THIS PROJECT SCOPE IS THE RETROFIT OF THE BLUE RIVER COURT STORMWATER MANAGEMENT POND LOCATED IN THE GREY ROCK FARM NEIGHBORHOOD OF ELLICOTT CITY, MARYLAND. THE GOAL OF THE PROJECT IS TO REPAIR DEFICIENCIES IN THE POND AS WELL AS IMPROVE THE POND'S STORMWATER MANAGEMENT PERFORMANCE. THE OBJECTIVE OF THE PROJECT IS TO RETROFIT THE POND TO PROLONG ITS FUNCTIONAL LIFE AND INCREASED STORMWATER MANAGEMENT CREDITS FOR HOWARI

- REPLACING THE EXISTING C.M.P. PRINCIPAL SPILLWAY WITH A CONCRETE PRINCIPAL SPILLWAY RE-GRADING THE AUXILIARY SPILLWAY TO IMPROVE CONVEYANCE CAPACITY
- IMPROVE THE PRINCIPAL SPILLWAY RIPRAP ARMORING TO DISSIPATE ENERGY FROM HIGH FLOW
- ESTABLISH A FOREBAY IN THE POND TO EASE MAINTENANCE ACTIONS TAKEN BY THE COUNTY
- INSTALL A MAINTENANCE BENCH FOR IMPROVED SAFETY AND TO EASE MAINTENANCE.
- INCREASE THE PERMANENT POOL DEPTH TO PROVIDE INCREASED STORMWATER MANAGEMENT. RE-ALIGN THE STORM DRAIN INFLOW TO BE COMPATIBLE WITH THE FOREBAY GEOMETRY.

NATURAL RESOURCE PROTECTION AND ENHANCEMENT

THE SPECIFIC SITE IS LOCATED ON LOT 252 WHICH IS OWNED BY HOWARD COUNTY, MARYLAND. THE SITE IS LAND LOCKED FROM PUBLIC RIGHT-OF-WAY BUT IS ACCESSIBLE VIA LOT 301 WHICH IS ALSO RESIDENTIAL DEVELOPMENT AND TO THE SOUTH PARTIALLY FOREST AND STREAM VALLEY. A NATURAL RESOURCES SURVEY WAS COMPLETED OF THE SITE. TREES GREATER THAN 12 INCHES WERE IDENTIFIED AND ASSESSED. ONE TREE WAS DETERMINED TO BE A SPECIMEN TREE.

THIS PROJECT SEEKS TO PRESERVE NATURAL RESOURCES LOCATED ON AND ADJACENT TO THE PROJECT SITE. THEREFORE, THE PROJECT SCOPE HAS BEEN LIMITED TO WORK WITHIN THE EXISTING POND FOOTPRINT TO AVOID IMPACTS TO EXISTING NATURAL RESOURCES. IN ORDER TO REMAIN IN COMPLIANCE WITH DAM SAFETY REGULATIONS PROHIBITING WOOD VEGETATION ON OR WITHIN 15 LF OR A DAM EMBANKMENT TOE AND TO IMPROVE MAINTENANCE ACCESS, 15 TREES GREATER THAN 12" DBH ARE PROPOSED TO BE REMOVED. MITIGATION OF THESE TREE REMOVALS IS NOT PROPOSED AT THIS TIME. NATURAL RESOURCES WILL BE PROTECTED ALONG THE SITE'S PERIMETER WITH BLAZE ORANGE CONSTRUCTION SAFETY FENCING AS WELL AS SEDIMENT CONTROL FENCING (E.G. SILT FENCE) WHERE

THIS PROJECT DOES NOT ALTER THE EXISTING CONDITION FLOW PATTERNS OF THE SITE.

REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN THIS PROJECT WILL NOT INCREASE IMPERVIOUS AREAS ON THE SITE.

INTEGRATION OF EROSION AND SEDIMENT CONTROL CONTROLS INTO SWM STRATEGY OF PREVENTING SEDIMENT DISCHARGE INTO DOWNSTREAM WATERS. THE SEQUENCE OF DRAIN OUTFALL) TO A POINT DOWNSTREAM OF THE POND OUTFALL TO CONVEY UPSTREAM CLEAN AREA PONDED WATER COLLECTED IN THE WORK AREA WILL BE DEWATERED FIRST ACTIVELY VIA INSTALLED, AND THEN PASSIVELY USING A VERTICAL DRAW DOWN DEVICE TO DEWATER SEDIMENT PROPOSED TO FILTER WATER DISCHARGED FROM THE GRADING WORK ALONG THE DOWNSTREAM SIDE OF THE EMBANKMENT WHERE RUN OFF TRAVELS OFFSITE, PRIMARILY ALONG THE WEST SIDE OF THE SITE. PERMANENT STABILIZATION MATTING IS PROPOSED FOR ALL SLOPED SEEDED AREAS FOR RAPID

IMPLEMENTATION OF ESD PLANNING TECHNIQUES AND PRACTICES

THIS SITE IS ALREADY DEVELOPED AND THE PROJECT OBJECTIVE IS TO RETROFIT AN EXISTING FACILITY. THEREFORE, ESD PLANNING TECHNIQUES AND PRACTICES ARE NOT RELEVANT TO THIS PROJECT.

REQUEST FOR DESIGN MANUAL AND WAIVER PETITION FOR ENVIRONMENTAL AND STORMWATER DESIGN THIS SITE IS ALREADY BUILT OUT AND THE PROJECT SCOPE IS THE RETROFIT OF AN EXISTING STORMWATER STRUCTURE. NO WAIVERS ARE REQUESTED.

DESIGN CERTIFICATION	
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGN 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 PREPAR	ED
IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL	
CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MU	ST
ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND	
CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT W	TH

THOMAS TURNER, JR., VICE PRESIDENT MD REGISTRATION NO. PRINTED NAME & TITLE (P.E.,) P.L.S., OR R.L.A. (CIRCLE ONE)

IN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

OWNER/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, WETLAND AREA AND THAT THE REPSONSIBLE 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 FLOODPLAIN AREA OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION, AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD

COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE. SIGNATURE OF OWNER/DEVELOPER PRINTED NAME & TITLE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

D-1159 BLUE RIVER COURT SWM POND REPAIR

HOWARD COUNTY, MARYLAND - DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENVIRONMENTAL SERVICES.

STORMWATER MANAGEMENT DIVISION - CAPITAL PROJECT NO. D-1159

	WATE	R QUALITY SI	UMMARY TABLE					
PE REQ.	PE PROV.	IMPERV. AC.	WQv REQ. (AC)	WQv PROV. (AC)				
1"	1"	8.9	0.766	0.776				
		SHEET II	NDEX					
SHEET NO.	DRAWING NAME		DESCRIPTI	ON				
1	GN-01		COVER SHE	EET				
2	DA-01		DRAINAGE ARE	EA MAP				
3	EC-01		EXISTING CONDITI	ONS PLAN				
4	GP-01		GRADING P	LAN				
5	PR-01	EMBANKMENT PROFILES						
6	PR-02		POND PROFILES					
7	DE-01		POND DETAILS					
8	DE-02	FILTER DIAPHRAGM DETAILS						
9	DE-03	RISER SCHEMATIC						
10	DE-04	PRINCIPAL SPILLWAY AND RISER DETAILS						
11	DE-05	MD-378 CONSTRUCTION SPECIFICATIONS						
12	B-01	SOIL BORING LOGS						
13	SC-01	EROSION AND SEDIMENT CONTROL OVERALL PLA						
14	SC-02	EROSION AND SEDIMENT CONTROL PLAN						
15	SC-03	EROSION AND SEDIMENT CONTROL DETAILS						
16	SC-04	EROSION AND SEDIMENT CONTROL NOTES						
17	LS-01	LANDSCAPE PLAN						
18	LS-02	LA	NDSCAPE NOTES	AND DETAILS				
19	CP-01	COL	ONIAL PIPELINE R	OW CROSSING				
		TRAVERSE	POINTS					
POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION				

R/C ("AB") 581107.74 1355754.41 351.07 R/C ("AB") 350.57 580965.25 1355951.80

252 ADJ. TO 3912 BLUE RIVER COURT 301 ADJ. TO 3912 BLUE RIVER COURT SUMMARY OF ENVIRONMENTAL IMPACTS UNIT QUANTITY 63,689 LIMITS OF DISTURBANCE ACRE 1.46 STREAM DISTURBANCE SF WETLAND DISTURBANCE 0.00 TREE REMOVAL **EARTHWORK - CUT** 800 EARTHWORK - FILL CY EARTHWORK - NET CY

SITE ANALYSIS DATA SHEET (LOD) QUANTITY ACRE REFORESTATION REQUIRED PER THE FOREST CONSERVATION REQUIREMENT. 5. ALL CONSTRUCTION AND DRAINAGE EASEMENTS AND RIGHT-OF-ENTRY AGREEMENTS ACRE WETLAND BUFFER AREA ACRE ACRE FLOODPLAIN BUFFER AREA ACRE ACRE FOREST STAND AREA STEEP SLOPES (>=15%) ACRE 0.71 **ERODIBLE SOILS** Glenville-Baile silt loam ERODIBLE SOILS AREA ACRE 0.07 DISTURBED AREA ACRE 1.46 SWM FACILITY, OPEN SPACE PROPOSED SITE USE PROPOSED IMPERVIOUS AREA ACRE 0.00

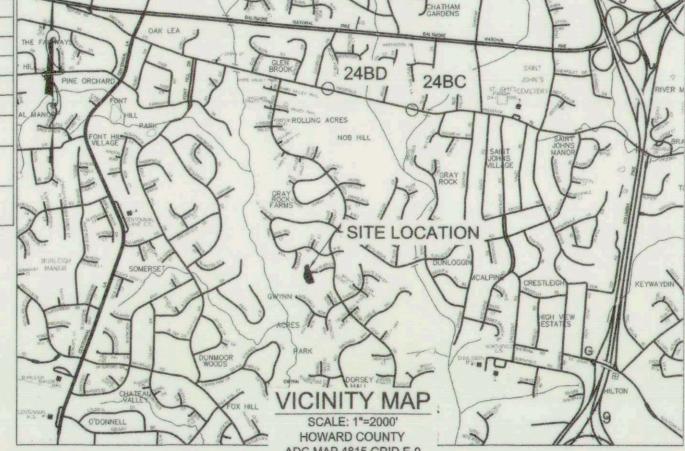
THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND

FINAL DESIGN (100%)

GREY ROCK FARM LOTS 252, 301

SECTIONS 5 AND 6 1ST ELECTION DISTRICT

HOWARD COUNTY, MARYLAND



ADC MAP 4815 GRID E-9 1. THE ALTERNATIVE COMPLIANCE PLAN EXHIBIT SHALL SERVE AS THE SUBSTITUTE FOR A SITE DEVELOPMENT PLAN FOR DEVELOPMENT. NO DISTURBANCE IS PERMITTED 2. BEYOND THE LIMIT OF DISTURBANCE AS SHOWN ON THE ALTERNATIVE COMPLIANCE EXHIBIT UNLESS IT CAN BE SUFFICIENTLY DEMONSTRATED BY THE APPLICANT TO BE

530 2. THE REMOVAL OF THE 33.8" TULIP TREE IS PERMITTED AS SHOWN ON THE PLAN EXHIBIT. THE REMOVAL OF ANY ADDITIONAL SPECIMEN TREE IS NOT PERMITTED UNDER THIS ALTERNATIVE COMPLIANCE REQUEST. ALL EFFORTS SHALL BE MADE TO REDUCE IMPACTS TO SPECIMEN TREES DURING CONSTRUCTION. TREE PROTECTION MEASURES AS DETAILED ON THE PLAN EXHIBIT SHALL BE UTILIZED AS NECESSARY

3. ONCE CAPITAL PROJECT D-1159 IS COMPLETE, THE LIMIT OF DISTURBANCE SHALL BE RESTORED TO ITS PREVIOUS CONDITION THROUGH STABILIZATION AND REPLANTING OF FOREST RESOURCES BY THE DEPARTMENT OF RECREATION AND PARKS. 4. A FEE-IN-LIEU IN THE AMOUNT OF \$11,107.80 MUST BE PAID AT THE TIME OF ALTERNATIVE COMPLIANCE PLAN EXHIBIT SUBMITTAL TO MEET THE 0.34 ACRES OF

MUST BE OBTAINED PRIOR TO THE START OF CONSTRUCTION. 6. THE APPLICANT SHALL OBTAIN ALL REQUIRED AUTHORIZATIONS AND PERMITS FROM GREY ROCK FARM 0.58 THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, MARYLAND DEPARTMENT PLAT# OR L/F GRID# ZONING TAX MAP NO. ELECT. DISTR CENSUS TRACT OF THE ENVIRONMENT AND U.S. ARMY COPRS OF ENGINEERS FOR DISTURBANCES 9747, 10710 0015 R-20 0024 1ST 6023.05 WITHIN THE FLOODPLAIN. WETLANDS, STREAMS AND THEIR BUFFERS. REFERNCE THE WATER CODE 0.09 APPLICABLE MDE OR USACOE PERMITS OR TRACKING NUMBERS ON THE ALTERNATIVE OPERATION, MAINTENANCE, AND INSPECTION INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED

	APPROVALS	S/PERMITS	
AGENCY	#	DATE APPLIED	DATE APPROVED
MDE WETLANDS/WATERWAY AUTHORIZATION	17-NT-3043	2/13/2017	N/A
HOWARD SOIL CONSERVATION DISTRICT	EP-17-21	12/12/2016	THE L
HOWARD COUNTY DPZ ALTERNATIVE COMPLIANCE	WP-18-062	1/24/2018	3/15/2018
MDE GENERAL DISCHARGE	MDRCN03PF	3/12/2018	

CALL "MISS UTILITY" AT 1.800.257.7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.

THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, SPECIAL PRECAUTIONS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.

LOT/PARCEL#

252, 301

PERMIT INFORMATION CHART

SEWER CODE

WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS

FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY

RESPONSIBLE FOR THE SAFETY OF THE POND AND THE

CONTINUED OPERATION, SURVEILLANCE, INSPECTION,

DISTRICT OF AN UNUSUAL OBSERVATIONS THAT MAY BE

AND MAINTENANCE THEREOF. THE POND OWNER(S)

SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION

SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

INDICATIONS OF DISTRESS SUCH AS EXCESSIVE

HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE

SECTION 5 AND 6

THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT 410.313.188 AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK. THE CONTRACTOR SHALI NOTIFY MISS UTILITY AT 1.800.257.7777 AND COLONIAL PIPELINE CO. AT 443.821.1797 AT LEAST TWO (2) WORKING DAYS BEFORE STARTING WORK.

THE HORIZONTAL AND VERTICAL CONTROL FOR THESE PLANS ARE BASED ON THE MARYLAND STATE SYSTEM OF PLANE COORDINATES AS ESTABLISHED FROM THE FOLLOWING HOWARD COUNTY CONTROL POINTS: 2.1. 24BC NORTHING 585058.416 EASTING 1358312.354 ELEVATION 364.798

2.2. 24BD NORTHING 585572.018 EASTING 1356295.735 ELEVATION 388.898 3. THE SYSTEM OF COORDINATES USED IS BASED ON THE FOLLOWING DATUMS: 3.1. HORIZONTAL: MARYLAND STATE PLANE NAD OF 1983/2011

3.2. VERTICAL: NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 GEOID 12A 4. THE ORIGINAL DESIGN FOR THIS POND WAS APPROVED BY THE HOWARD SCD DECEMBER 17, 1992 (F-92-164). THE AS-BUILT WAS APPROVED BY THE HOWARD SCD MA

5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY. TOPOGRAPHIC SURVEYS WERE PERFORMED BY CENTURY ENGINEERING IN OCTOBER

REFERENCE ONLY. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE COUNTY IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE COUNTY, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.

9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS. 10. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND TAKEN FROM

AVAILABLE PLANS, RECORDS, AND/OR FIELD RECONNAISSANCE. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO LOCATE AND PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

10.1. UTILITY CONTACTS 10.1.1. BALTIMORE GAS AND ELECTRIC - ELECTRIC: 410.597.7920 BALTIMORE GAS AND ELECTRIC - GAS: 10.1.3. VERIZON: 10.1.4. COMCAST: 301.630.7094

10.1.5. COLONIAL PIPELINE CO. 443.821.1797 11. THE WETLAND DELINEATION FOR THIS SITE WAS PERFORMED BY CENTURY ENGINEERING IN SEPTEMBER 2016.

12. A WETLANDS/WATERWAY CONSTRUCTION PERMIT IS NOT REQUIRED FOR THIS PROJECT 13. A DAM SAFETY PERMIT IS NOT REQUIRED FOR THIS PROJECT. 14. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS HAS AN OBLIGATION OF

REFORESTATION ON THIS PROJECT. OBLIGATION WILL BE MET VIA PAYMENT OF A 15. ALL SPECIFIED OR PROPRIETARY PRODUCTS SHOWN HEREON MAY BE SUBJECT TO SUBSTITUTION WITH OTHER PRODUCTS RECOMMENDED BY THE CONTRACTOR SUBJECT

TO WRITTEN REVIEW AND APPROVAL BY THE COUNTY. 16. THE SUBJECT PROPERTY IS ZONED R-20 PER THE 10/16/13 COMPREHENSIVE ZONING

17. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS, FOREST CONSERVATION AREAS AND 100 YR FLOODPLAIN OTHER THAN WHAT IS PERMITTED UNDER WP-18-062.

18. THIS RESTORATION PROJECT FOR IMPROVEMENTS TO THE BLUE RIVER COURT STORMWATER MANAGEMENT POND UNDER CAPITAL PROJECT NO. D-1159 COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF \$11,107.80 FOR THE REQUIRED 0.34 ACRE REFORESTATION OBLIGATION.

THIS WORK TAKES PLACE IN USE IV WATERS. IN-STREAM WORK IS PROHIBITED BETWEEN MARCH 1 AND MAY 31 OF ANY CALENDAR YEAR INCLUSIVE. A FEMA FLOOD PLAIN IS LOCATED IN THE AREA (FEMA FIRM 240270090D - EFFECTIVE

NATURAL RESOURCES DELINEATED ON THIS PLAN WERE FIELD VERIFIED BY CENTURY ENGINEERING UNDER THE DIRECTION OF DAN YEAGER, A MARYLAND DEPARTMENT OF NATURAL RESOURCES QUALIFIED PROFESSIONAL IN SEPTEMBER 2016.

