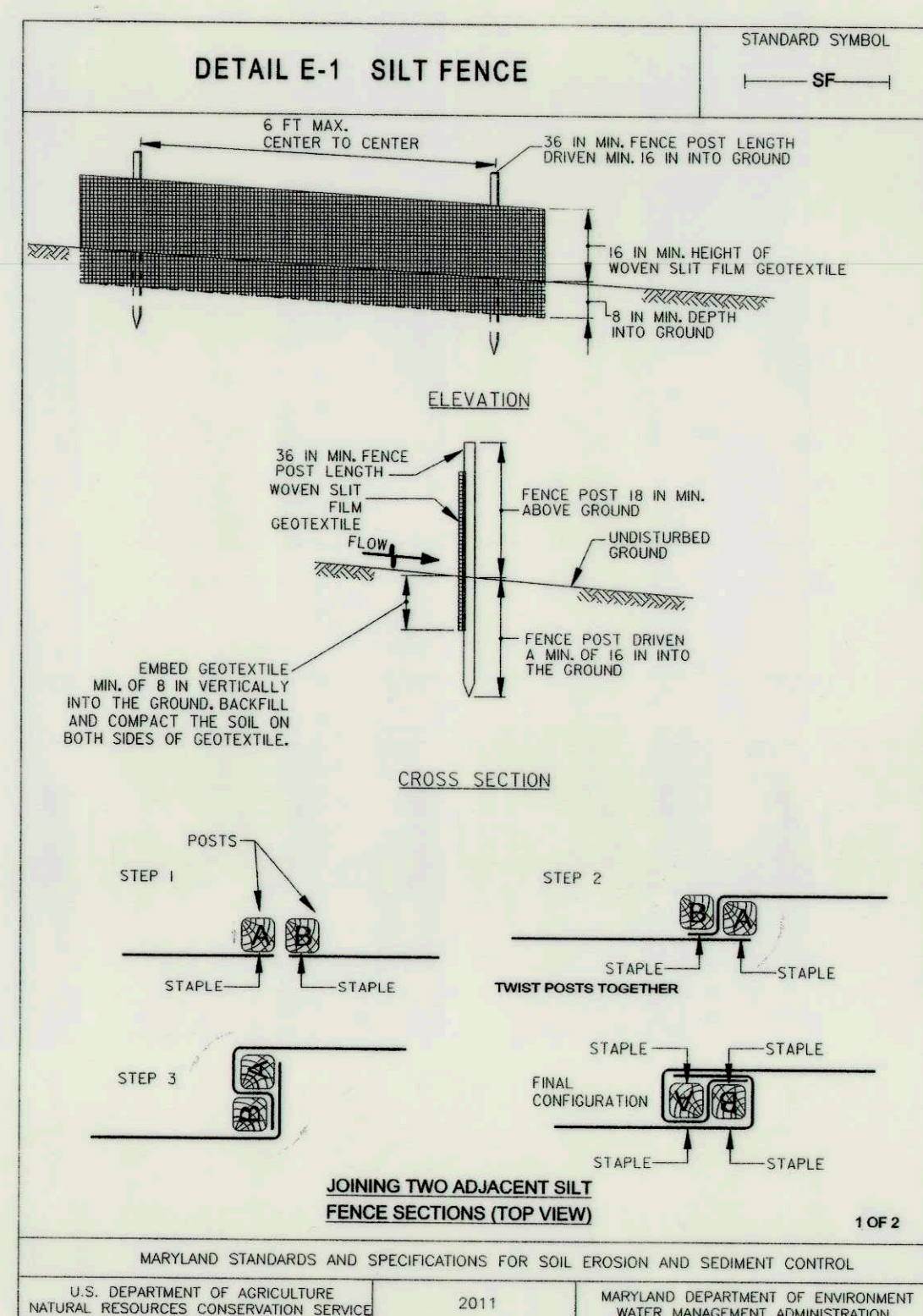
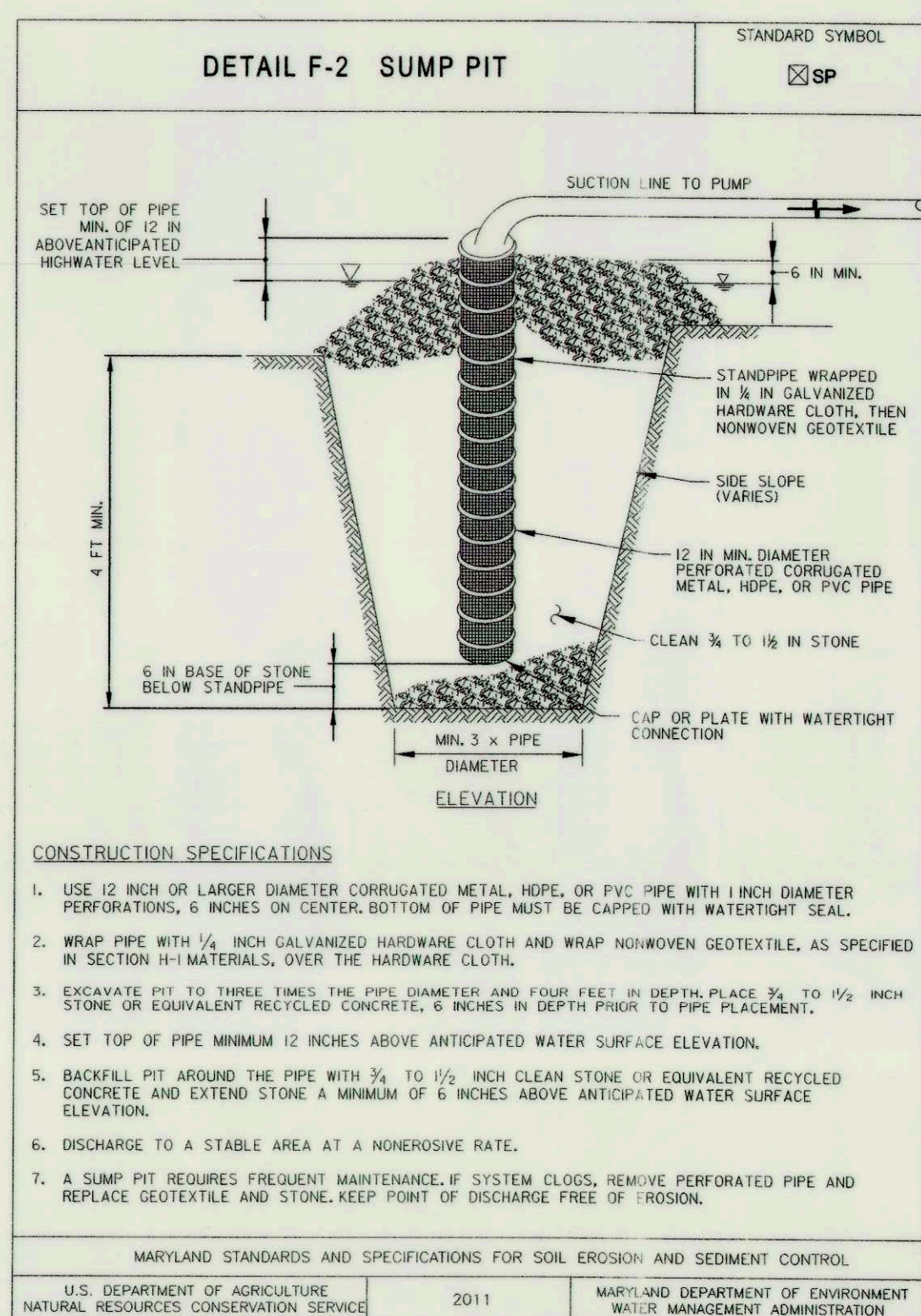
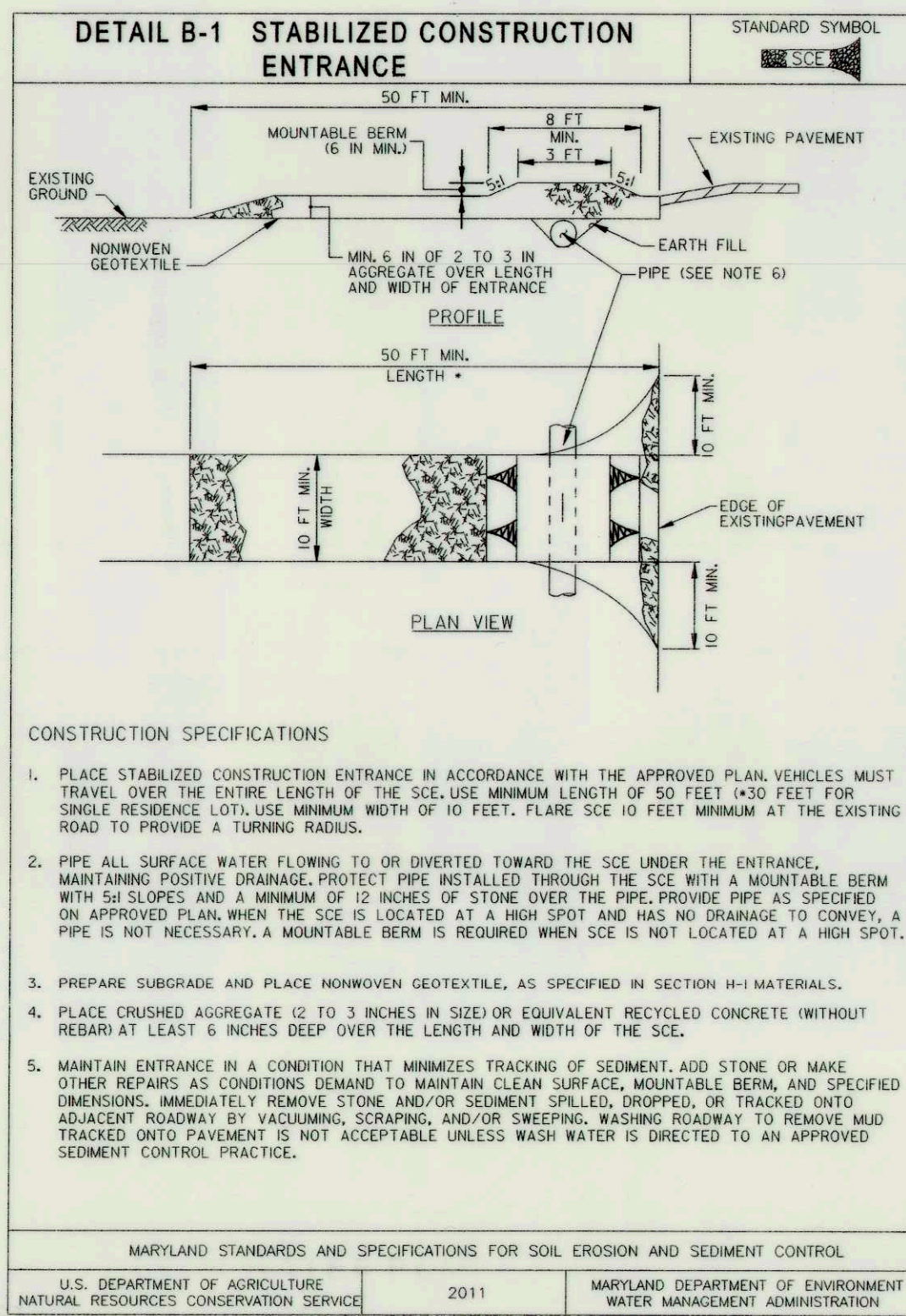