THE SITE IS NOT LOCATED IN NOR DOES IT DISCHARGE TO A TIER II WATERBODY. 5. THE SITE IS LOCATED IN THE LITTLE PATUXENT RIVER WATERSHED. THIS PORTION OF THE WATERSHED IS NOTED AS IMPAIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THE FOLLOWING POLLUTANTS: TOTAL SUSPENDED SOLIDS, TOTAL PHOSPHOROUS, AND CHLORIDES.

THE CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.

THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES THAT INVOLVE CUTTING, FILLING, OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN. THESE ACTIVITIES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIP LINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS PRIOR TO

8. THE CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS, AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.

UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.

10. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN BY THE CONTRACTOR.

11. TREES WITHIN THE "NO WOODY VEGETATION ZONE" SHOWN ON THE PLANS SHALL BE REMOVED ACCORDING TO TECHNICAL NOTE 705, "OPERATIONS AND MAINTENANCE ALTERNATIVES FOR REMOVING TREES ON DAMS". ALL OTHER TREES TO BE REMOVED SHALL BE CUT AT THE BASED WITH A SAW AND NOT PUSHED OVER. TREE STUMPS MAY BE LEFT IN PLACE, UNLESS OTHERWISE DIRECTED ON THE PLANS.

12. ALL MATERIAL SHALL BE REMOVED AND DISPOSED OF OFFSITE. REMOVED TREES AND BRUSH MAY BE REDISTRIBUTED ON SITE AT THE DISCRETION OF THE COUNTY. 13. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXITING THE PROJECT SITE AND PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE PROJECT SITE.

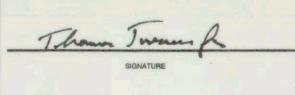
14. WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS **BUREAU OF ENVIRONMENTAL SERVICES** 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

SU	NO.	DATE	DESCRIPTION
11			

REVISIONS

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



P.E. NO.

SITE INFORMATION

STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT ELLICOTT CITY, MARYLAND 21042

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 **ELECTION DISTRICT: 1** PLAT NO.: 9747, 10710

ENGINEERING CONSULTING ENGINEERS - PLANNERS 10710 GILROY ROAD HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

COVER SHEET

ROJECT NO.: 121104.42	SCALE: 1"=2000'	DATE: 04/11
EAL:	DESIGN: JB/JA	CHECK: R
OF WAR	GN-01	of GN
\$ 16997	SHEET NO:	of 19
SONAL ENGINEER	PREPARED OR APPROVED THE PREPARED OR APPROVED THE PROPERTY OF	ED BY ME, AND T

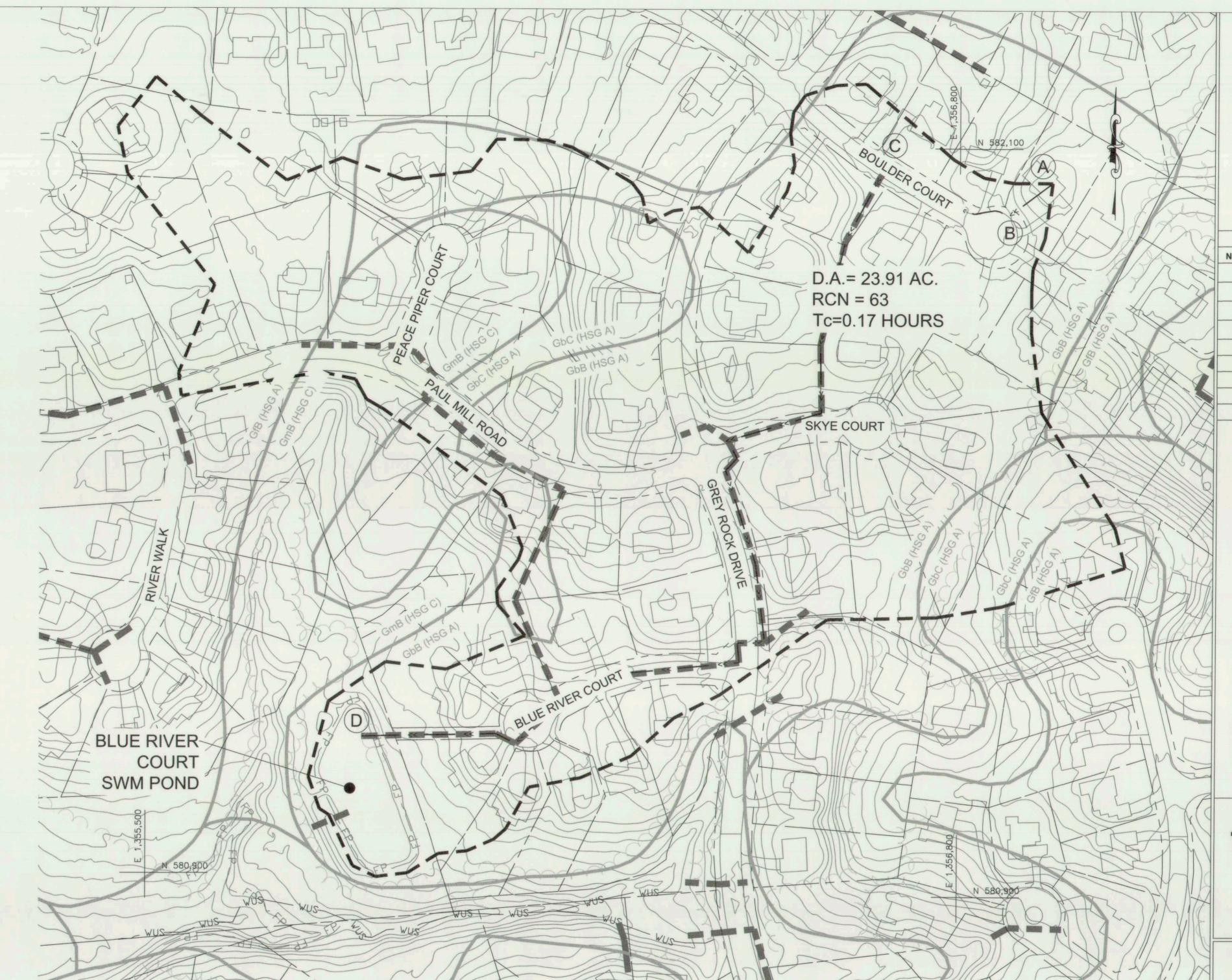
4-11-18 LICENSE #: 18997 EXPIRES: 07.19.2018



LAND USE DETAILS								
LAND USE	HSG	AREA (AC)	RCN					
RESIDENTIAL DISTRICTS (1/2 AC)	Α	18.66	54					
RESIDENTIAL DISTRICTS (1/2 AC)	С	1.37	80					
PAVED, CURBS, STORM SEWERS	Α	3.29	98					
PAVED, CURBS, STORM SEWERS	С	0.59	98					
TOTAL		23.91	63					

NOTE: ENTIRE DRAINAGE AREA CONSISTS OF SINGLE FAMILY RESIDENTIAL AREA ZONED R-20 (RESIDENTIAL DISTRICTS $\frac{1}{2}$ AC.) AND CLOSED SECTION STREETS.

SEGMENT	FLOW TYPE	LENGTH (LF)	SLOPE (FT/FT)	MANNING'S N	VELOCITY (FPS)	TIME (HRS				
A-B	SHEET	50	0.040	0.150		0.071				
B-C	SHALLOW CONC.	265	0.030	0.025		0.021				
C-D	CHANNEL	1664	-		6.000	0.077				



CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

REVISIONS NO. DATE DESCRIPTION

SITE INFORMATION

STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT ELLICOTT CITY, MARYLAND 21042

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 ELECTION DISTRICT: 1 ZONING: R-20 PLAT NO.: 9747, 10710

10710 GILROY ROAD HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

DRAINAGE AREA MAP

121104.42

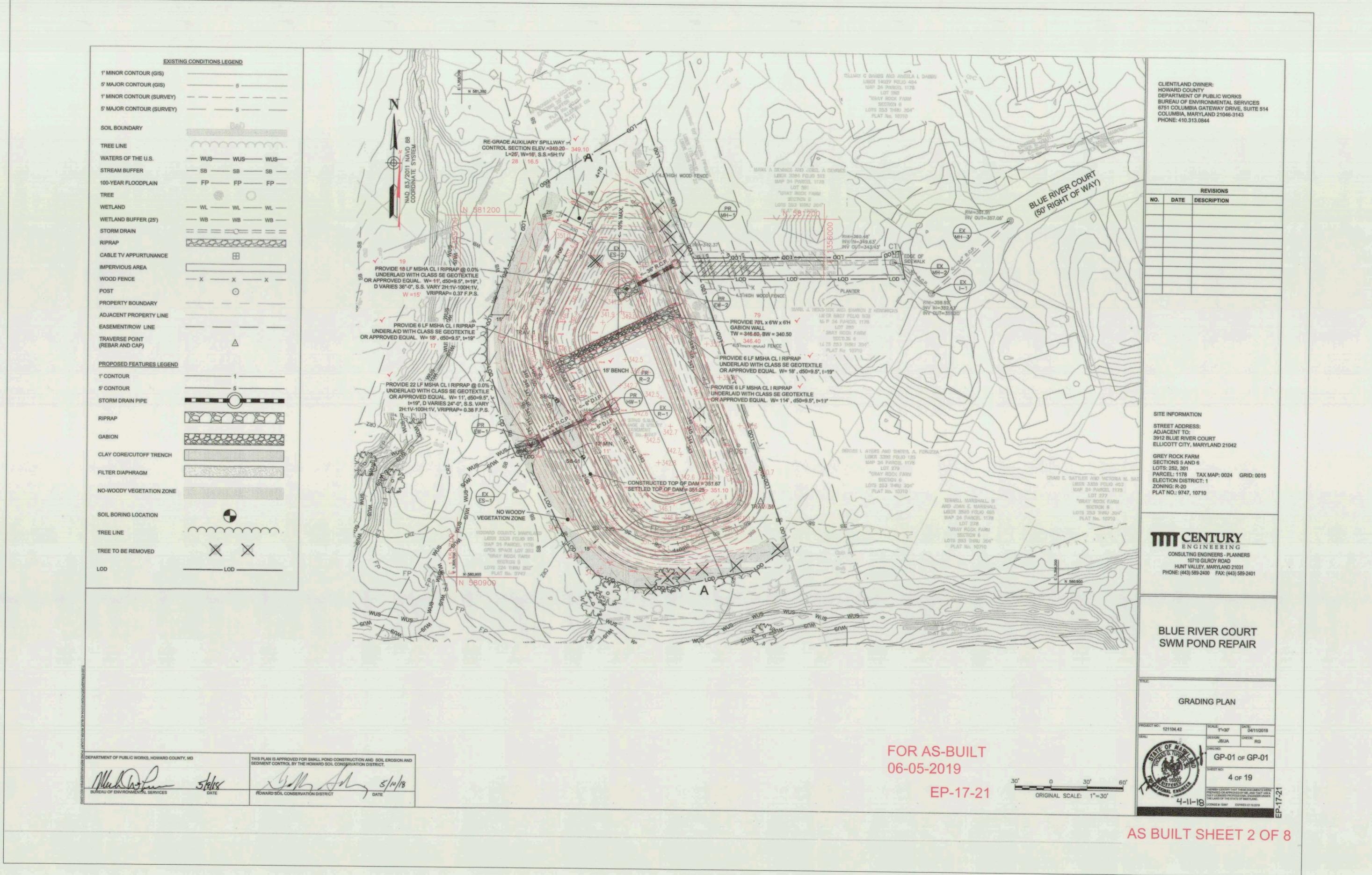
ORIGINAL SCALE: 1"=100"

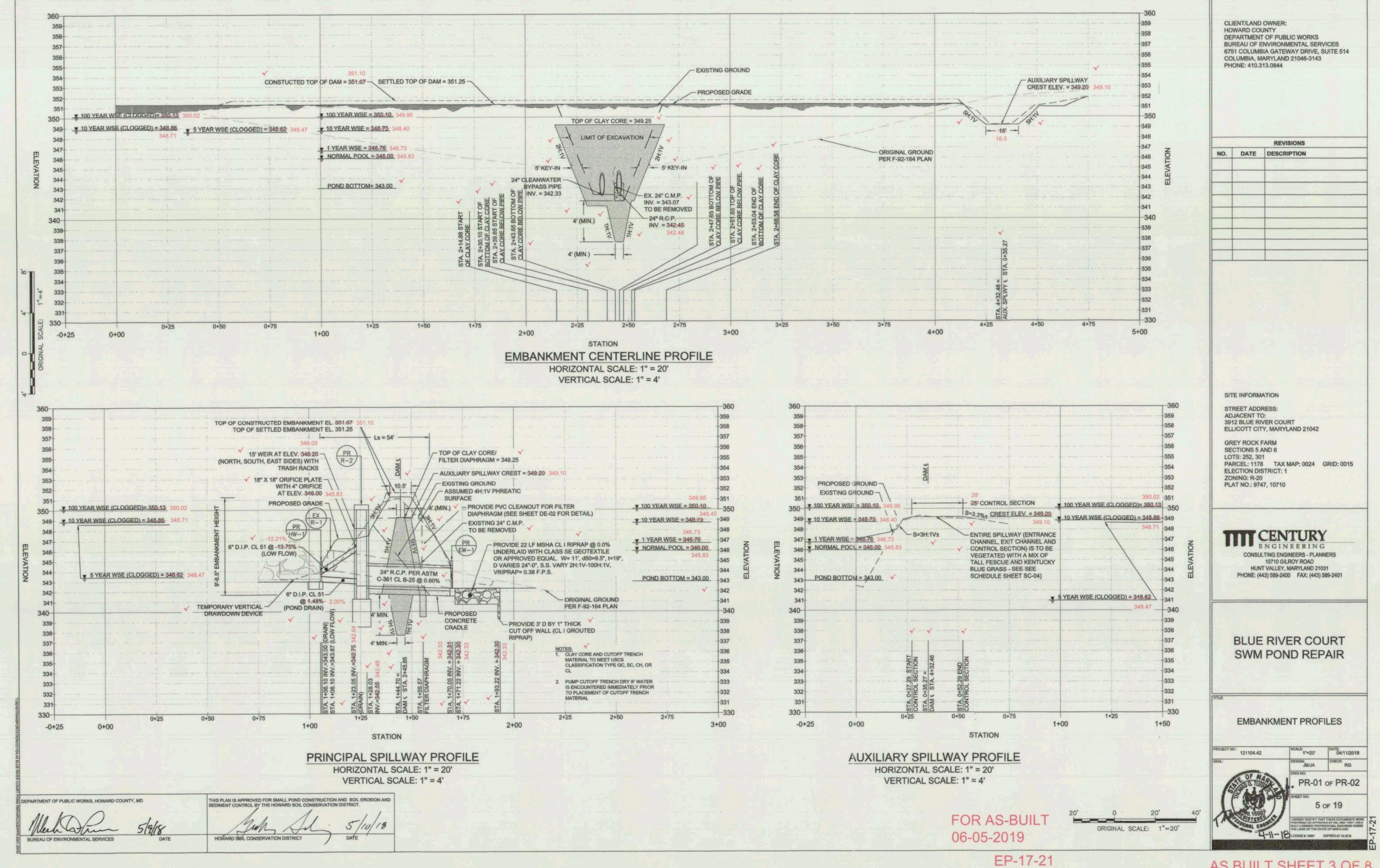
04/11/2018 2 of 19

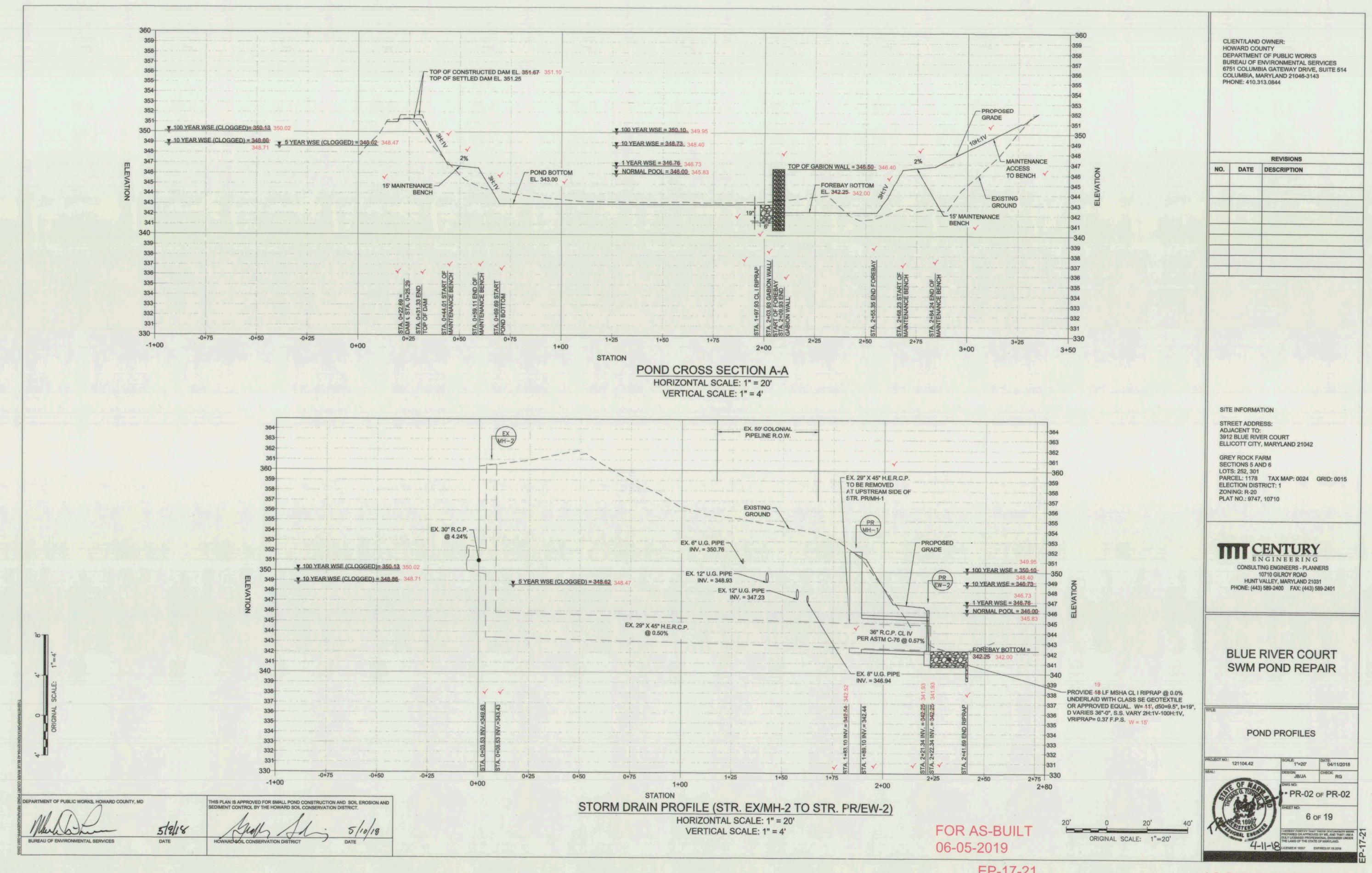
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