DES: CL					
DRN: MR					
CHK: AH					
DATE: 09/28/16	BY	NO.	REVISION	DATE	

**FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT
AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017**

EROSION AND SEDIMENT CONTROL NOTES

SCALE
NOT TO
SCALE
SHEET
10 OF 22



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. Lucas
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 11/18/16

McCORMICK TAYLOR
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Howard County MARYLAND
Storm Water Management Division
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6751 Columbia Gateway Drive, Suite 514
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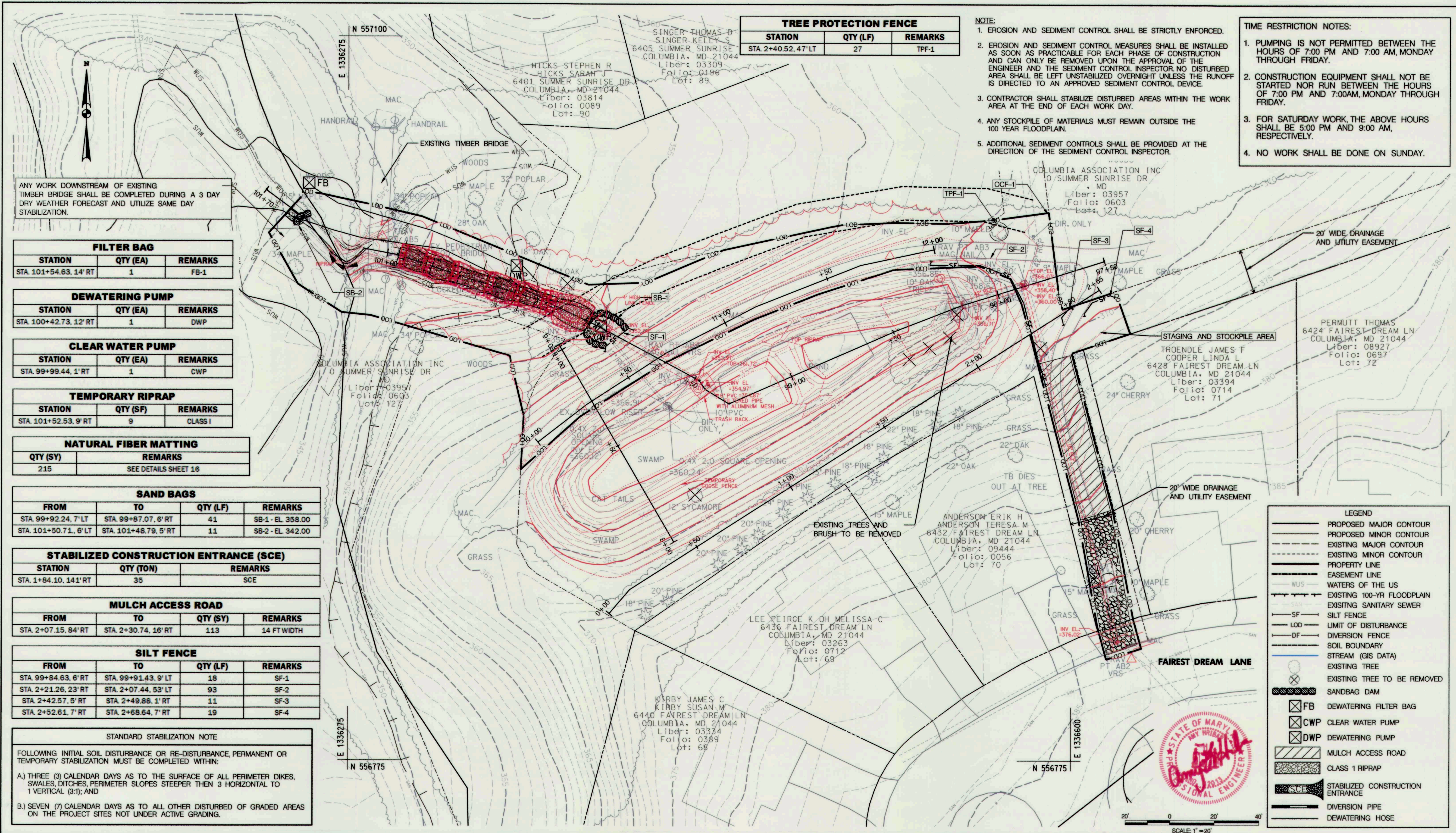
STATE OF MARYLAND
Professional Engineer
No. 32013

DES: CL					
DRN: MR					
CHK: AH					
DATE: 09/28/16					
BY	NO.	REVISION	DATE		

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT CAPITAL PROJECT #D-1159 HOWARD COUNTY HSCD # EP-16-017

EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE: NOT TO SCALE
SHEET: 11 OF 22



TREE PROTECTION FENCE		
STATION	QTY (LF)	REMARKS
STA. 2+40.52, 47' LT	27	TPF-1

- 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.
 4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
 5. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

- 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.

ANY WORK DOWNSTREAM OF EXISTING TIMBER BRIDGE SHALL BE COMPLETED DURING A 3 DAY DRY WEATHER FORECAST AND UTILIZE SAME DAY STABILIZATION.

FILTER BAG		
STATION	QTY (EA)	REMARKS
STA. 101+54.63, 14' RT	1	FB-1

DEWATERING PUMP		
STATION	QTY (EA)	REMARKS
STA. 100+42.73, 12' RT	1	DWP

CLEAR WATER PUMP		
STATION	QTY (EA)	REMARKS
STA. 99+99.44, 1' RT	1	CWP

TEMPORARY RIPRAP		
STATION	QTY (SF)	REMARKS
STA. 101+52.53, 9' RT	9	CLASS 1

NATURAL FIBER MATTING	
QTY (SY)	REMARKS
215	SEE DETAILS SHEET 16

SAND BAGS			
FROM	TO	QTY (LF)	REMARKS
STA. 99+92.24, 7' LT	STA. 99+87.07, 6' RT	41	SB-1 - EL. 358.00
STA. 101+50.71, 6' LT	STA. 101+48.79, 5' RT	11	SB-2 - EL. 342.00

STABILIZED CONSTRUCTION ENTRANCE (SCE)		
STATION	QTY (TON)	REMARKS
STA. 1+84.10, 141' RT	35	SCE

MULCH ACCESS ROAD			
FROM	TO	QTY (SY)	REMARKS
STA. 2+07.15, 84' RT	STA. 2+30.74, 16' RT	113	14 FT WIDTH

SILT FENCE			
FROM	TO	QTY (LF)	REMARKS
STA. 99+84.63, 6' RT	STA. 99+91.43, 9' LT	18	SF-1
STA. 2+21.26, 23' RT	STA. 2+07.44, 53' LT	93	SF-2
STA. 2+42.57, 5' RT	STA. 2+49.88, 1' RT	11	SF-3
STA. 2+52.61, 7' RT	STA. 2+68.64, 7' RT	19	SF-4

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.

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- EASEMENT LINE
- WATERS OF THE US
- EXISTING 100-YR FLOODPLAIN
- EXISTING SANITARY SEWER
- SILT FENCE
- LIMIT OF DISTURBANCE
- DIVERSION FENCE
- SOIL BOUNDARY
- STREAM (GIS DATA)
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- SANDBAG DAM
- DEWATERING FILTER BAG
- CLEAR WATER PUMP
- DEWATERING PUMP
- MULCH ACCESS ROAD
- CLASS 1 RIPRAP
- STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION PIPE
- DEWATERING HOSE



SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael D. Lucia
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

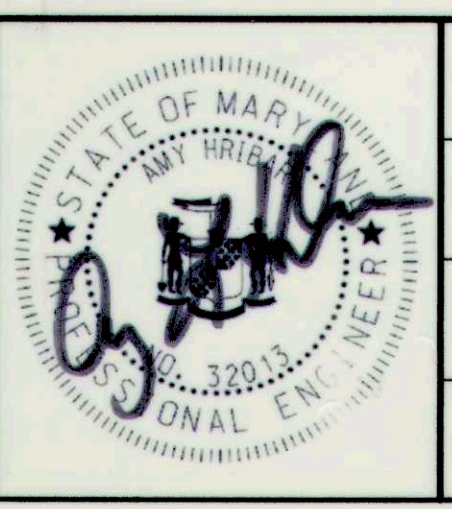
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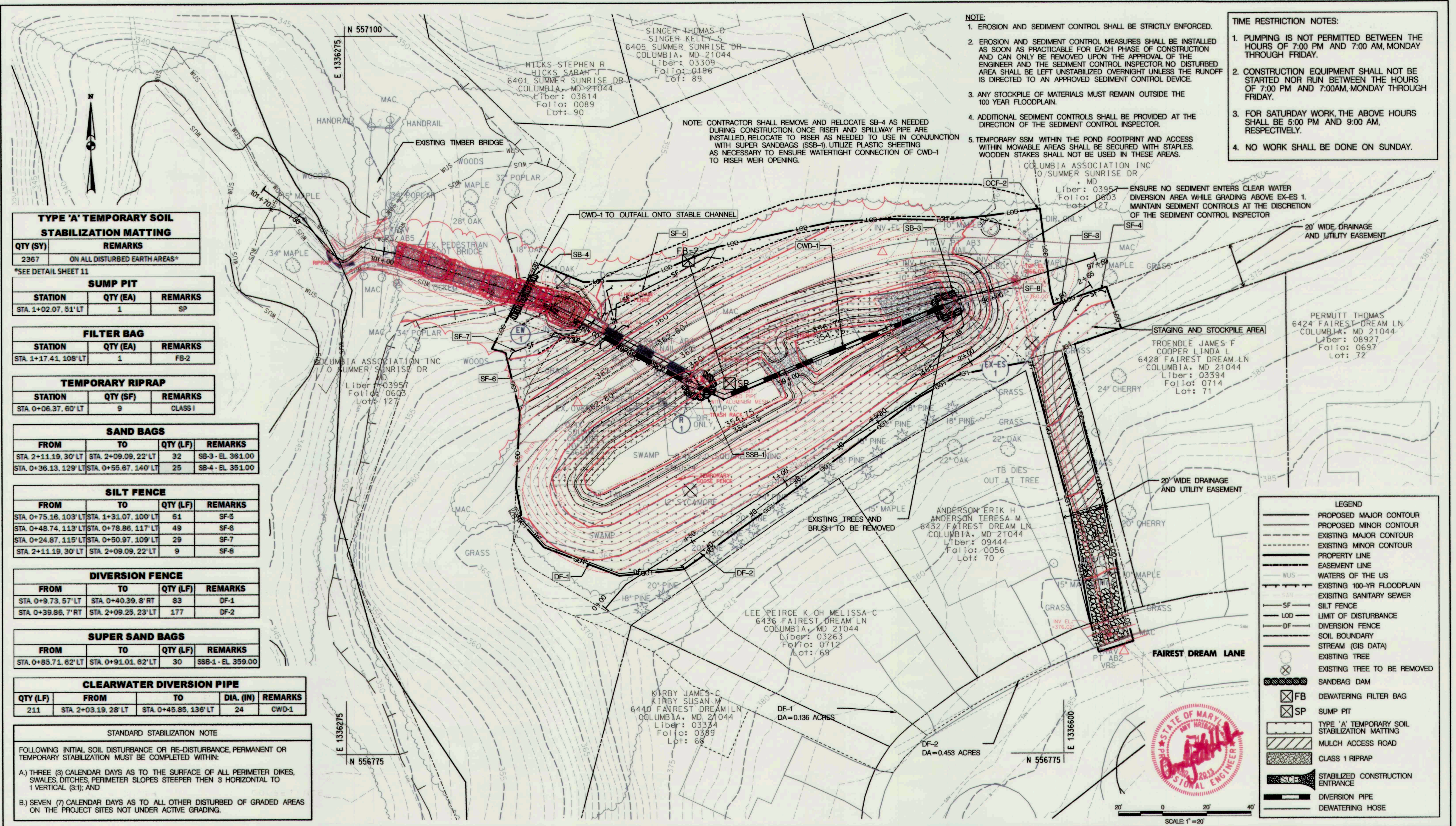


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DRN: MR				
CHK: AH				
DATE: 09/28/16	BY	NO.	REVISION	DATE

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

EROSION AND SEDIMENT CONTROL PLAN
PHASE 1

SCALE: 1" = 20'
SHEET: 12 OF 22



- 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. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
 4. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 5. TEMPORARY SSM WITHIN THE POND FOOTPRINT AND ACCESS WITHIN MOWABLE AREAS SHALL BE SECURED WITH STAPLES. WOODEN STAKES SHALL NOT BE USED IN THESE AREAS.

- 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.

TYPE 'A' TEMPORARY SOIL STABILIZATION MATTING				
QTY (SY)	REMARKS			
2367	ON ALL DISTURBED EARTH AREAS*			
*SEE DETAIL SHEET 11				

SUMP PIT		
STATION	QTY (EA)	REMARKS
STA. 1+02.07, 51' LT	1	SP

FILTER BAG		
STATION	QTY (EA)	REMARKS
STA. 1+17.41, 108' LT	1	FB-2

TEMPORARY RIPRAP		
STATION	QTY (SF)	REMARKS
STA. 0+06.37, 60' LT	9	CLASS 1

SAND BAGS			
FROM	TO	QTY (LF)	REMARKS
STA. 2+11.19, 30' LT	STA. 2+09.09, 22' LT	32	SB-3 - EL. 361.00
STA. 0+36.13, 129' LT	STA. 0+55.67, 140' LT	25	SB-4 - EL. 351.00

SILT FENCE			
FROM	TO	QTY (LF)	REMARKS
STA. 0+75.16, 103' LT	STA. 1+31.07, 100' LT	61	SF-5
STA. 0+48.74, 113' LT	STA. 0+78.86, 117' LT	49	SF-6
STA. 0+24.87, 115' LT	STA. 0+50.97, 109' LT	29	SF-7
STA. 2+11.19, 30' LT	STA. 2+09.09, 22' LT	9	SF-8

DIVERSION FENCE			
FROM	TO	QTY (LF)	REMARKS
STA. 0+9.73, 57' LT	STA. 0+40.39, 8' RT	83	DF-1
STA. 0+39.86, 7' RT	STA. 2+09.25, 23' LT	177	DF-2

SUPER SAND BAGS			
FROM	TO	QTY (LF)	REMARKS
STA. 0+85.71, 62' LT	STA. 0+91.01, 62' LT	30	SSB-1 - EL. 359.00

CLEARWATER DIVERSION PIPE				
QTY (LF)	FROM	TO	DIA. (IN)	REMARKS
211	STA. 2+03.19, 28' LT	STA. 0+45.85, 136' LT	24	CWD-1

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.