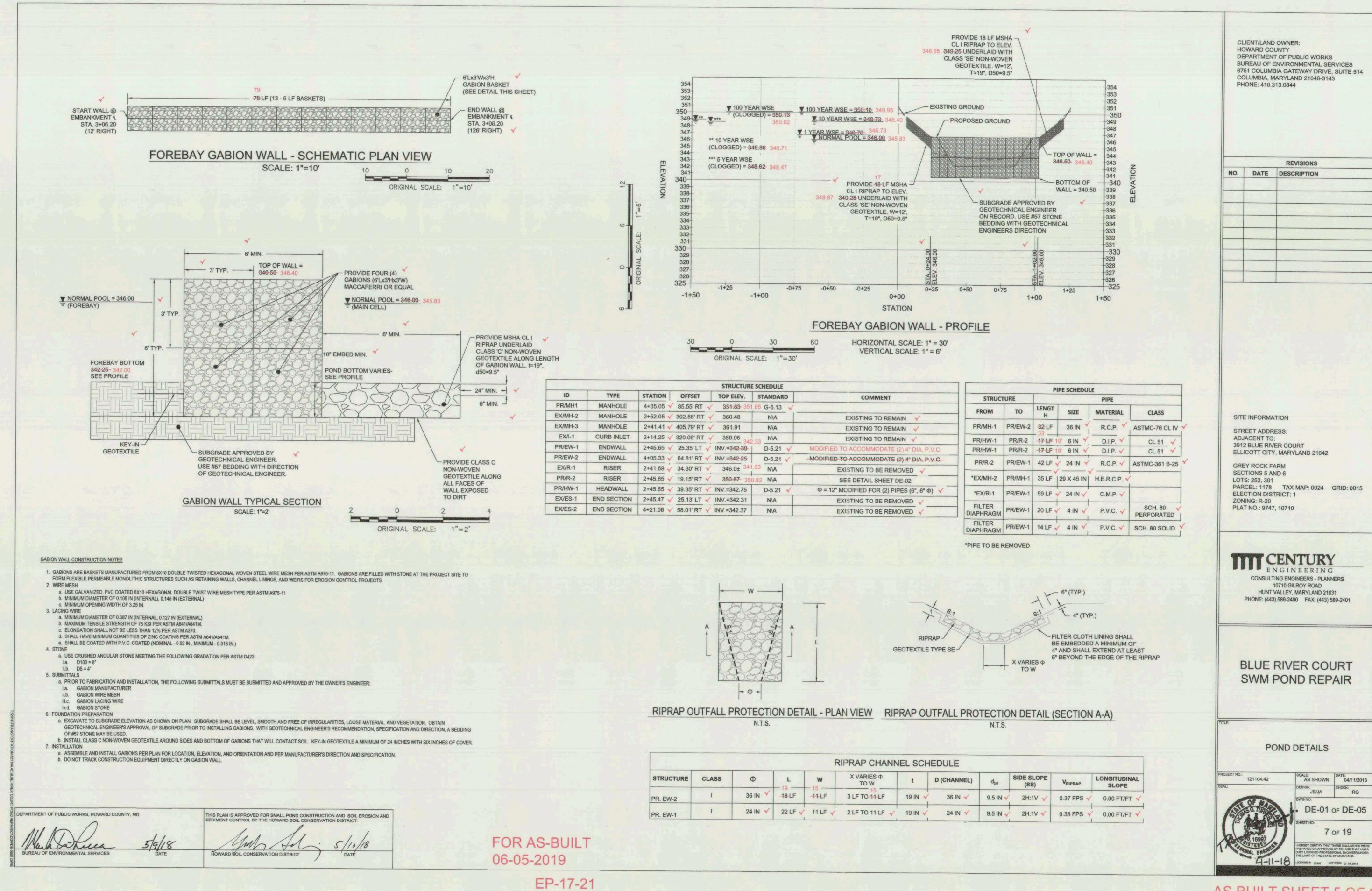
THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

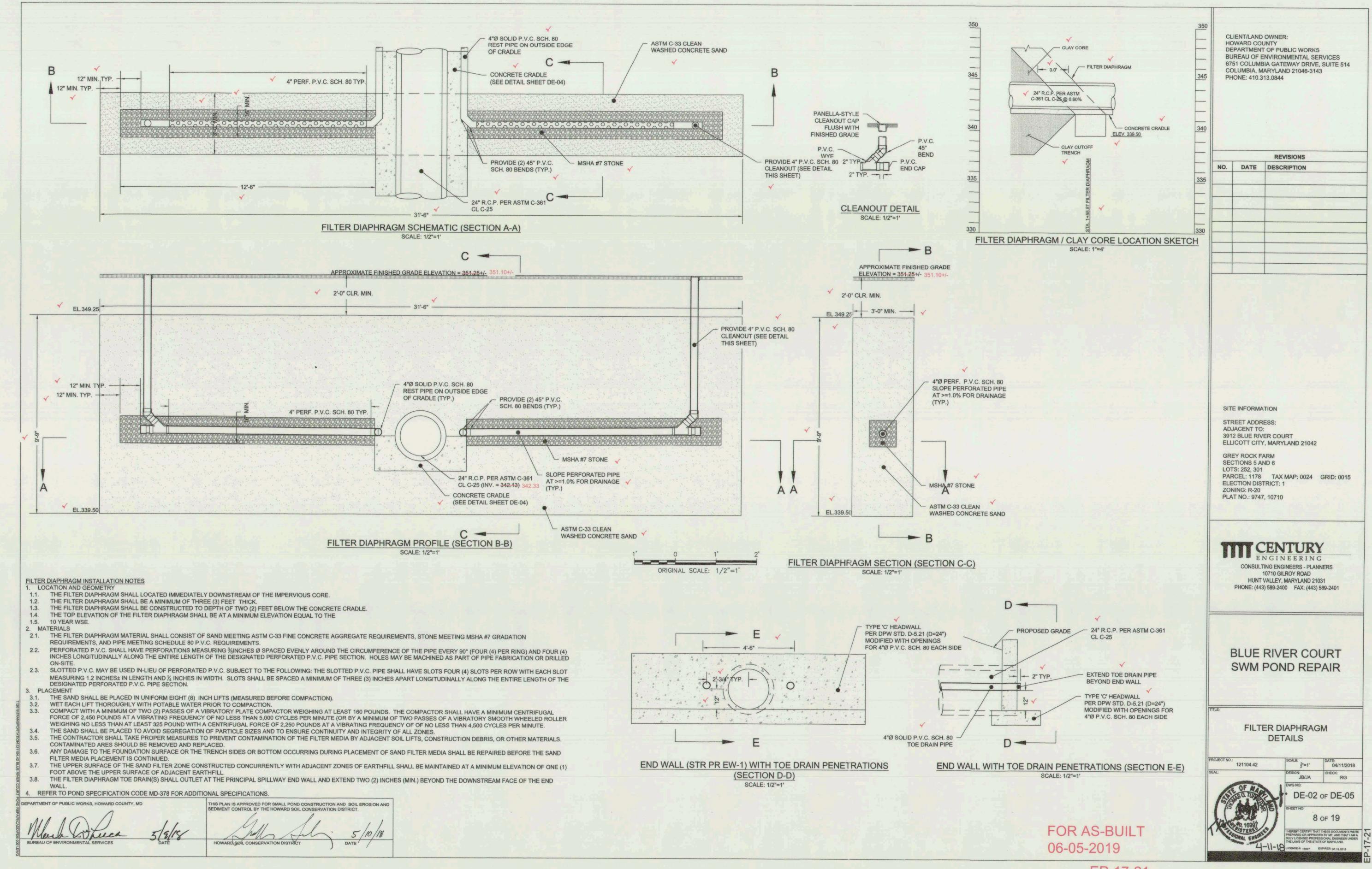


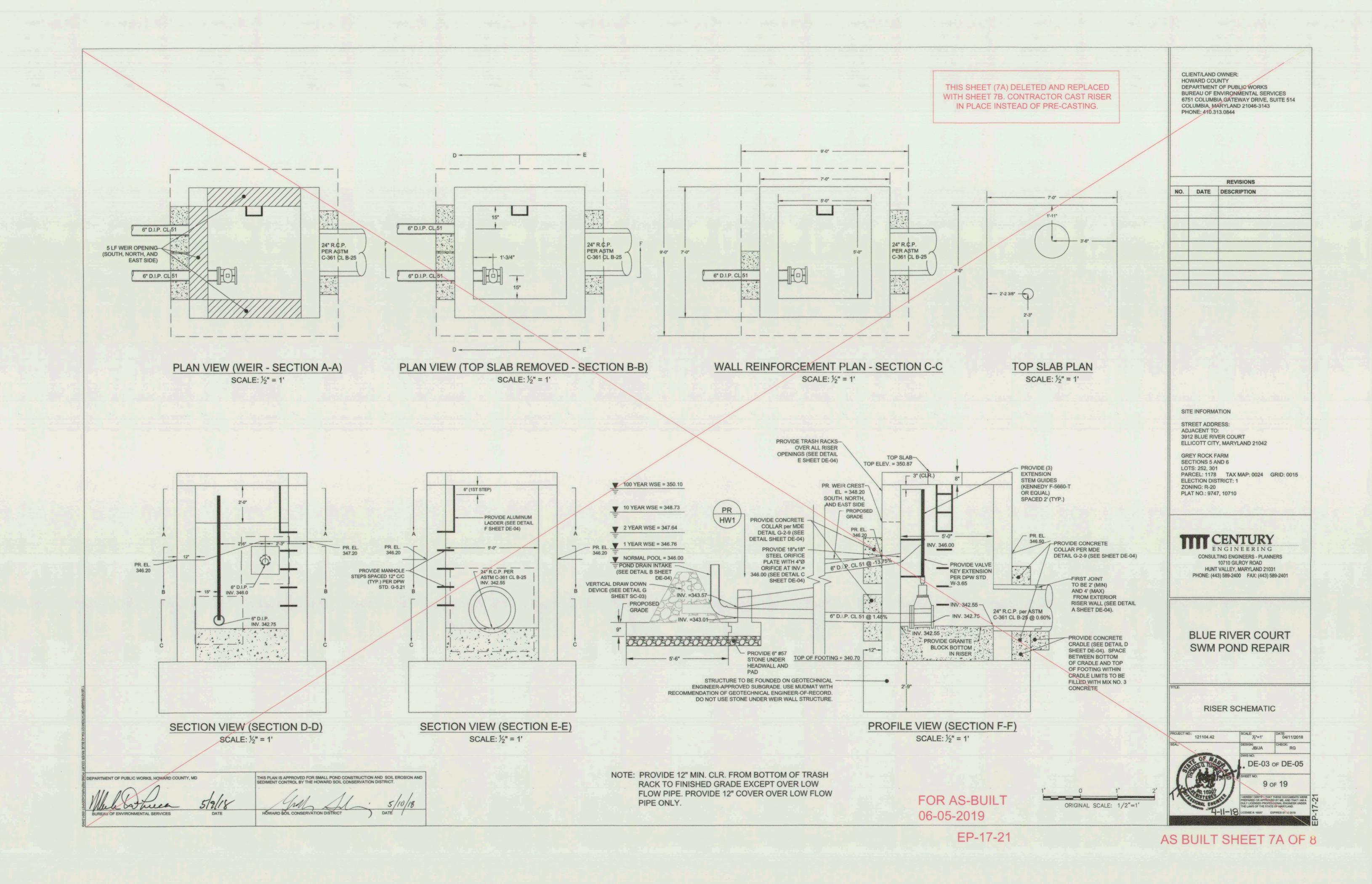


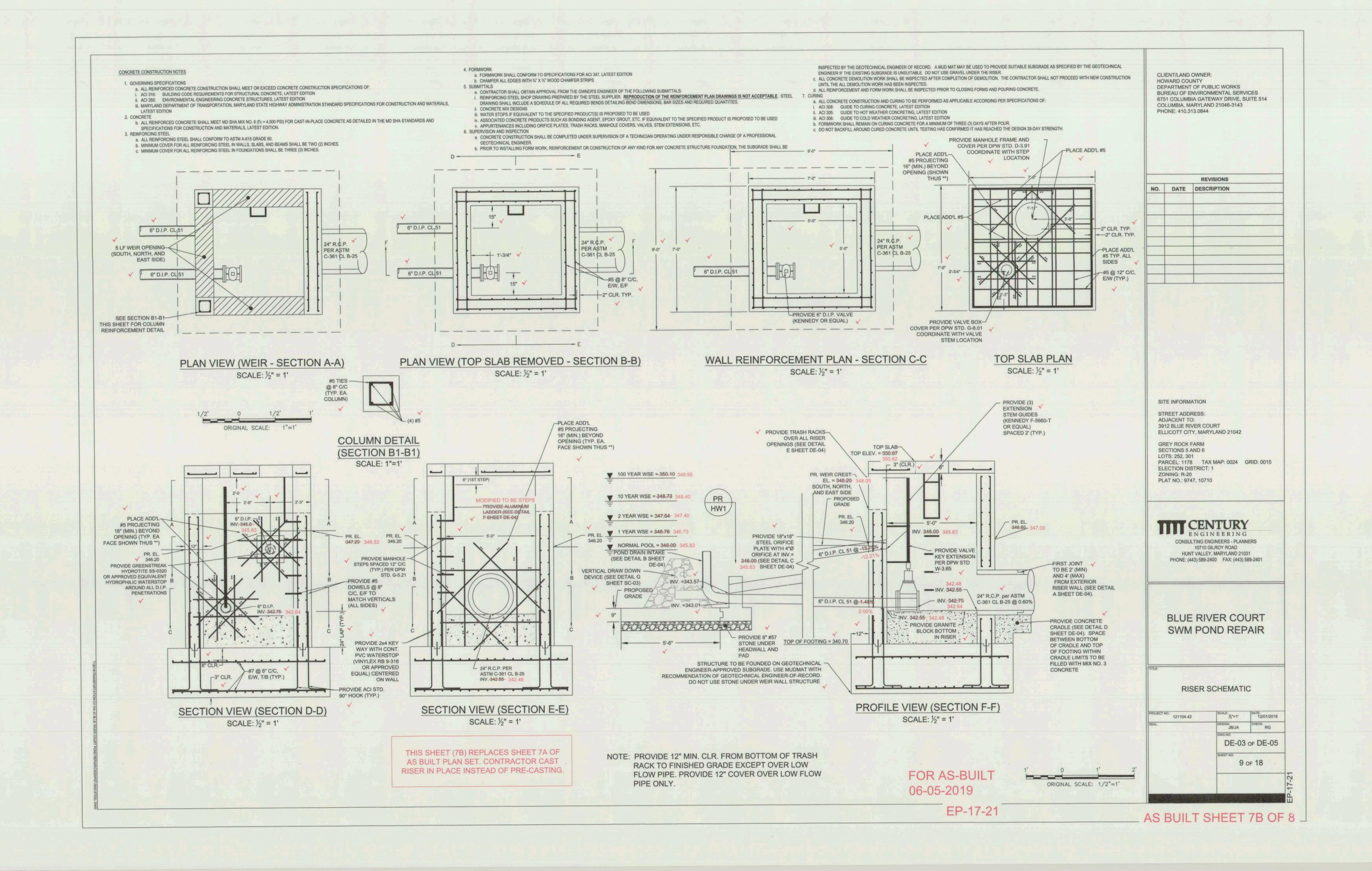


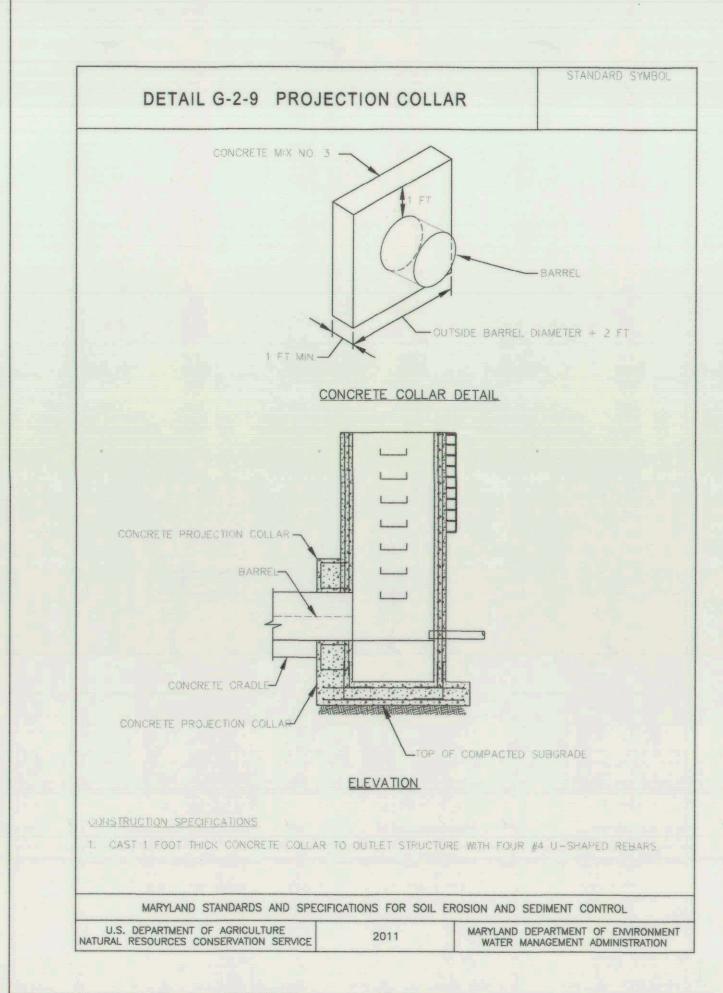


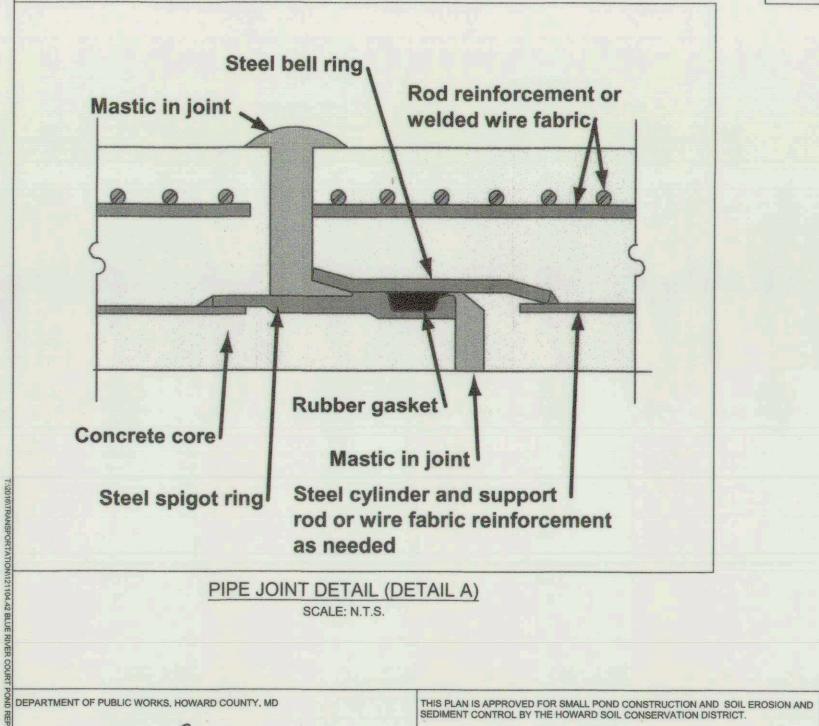




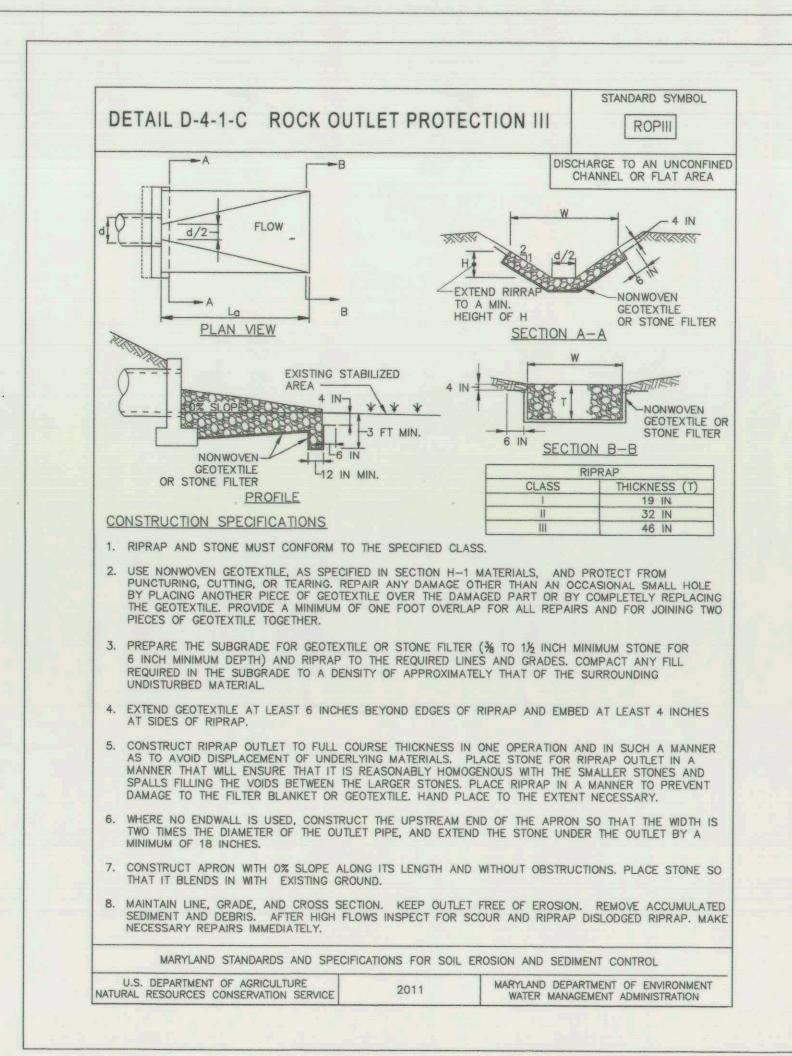


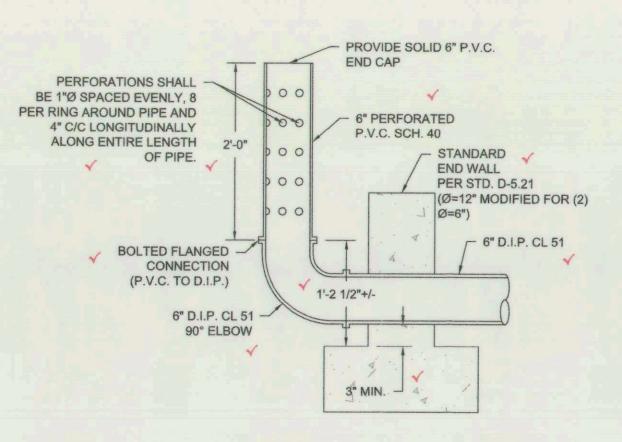




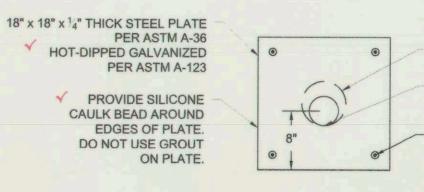


BUREAU OF ENVIRONMENTAL SERVICES



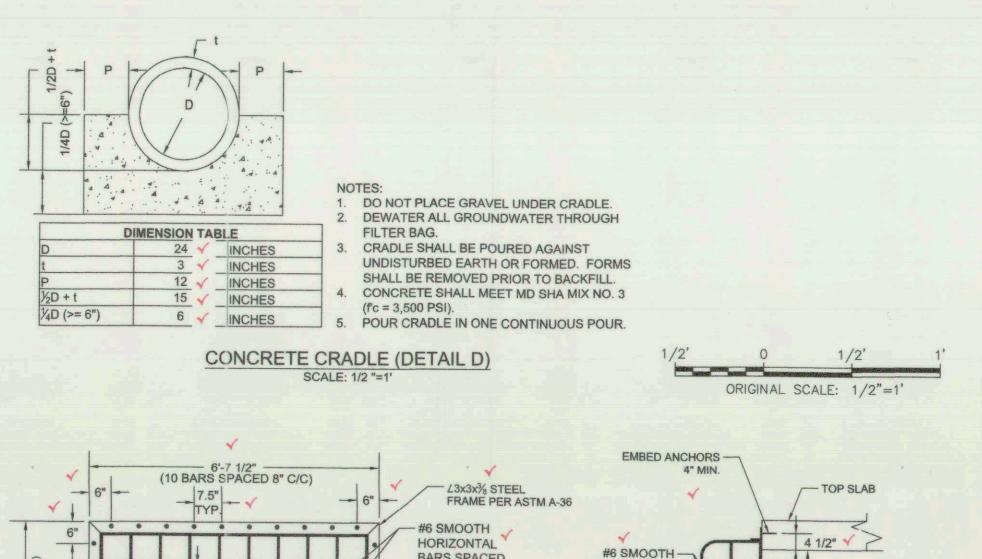


POND DRAIN INTAKE (DETAIL B) SCALE: 1"=1"



6" D.I.P. INV.=346.00 345.83 4"Ø LOW FLOW ORIFICE IN PLATE INV.= 346.00 345.83 ATTACH PLATE TO WALL WITH 4"L x 1/2"Ø STAINLESS STEEL ANCHOR BOLTS, **NUTS AND WASHERS** (HILTI KWIKBOLT OR EQUAL)

REMOVABLE ORIFICE PLATE (DETAIL C) SCALE: 1"=1"



BARS SPACED

- ATTACH WITH 4"L x 1/2"Ø

ALL WEIR OPENINGS IN RISER

STAINLESS STEEL ANCHOR

BOLTS, NUTS AND WASHERS

(HILTI KWIKBOLT OR EQUAL)

TRASH RACKS TO BE INSTALLED OVER

2. HOT DIP GALVANIZE TRASH RACK AFTER

3. PROVIDE SIX (6) BOLTS (MIN.) TOP AND

BOTTOM AND FOUR (4) BOLTS (MIN.) LEFT

8" C/C E/W

FABRICATION.

AND RIGHT PER SIDE.

0 0 0 0 0 0 0 0 0

TACK WELD WITH -

PLACED ON OUTSIDE

(TYP. ALL JOINTS)

VERTICAL BARS FRONT VIEW

VERTICAL BARS

2'-0" 2'-1"

(MIN)

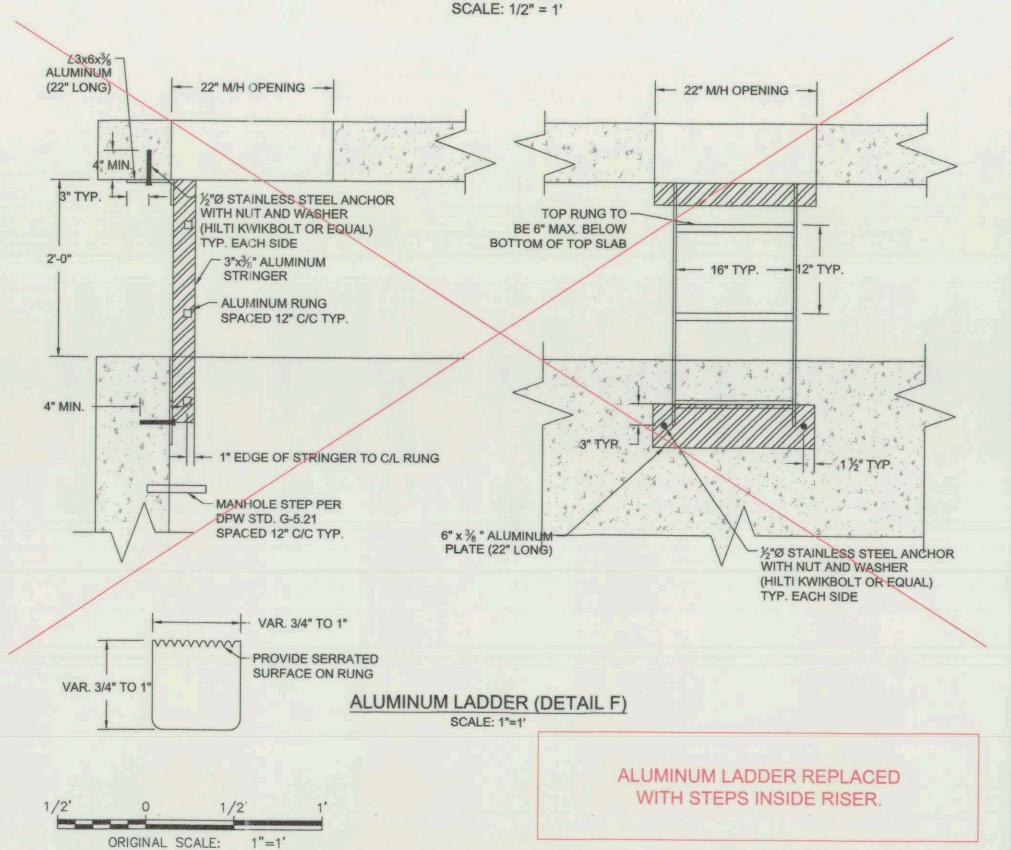
SIDE VIEW

- WEIR CREST

-EX. RISER WALL

SPACED 8" C/C E/W

RISER TRASH RACK (DETAIL E)



CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

	(-)							
	REVISIONS							
NO.	DATE DESCRIPTION							
11-								
		*						

SITE INFORMATION STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT ELLICOTT CITY, MARYLAND 21042

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 **ELECTION DISTRICT: 1** ZONING: R-20 PLAT NO.: 9747, 10710

CENTURY

CONSULTING ENGINEERS - PLANNERS 10710 GILROY ROAD HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

PRINCIPAL SPILLWAY AND RISER DETAILS

121104,42	SCALE: AS SHOWN	DATE: 04/11/2018
AL:	DESIGN: JB/JA	CHECK:
ST OF MARINE	DWG NO:	of DE-05
A 40 16997	10 o	F 19
STERE STERE	PREPARED OR APPROVE DULY LICENSED PROFES THE LAWS OF THE STATE	THESE DOCUMENTS WERE D BY ME, AND THAT I AM A SIONAL ENGINEER UNDER E OF MARYLAND.

FOR AS-BUILT

06-05-2019

NRCS MD CONSERVATION PRACTICE STANDARD POND CODE 378 CONSTRUCTION SPECIFICATIONS 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.

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 CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

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

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

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

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 DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

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

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

OR OTHER EMBANKMENT MATERIALS.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

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

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

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

- 2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.
- 3. CONNECTIONS ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE

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

SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. 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 ORING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24-INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

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

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

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

- 6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE: 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL
- EQUAL OR EXCEED ASTM C-361. 2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
- 3. LAYING PIPE BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

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

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE: 1. MATERIALS - 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" INCH PIPE

SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH 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,

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.

SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH

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 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 OR DIRECTED 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 COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

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

EROSION AND SEDIMENT CONTROL

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

OPERATION AND MAINTENANCE

AN OPERATION AND MAINTENANCE PLAN IN ACCORDANCE WITH LOCAL OR STATE REGULATIONS WILL BE PREPARED FOR ALL PONDS. AS A MINIMUM, THE DAM INSPECTION CHECKLIST LOCATED IN APPENDIX A SHALL BE INCLUDED AS PART OF THE OPERATION AND MAINTENANCE PLAN AND PERFORMED AT LEAST ANNUALLY. WRITTEN RECORDS OF MAINTENANCE AND MAJOR REPAIRS NEEDS TO BE RETAINED IN A FILE. THE ISSUANCE OF A MAINTENANCE AND REPAIR PERMIT FOR ANY REPAIRS OR MAINTENANCE THAT INVOLVES THE MODIFICATION OF THE DAM OR SPILLWAY FROM ITS ORIGINAL DESIGN AND SPECIFICATIONS IS REQUIRED. A PERMIT IS ALSO REQUIRED FOR ANY REPAIRS OR RECONSTRUCTION THAT INVOLVE A SUBSTANTIAL PORTION OF THE STRUCTURE. ALL INDICATED REPAIRS ARE TO BE MADE AS SOON AS PRACTICAL.

GEOTECHNICAL RECOMMENDATIONS

1. FINDINGS AND RECOMMENDATIONS

a. EXISTING SWM FACILITY

- i.a. FINDINGS ARE BASED UPON THE RESULTS OF THE TWO (2) SOIL BORINGS PERFORMED AT WEST SECTION OF EXISTING POND EMBANKMENT, SITE OBSERVATIONS, AND INFORMATION PROVIDED REGARDING THE PROPOSED RETROFIT FOR THE SWM POND.
- ii.b. SITE CONDITIONS WERE COMPARED TO DETERMINE IF A POND CLAY CORE EXISTS OR WILL BE REQUIRED FOR THE SWM POND. BASED ON INFORMATION REVEALED FROM THE SAMPLE BORINGS, FINE SANDY CLAY SOILS WERE ENCOUNTERED AT APPROXIMATE ELEV. 320 AND EXTENDED TO ELEV. 314 AT BOTH EMBANKMENT BORINGS. PER OUR FINDINGS, MATERIAL TESTED WITHIN THESE ELEVATIONS OF POND EMBANKMENT MET THE GENERAL NRCS CUTOFF/CORE TRENCH REQUIREMENTS (MD-378)
- iii.c. UNDERNEATH THE CLAYEY SOILS VERY DENSE SILTY SAND (POSSIBLE DECOMPOSED ROCK) WAS ENCOUNTERED AND EXTENDED TO COMPLETION DEPTH OF BORINGS. THIS TYPE OF SOIL EXHIBITS MODERATE PERMEABILITY AND IS CONSIDERED AS MARGINAL MATERIAL FOR WET POND DESIGN. iij. NEW RISER FOR SWM POND
- i.a. BASED ON SUBSURFACE INFORMATION REVEALED FROM THE SOIL BORINGS, FOOTINGS FOUND WITHIN 6- TO 12-FT BELOW THE TOP OF EMBANKMENT MAY BE SIZED BASED ON AN AVERAGE MAXIMUM NET ALLOWABLE BEARING PRESSURE OF 2500 POUNDS PER SQUARE FOOT (PSF). THIS ESTIMATED BEARING VALUE IS BASED ON A MINIMUM FACTOR OF SAFETY OF 2.5 WITH RESPECT TO THE STRENGTH OF THE ENCOUNTERED SOILS. IT SHOULD BE NOTED THAT SOFT AREAS WERE ENCOUNTERED IN SOME BORINGS.
- ii.b. DUE TO THE GENERAL NATURE OF SOILS ENCOUNTERED IN THE SOIL BORINGS, THE BEARING CAPACITY AT THE FINAL FOOTING ELEVATION SHOULD BE VERIFIED IN THE FIELD BY THE GEOTECHNICAL ENGINEER TO ENSURE THE BEARING CAPACITY AT THE BOTTOM OF EACH FOOTING EXCAVATION IS ADEQUATE FOR THE DESIGN LOADS. ALSO, CAREFUL CONTROL OF FILL PLACEMENT AND COMPACTION AROUND THE PIPES ARE IMPERATIVE. BACKFILL SOILS MUST BE PLACED IN ACCORDANCE WITH SECTION 6.0. OUTFALL PIPES SHOULD BE CONSTRUCTED ON CONCRETE CRADLES.