LEGEND

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- DIVERSION FENCE
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- STREAM (GIS DATA)
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- SANDBAG DAM
- FB DEWATERING FILTER BAG
- SP SUMP PIT
- TYPE 'A' TEMPORARY SOIL STABILIZATION MATTING
- MULCH ACCESS ROAD
- CLASS 1 RIPRAP
- STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION PIPE
- DEWATERING HOSE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. Lucas
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

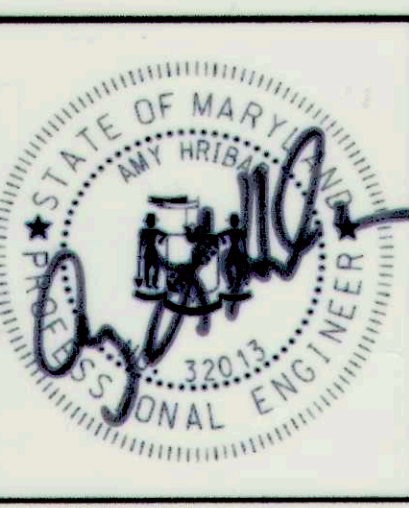
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 (410) 662-7400

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 MARYLAND

Storm Water Management Division
 Bureau of Environmental Services
 6751 Columbia Gateway Drive, Suite 514
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DES: CL	ADM	AS-BUILT SURVEY	8/29/17
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FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

EROSION AND SEDIMENT CONTROL PLAN
PHASE 2

SCALE
 1" = 20'

SHEET
 13 OF 22

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).

CUT OFF 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 ON 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 UNSUITABLE 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 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.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND



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



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



DES: CL					
DRN: MR					
CHK: AH					
DATE: 09/28/16	BY	NO.	REVISION	DATE	

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT
AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

SCALE

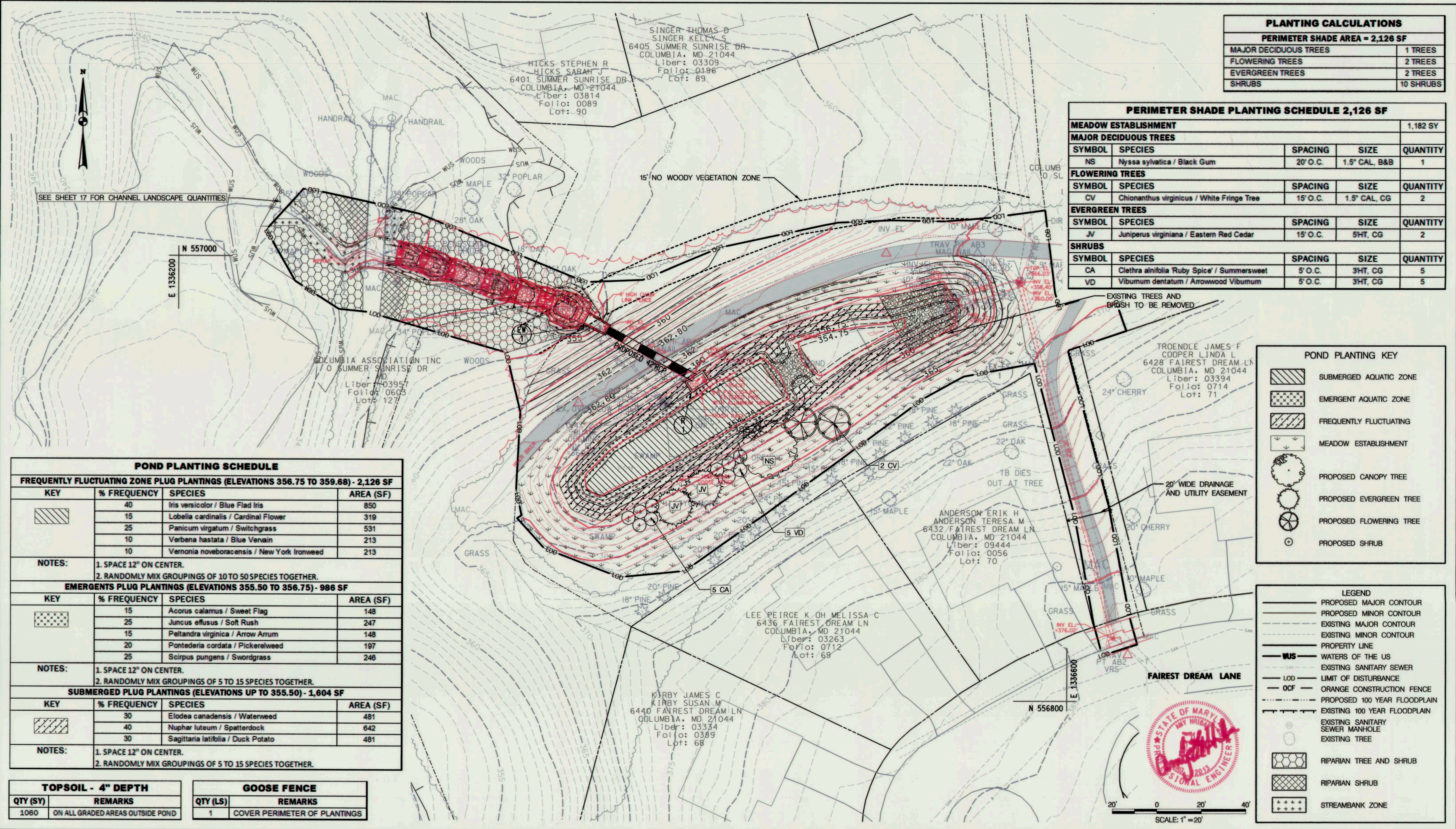
NOT TO SCALE

SHEET

14 OF 22

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/18/16
DATE



PLANTING CALCULATIONS	
PERIMETER SHADE AREA = 2,126 SF	
MAJOR DECIDUOUS TREES	1 TREES
FLOWERING TREES	2 TREES
EVERGREEN TREES	2 TREES
SHRUBS	10 SHRUBS

PERIMETER SHADE PLANTING SCHEDULE 2,126 SF				
MEADOW ESTABLISHMENT				1,182 SY
MAJOR DECIDUOUS TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
NS	Nyssa sylvatica / Black Gum	20' O.C.	1.5" CAL. B&B	1
FLOWERING TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
CV	Chionanthus virginicus / White Fringe Tree	15' O.C.	1.5" CAL. CG	2
EVERGREEN TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
JV	Juniperus virginiana / Eastern Red Cedar	15' O.C.	5HT. CG	2
SHRUBS				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
CA	Clethra alnifolia Ruby Spice / Summersweet	5' O.C.	3HT. CG	5
VD	Viburnum dentatum / Arrowwood Viburnum	5' O.C.	3HT. CG	5

POND PLANTING SCHEDULE			
FREQUENTLY FLUCTUATING ZONE PLUG PLANTINGS (ELEVATIONS 356.75 TO 359.68) - 2,126 SF			
KEY	% FREQUENCY	SPECIES	AREA (SF)
[Symbol]	40	Iris versicolor / Blue Flad Iris	850
	15	Lobelia cardinalis / Cardinal Flower	319
	25	Panicum virgatum / Switchgrass	531
	10	Verbena hastata / Blue Vervain	213
	10	Vernonia noveboracensis / New York Ironweed	213
NOTES: 1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 10 TO 50 SPECIES TOGETHER.			
EMERGENTS PLUG PLANTINGS (ELEVATIONS 355.50 TO 356.75) - 986 SF			
KEY	% FREQUENCY	SPECIES	AREA (SF)
[Symbol]	15	Acorus calamus / Sweet Flag	148
	25	Juncus effusus / Soft Rush	247
	15	Peltandra virginica / Arrow Arum	148
	20	Pontederia cordata / Pickerelweed	197
	25	Scirpus pungens / Swordgrass	246
NOTES: 1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 5 TO 15 SPECIES TOGETHER.			
SUBMERGED PLUG PLANTINGS (ELEVATIONS UP TO 355.50) - 1,604 SF			
KEY	% FREQUENCY	SPECIES	AREA (SF)
[Symbol]	30	Elodea canadensis / Waterweed	481
	40	Nuphar luteum / Spatterdock	642
	30	Sagittaria latifolia / Duck Potato	481
NOTES: 1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 5 TO 15 SPECIES TOGETHER.			