2. SITE GRADING

a. PREPARATION

- i.a. GRADING PREPARATION SHOULD INCLUDE CLEARING WITHIN THE LIMITS OF CONSTRUCTION, GRUBBING AND REMOVAL OF THE ORGANIC SURFICIAL SOILS. DEPTH OF STRIPPING AND UNDERCUTTING WILL BE DETERMINED AT THE SITE DURING CONSTRUCTION AND IS EXPECTED TO BE ON THE ORDER OF 6 INCHES. DESIGN AND CONSTRUCTION SHOULD INCLUDE PROVISIONS FOR TEMPORARY STORAGE, HAULING, AND DISPOSAL OF STRIPPED MATERIALS AT AN APPROVED OFF-SITE LOCATION.
- ii.b. FOLLOWING STRIPPING AND CUTTING, THE SUBGRADE SHOULD BE VERIFIED PRIOR TO THE INSTALLATION OF SWM STRUCTURES. AREAS IDENTIFIED DURING THE VERIFICATION PROCESS AS SOFT OR EXHIBITING "PUMPING" TENDENCIES, SHOULD BE UNDERCUT, PROCESSED AND RE-COMPACTED, OR REMOVED AND

REPLACED WITH SUITABLE FILL, WHICHEVER IS APPROPRIATE. ij. SUITABLE FILL MATERIAL

- i.a. FILL MATERIAL FOR THE CUTOFF TRENCH, EMBANKMENT CORE AND CLAY LINER SHALL CONFORM TO THE LATEST VERSION OF THE NRCS-MD 378 CODE FOR POND STANDARDS AND SPECIFICATIONS. CLAYEY SOILS USED IN THE CONSTRUCTION OF THE CUTOFF TRENCH, EMBANKMENT CORE AND CLAY LINER SHALL CONFORM TO USCS AND CONSIST OF HIGH PLASTICITY CLAY (CH), LOW PLASTICITY CLAY (CL), CLAYEY SAND (SC), OR CLAYEY GRAVEL (GC), AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE.
- ii.b. FILL AND BACKFILL MATERIALS FOR GENERAL AREAS, INCLUDING ACCESS ROADS AND SWM EMBANKMENTS. SHOULD BE FREE OF ORGANICS, DEBRIS AND ROCK FRAGMENTS IN EXCESS OF 3-INCHES, IN ANY DIMENSION. IN THE TOP 18 INCHES OF FILL, MAXIMUM PARTICLE SIZE SHOULD BE LIMITED TO APPROXIMATELY 1.5 INCHES. IN ACCORDANCE WITH ASTM D2478 UNIFIED SOIL CLASSIFICATION, IMPORTED SELECT FILL SHALL CONSIST OF LOW-PLASTICITY SANDY CLAY (CL), CLAYEY SAND (SC), OR CLAYEY GRAVEL (GC) WITH A LIQUID LIMIT AND PLASTICITY INDEX OF LESS THAN 40 AND 15, RESPECTIVELY, OR AN APPROVED ALTERNATE.

ij. COMPACTION REQUIREMENT

i.a. FILL SOILS SHOULD BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D698), WITH A MOISTURE CONTENT RANGE OF ±2% OF ITS OPTIMUM. FILL SHOULD BE PLACED IN NOMINAL 10-INCH-THICK LOOSE LIFTS. EACH LIFT OF FILL SHOULD BE PROPERLY COMPACTED, TESTED AND APPROVED PRIOR TO PLACING SUBSEQUENT LIFTS.

3. CONSTRUCTION CONSIDERATIONS

- a. POSITIVE SURFACE DRAINAGE SHOULD BE ESTABLISHED AT THE START OF WORK, BE MAINTAINED DURING CONSTRUCTION AND FOLLOWING COMPLETION OF THE PROJECT TO PREVENT SURFACE WATER PONDING AND SUBSEQUENT SATURATION OF SUBGRADE SOILS. PROLONGED EXPOSURE OR SATURATION OF SUBGRADE SOILS BY PONDING OR RUNOFF WATER MAY RESULT IN SIGNIFICANT CHANGES IN STRENGTH AND COMPRESSIBILITY CHARACTERISTICS. SATURATED SUBGRADE SOILS SHOULD BE EXCAVATED AND REPLACED WITH SUITABLE MATERIALS.
- b. DEPENDING ON WEATHER CONDITIONS DURING AND PRIOR TO CONSTRUCTION, GROUNDWATER MAY BE ENCOUNTERED IN THE EXCAVATION AREAS. DURING CONSTRUCTION, THE DIVERSION OF NORMAL STORMWATER FLOWS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. IT IS ANTICIPATED THAT A TEMPORARY COFFERDAM, OR OTHER NECESSARY TEMPORARY STRUCTURE, WILL BE CONSTRUCTED TO DIVERT STORMWATER FLOWS AWAY FROM THE RISER AND OUTLET PIPE AREA. ANY SEEPAGE INTO THE CONSTRUCTION EXCAVATION COULD BE CONTROLLED BY PUMPING FROM SUMP PITS. DURING SITE PREPARATION, SURFACE RUNOFF SHOULD BE DIRECTED AWAY FROM THE CONSTRUCTION AREAS.

CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

		REVISIONS
NO.	DATE	DESCRIPTION

SITE INFORMATION

STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT ELLICOTT CITY, MARYLAND 21042

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 **ELECTION DISTRICT: 1** ZONING: R-20 PLAT NO.: 9747, 10710



CONSULTING ENGINEERS - PLANNERS 10710 GILROY ROAD HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

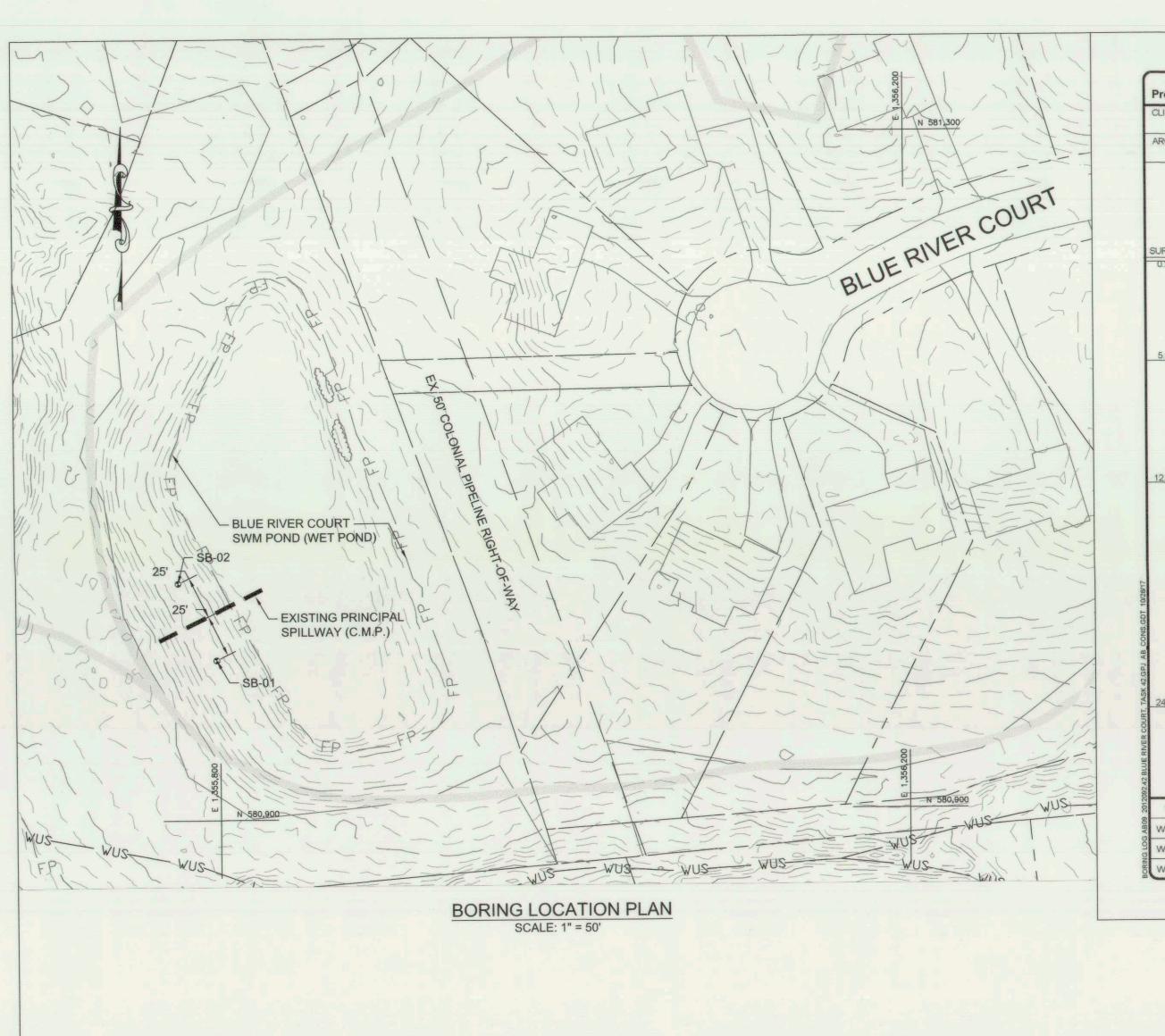
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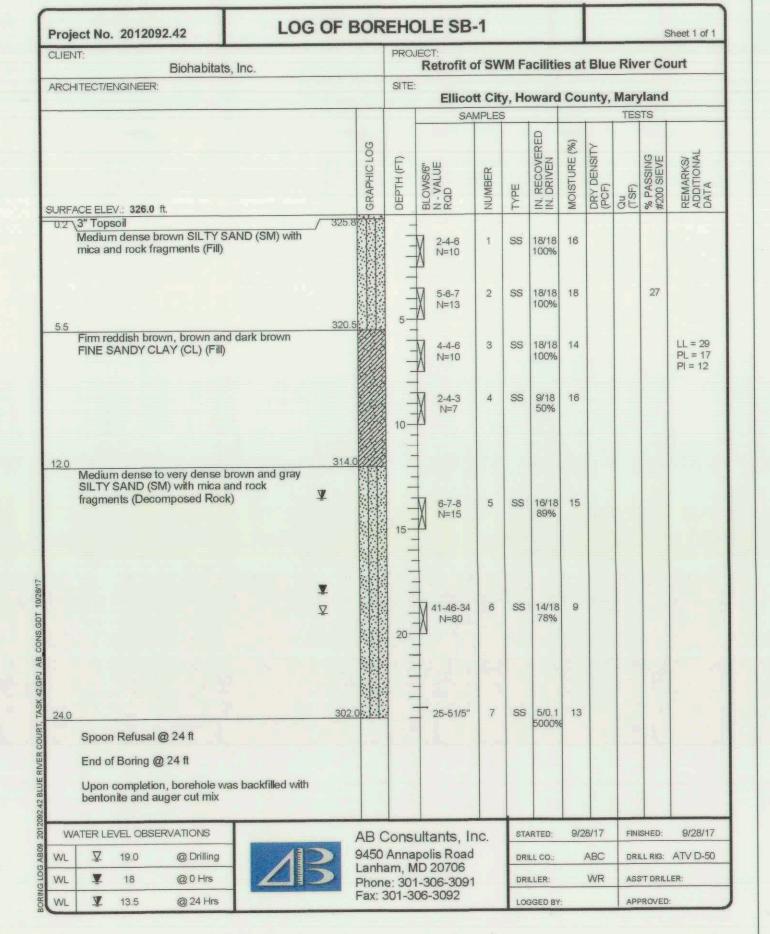
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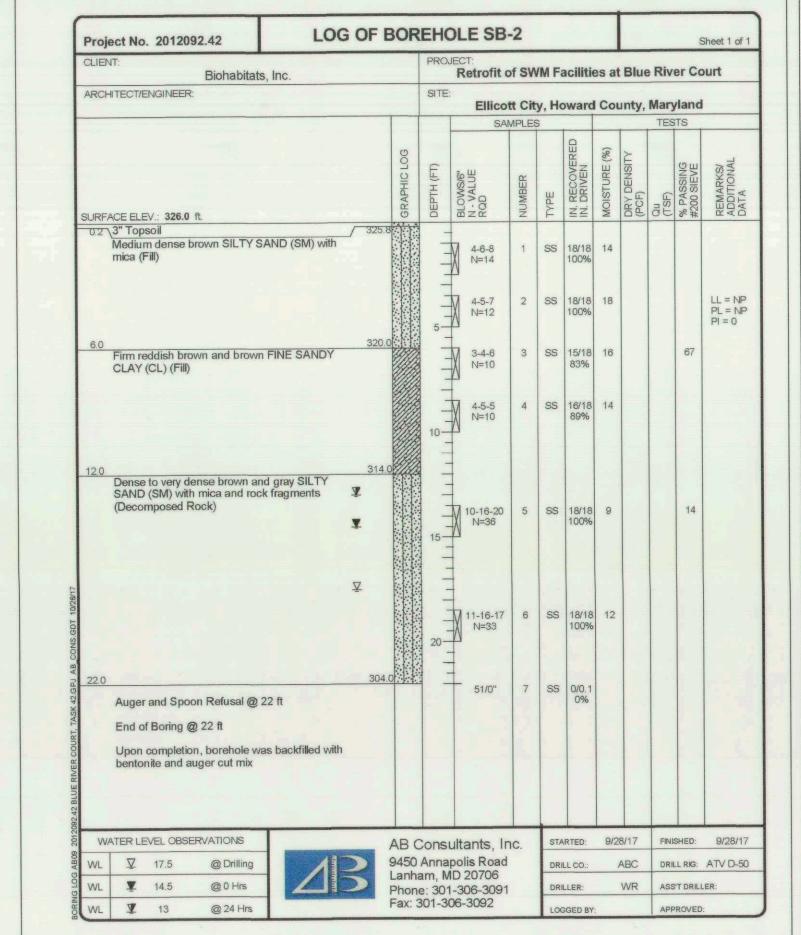
DE-05 of **DE-05** 11 of 19

SPECIFICATIONS

04/11/2018







CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

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BLUE RIVER COURT SWM POND REPAIR

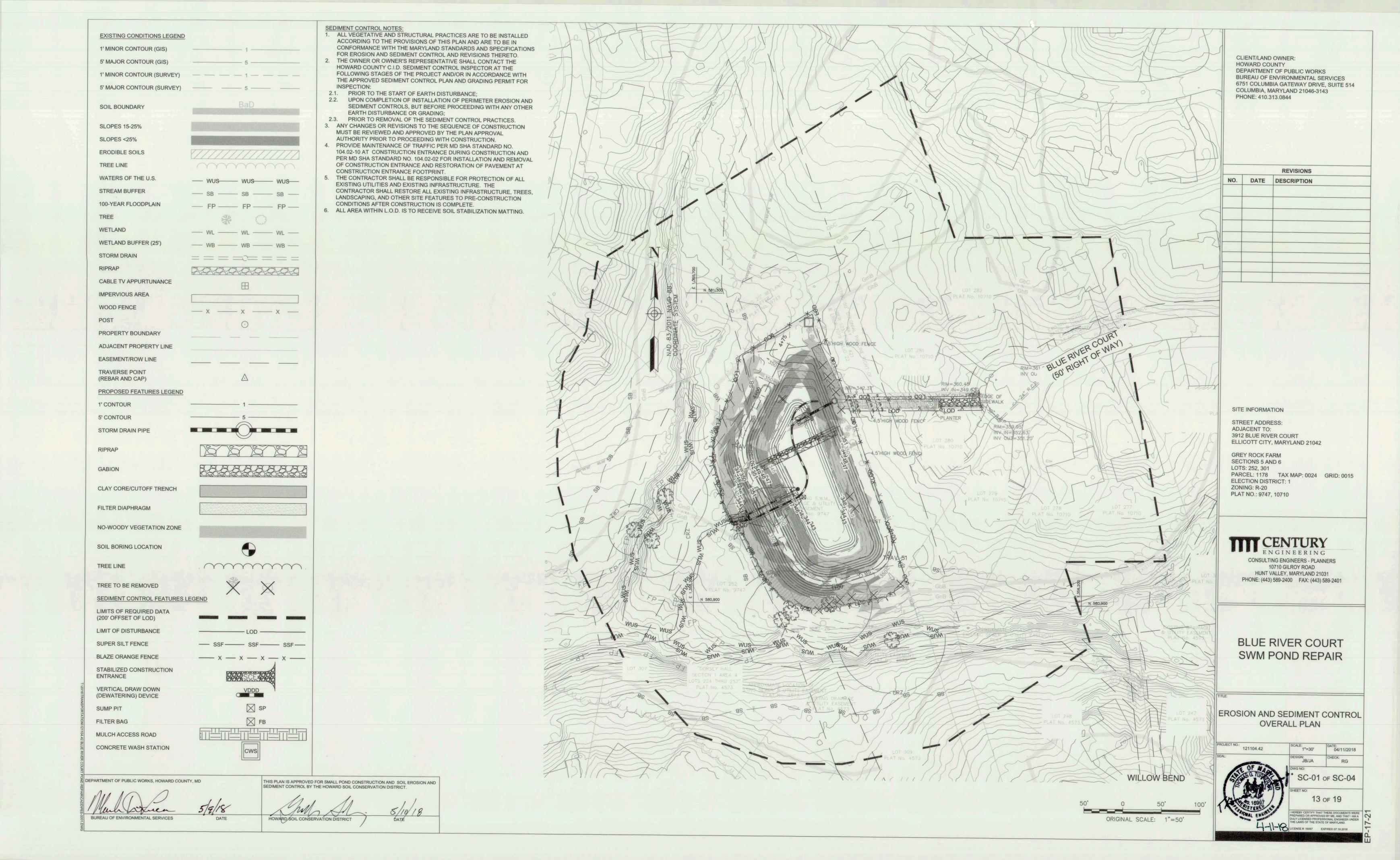
SOIL BORING LOGS

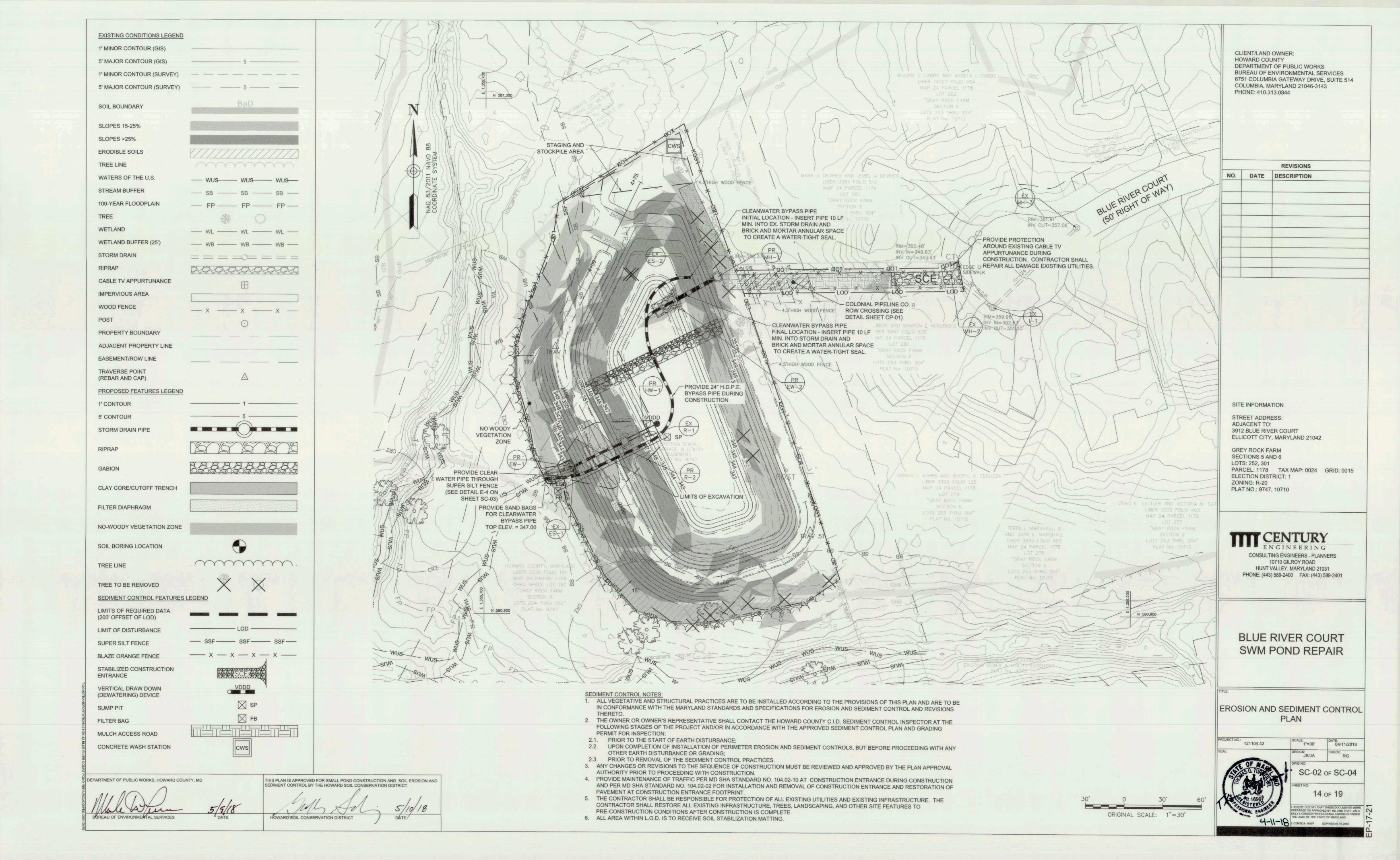


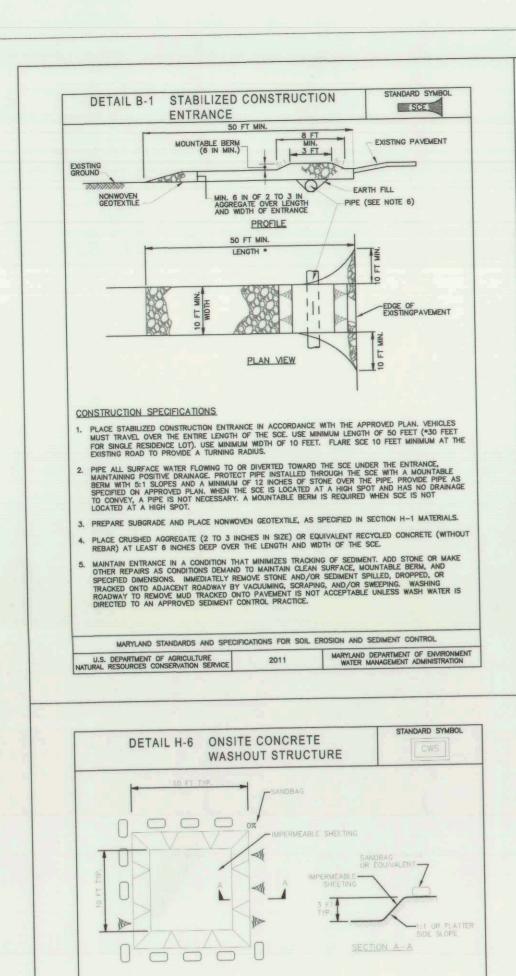
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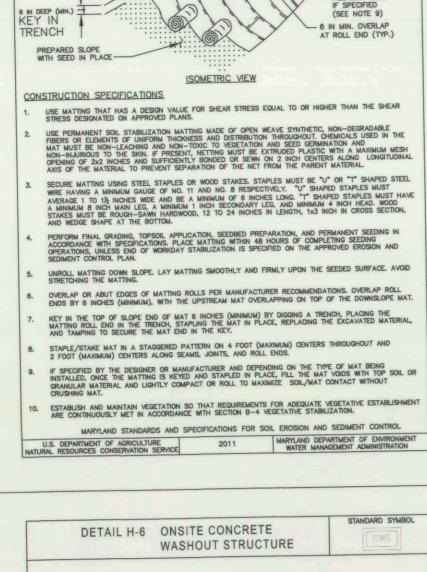
THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

ORIGINAL SCALE: 1"=50"



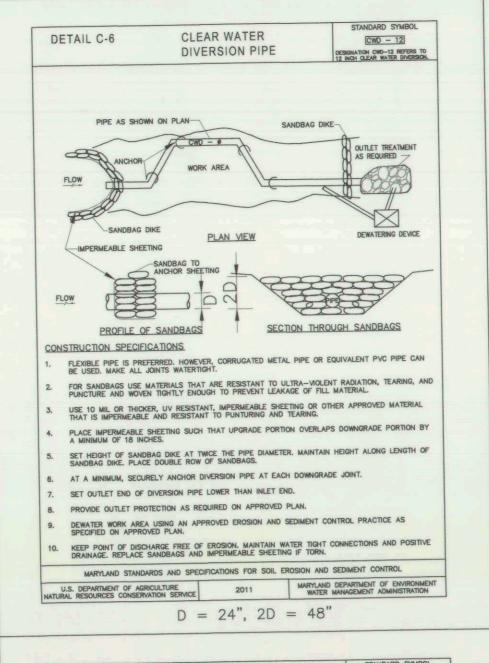


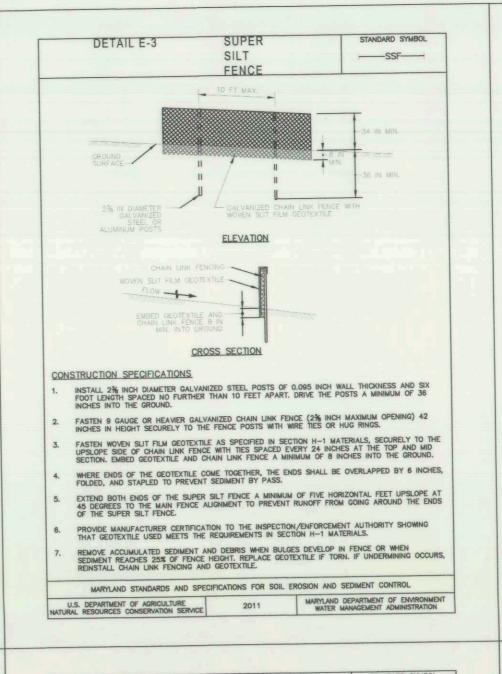


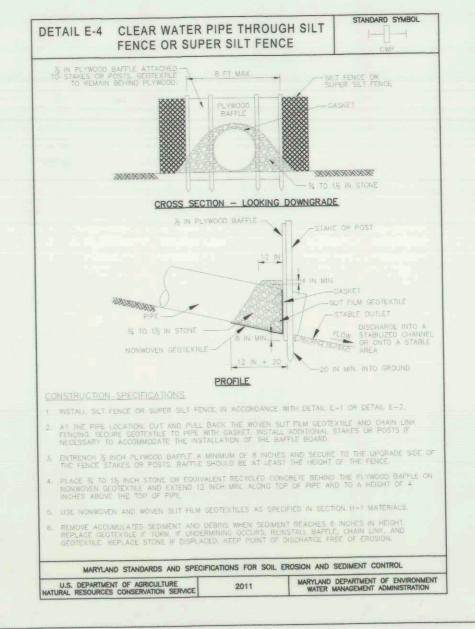


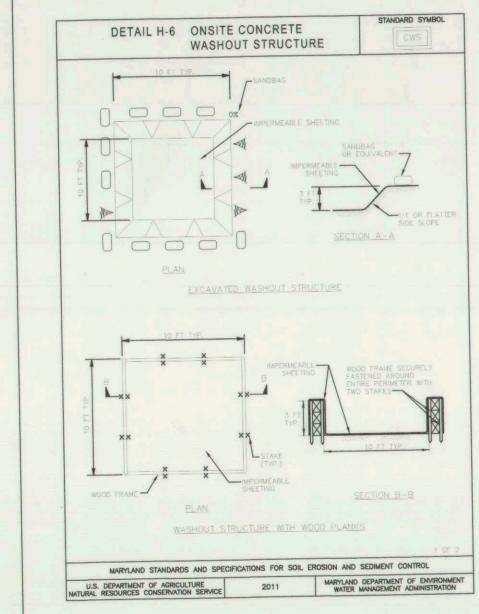
DETAIL B-4-6-B PERMANENT SOIL STABILIZATION

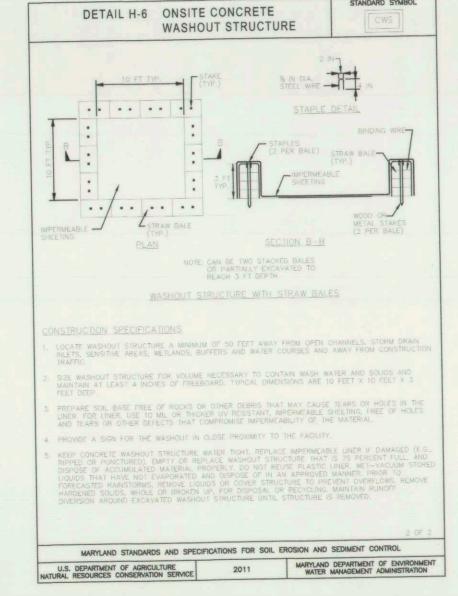
PSSMS - 1.75 lb/ft2

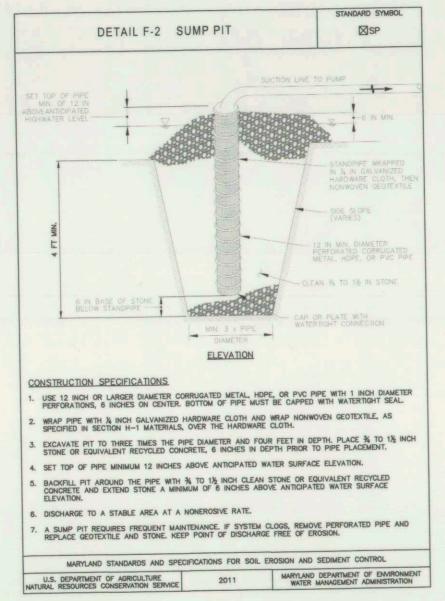


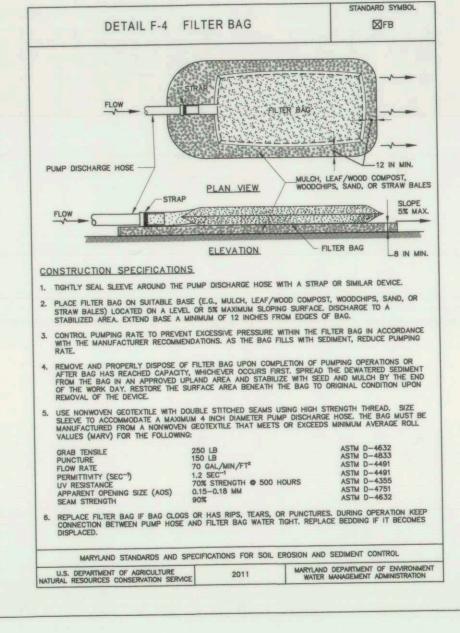


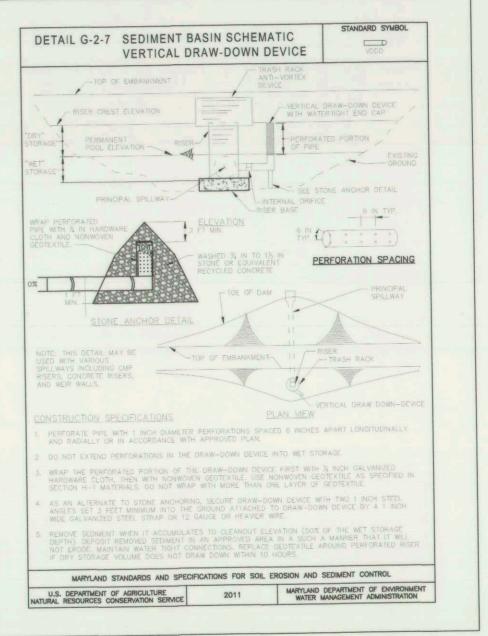


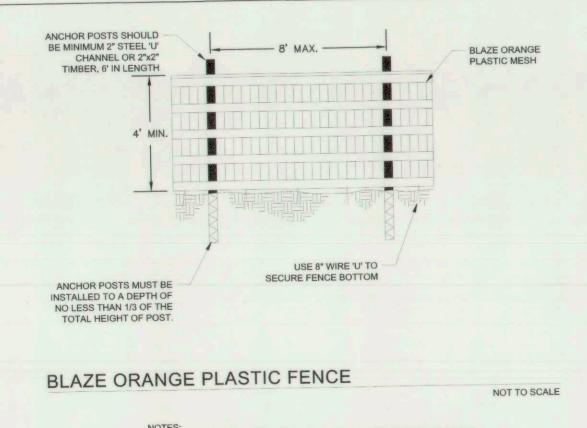






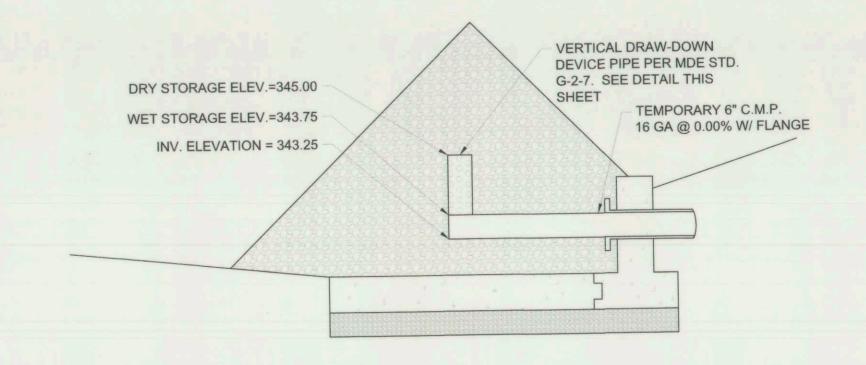






4. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

SLOPE LENGTH (FEET)*	20:1 OR FLATTER (<=5%)		SOIL STABILIZATION (20:1 TO 4:1 (>5-25%)		<4:1 TO 3:1 (>25-33%)		<3:1 TO 2.5:1 (>33 - 40%)			<2.5:1 TO 2:1** (>40-50%)					
	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120
TRAW MULCH/WOOD CELLULOSE					FO	R K<= 0.3	5***								
EMPORARY MATTING WITH DESIGN ETRESS >= 1.5 PSF						X2									
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 1.75 PSF											X1				
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.0 PSF															
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.25 PSF					1 to 10										
SHEAR STRESS >= 2.0 PSF TEMPORARY MATTING WITH DESIGN	ITING FL	OW LENG	GTH												



VERTICAL DRAW-DOWN DEVICE CONNECTION DETAIL (SEDIMENT CONTROL ONLY-DETAIL G)

TIMBER, 6' IN LENGTH	PLASTIC MESH																
					TA	BLE B.7:	SOIL ST	ABILIZATI	ON ON S	SLOPES							
4' MIN.		SLOPE	20:1	OR FLA (<=5%)	TTER	<	20:1 TO 4 (>5-25%)	1:1		<4:1 TO 3 (>25-33%			3:1 TO 2.5 >33 - 40%	and the second		2.5:1 TO 2: (>40-50%	
THE RESERVE THE PARTY OF THE PA		SLOPE LENGTH (FEET)*	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	6
		STRAW MULCH/WOOD CELLULOSE FIBER					FO	R K<= 0.3	5***								-
	USE 8" WIRE 'U' TO	TEMPORARY MATTING WITH DESIGN STRESS >= 1.5 PSF				-		X2									-
ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE	SECURE FENCE BOTTOM	TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 1.75 PSF											X1				-
TOTAL HEIGHT OF POST.		TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.0 PSF															100
LAZE ORANGE PLAST	IC FENCE	TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.25 PSF															
	NOT TO SCALE	* SLOPE LENGTH INCLUDES CONTRIE	UTING FL	OW LEN	GTH									-			_
NOTES:	ILL BE SET AS PART OF THE REVIEW PROCESS.	** SLOPES STEEPER THAN 2:1 MUST	BE ENGIN	EERED.										005 51051	NAME OF ALL	LOCATE	20
2. BOUNDARIES OF PRO	TECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR DES. RITICAL ROOT ZONES. DO NOT DAMAGE OR SEVER LARGE	*** SOIL HAVING A K FACTOR LESS TH SLOPES STEEPER THAN 5%. SOIL ST	IAN OR EG BAILIZATI	QUAL TO ION MAT	0.35 CAN TING IS RI	BE STAE	ON ALL	FFECTIVE SLOPES S	LY WITH	STRAW THAN 59	MULCH O	R WOOD AVE SOIL	WITH A	K FACTOR	GREAT	ER THAN	0.3

X1 = DOWNSTREAM SLOPE OF EMBANKMENT (S=3:1, L~45 LF) X2 = ACCESS ROAD TO MAINTENANCE BENCH (S = 10:1, L = ~95 LF) SCALE: 1" = 2' CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

		REVISIONS
NO.	DATE	DESCRIPTION
- 1		

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10710 GILROY ROAD **HUNT VALLEY, MARYLAND 21031** PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

EROSION AND SEDIMENT CONTROL DETAILS



15 of 19

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

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

SYMBOL	NAME	SLOPES	TYPE	HSG	K FACTOR	HYDRIC
GbB	GLADSTONE LOAM	3-8%	LOAM	Α	0.28	NO
GmB	GLENVILLE SILT LOAM	3-8%	SILT LOAM	С	0.43	NO
GnB	GLENVILLE-BAILE SILT LOAM	0-8%	SILT LOAM	С	0.43	NO

THE SITE HAS ONE PREDOMINANT SOIL TYPE AND TWO MINOR SOIL TYPES. MOST OF THE SITE INCLUDING THE SWM BMP FACILITY AND DAM EMBANKMENT CONSISTS OF GLADSTONE LOAM, 3-8 PERCENT SLOPES. THIS SOIL RANGES IN TEXTURE FROM LOAM (0-8 INCHES) AT SHALLOWER DEPTHS TO SANDY CLAY LOAM (8-30 INCHES) AT MODERATE DEPTHS TO LOAMY SAND (30-75 INCHES) AT DEEPER DEPTHS. THE SOIL IS CONSIDERED WELL DRAINED WITH AN ESTIMATED DEPTH TO WATER TABLE OF GREATER THAN 80 INCHES. THE SOIL IS CLASSIFIED AS HYDROLOGIC SOIL GROUP A. A SMALL PORTION OF THE SOUTH PART OF THE SITE CONSISTS OF GLENVILLE-BAILE SILT LOAM, 0-8 PERCENT SLOPES. THIS SOIL RANGES IN TEXTURE FROM SILT LOAM (0-30 INCHES) AT SHALLOWER DEPTHS TO LOAM (30-70 INCHES) AT DEEPER DEPTHS. THE SOIL IS CONSIDERED MODERATELY WELL DRAINED WITH AN ESTIMATED DEPTH TO WATER TABLE OF GREATER THAN 20 TO 40 INCHES. THE SOIL IS CLASSIFIED AS HYDROLOGIC SOIL GROUP C. A SMALL PORTION OF THE SOUTH PART OF THE SITE CONSISTS OF GLENVILLE SILT LOAM, 3-8 PERCENT SLOPES. THIS SOIL RANGES IN TEXTURE FROM SILT LOAM (0-30 INCHES) AT SHALLOWER DEPTHS TO LOAM (30-70 INCHES) AT DEEPER DEPTHS. THE SOIL IS CONSIDERED MODERATELY WELL DRAINED WITH AN ESTIMATED DEPTH TO WATER TABLE OF GREATER THAN 20 TO 40 INCHES. THE SOIL IS CLASSIFIED AS HYDROLOGIC SOIL GROUP C.

THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Sull Ad: 5/10/18
HOWARD SOIL CONSERVATION DISTRICT J DATE
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
Much Drum 5/9/18

BUREAU OF ENVIRONMENTAL SERVICES

			PERMANEN	IT SEEDING SUI	MMARY			
	SEED MIXTURE	(HARDINESS ZON	E 6B) FROM TABLE B.3		FERT	ILIZER RATE (10-2	0-20)	
NO.	SPECIES	APPLICATION RATE (LB/AC.)	SEEDING DATES	SEEDING DEPTHS	N	P2O5	K20	LIME RATE
	SWITCH GRASS	120						
1	CREEPING RED FESCUE	181	4 144 150 45 4444					
	PARTRIDGE PEA	49	1 MARCH TO 15 MAY; 16 MAY TO 15 JUNE					
	DEER TONGUE	131	WITH ADDITIONAL					114 - 3
3	CREEPING RED FESCUE	175	WATERING	1/4" TO 1/2"	45LB/AC (1 LB/1,000 SF)	90 LB/AC (2 LB/1,000 SF)	90 LB/AC	2 TONS/AC
	VIRGINIA WILD RYE	43			(1 LB/ 1,000 3F)	(2 LB/ 1,000 3F)	(2 LB/1,000 SF)	(90 LB/1000 SF)
-	TALL FESCUE	175						
9	KENTUCKY BLUEGRASS	117	15 AUGUST TO 15 OCTOBER					
	PERENNIAL RYE	58	OCTOBER					

MDE STANDARD B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

ONDITIONS WHERE PRACTICE APPLIES
O THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

A.1.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

MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE PPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS. 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 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.

A.2.a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS. INCORPORATE SEED INTO THE SOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT

SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).

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. 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 MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.

A.2.c. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL. B. MULCHING

B.1. MULCH MATERIALS (IN ORDER OF PREFERENCE) B.1.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

B.1.b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR 15. (DAYS 26-27) INSTALL RISER APPURTENANCES (MANHOLE COVER, ORIFICE PLATE, LOW FLOW O FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION 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 SEEDLINGS. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE

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. B.2. APPLICATION

B.2.a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. 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 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. ANCHORING 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 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

WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 END OF EACH WORK DAY. ITEMS 24-26 MAY BE DONE CONCURRENTLY WITH ITEMS 20-23. POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE

24. (DAY 55) DEMOLISH AND REMOVE EX. 29X45 H.E.R.C.P WITHIN LIMITS SHOWN ON THE PLANS. FIBER PER 100 GALLONS OF WATER SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK AR OR OTHER 25. (DAYS 56-58) INSTALL STRUCTURES EW-2, MH-2 AND INCLUSIVE STORM DRAIN PIPE FROM APPROVED EQUAL MAY BE USED. FOLLOW 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. 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.

MDE STANDARD B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND 2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A

SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING. 3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE. . ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.

5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE 6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL

PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION. 8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE

CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING. THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE

SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1

		TEN	MPORARY SEEDING SUN	MARY		
	SEED MIXTURE	(HARDINESS ZON	IE 6B) FROM TABLE B.1			
NO.	SPECIES	APPLICATION RATE (LB/AC.)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE
1	ANNUAL RYEGRASS	40	1 MARCH TO 31 MAY 1 AUG. TO 15 OCT.	1"	436 LB/AC (10 LB/1,000 SF)	2 TONS/AC (90 LB/1000 SF)
2	BARLEY	96	1 MARCH TO 31 MAY 1 AUG. TO 15 OCT.	1/2"	436 LB/AC (10 LB/1,000 SF)	2 TONS/AC (90 LB/1000 SF)
3	FOXTAIL MILLET	30	16 MAY TO 31 JULY	1/2"	436 LB/AC (10 LB/1,000 SF)	2 TONS/AC (90 LB/1000 SF)

NOTE: IF PERMANENT STABILIZATION IS REQUIRED OUTSIDE OF SPECIFIED SEEDING DATES, THE CONTRACTOR SHALL PROVIDE TEMPORARY STABILIZATION MEASURES (SEED AND MULCH) UNTIL THE APPROPRIATE SEEDING DATES FOR THE SPECFIED SEED MIXES OCCUR. THE CONTRACTOR SHALL PROVIDE PERMANENT STABILIZATION SEEDING WITHIN THE SPECIFIED SEEDING DATES.

SEQUENCE OF CONSTRUCTION

1. OBTAIN ALL PERMITS (HOWARD COUNTY GRADING, MDE NPDES DISCHARGE, MDE NON-TIDAL WETLANDS AND WATERWAYS AUTHORIZATION) PRIOR TO MOBILIZATION. (DAY 1) PRIOR TO CLEARING, GRUBBING, GRADING, OR ANY LAND DISTURBANCE OF ANY KIND, THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING ON-SITE TO REVIEW THE LIMITS OF DISTURBANCE, EROSION AND SEDIMENT CONTROL REQUIREMENTS AND THE

 SEDIMENT AND EROSION CONTROL INSPECTOR - HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (C.I.D.) (410.313.1855 - 48 HOURS' NOTICE).

SEQUENCE OF CONSTRUCTION WITH THE FOLLOWING PARTIES:

 MARYLAND DEPARTMENT OF THE ENVIRONMENT INSPECTOR(S) (NPDES, NON-TIDAL WETLANDS AND WATERWAYS - FIVE DAYS' NOTICE)

 OWNER - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES ENGINEER (410.313.0844 - 48 HOURS' NOTICE). OWNER'S ENGINEER - CENTURY ENGINEERING, INC. (443.589.2400 - 48 HOURS' NOTICE)

THE MEETING WILL ALSO SERVE AS A FORUM TO VERIFY THE LOCATION OF ANY STAGING/STOCKPILE AREAS AND FLAG ANY TREES WITHIN THE LIMITS OF DISTURBANCE TO BE REMOVED FOR CONSTRUCTION AND ACCESS. THE LIMITS OF DISTURBANCE SHALL BE FIELD-MARKED PRIOR TO HOLDING THIS MEETING.

(DAYS 2-3) WITH THREE DAY CLEAR WEATHER FORECAST, CLEAR AND GRUB FOR INSTALLATION OF CONSTRUCTION SAFETY FENCING, PERIMETER SEDIMENT CONTROLS AND CONSTRUCTION ENTRANCE (DAYS 4-7) INSTALL STABILIZED CONSTRUCTION ENTRANCE, COLONIAL PIPELINE CO. ROW CROSSING, CONSTRUCTION SAFETY FENCING AND PERIMETER SEDIMENT CONTROLS.

RIGHT-OF-WAY (DAY 8) OBTAIN APPROVAL FROM THE C.I.D. INSPECTOR OF EROSION AND SEDIMENT CONTROLS BEFORE PROCEEDING WITH ANY FURTHER CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES.

COORDINATE WITH COLONIAL PIPELINE CO. (443.871.1797) FOR ANY WORK WITHIN EX.

CARE OF WATER MEASURE (DAYS 9-13) EXCAVATE EXISTING EMBANKMENT AND INSTALL CLEAN WATER BYPASS PIPE AND DE-WATERING SYSTEMS (SUMP PIT, PUMP, FILTER BAG). CONNECT CLEAN WATER BYPASS

PIPE TO EXISTING 29x45 H.E.R.C.P. PER DETAIL ON THESE PLANS. OUTFALL BYPASS PIPE ONTO EXISTING RIPRAP PAD 7. (DAY 14) IF NOT DONE AS PART OF EXCAVATION, REMOVE EXISTING PRINCIPAL SPILLWAY RISER AND PIPE.

PRINCIPAL SPILLWAY INSTALLATIO (DAYS 15-16) EXCAVATE FOR CLAY CUTOFF TRENCH AND BOTTOM OF FILTER DIAPHRAGM AND INSTALL CLAY CUT OFF TRENCH AND BOTTOM PORTION OF FILTER DIAPHRAGM TO THE

ELEVATION OF THE BOTTOM OF THE CONCRETE CRADLE. 9. (DAYS 17-18) INSTALL PRINCIPAL SPILLWAY PIPE FROM DOWNSTREAM TO UPSTREAM. (DAY 19) FORM AND POUR CONCRETE CRADLE AROUND PRINCIPAL SPILLWAY PIPE. 11. (DAY 20) INSTALL STRUCTURE EW-1 AND FILTER DIAPHRAGM TOE DRAIN PIPE STUBS. 12. (DAY 21) INSTALL RIPRAP AT STRUCTURE EW-1. RELOCATE CLEANWATER BYPASS PIPE AS NECESSARY TO FACILITATE RIPRAP INSTALLATION. OUTFALL BYPASS PIPE INTO NEW RIPRAP

(DAY 22) EXCAVATE FOR THE RISER INSTALLATION.

14. (DAYS 23-25) INSTALL RISER STRUCTURE ON GEOTECHNICAL ENGINEER-APPROVED

TRASH RACK, RISER TRASH RACKS, POND DRAIN VALVE, STEM EXTENSION AND GUIDES, AND MANHOLE STEPS).

(DAY 28) INSTALL REMAINDER OF LOW FLOW AND POND DRAIN PIPES AND STRUCTURE HW-1. (DAY 29) INSTALL VERTICAL DRAW-DOWN DEVICE AND CONNECT TO POND DRAIN PIPE. 18. (DAY 30) REMOVE THE CLEAN WATER BYPASS PIPE. 19. (DAYS 31-40) BACKFILL THE EMBANKMENT TO FINISHED GRADE. INSTALL CLAY CORE AND

REMAINDER OF FILTER DIAPHRAGM AND TOE DRAIN PIPES DURING BACKFILL. RE-GRADE

EXISTING AUXILIARY SPILLWAY CHANNEL AS SHOWN ON THE PLANS DURING EMBANKMENT

TE: ITEMS 20-21 MAY BE DONE CONCURRENTLY. 20. (DAYS 41-42) COMPLETE EXCAVATION AND GRADING OF BASIN TO FINISHED GRADE AS SHOWN ON THE PLANS. DEWATER THROUGH THE VERTICAL DRAW DOWN DEVICE INSTALLED IN ITEM 17. THE CONTRACTOR SHALL STABILIZE (TEMPORARILY AT MINIMUM) NEWLY GRADED AREAS AS THEY ARE PLACED ON GRADE

21. (DAYS 43-52) EXCAVATE FOR AND INSTALL GABION WALL PER MANUFACTURER'S INSTRUCTIONS, DIRECTIONS, AND SPECIFICATIONS. COVER GABION WALL WITH NON-WOVEN GEOTEXTILE UPON COMPLETION OF INSTALLATION UNTIL BASIN IS PERMANENTLY STABILIZED (DAY 53) INSTALL RIPRAP OUTFALL CHANNEL AT DOWNSTREAM END OF STRUCTURE EW-2... 23. (DAY 54) PERMANENTLY STABILIZE WITH SEED/MULCH AND STABILIZATION MATTING. ONCE STABILIZATION HAS BEEN ACHIEVED AND WITH THE APPROVAL OF THE C.I.D. INSPECTOR.

TORM DRAIN MODIFICATION

AN WATER BYPASS PIPE MAY BE REMOVED FROM THE INFLOW STORM DRAIN DURING THE WORKDAY TO FACILITATE WORK. HOWEVER, IT MUST BE REPLACED AND FUNCTIONAL AT THE

REMOVE THE DE-WATERING DEVICE AND INSTALL THE POND DRAIN INTAKE.

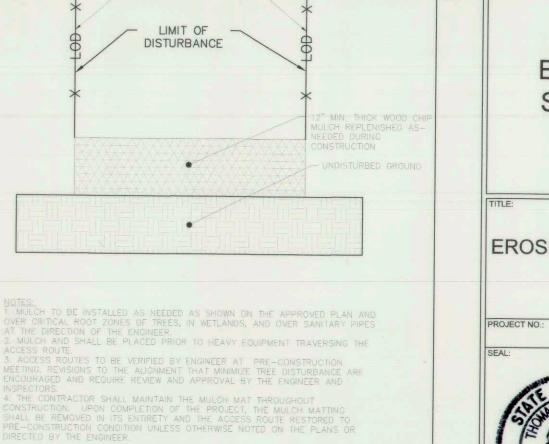
TAKE CARE NOT TO DAMAGE EX. STORM DRAIN TO REMAIN. DOWNSTREAM TO UPSTREAM. RELOCATE CLEAN WATER BYPASS TO NEW STORM DRAIN AND

CONSTRUCTION PROGRESSES.

26. (DAYS 59-60) COMPLETE BACKFILL OVER STORM DRAIN.

27. (DAYS 61-63) COMPLETE IN-KIND RESTORATION OF ANY DAMAGE TO EXISTING INFRASTRUCTURE EITHER ON-SITE OR OFF-SITE. THIS INCLUDES BUT IS NOT LIMITED TO: SIDEWALK, CURB AND GUTTER, PAVEMENT, UTILITY APPURTENANCES, TREES, SIGNS, ETC.) 28. (DAY 64) COMPLETE FINAL PERMANENT VEGETATIVE STABILIZATION OF SITE

29. (DAYS 65-66) WITH THE APPROVAL OF THE C.I.D. INSPECTOR, REMOVE REMAINING SEDIMENT 10710 GILROY ROAD CONTROLS AND STABILIZE ANY REMAINING DISTURBED AREAS.