POND PLANTING KEY	
[Symbol]	SUBMERGED AQUATIC ZONE
[Symbol]	EMERGENT AQUATIC ZONE
[Symbol]	FREQUENTLY FLUCTUATING
[Symbol]	MEADOW ESTABLISHMENT
[Symbol]	PROPOSED CANOPY TREE
[Symbol]	PROPOSED EVERGREEN TREE
[Symbol]	PROPOSED FLOWERING TREE
[Symbol]	PROPOSED SHRUB

LEGEND	
[Symbol]	PROPOSED MAJOR CONTOUR
[Symbol]	PROPOSED MINOR CONTOUR
[Symbol]	EXISTING MAJOR CONTOUR
[Symbol]	EXISTING MINOR CONTOUR
[Symbol]	PROPERTY LINE
[Symbol]	WATERS OF THE US
[Symbol]	EXISTING SANITARY SEWER
[Symbol]	LIMIT OF DISTURBANCE
[Symbol]	ORANGE CONSTRUCTION FENCE
[Symbol]	PROPOSED 100 YEAR FLOODPLAIN
[Symbol]	EXISTING 100 YEAR FLOODPLAIN
[Symbol]	EXISTING SANITARY SEWER MANHOLE
[Symbol]	EXISTING TREE
[Symbol]	RIPARIAN TREE AND SHRUB
[Symbol]	RIPARIAN SHRUB
[Symbol]	STREAMBANK ZONE

TOPSOIL - 4" DEPTH		GOOSE FENCE	
QTY (SY)	REMARKS	QTY (LS)	REMARKS
1060	ON ALL GRADED AREAS OUTSIDE POND	1	COVER PERIMETER OF PLANTINGS

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 11/18/16	 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	 Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444	 ANTHONY J. B... PROFESSIONAL ENGINEER	DES: CL	ADM: []	AS-BUILT SURVEY	8/29/17	FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT CAPITAL PROJECT #D-1159 HOWARD COUNTY HSCD # EP-16-017 LANDSCAPING PLAN	SCALE
				DRN: MR	CHK: AH	DATE: 09/28/16	BY: NO.		REVISION
								15 OF 22	

Planting Schedule					
Zone	Botanical Name	Common Name	Size	Comment	Quantity (EA)
Streambank	<i>Cornus sericea</i>	Red Osier Dogwood	3'-4' Live Stake	Plant 2' O. C.	52
Streambank	<i>Viburnum dentatum</i>	Southern Arrowwood	3'-4' Live Stake	Plant 2' O. C.	52
Streambank	<i>Salix sericea</i>	Silky Willow	3'-4' Live Stake	Plant 2' O. C.	52
Streambank	<i>Cornus sericea</i>	Red Osier Dogwood	1" Dia. X 8-12" Deep Tubeling	Plant 3' O. C.	29
Streambank	<i>Viburnum dentatum</i>	Southern Arrowwood	1" Dia. X 8-12" Deep Tubeling	Plant 3' O. C.	29
Streambank	<i>Salix sericea</i>	Silky Willow	1" Dia. X 8-12" Deep Tubeling	Plant 3' O. C.	29
Riparian Tree & Shrub	<i>Cercis canadensis</i>	Eastern Redbud	5' HT, 3 GAL. Cont.	Plant 12' O.C.	3
Riparian Tree & Shrub	<i>Quercus alba</i>	White Oak	5' HT, 3 GAL. Cont.	Plant 12' O.C.	3
Riparian Tree & Shrub	<i>Platanus occidentalis</i>	American Sycamore	5' HT, 3 GAL. Cont.	Plant 12' O.C.	3
Riparian Tree & Shrub	<i>Acer saccharum</i>	Sugar Maple	5' HT, 3 GAL. Cont.	Plant 12' O.C.	3
Riparian Tree & Shrub	<i>Amelanchier arborea</i>	Serviceberry	2' HT, 3 GAL. Cont.	Plant 8' O.C.	9
Riparian Tree & Shrub	<i>Cornus amomum</i>	Silky Dogwood	2' HT, 3 GAL. Cont.	Plant 8' O.C.	9
Riparian Tree & Shrub	<i>Lindera benzoin</i>	Spice Bush	2' HT, 3 GAL. Cont.	Plant 8' O.C.	9
Riparian Shrub	<i>Amelanchier arborea</i>	Serviceberry	2' HT, 3 GAL. Cont.	Plant 8' O.C.	2
Riparian Shrub	<i>Cornus amomum</i>	Silky Dogwood	2' HT, 3 GAL. Cont.	Plant 8' O.C.	2
Riparian Shrub	<i>Lindera benzoin</i>	Spice Bush	2' HT, 3 GAL. Cont.	Plant 8' O.C.	2

Riparian Seed Mix					
Zone	Botanical Name	Common Name	Percent Mix	Seeding Rate	Quantity (lbs.)
Streambank, Riparian	<i>Elymus virginicus</i>	Virginia Wildrye	5	30 lbs per acre	
Streambank, Riparian	<i>Agrostis alba</i>	Redtop	5	30 lbs per acre	
Streambank, Riparian	<i>Poa compressa</i>	Canada Bluegrass	5	30 lbs per acre	
Streambank, Riparian	<i>Festuca arundinacea</i>	Trident tall Fescue	10	30 lbs per acre	
Streambank, Riparian	<i>Sorghastrum nutans</i>	Indian Grass	5	30 lbs per acre	
Streambank, Riparian	<i>Lolium multiflorum</i>	Annual Ryegrass	25	30 lbs per acre	
Streambank, Riparian	<i>Elymus sp.</i>	Saint Perennial Ryegrass	20	30 lbs per acre	
Streambank, Riparian	<i>Festuca rubra</i>	Creeping Red Fescue	25	30 lbs per acre	
TOTAL MIX					3.5

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	PAVING SECTIONS				
			3 TO <5	5 TO <7	7 TO <9	9 TO <11	11 TO <13
P-5	MINOR ARTERIAL	PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB		HMA WITH CONSTANT GAB		
		HMA SUPERPAVE FINAL SURFACE	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE BASE	6.0	6.0	6.0	7.0	5.0
P-6	UNDIVIDED INTERMEDIATE ARTERIAL	GRADED AGGREGATE BASE (GAB)	11.0	5.0	4.0	8.0	8.0
		HMA SUPERPAVE FINAL SURFACE	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE BASE	7.0	7.0	7.0	8.5	6.5
P-7	STABILIZED SHOULDER	CHP SEAL DOUBLE SURFACE TREATMENT	1.75	1.75	1.75	NA	NA
		GRADED AGGREGATE BASE (GAB)	18.5	14.5	15.0	NA	NA
		HMA SUPERPAVE FINAL SURFACE	3.0	3.0	3.0	4.0	3.5
		GRADED AGGREGATE BASE (GAB)	9.5	8.0	5.5	6.0	6.0
P-8	PAVED SHOULDER	HMA SUPERPAVE FINAL SURFACE	3.0	3.0	3.0	4.0	3.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE BASE	6.0	6.0	6.0	7.0	5.0
		GRADED AGGREGATE BASE (GAB)	13.0	6.0	4.0	6.0	8.0

Notes:
1) HEAVY TRUCKS ARE DEFINED AS THOSE WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS.
2) HMA SUPERPAVE LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LIFT THICKNESS: 19.0 MM BASE (2.0" MIN TO 4.0" MAX), 12.5 MM SURFACE (1.5" MIN TO 3.0" MAX), AND 6.5 MM SURFACE (1.0" MIN TO 2.0" MAX).
3) GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 4" MAX COMPACTED THICKNESS LAYERS.
4) THE INTERMEDIATE SURFACE COURSE LAYERS MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSTITUTION, COMPLETION INSPECTION AND ROAD REDUCTION.
5) IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYERS FOR COMMERCIAL/INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT-OF-WAY WHERE AUXILIARY LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
6) THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CBR VALUE FOR EACH ROADWAY.

Howard County, Maryland
Department of Public Works
PAVING SECTIONS P-5 to P-8
Detail R-2.02

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

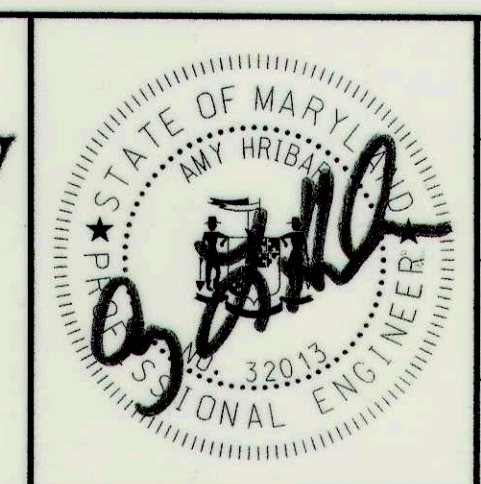
Michael D. Luca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/18/16
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

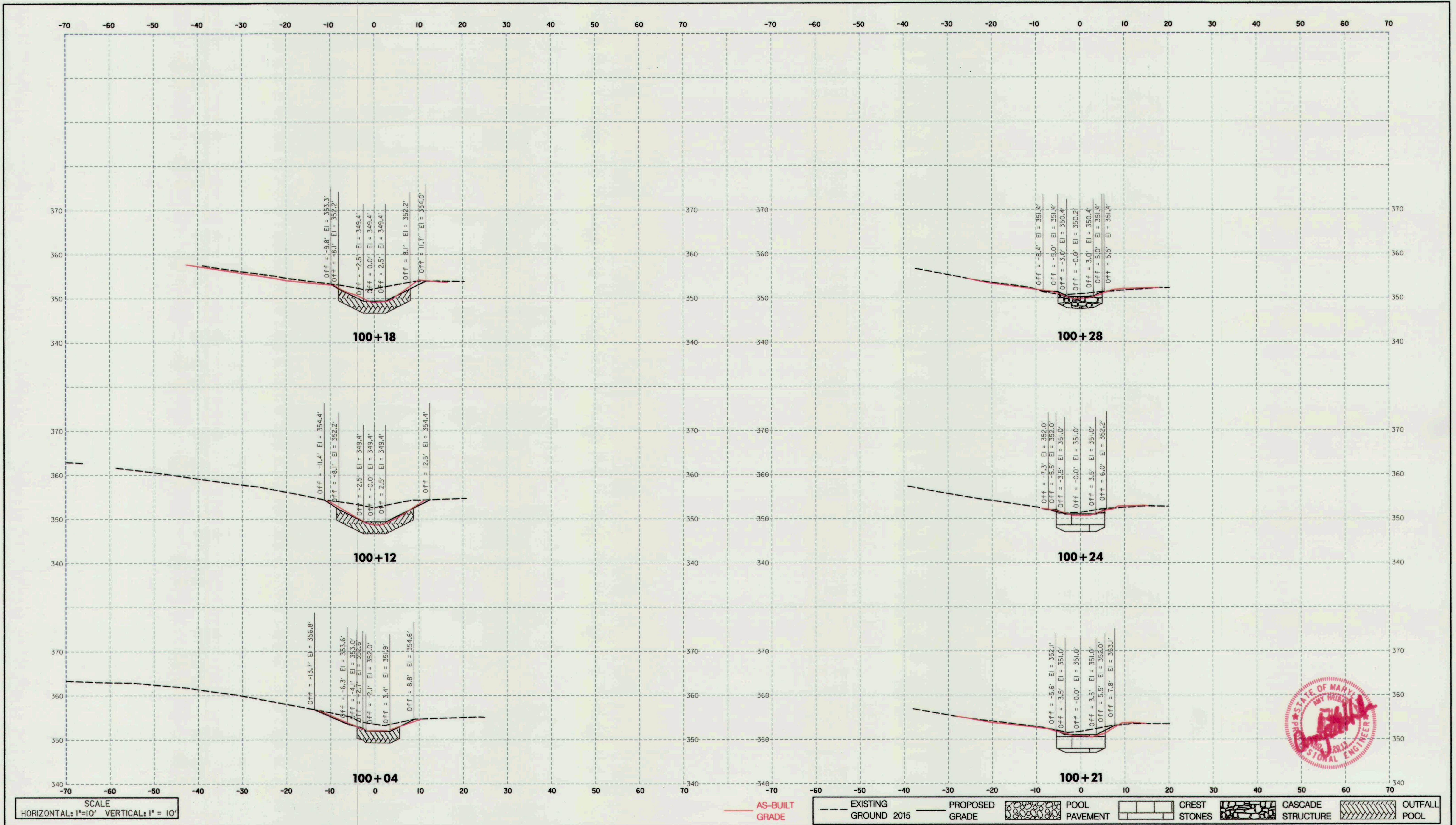


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DRN: MR					
CHK: AH					
DATE: 09/28/16	BY	NO.	REVISION	DATE	

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT
AND CHANNEL STABILIZATION PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD # EP-16-017

**LANDSCAPING SCHEDULES
AND SIDEWALK DETAILS**

SCALE NOT TO SCALE
SHEET 17 OF 22



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

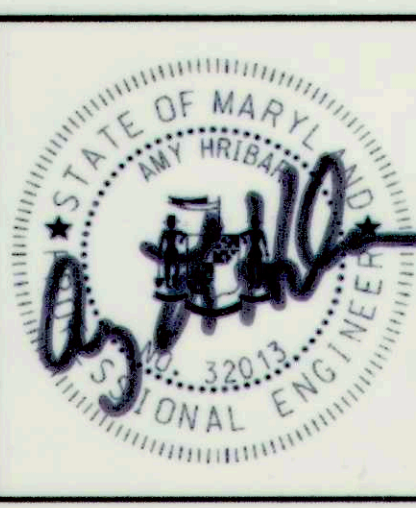
Mark D. Luce
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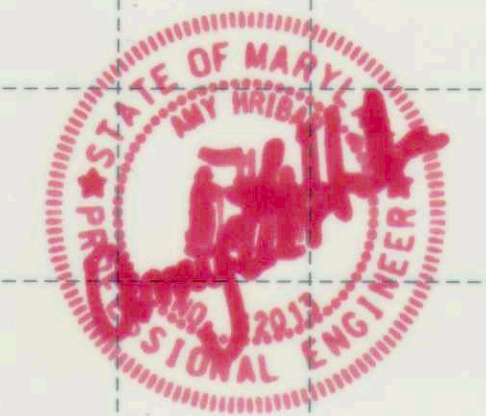
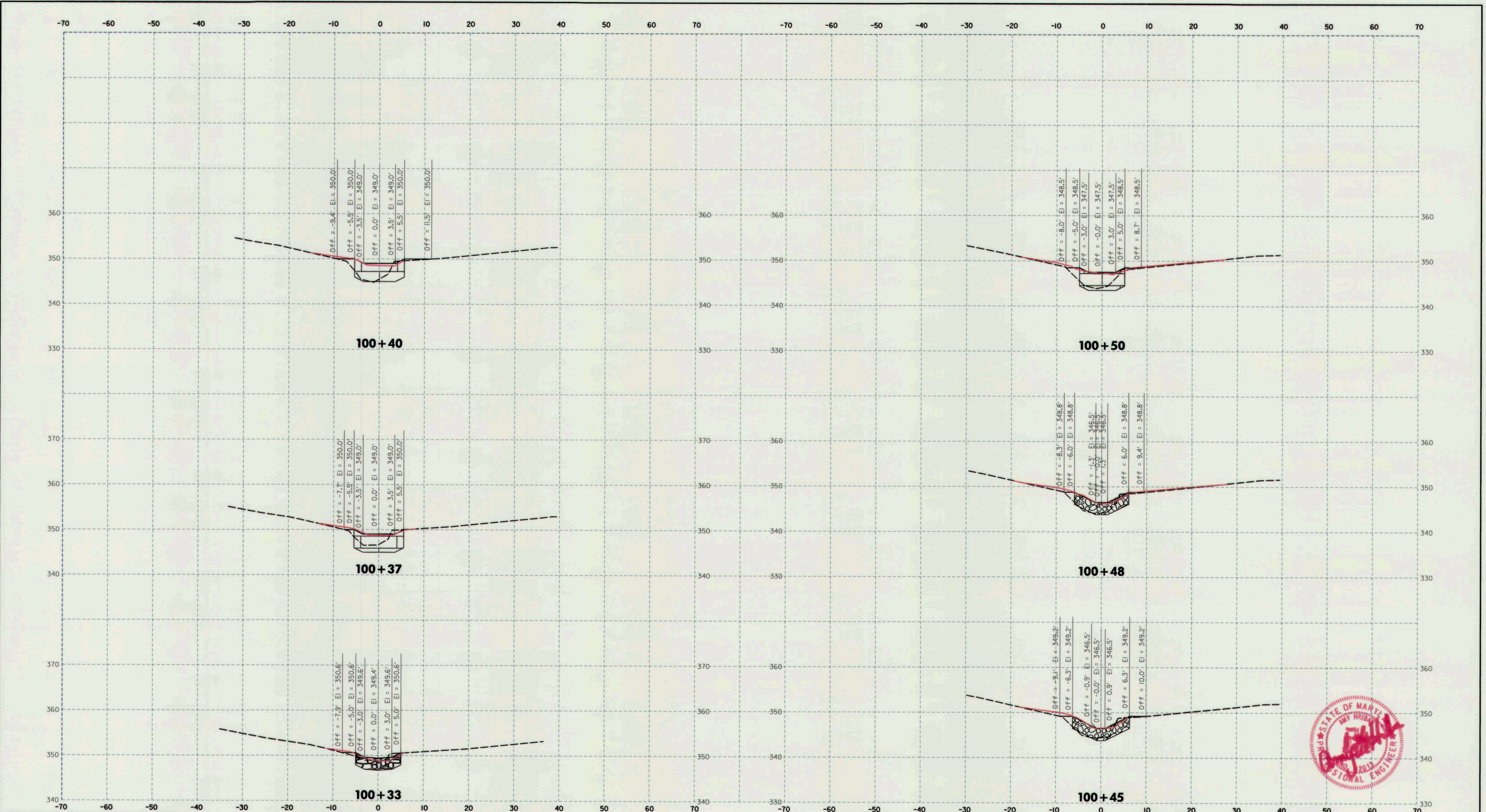


DES: CL	ADM	<input checked="" type="checkbox"/>	AS-BUILT SURVEY	8/29/17
DRN: MR				
CHK: AH				
DATE: 09/28/16	BY	NO.	REVISION	DATE

FAIREST DREAM LANE PRINCIPAL SPILLWAY REPLACEMENT AND CHANNEL STABILIZATION PROJECT
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 HOWARD COUNTY
 HSCD # EP-16-017

CROSS SECTIONS

SCALE AS SHOWN
 SHEET 18 OF 22



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

AS-BUILT GRADE
EXISTING GROUND 2015
PROPOSED GRADE
POOL PAVEMENT
CREST STONES
CASCADE STRUCTURE
OUTFALL POOL

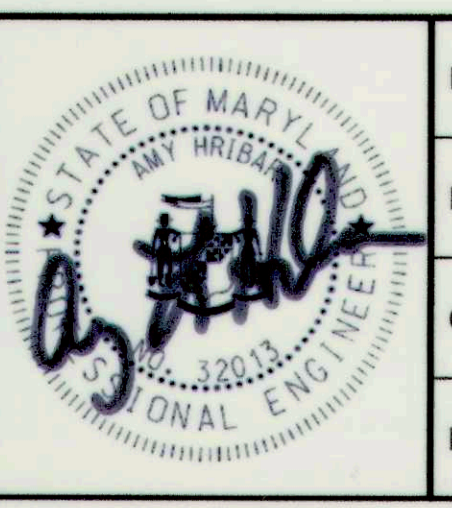
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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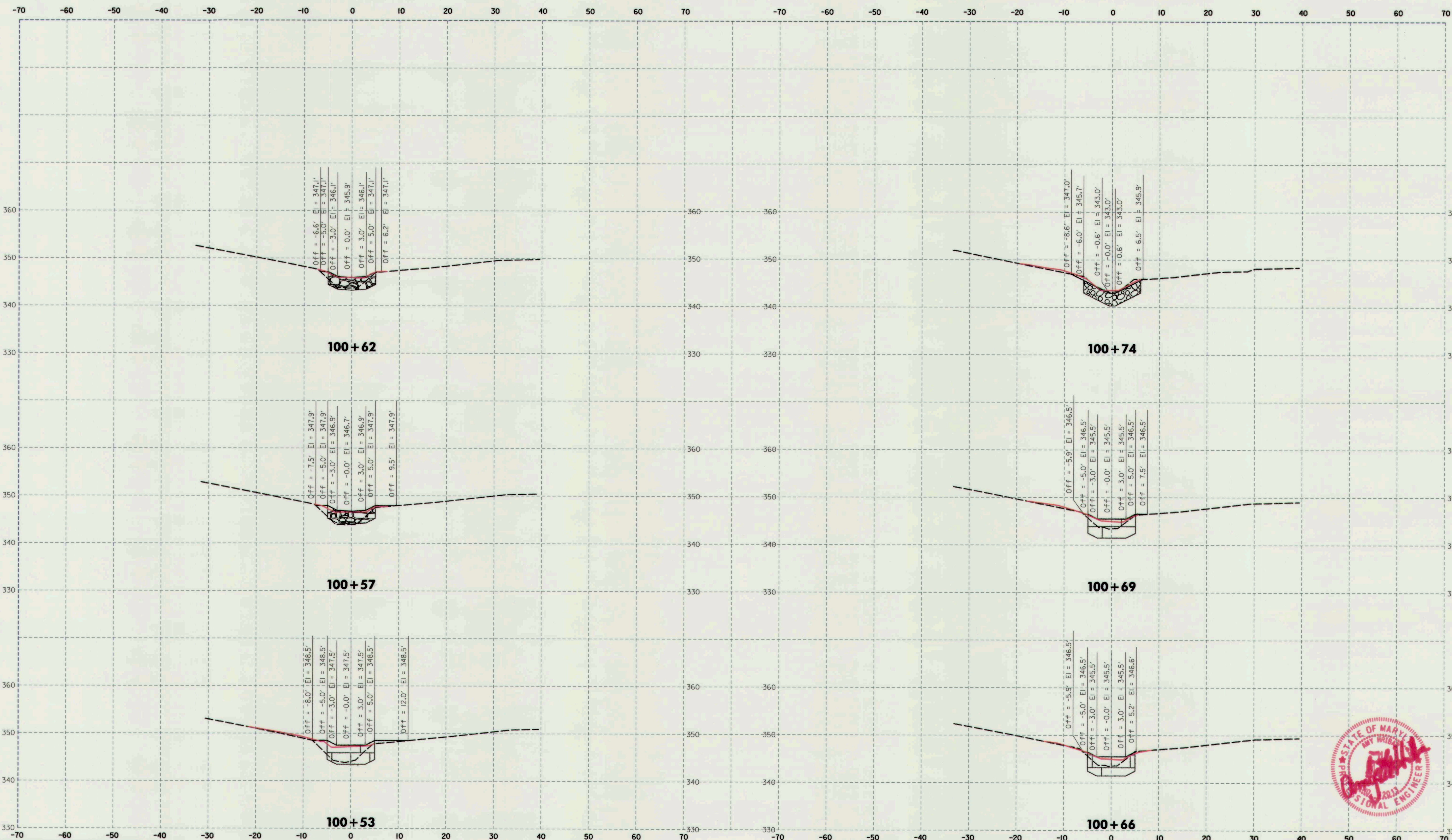


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DRN: MR				
CHK: AH				
DATE: 09/28/16	BY	NO.	REVISION	DATE

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HOWARD COUNTY
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CROSS SECTIONS

SCALE AS SHOWN
SHEET 19 OF 22



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

AS-BUILT GRADE
 --- EXISTING GROUND 2015
 — PROPOSED GRADE
 POOL PAVEMENT
 CREST STONES
 CASCADE STRUCTURE
 OUTFALL POOL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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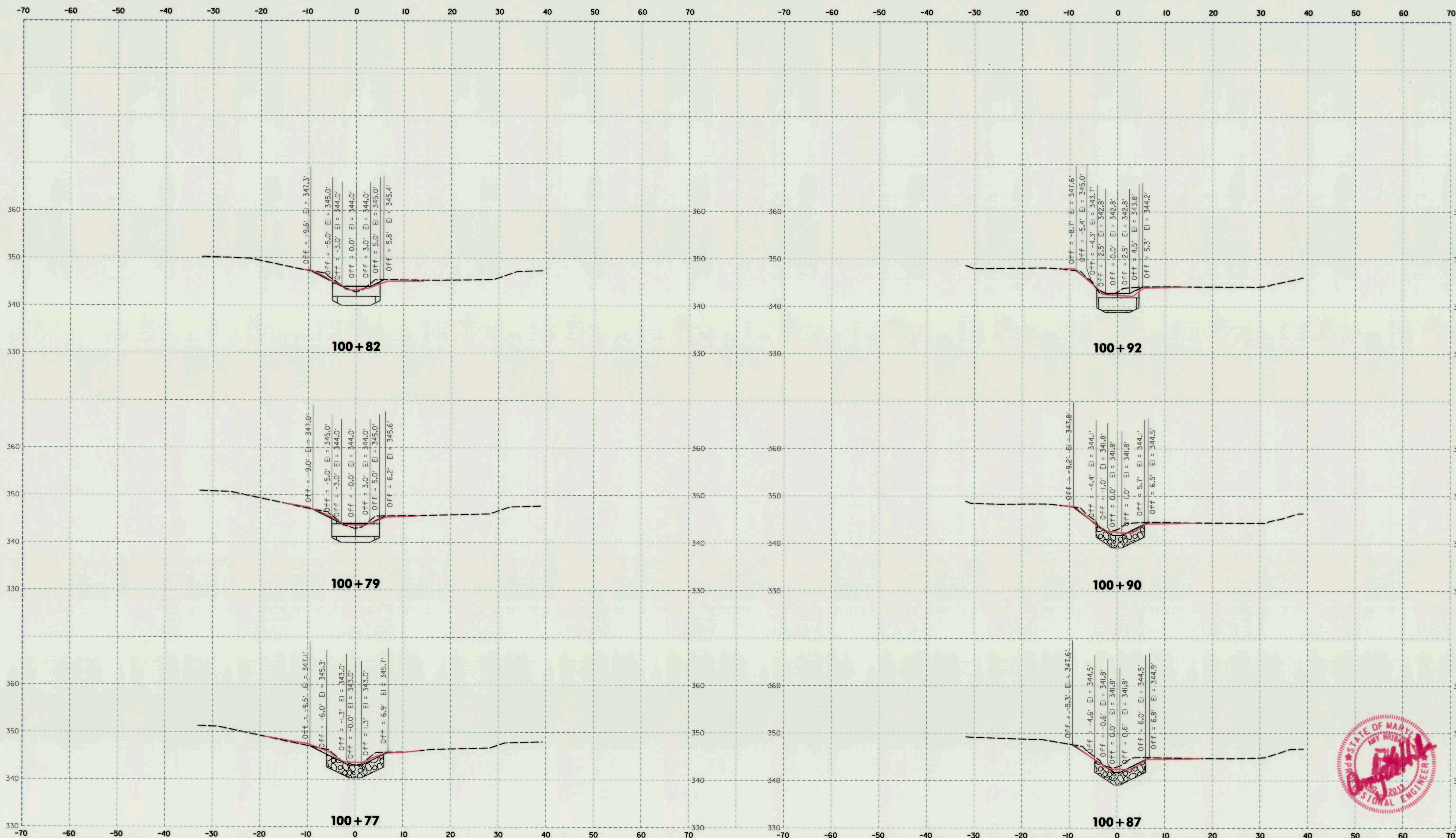


DES: CL	ADM	AS-BUILT SURVEY	8/29/17
DRN: MR			
CHK: AH			
DATE: 09/28/16	BY	NO.	REVISION

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HOWARD COUNTY
HSCD # EP-16-017

CROSS SECTIONS

SCALE AS SHOWN
SHEET 20 OF 22



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

AS-BUILT GRADE
EXISTING GROUND 2015
PROPOSED GRADE
POOL PAVEMENT
CREST STONES
CASCADE STRUCTURE
OUTFALL POOL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

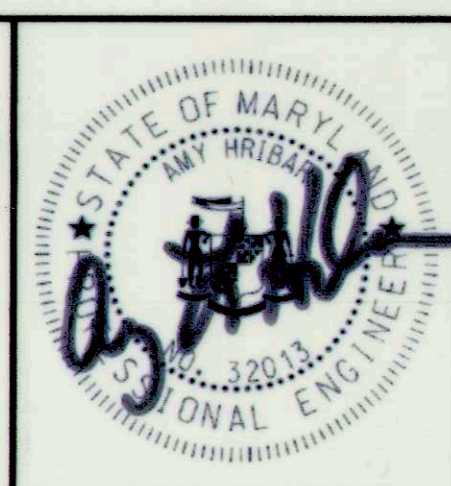
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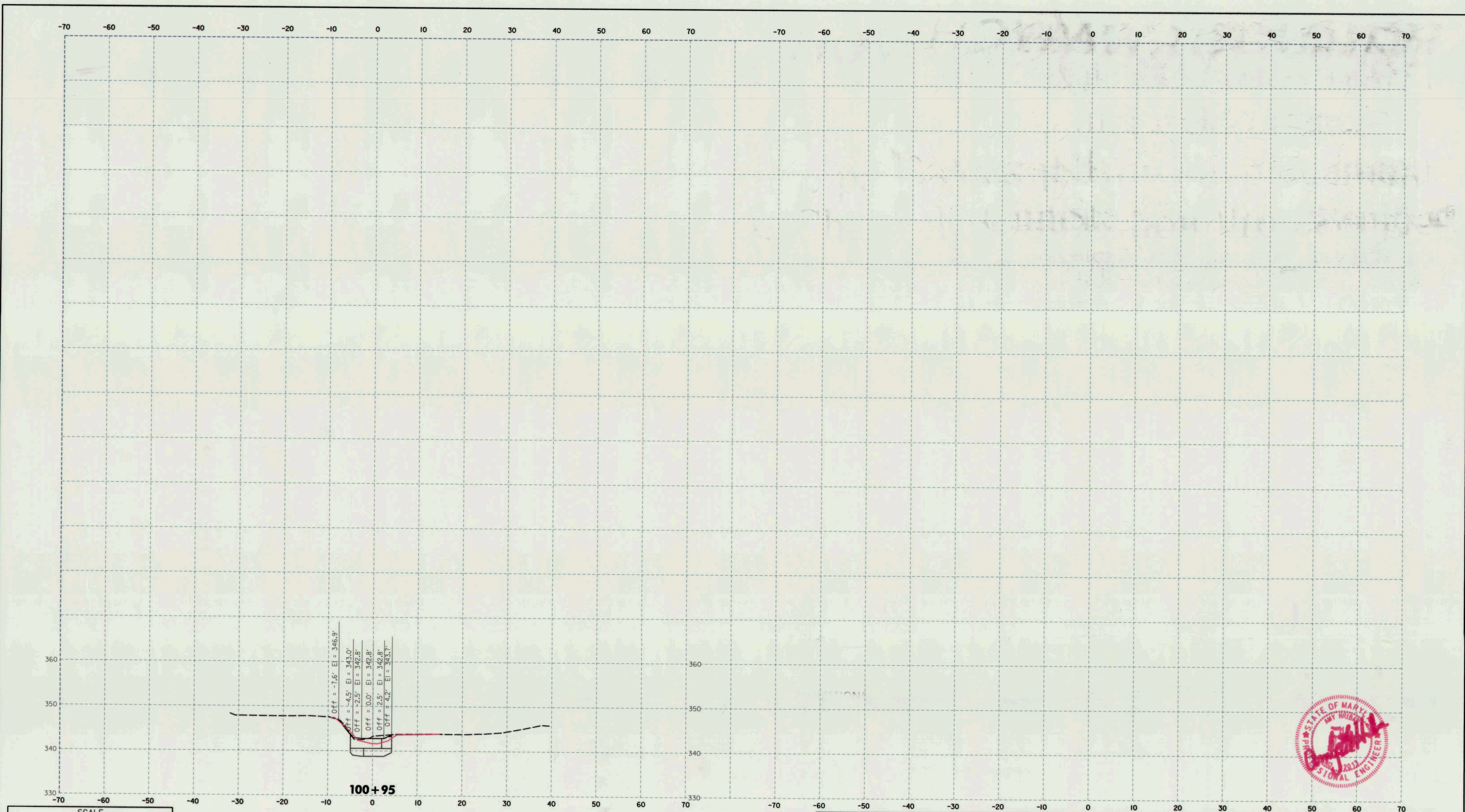
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HOWARD COUNTY
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CROSS SECTIONS

SCALE
AS SHOWN

SHEET
21 OF 22



Off = -7.6' El = 346.9'
 Off = -4.5' El = 343.0'
 Off = -2.5' El = 342.8'
 Off = 0.0' El = 342.8'
 Off = 2.5' El = 342.8'
 Off = 4.2' El = 343.7'

100+95



SCALE
 HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

AS-BUILT GRADE
 EXISTING GROUND 2015
 PROPOSED GRADE
 POOL PAVEMENT
 CREST STONES
 CASCADE STRUCTURE
 OUTFALL POOL

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 HOWARD COUNTY, MARYLAND

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CROSS SECTIONS

SCALE AS SHOWN
 SHEET 22 OF 22