CLIENT/LAND OWNER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

		REVISIONS
NO.	DATE	DESCRIPTION

SITE INFORMATION

STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT **ELLICOTT CITY, MARYLAND 21042**

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 **ELECTION DISTRICT: 1** ZONING: R-20 PLAT NO.: 9747, 10710

CONSULTING ENGINEERS - PLANNERS HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

> **BLUE RIVER COURT** SWM POND REPAIR

EROSION AND SEDIMENT CONTROL NOTES

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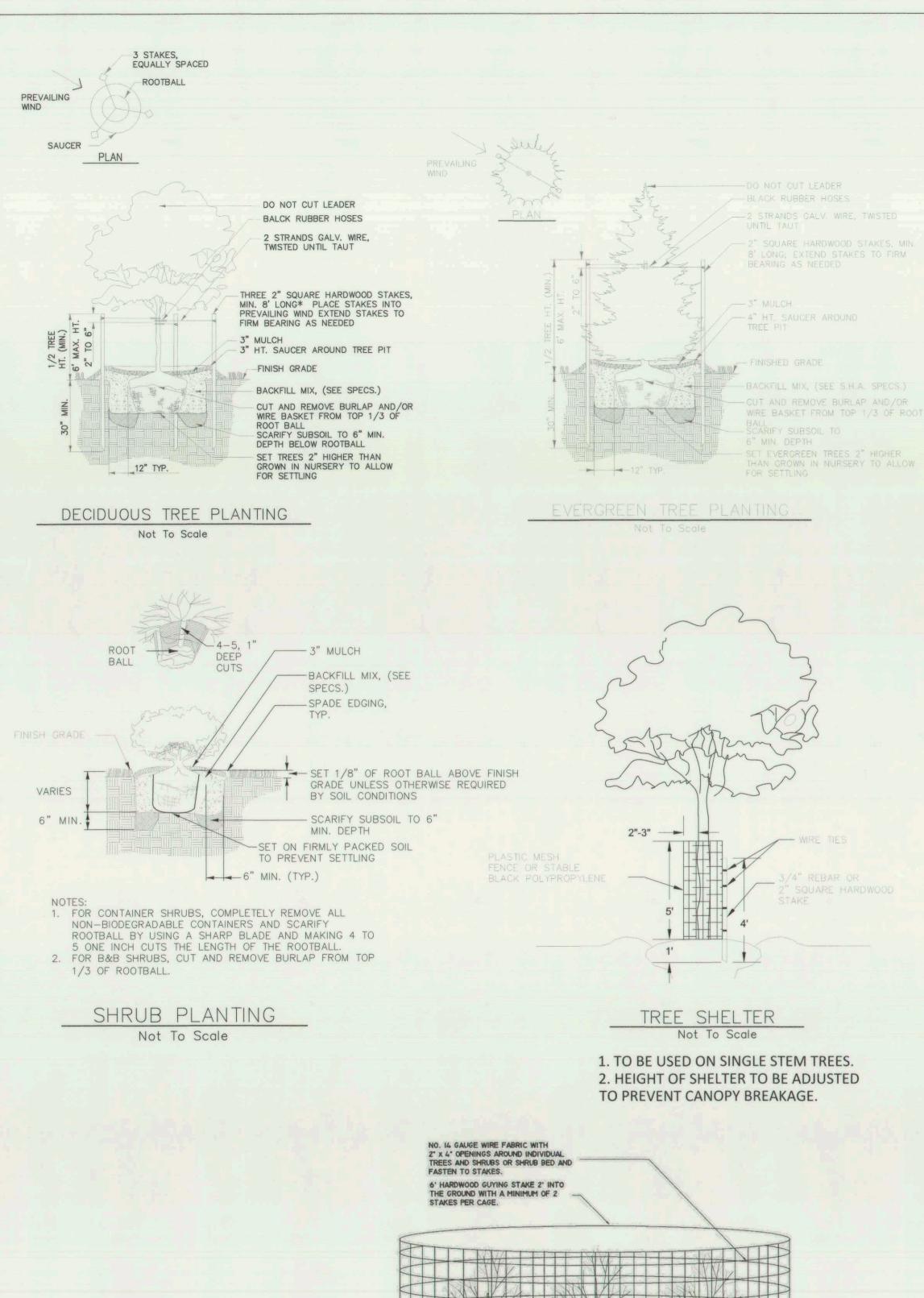
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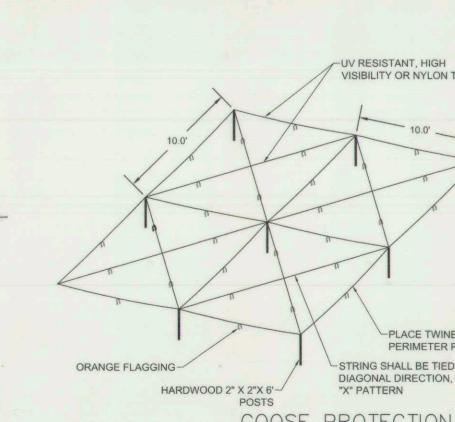
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04/11/2018







Landscaping Notes:

Plant Material Selection -

- 1. The contractor shall furnish plant materials in sizes and quantities specified in the plant schedules.
- 2. Nursery grown plant material should meet or exceed the requirements of the American Nursery & Landscape Association's' (A.N.L.A.) latest edition of "American Standard Nursery Stock" (ANSI Z60.1) Specifications, particularly regarding the size, growth, size of the root ball, and density of branch structure.
- 3. All planting material shall be sourced from within 100 miles of the site.
- 4. No substitutions shall be made without the written consent of the Owner and/or Landscape Architect.
- 5. The Landscape Architect or Owner shall have the right, at any stage of the operations, to reject any and all work and materials which, in his or her opinion, do not meet the requirements of these plans and specifications. All rejected material shall be removed from the site by the Contractor.
- 6. See plant lists on the landscape Plan Sheet 17 of 18 for size, type, species, spacing, quantities and application rates.
- 7. Seed mixes shall have a minimum purity of 98% and a minimum germination of 85% per planting zone. The seed mix is to be endophyte-free and contain less than 1% inert matter.
- 8. All mulch shall consist of straw mulch.

Plant Material Transport, Approval, & Storage -

- 1. Plant material shall be protected to prevent sun scald, desiccation, and structural damage during transport to the site. Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted.
- 2. Plant material shall be inspected to be free of disease, damage, insect infestation, and vigor upon delivery to the site. All plants should be healthy and well structured. No heeled-cold storage or collected stock will be accepted. Plants in poor condition shall be rejected, removed from the site and replaced with acceptable materials.
- 3. Plant material shall be stored in a cool, shaded area on the site and kept moist to prevent desiccation until ready for planting. Planting shall begin within 24 hours of plant delivery to the site. Plant material that remains unplanted beyond 24 hours shall be protected from direct sun and weather, and kept moist. Plant materials shall not be left unplanted for more than 2 weeks.
- 4. The contractor is required to obtain clean fresh water for use during planting operations and the subsequent maintenance period.

<u>Site Preparation -</u>

- 1. The site and areas abutting the LOD shall be treated for invasive species prior to the start of construction.
- 2. No clearing or grading shall begin before stress—reduction measures have been implemented. Such measures may include tree protection planking, root pruning, crown reduction or pruning, etc. at the discretion of the plan preparer, designated specialist, or an MDLTE/ISA certified arborist.
- 3. Prior to beginning any construction activities, tree protection fencing shall be installed along all sections of the LOD abutting wooded/forested areas and around all 'tree save' areas to ensure preservation of these areas.
- 4. All tree protection measures must be in place at the time of the Sediment & Erosion Control inspection, prior to the commencement of demolition, site clearing, grading, or construction. Tree protection devices shall be maintained for the duration of construction. No equipment, trucks, materials, or debris may be stored within the tree protection areas during the entire construction project.
- 5. All trees to be removed must be removed in a manner that will not damage the remaining trees. The Contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable, soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.
- 6. Any trees that are to remain that are damaged during the clearing operation must be repaired or removed and replaced in an approved manner by an MDLTE/ISA certified arborist, designated specialist, or Howard County DPW representative as soon as final clearing has been completed.
- 7. Root pruning may be necessary where the critical root zone is impacted, as determined by the plan preparer or an MDLTE/ISA certified arborist. Pruning shall be along the LOD adjacent to tree protection fencing. A certified arborist shall supervise or conduct root pruning.

Planting and Schedule -

- 1. Refer to the MDSHA Standards and Specifications Section 710.03.01 Planting Seasons Table for acceptable planting period. Planting shall not be completed in sub-freezing temperatures; when the ground is frozen; when weather conditions will adversely affect plant materials; or when the soil is too wet or otherwise in a condition not acceptable for planting.
- 2. The Contractor shall stabilize, seed with the designated permanent seed mix (see landscape schedules), and mulch the site immediately following the establishment of finished grade.
- 3. The site hydrology will be monitored for 1 year. Following the first year of hydrology monitoring, the Contractor shall install tree and shrub plantings at the direction of the designated specialist. The extent of the wetland tree and shrub zones may be adjusted at the direction of the designated specialist.
- 4. Mow planting area close to the ground one week (or less) prior to planting date.
- 5. The Contractor is responsible for testing project soils. The Contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. These amendments shall include, but not be limited to fertilizers, lime, and topsoil. Proper planting soils must be verified prior to when planting materials are installed.
- 6. Prepare planting pits per MDSHA Standards and Specifications Section 710.03.04.
- 7. No trees are to be planted directly over utility lines.
- 8. Install plant materials per MDSHA Standards and Specifications 710.03.09.
- 9. Upon completion of all landscaping, an acceptance of the work shall be held. The contractor shall notify the Landscape Architect, designated specialist, or the Owner for scheduling of the inspection at least seven (7) days prior to the anticipated inspection
- 10. After installation of plants, the contractor shall monitor the soil moisture and water needs of plants and seed as necessary to ensure survivability. Watering planting pits and seeded areas should occur as specified in MDSHA Standards and Specifications Section 710.03.04(c).

Maintenance -

1. Upon completion of installation, the planting area is to be maintained for a 1 year period. An 100% survival rate must be achieved from the date of acceptance to the termination of the maintenance period. Maintenance shall be as follows:

- a. Any plant material showing signs of distress are to be replaced immediately by the contractor.
- b. Native volunteer seedlings shall be removed only if they are adversely impacting the growth of the planted material. Non-native and invasive species are to be removed from the entire planting area through selected and approved means.
- c. All man-made materials shall be removed from the site which would impact the establishment of the planted materials.
- d. Thoroughly water planted material once weekly or as needed during the growing season.
- e. Planted material is to be monitored for signs of damage and appropriate actions shall be taken to prevent further damage. This may include, but not be limited to, the following: pest damage or infestation, disease or browsing; any dead or decimated material shall be replaced with the identical species or an approved
- f. At the end of the 1 year maintenance period, the site shall be inspected for the 100% survival rate as required by the Howard County DPW.

CLUSTER PLANTING DETAIL

Not To Scale

CLIENT/LAND OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 6751 COLUMBIA GATEWAY DRIVE, SUITE 514 COLUMBIA, MARYLAND 21046-3143 PHONE: 410.313.0844

		REVISIONS
NO.	DATE	DESCRIPTION
	- 1	

SITE INFORMATION

STREET ADDRESS: ADJACENT TO: 3912 BLUE RIVER COURT ELLICOTT CITY, MARYLAND 21042

GREY ROCK FARM SECTIONS 5 AND 6 LOTS: 252, 301 PARCEL: 1178 TAX MAP: 0024 GRID: 0015 **ELECTION DISTRICT: 1** ZONING: R-20 PLAT NO.: 9747, 10710

ENGINEERING CONSULTING ENGINEERS - PLANNERS 10710 GILROY ROAD HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

BLUE RIVER COURT SWM POND REPAIR

LANDSCAPE NOTES AND DETAILS

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NOTCH POST AND SECURELY -3 ROWS OF UV RESISTANT, HIGH VISIBILITY OR NYLON TWINE SPACED VISIBILITY OR NYLON TWINE FASTEN TWINE, ENSURING THE 15" APART VERTICALLY ORANGE FLAGGING - ALLOW TO HANG 8"-12" FROM TWINE 12" TWINE SPACING 6-8" ABOVE FINISHED - Tree Canopy Species 🕥 🔾 🔵 - Shrub Species 2' BELOW_ GRADE A' - Tree spacing per plant schedule -PLACE TWINE AROUND B' - Shrub spacing per plant schedule PERIMETER POSTS STRING SHALL BE TIED TO POSTS IN A SECTION 1. This planting is to mimic natural seed dispersal. DIAGONAL DIRECTION, CREATING AN 2. Each species is to be planted in a group of common vegetation species. NOTE: SEE GOOSE PROTECTION FENCE SPECIFICATION FOR ADDITIONAL 3. The minimum cluster is a group of 3 trees/shrubs of the same species. INFORMATION REGARDING MATERIALS AND 4. Maximum cluster of 15. CONSTRUCTION

GOOSE PROTECTION FENCE DETAIL

Not To Scale

CLUSTER SHRUB DEER PROTECTION I. THIS DETAIL IS TO BE USED FOR INDIVIDUAL SHRUBS AND SHRUB BEDS. IN ADDITION, IT WILL BE USED FOR EVERGREEN TREES OR DECIDUOUS TREES WITH BRANCHES LOWER THAN

2. HEIGHT OF CAGE SHALL BE 4 FEET MINIMUM WITH A MAXIMUM DIAMETER OF 10 FEET.

(MIN.) ABOVE THE GROUND. 4. CAGE SHALL SURROUND ALL SHRUBS AND TREES WITH A I FOOT SPACING FROM THE OUTSIDE OF THE PLANT.

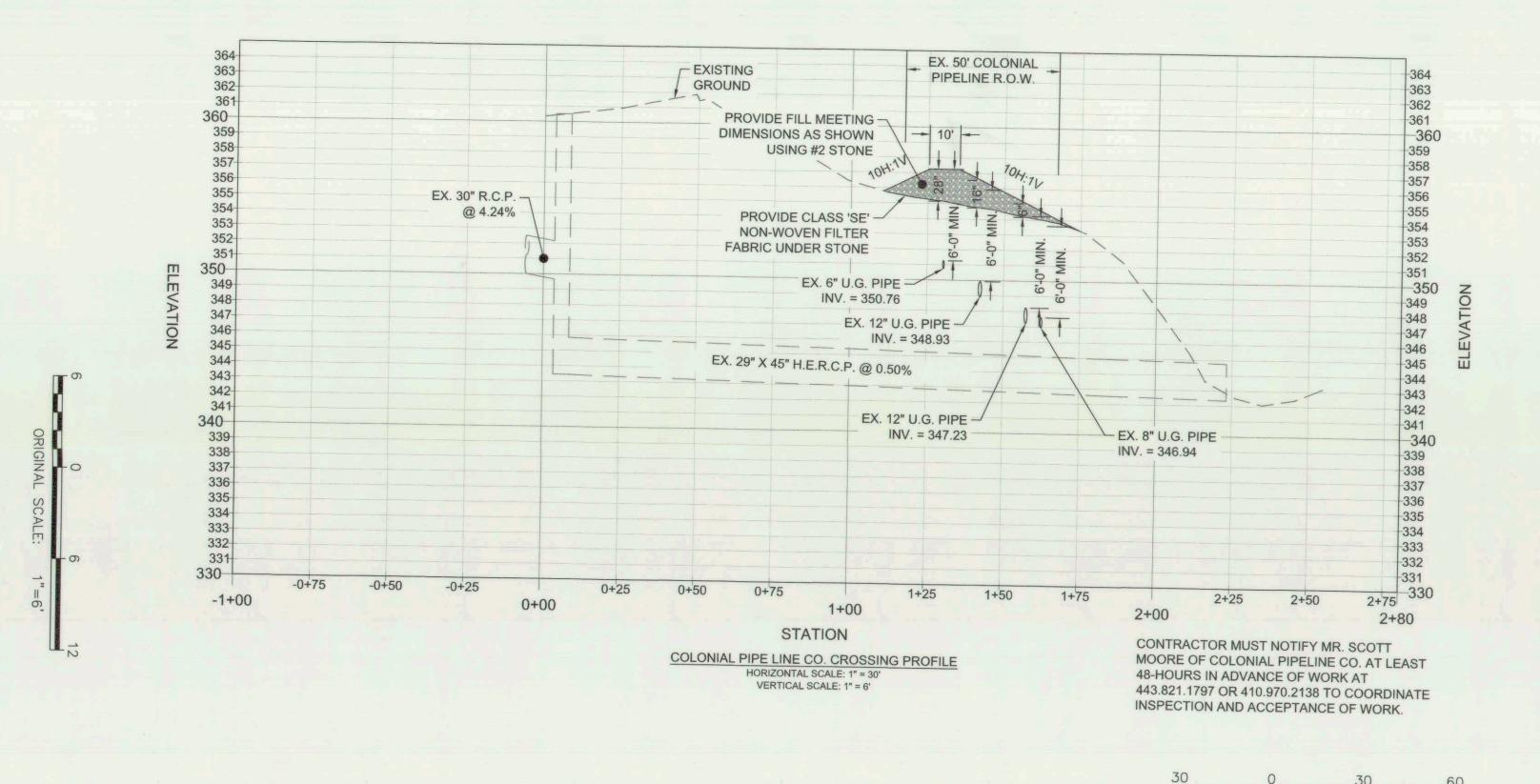
3. CAGE SHALL BE FASTENED TO STAKE WITH 3 (MIN.) TWIST TIE EVENLY SPACED WITH A 6"

- 5. STAKES SHALL BE PLACED AT A MAXIMUM 5 FOOT SPACING.
- 6. CAGES TO BE REMOVED AT DIRECTION OF HOWARD COUNTY

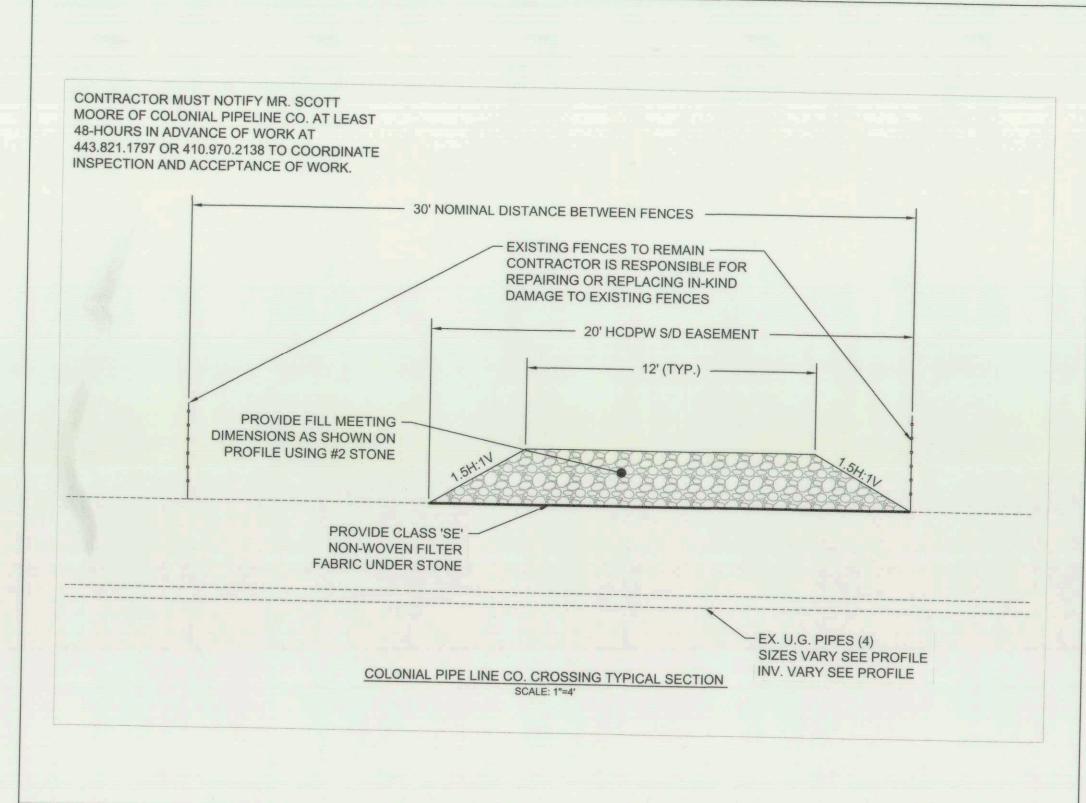
NOTES:

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

7. HARDWOOD MULCH SHALL BE PLACED TO 2-3 INCH DEPTH WITHIN FENCING.



ORIGINAL SCALE: 1"=30"



ORIGINAL SCALE: 1"=4"

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10710 GILROY ROAD

BLUE RIVER COURT SWM POND REPAIR

HUNT VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401

COLONIAL PIPELINE ROW CROSSING

AS SHOWN 04/11/2018 DESIGN: CHECK: RG CP-01 OF CP-01

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD