INDEX OF SHEETS TITLE SHEET STORMWATER MANAGEMENT GRADING PLAN STORMWATER MANAGEMENT GEOMETRY SHEET STORMWATER MANAGEMENT PROFILES & SECTIONS STORMWATER MANAGEMENT PROFILES, SECTIONS, AND DETAILS STORMWATER MANAGEMENT DETAILS STORMWATER MANAGEMENT DETAILS & NOTES EROSION & SEDIMENT CONTROL PLAN - PHASE 1 **EROSION & SEDIMENT CONTROL PLAN - PHASE 2** EROSION & SEDIMENT CONTROL PLAN - PHASE 3 EROSION & SEDIMENT CONTROL DETAILS EROSION & SEDIMENT CONTROL NOTES I EROSION & SEDIMENT CONTROL NOTES II EROSION & SEDIMENT CONTROL NOTES III LANDSCAPE PLAN LANDSCAPE NOTES & DETAILS

LEGEND

LIMIT OF DISTURBANCE/ORANGE SAFETY FENCE		- LOD
EXISTING MAJOR CONTOURS		387
EXISTING MINOR CONTOURS		
PROPOSED CONTOURS		
EXISTING TREE		のが
SPECIMEN TREE		 SP □
EXISTING TREE TO BE REMOVED		X X
EXISTING WOODSLINE		
SOIL TYPE BOUNDARY AND MAP UNIT SYMBOLS		<u> </u>
PROPERTY LINE		
EXISTING STORM DRAIN		SD
EXISTING SEWER MANHOLE		(SS)
EXISTING STORM DRAIN MANHOLE		<u>\$</u>
EXISTING EASEMENT LINE		
EXISTING SEWER LINE		
EXISTING EDGE OF PAVEMENT		
EXISTING BUILDING		
EXISTING RIPRAP		TSPSE
PROPOSED RIPRAP PAD		5084 5084
WATERS OF THE US		
		WUS
EDGE OF WETLAND		
100-YEAR WATER SURFACE ELEVATION		
SANDBAG DAM		
PUMP AROUND AND HOSES		
REMOVABLE PUMPING STATION		⊠RPS
FILTER BAG		FB
SUPER SILT FENCE		
ORANGE SAFETY FENCE		SSF
		— OSF ———
PROPOSED TYPE 'B' SOIL STABILIZATION MATTING		
ACCESS PATH		88888888
SOIL BORING		B-1
STABILIZED CONSTRUCTION ENTRANCE		SCE
TREE PROTECTION FENCE		7/7///////////////////////////////////
" making		TPF /////
ERTIFY THAT THIS PLAN FOR POUR SHIPTENSTRUCTURED AND SEDIM	ERTIFICATE	
CTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOW PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF TH	LEDGE OF THE SITE CONDITIONS.	. THIS PLAN
RICT. IHAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST	ENGAGE A REGISTERED PROFESSI	ONAL ENGINEER
COMP.		
TIPH		
NATURE OF ENGINEER (PEN NAME BELOW SIGNATURE)	P.E. • 39696	
N W DERTE, PE		
DEVEL ABERIA	CERTIFICATE	
DEVELOPER'S (VE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION		THESE DI ANG AND THAT
VE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING P	PROJECT WILL HAVE A CERTIFICA	ATE OF ATTENDANCE
ORE BEGINNING THE PROJECT.		
ISERVATION DISTRICT."	N-SITE INSPECTIONS BY THE HOW	VARD SOIL
		V N

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, ME	•
Com 9. Vm 7/31/15	
DIRECTORY OF PUBLIC WORKS	
1/29/11	5
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE	
Mark S. Richmond 7/29/13	5
CHIEF, STORMWATER MANAGEMENT DIVISION DATE	

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

7/30/15

WHITWORTH WAY POND ENHANCEMENTS

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS CAPITAL PROJECT D-1160



SITE SCHEMATICS

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

AS-BUILT CERTIFICATION

THEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN THE APPROVED PLANS AND SPECIFICATIONS.

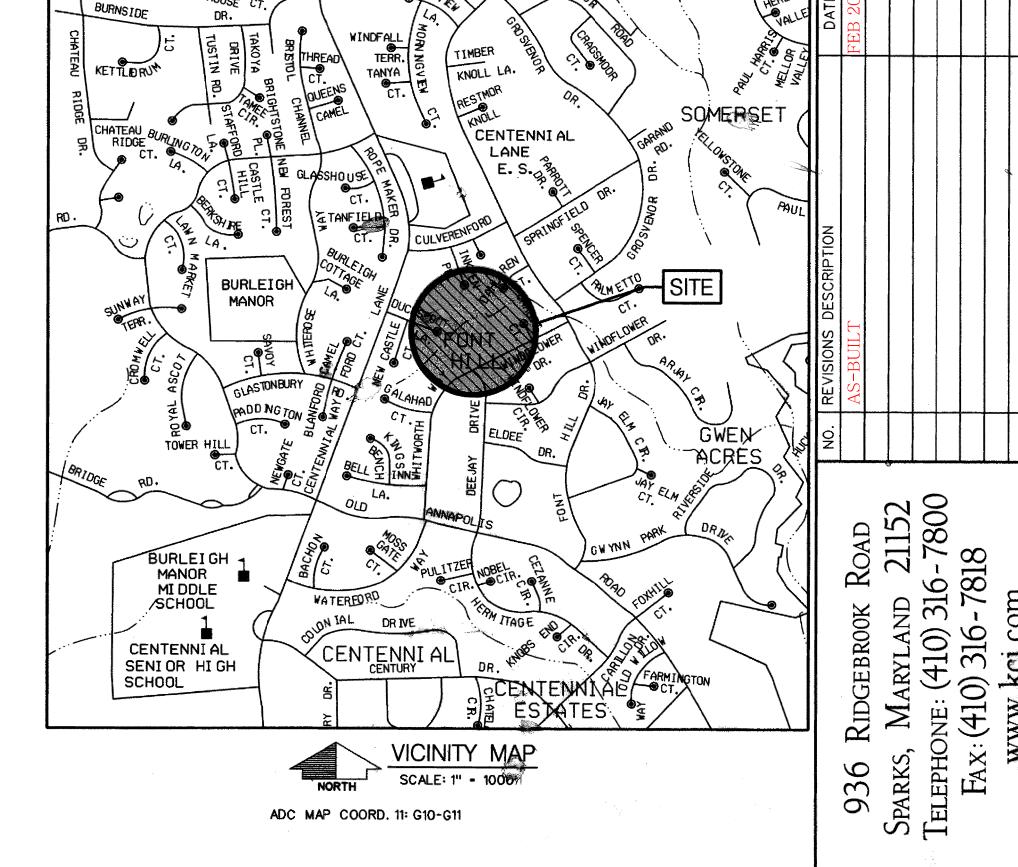
SIGNATURE

02/29/2016 PE NO. DATE

0019 0024 PUBLIC

PERMIT INFORMATION CHART

BURLEIGH MANOR SECTION 1 AREA 1 OWNER:
HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
410-313-6444



GENERAL INFORMATION

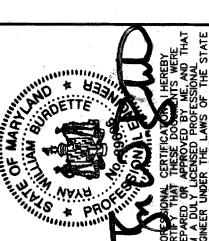
- 1. EXISTING FACILITY WAS CONSTRUCTED UNDER BURLEIGH MANOR, SECTION 1, AREA 1, 2ND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND STORMWATER MANAGEMENT AS-BUILT PLAN F-79-093, AS ACCEPTED BY HOWARD COUNTY SOIL CONSERVATION
- 2. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE. 3. THIS PLAN MEETS THE REQUIREMENTS OF THE FOREST CONSERVATION
- REGULATIONS. 4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND AND SPECIFICATIONS, IF APPLICABLE.
- 5. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
- 6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 7. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM.
- 8. WATER IS PUBLIC.
- 9. SEWER IS PUBLIC.
- 10. EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS. CONTRACTOR TO VERIFY INFORMATION TO HIS/HER OWN SATISFACTION.
- 11. KCI PERFORMED A SITE VISIT ON SEPTEMBER 14, 2012 TO VERIFY THE PRESENCE OR ABSENCE OF WETLANDS AND "WATERS OF THE U.S." AT THE SITE.
- 12. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., IN OCTOBER 2012.
- 13. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- 14. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCITECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- 15. THE CONTRACTOR 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 AT THE CONTRACTOR'S EXPENSE.
- 16. THE OWNER SHALL REMOVE ALL WOODY VEGETATION FROM THE WOODY-FREE ZONE.

Maryland Dept. of the Environment Dam Safety Division Permit No. 15-MR-0059 Plans Approved By Bruce W. Harrington, P.F.

SPECIAL CONTRACTOR NOTES

- 1. 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
- 2. NO STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO MDE FOR THIS PROJECT (TRACKING NUMBER *2015-60282). UNDER THIS PERMIT, IN-STREAM WORK IS PROHIBITED FROM MARCH 1ST TO MAY 31ST. CLASSIFICATION IV-P.
- 4. THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE 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 THE ENGINEER OR HIS/HER
- REPRESENTATIVE PRIOR TO CONSTRUCTION. 5. CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.
- 6. 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.
- 7. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
- 8. CONTRACTOR IS RESPONSIBLE FOR REMOVING EXISTING TREES LOCATED WITHIN THE 'WOODY FREE ZONE' OF THE EMBANKMENT (15 FEET FROM TOE OF DAM AND 25 FEET SURROUNDING THE CONTROL STRUCTURE) SEE TABLE 'A' ON SHEET NO. 14 FOR TREE REMOVAL GUIDANCE.

EP-15-027

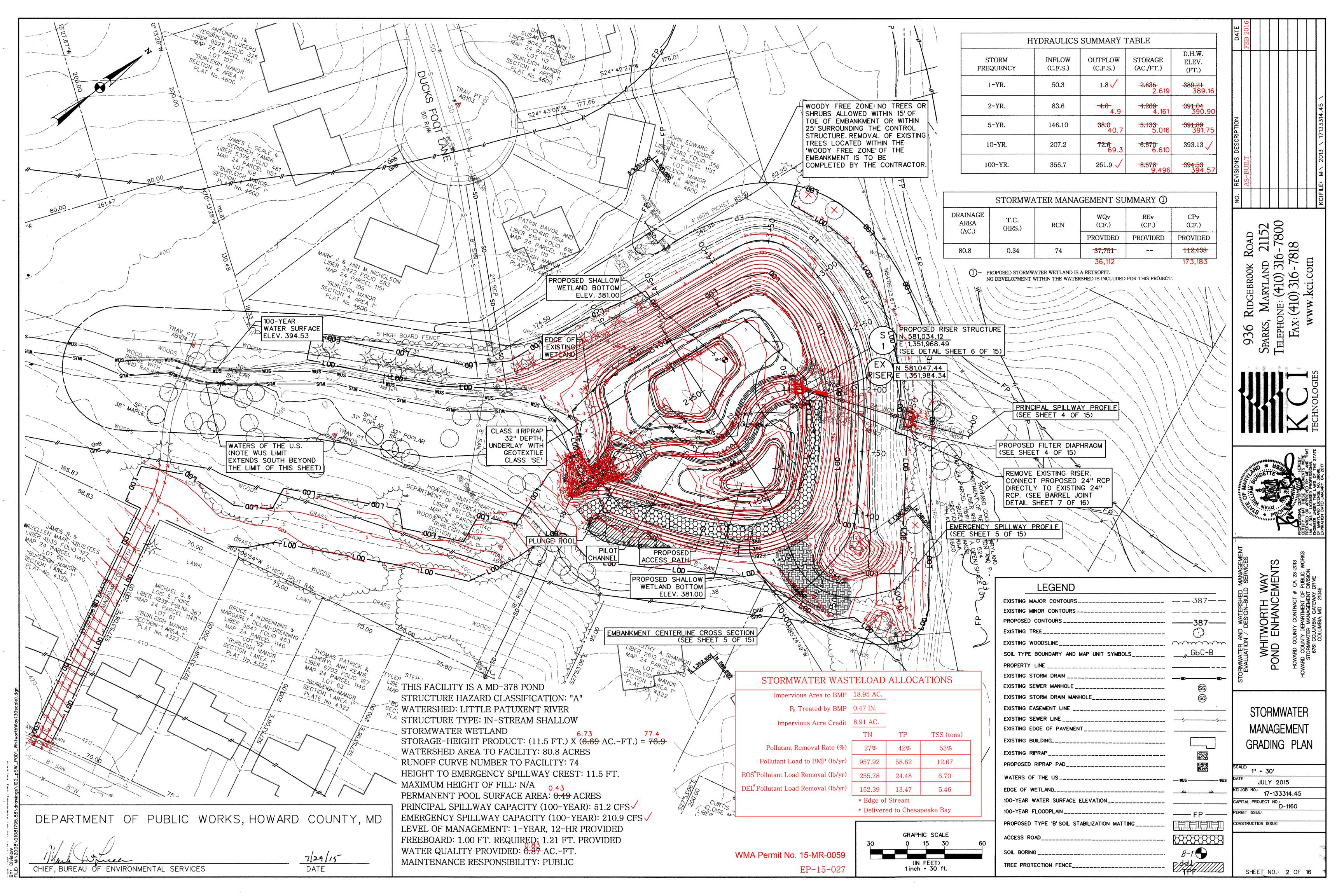


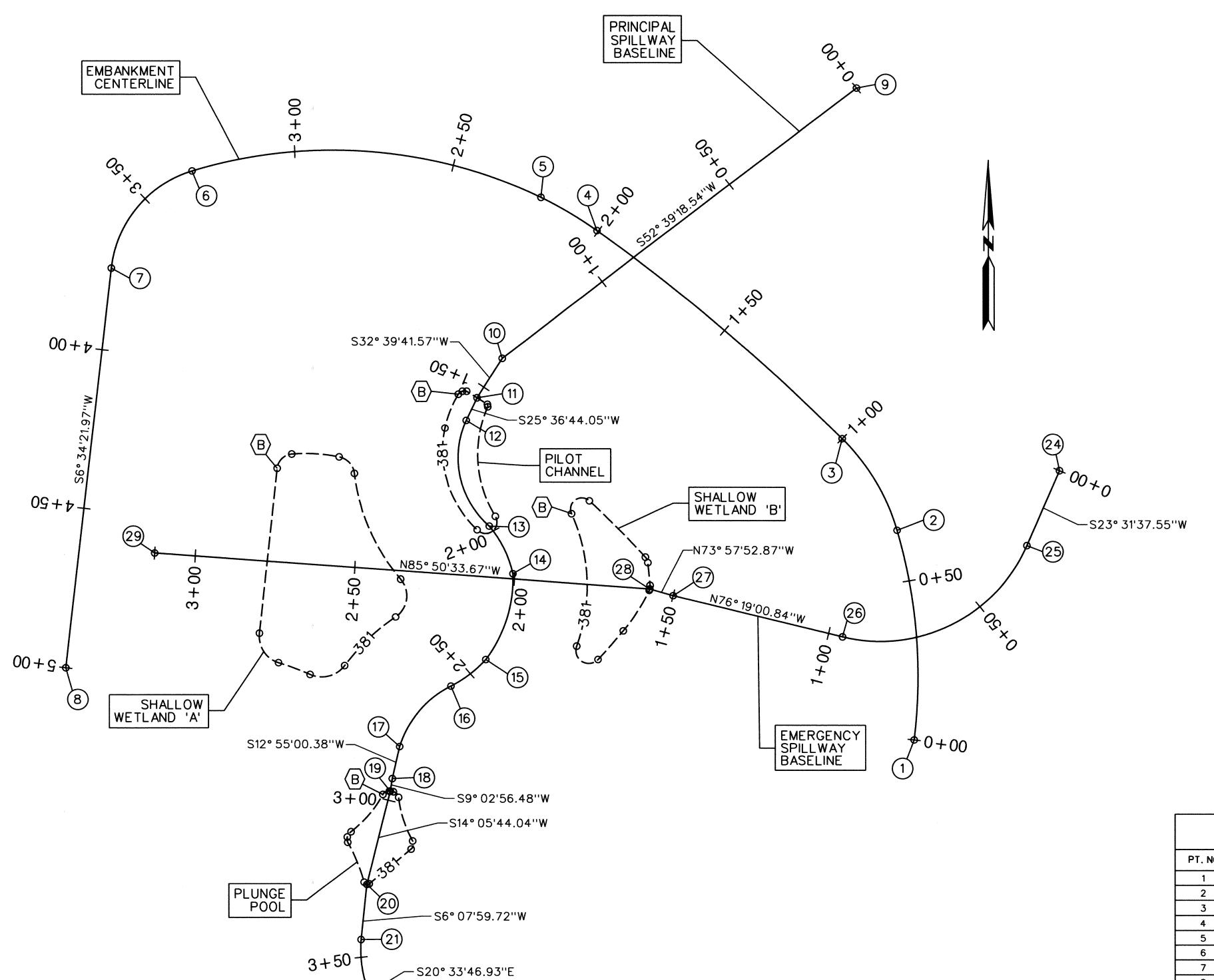
TITLE SHEET

AS SHOWN JULY 2015 17-133314.45 PERMIT ISSUE: CONSTRUCTION ISSUE:

WMA Permit No. 15-MR-0059

SHEET NO.: 1 OF 16





STATION	NORTHING	EASTING	
0+00.00	581025.06	1351956.13	
0+01.63	581025.98	1351957.42	
0+02.98	581025.98	1351958.76	
0+10.58	581021.96	1351965.23	
0+11.39	581021.19	1351965.34	
0+47.20	580986.84	1351967.66	
0+57.67	580982.63	1351961.98	
0+92.58	581014.48	1351951.95	
0+00.00	581001.88	1351899.49	
0+06.92	581006.34	1351904.06	
0+21.81	581005.46	1351918.87	
0+29.33	581000.27	1351923.63	
0+65.96	580967.19	1351938.07	
0+79.42	580955.37	1351936.47	
1+01.47	580940.29	1351920.51	
1+13.51	580937.53	1351909.70	
1+24.03	580941.22	1351899.84	
1+35.80	580950.28	1351893.89	
0+00.00	580987.65	1351991.50	
0+09.59	580991.67	1351997.07	
0+34.40	580974.08	1352014.56	
0+36.32	580972.35	1352015.33	
0+43.44	580965.27	1352016.03	
0+45.03	580963.71	1352015.76	
0+60.20	580950.98	1352007.62	
0+72.02	580942.19	1351999.71	
	580946.31	1351993.06	
0+82.93			
0+82.93 0+00.00	580899.73	1351932.44	
		1351932.44 1351934.51	
0+00.00	580899.73		
0+00.00 0+02.47	580899.73 580900.77	1351934.51	
0+00.00 0+02.47 0+03.72	580899.73 580900.77 580900.56	1351934.51 1351935.74	
0+00.00 0+02.47 0+03.72 0+06.29	580899.73 580900.77 580900.56 580898.81	1351934.51 1351935.74 1351937.37	
0+00.00 0+02.47 0+03.72 0+06.29 0+20.77	580899.73 580900.77 580900.56 580898.81 580885.12	1351934.51 1351935.74 1351937.37 1351941.75	
0+00.00 0+02.47 0+03.72 0+06.29 0+20.77 0+23.58	580899.73 580900.77 580900.56 580898.81 580885.12 580882.58	1351934.51 1351935.74 1351937.37 1351941.75 1351941.26	
0+00.00 0+02.47 0+03.72 0+06.29 0+20.77 0+23.58 0+40.54	580899.73 580900.77 580900.56 580898.81 580885.12 580882.58 580871.78	1351934.51 1351935.74 1351937.37 1351941.75 1351941.26 1351928.18	
	0+00.00 0+09.59 0+34.40 0+36.32 0+43.44 0+45.03 0+60.20 0+72.02	0+00.00 580987.65 0+09.59 580991.67 0+34.40 580974.08 0+36.32 580972.35 0+43.44 580965.27 0+45.03 580963.71 0+60.20 580950.98 0+72.02 580942.19	

NOTE: CONTOUR STAKEOUT POINTS PROCEED IN A CLOCKWISE DIRECTION AROUND CONTOUR.

BASELINE CONTROL COORDINATES EMBANKMENT CENTERLINE							
PT. NO.	STATION	NORTHING	EASTING				
1	0+00.00	580916.94	1352098.48				
2	0+66.28	580982.55	1352093.21				
3	1+00.00	581011.17	1352076.09				
4	2+00.45	581075.98	1351999.51				
5	2+20.79	581086.33	1351982.01				
6	3+32.76	581094.65	1351872.94				
7	3+74.49	581064.35	1351847.71				
8	5+00.00	580939.66	1351833.35				

BASELINE CONTROL COORDINATES PRINCIPAL SPILLWAY BASELINE								
PT. NO.	STATION	NORTHING	EASTING					
9	0+00.00	581120.76	1352080.62					
10	1+39.33	581036.24	1351969.86					
11	1+53.91	581023.97	1351961.99					
12	1+61.73	581016.91	1351958.61					
13	1+98.04	580983.81	1351965.75					
14	2+14.89	580968.86	1351973.14					
15	2+43.47	580942.17	1351964.62					
16	2+57.26	580933.83	1351953.73					
17	2+82.83	580914.79	1351937.70					
18	2+93.20	580904.68	1351935.38					
19	2+97.20	580900.73	1351934.75					
20	3+27.29	580871.55	1351972.42					
21	3+44.41	580854.53	1351925.60					
22	3+60.25	580838.94	1351927.65					
23	3+62.65	580836.70	1351928.51					

<u>LEGEND</u>

(B)

BEGINNING OF CONTOUR STAKEOUT POINTS

1

BASELINE CONTROL POINT

BASELINE

CONTOUR LINE

BASELINE CONTROL COORDINATES EMERGENCY SPILLWAY BASELINE							
PT. NO. STATION NORTHING EASTING							
24	0+00.00	581001.25	1352144.01				
25	0+25.58	580977.79	1352133.80				
26	0+95.53	580949.17	1352076.12				
27	1+50.00	580962.06	1352023.20				
28	1+57.57	580964.15	1352015.93				
29	3+12.73	580975.40	1351861.17				

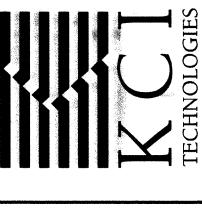
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

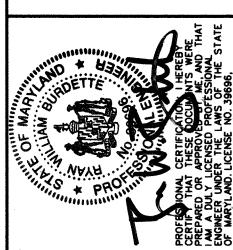
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/29/15 DATE

.VO	,					
REVISIONS DESCRIPTION						KCIFII F: M:\ 2013 \ 17133314 45 \
NO.						KCIE
		(~	>		

936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818 www.kci.com





DRMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

WHITWORTH WAY

POND ENHANCEMENTS

HOWARD COUNTY CONTRACT # CA 23-2013

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

STORMWATER MANAGEMENT GEOMETRY SHEET

SCALE:

1" = 20'

DATE:

JULY 2015

KCI JOB NO.:

17-133314.45

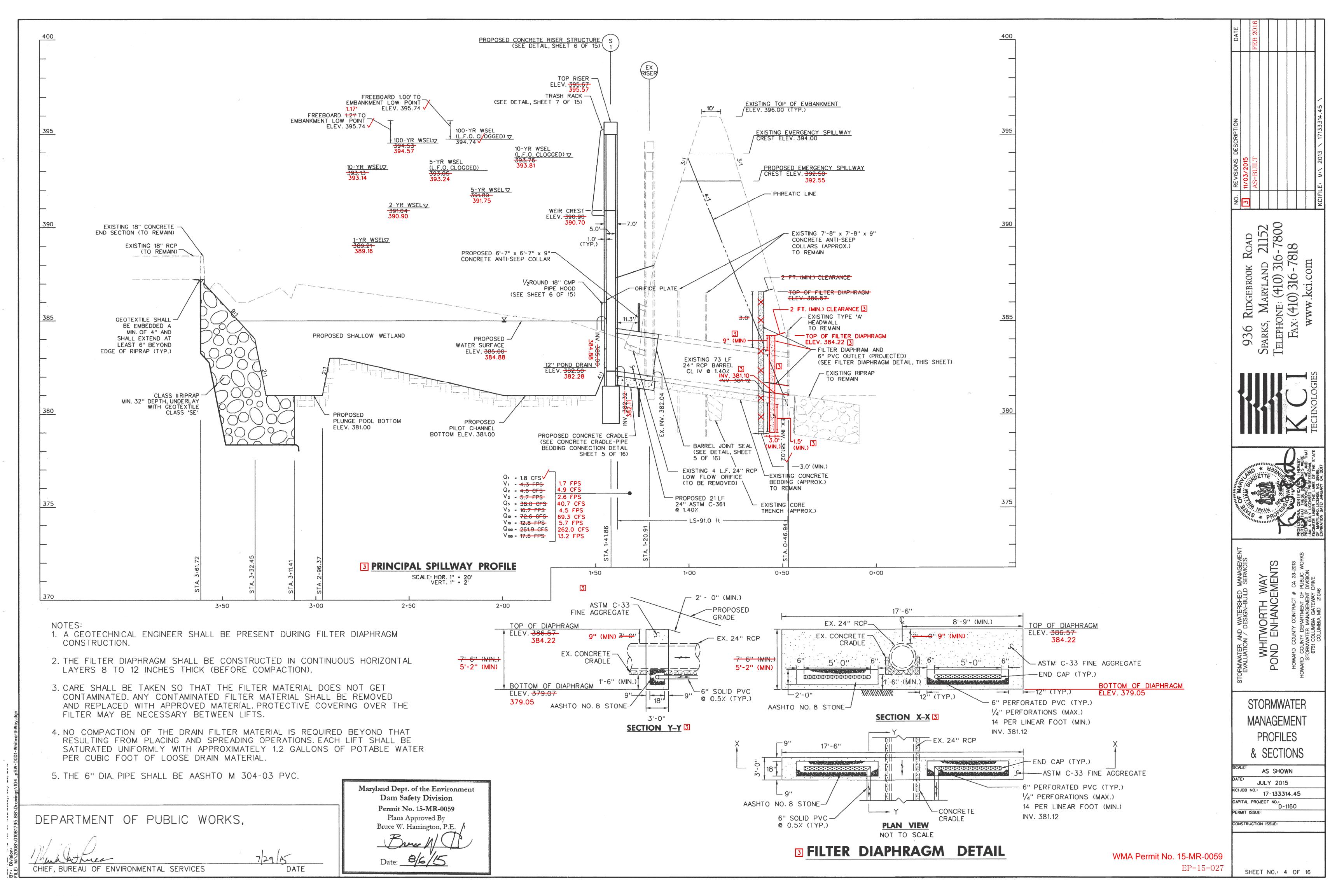
CAPITAL PROJECT NO.:

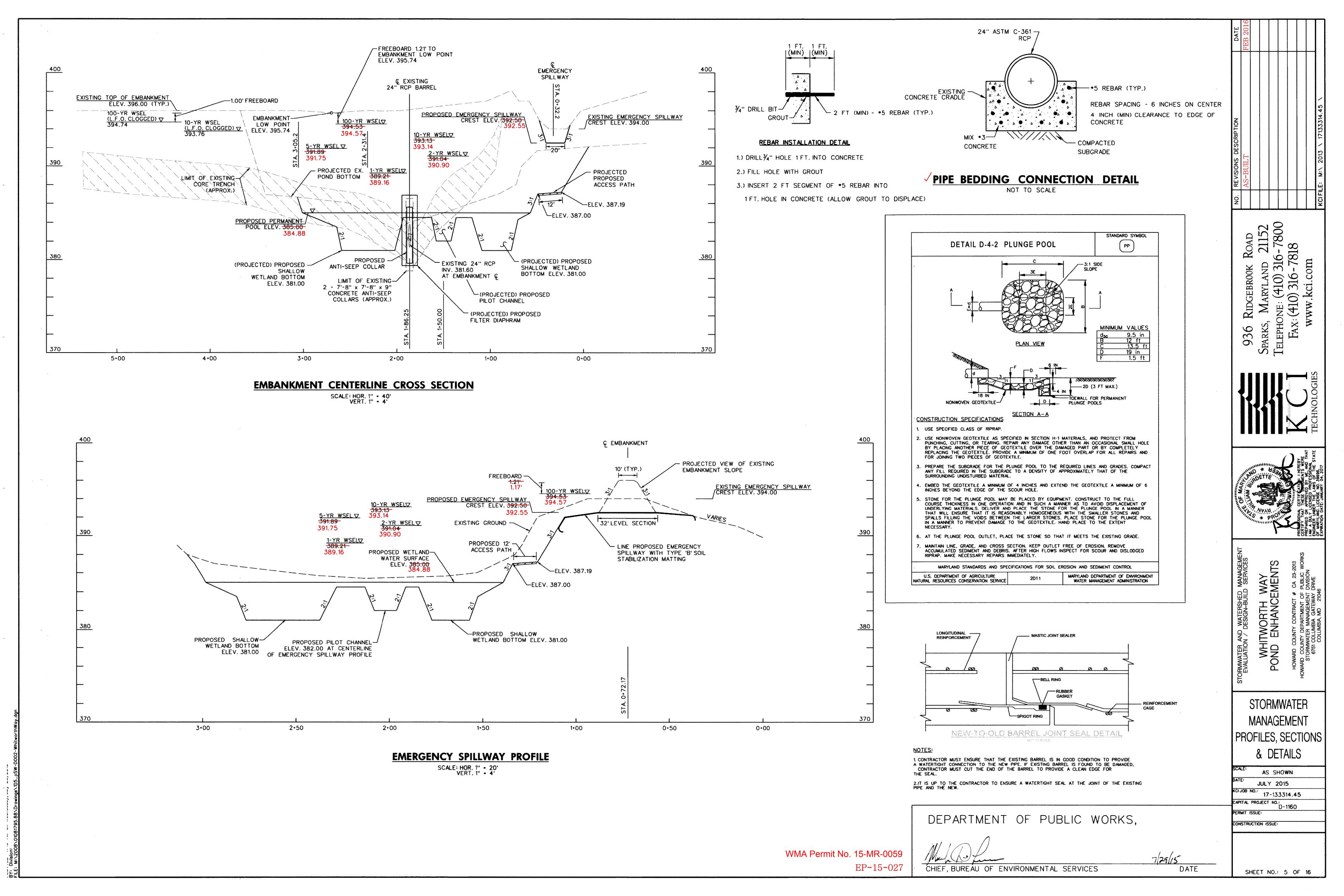
D-1160

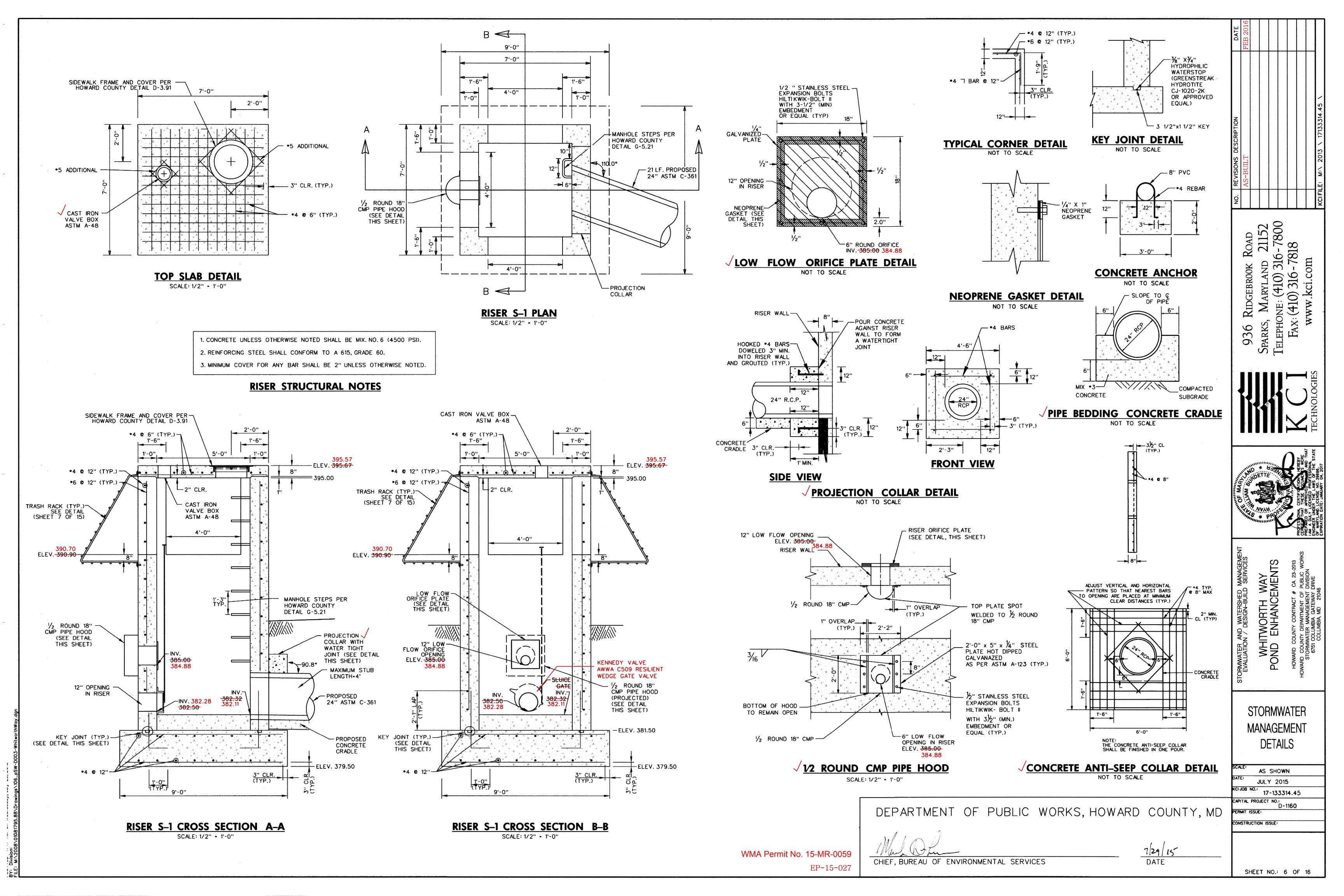
PERMIT ISSUE:

CONSTRUCTION ISSUE:

SHEET NO.: 3 OF 16







STORMWATER MANAGEMENT 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.

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 THANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER. THAT 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE 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

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 CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CALSSIFICATION 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 FMBANKMENT. 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 OBTIANED 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 PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURE BACKFILL

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 RIDGID 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 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 ON 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.

 - (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 COMPLETLEY 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. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR % 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 % 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 % INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH % 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

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

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" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M2 52 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

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

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.

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 OR 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 COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF 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 ACCOMPANING 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.

WOODY VEGETATION NOTE

TREES, SHRUBS, OR OTHER WOODY VEGETATION WILL NOT BE ALLOWED WITHIN A 25' RADIUS OF THE INLET STRUCTURE IN THE POOL AREA, AND NOT ALLOWED ON, OR WITHIN 15' OF ANY PORTION OF THE EMBANKMENT. SEE TABLE 'A' FOR TREE REMOVAL GUIDANCE.

CONTRACTOR'S AS-BUILT NOTE

AS-BUILT PLANS AND CERTIFICATION ARE REQUIRED FOR THIS STORM WATER MANAGEMENT FACILITY. THIS MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. AFTER FINAL ACCEPTANCE OF THE FACILITY. HOWARD COUNTY WILL PREPARE THE AS-BUILT PLANS AND THE AS BUILT CERTIFICATION.

TO PREPARE THE REQUIRED AS-BUILT PLANS AND CERTIFICATION, THE STORM WATER MANAGEMENT FACILITY MUST BE INSPECTED BY THE ENGINEER AT SPECIFIC STAGES DURING THE CONSTRUCTION AS REQUIRED BY THE CURRENT HOWARD COUNTY STORM WATER MANAGEMENT POLICY AND DESIGN MANUAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

CONSTRUCTION NOTE

UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, JULY 2008, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.

OPERATION AND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

- 1. FACILITY SHALL BE INSPECTED TRIENNIALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
- 2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. VEGETATION IN THESE AREAS SHALL NOT EXCEED 18 INCHES IN HEIGHT AT ANY TIME IN LIMITS OF THE WOODY-FREE ZONE.
- 3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP AND OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- 5. PLANTINGS SHALL BE REPLACED AS NEEDED TO ENSURE A SIGNIFICANT NUMBER OF SHRUBS ARE PRESENT AND FULL HERBACEOUS COVERAGE EXISTS WITHIN THE FACILITY OUTSIDE OF THE WOODY-FREE ZONE.

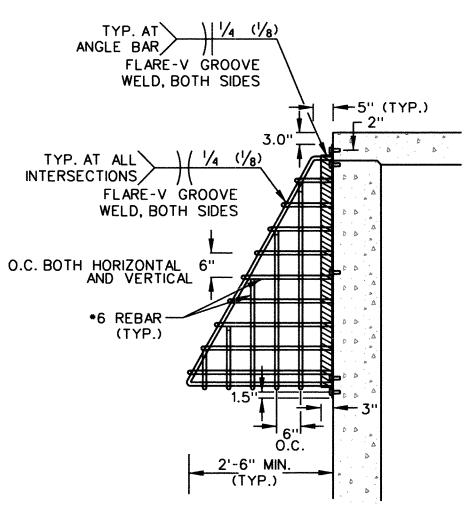
NON-ROUTINE MAINTENANCE:

- STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE EMBANKMENT, DEWATERING SYSTEM, AND OVERFLOWS SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE.
- 2. SEDIMENT SHALL BE REMOVED FROM THE FACILITY IF 25% OR MORE OF THE SURFACE AREA IS COVERED OR. WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.
- CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME THE FACILITY DOES NOT DRAIN DOWN TO THE DESIGNED WATER SURFACE ELEVATION WITHIN 60 HOURS...

AESTHETIC CONSIDERATIONS

ALL EXPOSED PLASTIC PVC PIPE SHALL BE PAINTED BLACK

THE COLOR OF ALL PROPOSED RIPRAP SHALL RESEMBLE THE NATIVE STREAM BED



PRINT NAME

SIDE VIEW

TRASH RACK DETAIL SCALE: 1/2" = 1'-0"

MD LICENSE NUMBER

(SEE DETAIL, SHEET 6 OF 15)

CONCRETE RISER

GENERAL NOTES

STARTING WORK.

(TYP.)

(TYP.)— →

TRASH RACK

3" (TYP.)

2" (TYP.)

BETWEEN BOTTOM OF

TRASH RACK AND WEIR CREST

8" MIN. (TYP.)

EXPANSION -BOLT (TYP.)

1/4" THICK STEEL

ANGLE BAR WITH

¾" DIA.x2" LONG

EXPANSION BOLTS (TYP.)

1/4" THICK STEEL-

¾" DIA.x2" LONG

ANGLE BAR WITH

EXPANSION BOLTS (TYP.)

ABOVE MENTIONED REQUIREMENTS.

INFORMATION TO HIS OWN SATISFACTION.

1. THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET

2. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, OR DISTURBANCE OF

FORTH BY THE HOWARD COUNTY, HOWEVER, DUE TO BUILDING TYPES AND LAYOUT,

SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE

VEGETATION IN ANY FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY HOWARD COUNTY.

ONLY. KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR

THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH

5. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS,

CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT WRITTEN PERMISSION OF THE

THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE

ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.

3. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR

4. CONTRACTOR WILL CALL "MISS UTILITY" (800-257-7777) AT LEAST 48 HOURS PRIOR TO

NOTES: 1. ENTIRE TRASH RACK ASSEMBLY SHALL BE SHOP FABRICATED AND HOT-DIPPED GALVANIZED PER ASTM A-123 AFTER FABRICATION. 2. STEEL SHALL CONFORM TO ASTM A-35. 3. REBAR SHALL BE WELDABLE STEEL CONFORMING TO ASTM A-706.

FRONT VIEW

-VALVE BOX

5" (TYP.)

WEIR OPENING (SEE RISER

DETAIL, SHEET 6 OF 15

FOR DIMENSIONS)

"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.

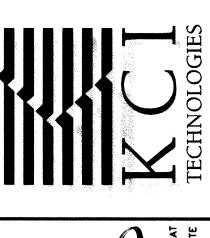


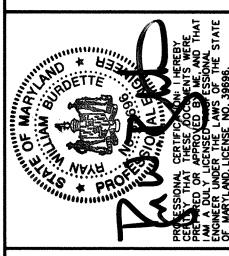
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

Jul Atruca CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/29/15 DATE

ROAD 21152 6-7800 818 316-7818 RIDGEBROOK (410) (410) (316) NE: (4 (410) FAX: PARKS, 36 9





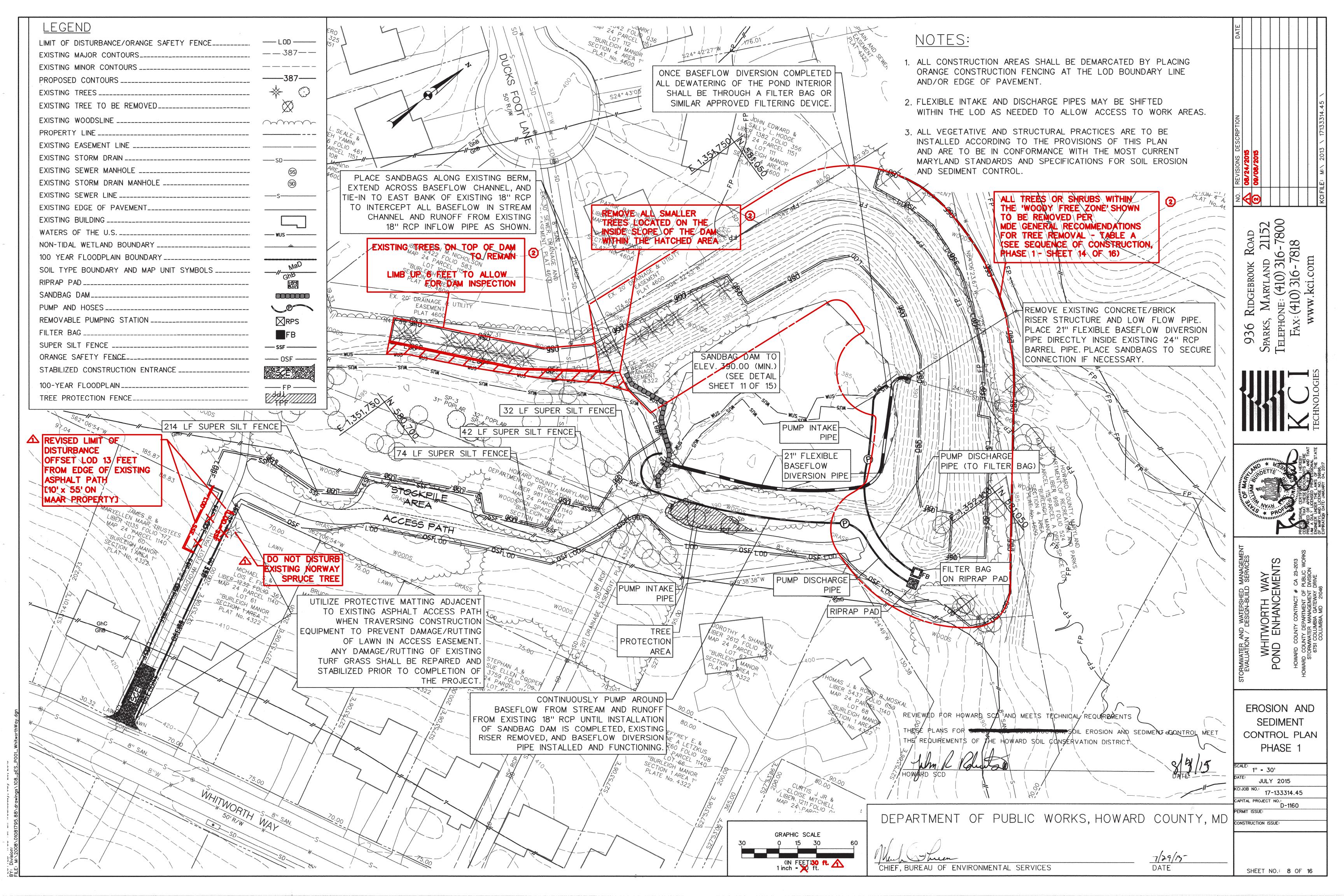
WHITWORTH WAY POND ENHANCEMENTS RMWATER AND EVALUATION /

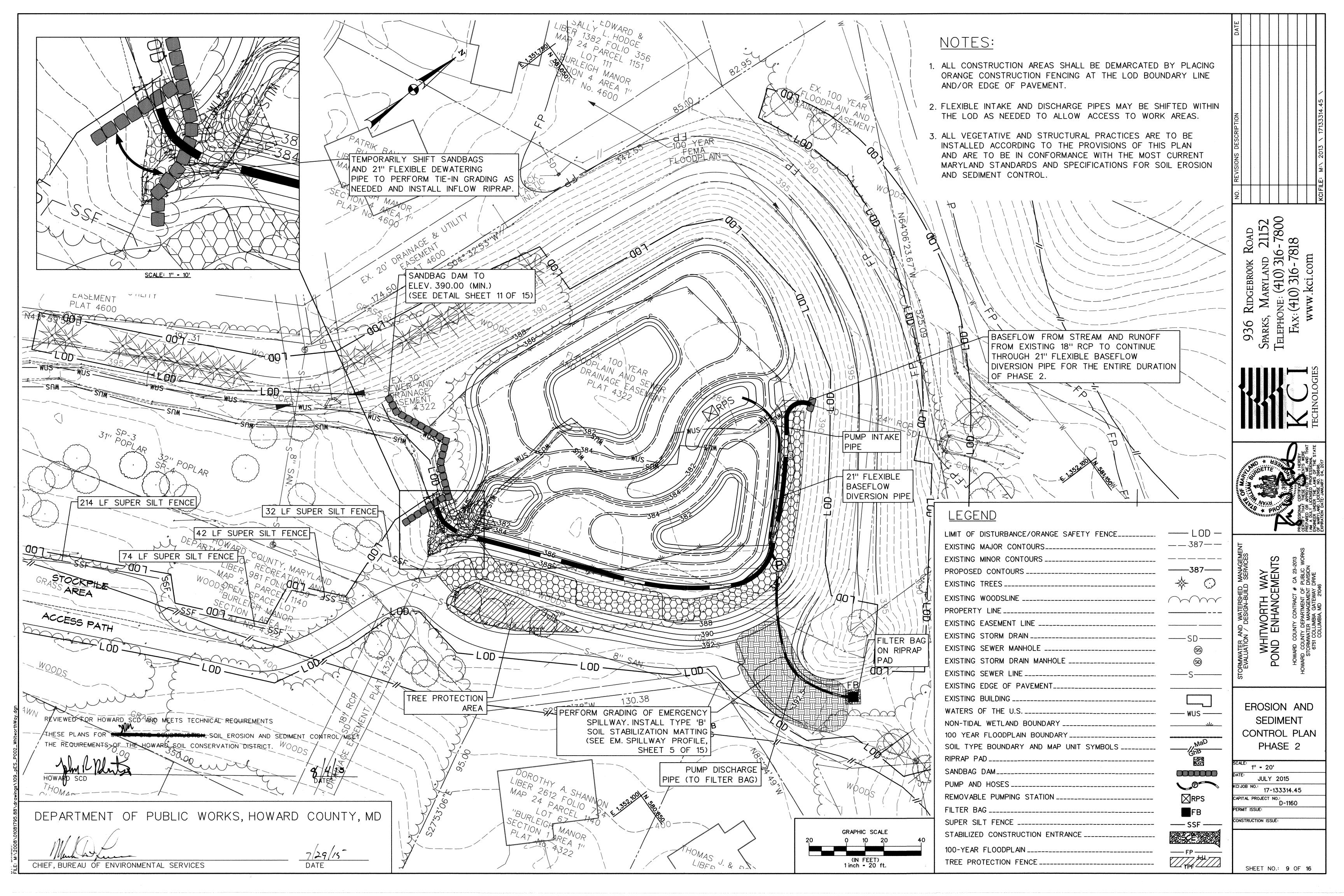
STORMWATER MANAGEMEN^T DETAILS &

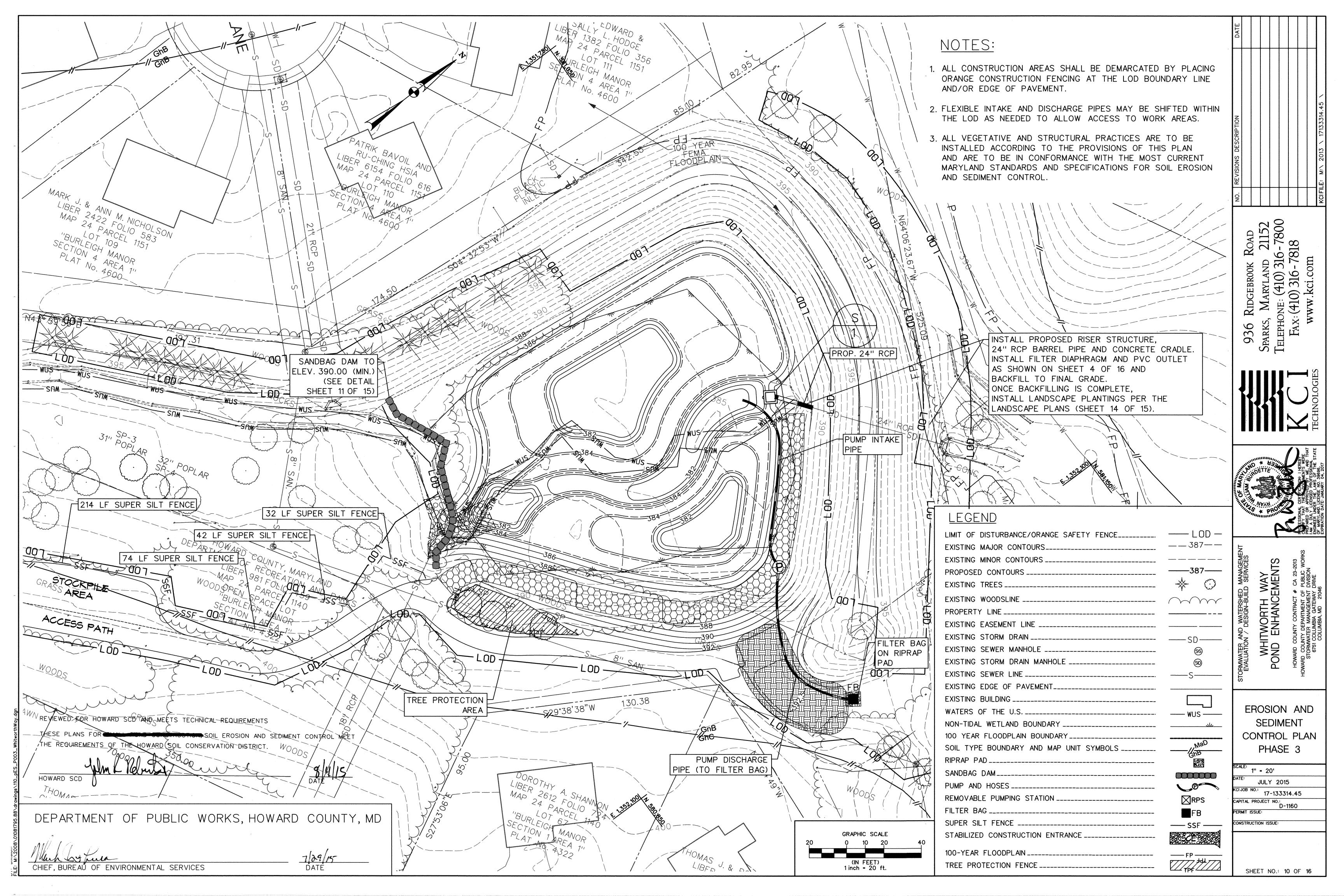
AS SHOWN **JULY 2015** 17-133314.45 CAPITAL PROJECT NO.:
D-1160

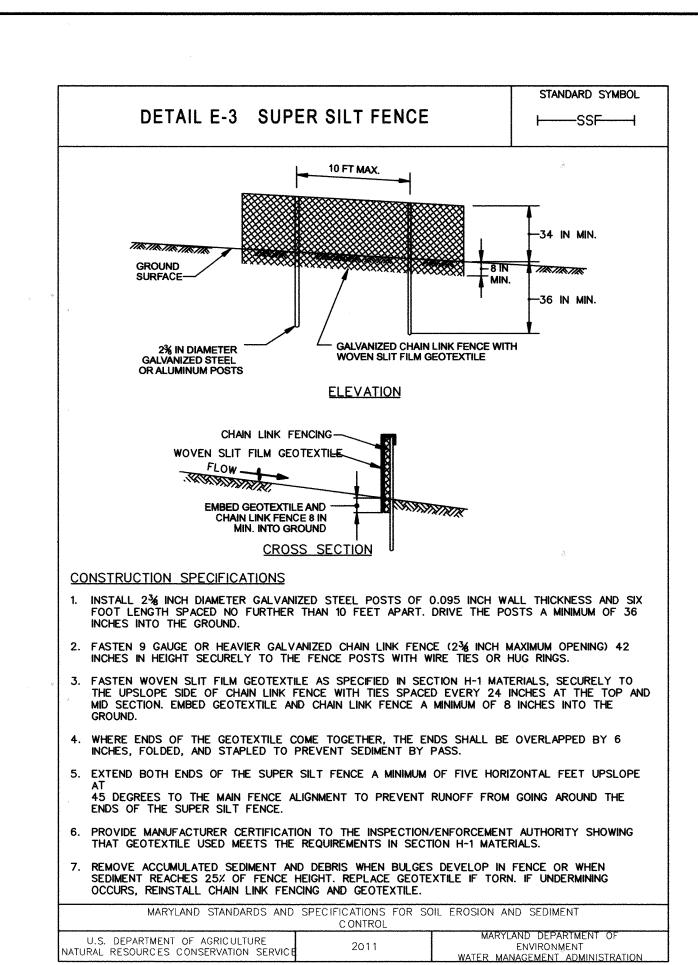
PERMIT ISSUE:

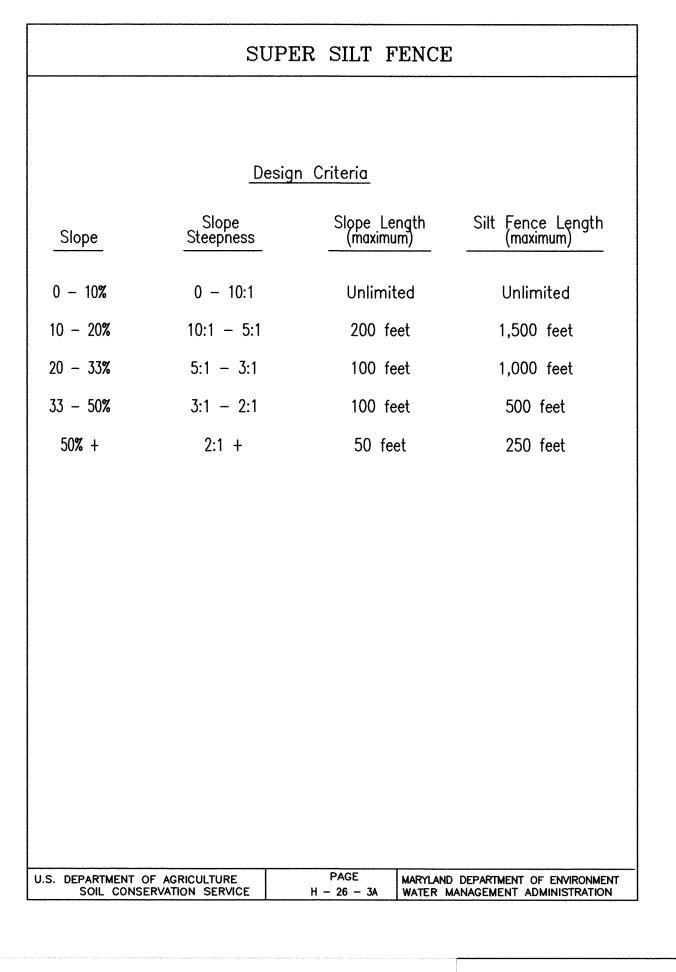
SHEET NO.: 7 OF 16

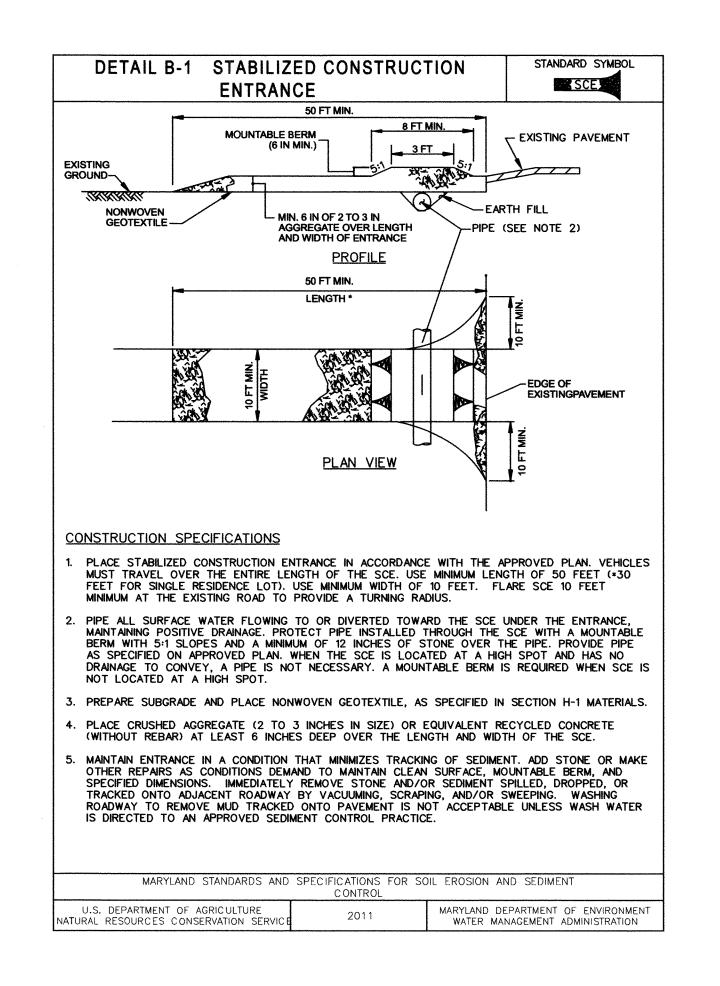


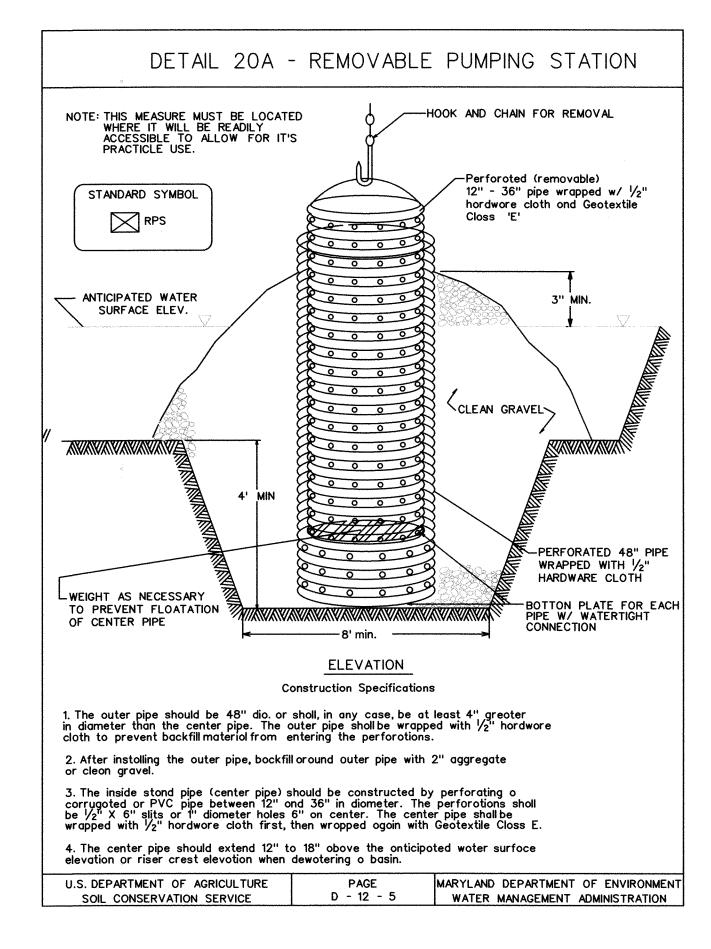


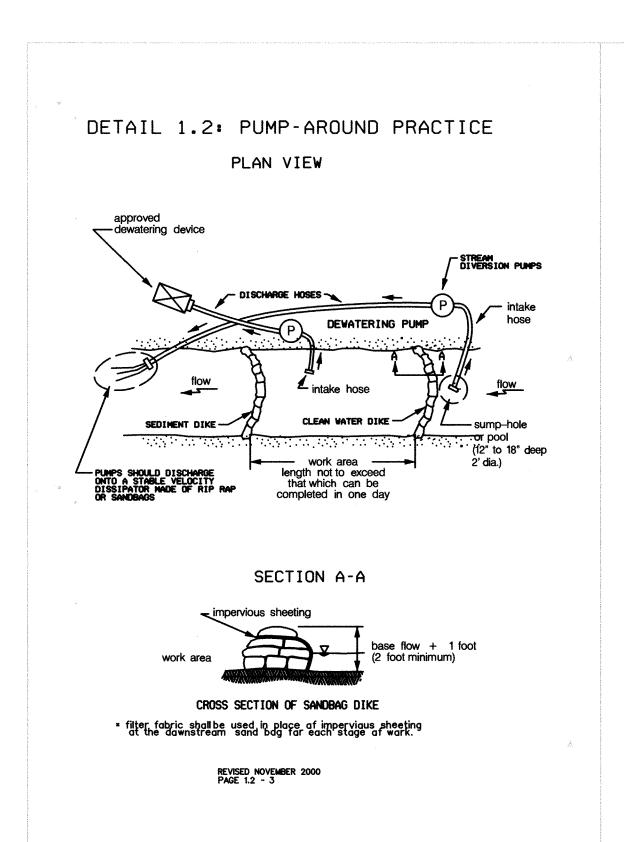


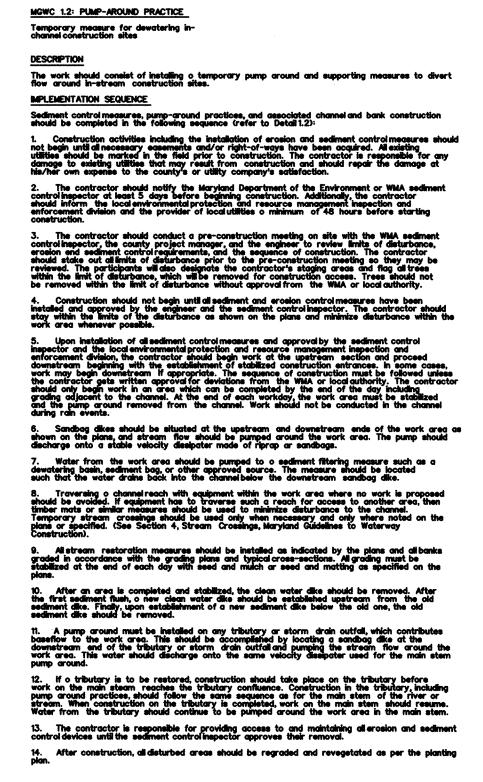


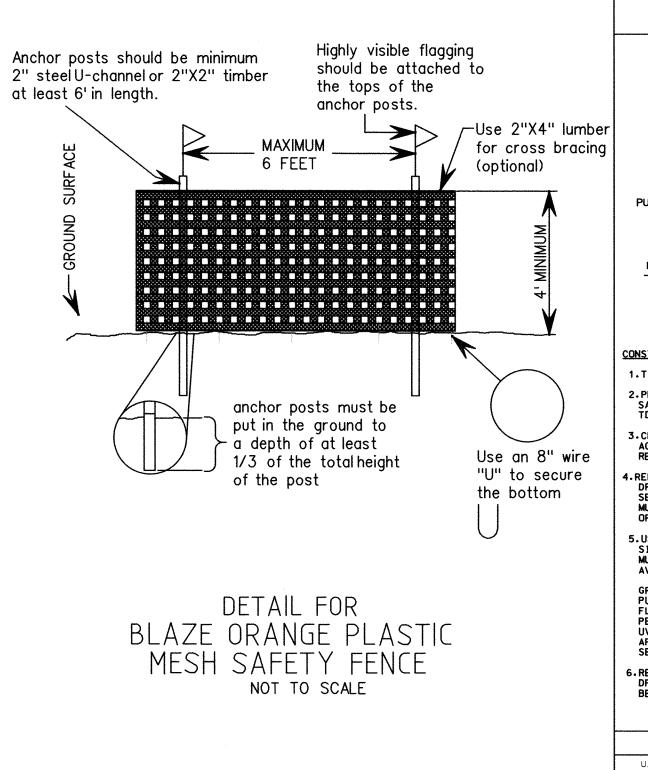


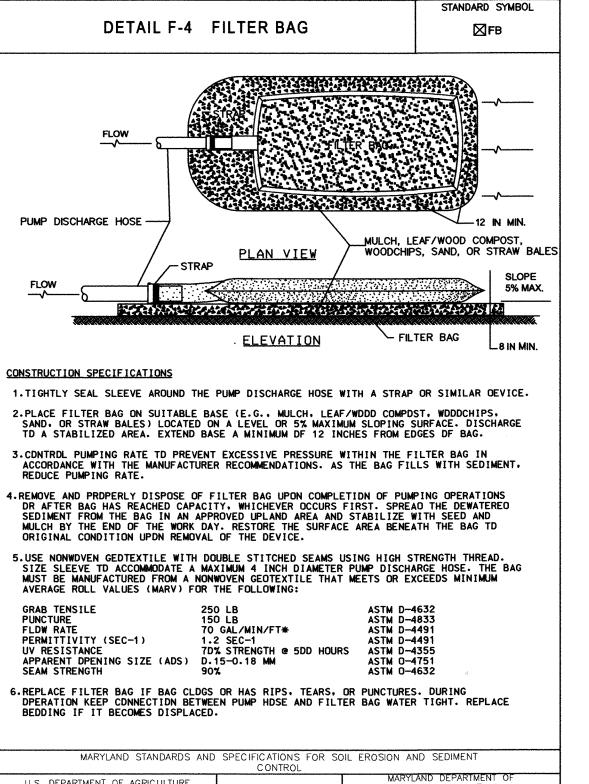












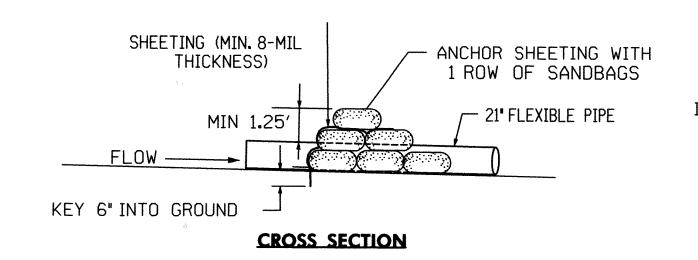
ATER MANAGEMENT ADMINISTRATION

B-4-8 STANDARDS AND SPECIFICATIONS <u>FOR</u> 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 Conditions Where Practice Applie 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 sediment control plan. 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. 4. Access the stockrile area from the uperade side. 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 manner. 6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sedimen 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.

accordance 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 vestical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 fact for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to

B.43



SANDBAG HEADWALL -MIN 1.25' OF SANDBAGS OVER PIPE **IMPERVIOUS** SHEETING LENGTH PER PLANS - 21" FLEXIBLE PIPE **ELEVATION**

> SAND BAG DAM DETAIL NOT TO SCALE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF. BURÉAU OF ENVIRONMENTAL SERVICES

DATE

ERMIT ISSUE:

7/29/15

OK ROAD
ND 21152
316-7800
5-7818

(410)

(410) ww.k

RIDGEBROOK

0

PRMWATER AND WATERSHED MANAGEME EVALUATION / DESIGN-BUILD SERVICES WHITWORTH WAY OND ENHANCEMENTS

ARD COUNTY CONTRACT # (
COUNTY DEPARTMENT OF P
STORMWATER MANAGEMENT D
6751 COLUMBIA GATEWAY D
COLUMBIA, MD 21046

SEDIMENT CONTROL DETAILS AS SHOWN JULY 2015 17-133314.45

CAPITAL PROJECT NO.:

SHEET NO.: 11 OF 16

EROSION AND

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

The process of preparing the soils to sustain adequate vegetative stabilization.

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

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 chiselplows 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 are to 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. SoilpH 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 1.5 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 depth of 3 to 5 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 will 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, gravel, sticks, roots, trash, or other materials larger than 11/2 inches 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 sodding 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.

** Contractor shall perform a soil test at the site as a first order of business. The results shall be reviewed by Department of Recreation and Parks to determine appropriate soil amendments and fertilization needs for this project. No fertilizer or soil amendments shall be added without approval of Department of Recreation and Parks.

FILL MATERIAL AND COMPACTION REQUIREMENTS:

In general, existing on-site soils free from environmental contamination, building debris, frozen, organic or wet materials and with a Unified Soils Classification of CL-ML, or more granular, with a plasticity index less than 12 can be reused as compacted fill. On-site soils with a Unified Soils Classification of CL, CH, or MH or with liquid limits greater than 40 and plastic indices greater than or equal to 12 are not suitable as structural fill. If imported materials are required it shall have a Unified Soils Classification of SM or more granular and less plastic and a maximum dry density of at least 105-pcf in accordance with the modified proctor test method (ASTM D-1557) or as approved by the Engineer.

Fill shall be placed in horizontal, eight-inch maximum loose lifts and compacted to at least 92 percent of the Modified Proctor maximum dry density (ASTM D-1557), or alternately the Contractor shall compact each lift a minimum of 3 to 4 passes as approved by the Engineer. The moisture content of the fill shall be properly controlled during placement and shall be within 3 percentage points of the optimum moisture. Fill being placed on hillsides shall be benched to prevent a sliding failure plane.

As directed by the Engineer, in-place density tests shall be performed by an engineering technician on a full-time basis under the supervision of a geotechnical engineer licensed in the State of Maryland to verify that the proper degree of compaction is being obtained.

TABLE 28 STONE SIZE

	SIZE RANGE	D 50	D 100	AASHTO	HEIGHT
NUMBER 57*	3/8"-1 1/2"			M-43	N/A
NUMBER 1	2"-3"		3"	M-43	N/A
RIP-RAP**	4"-7"		7"	N/A	N/A
CLASS I	Ņ/A		15"	N/A	150 LB. MAX.
CLASS II	N/A		24'	N/A	700 LB. MAX.
CLASS III	N/A		34"	N/A	2000 LB. MAX

* THIS CLASSIFICATION IS TO BE USED ON THE INSIDE FACE OF STONE OUTLETS AND CHECK DAMS. ** THIS CLASSIFICATION IS TO BE USED WHENEVER SMALL RIP-RAP IS REQUIRED. THE STATE HIGHWAY ADMINISTRATION DESIGNATION FOR THIS STONE IS STONE FOR GABIONS (905.01.04).

24.0 MATERIALS AND SPECIFICATIONS TABLE 27 GEOTEXTILE FABRICS

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSIMIN.
Α	0.30**	250	500
В	0.60	200	320
С	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40 - 0.80 *	90	190

* US STD. SIEVE CW-02215

** .50 MM. MAX. FOR SUPER SILT FENCE

- APPARENT OPENING SIZE MSMT 323

THE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:

-GRAB TENSILE STRENGTH ASTM D 1682 4"x8" SPECIMEN 1"x2" CLAMPS, 12"/ MIM. STRAIN RATE IN BOTH PRINCIPAL DIRECTIONS OF GEOTEXTILEFABRIC.

-BURST STRENGTH ASTM D 3786

THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDRCARBONS, AND WILL BE ROT AND MILDEW RESISTANT. IT SHALL BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS, AND COMPOSED OF A MINIMUM OF 85% BY WEIGHT OF POLYOLEPHINS, POLYESTERS, OR POLYAMIDES. THE GEOTEXTILE FABRIC SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE.

IN ADDITION CLASSES A THROUGH E SHALL HAVE A 0.01 CM/SEC. MINIMUM PERMEABILITY WHEN TESTED IN ACCORDANCE WITH MSMT 507, AND AN APPARENT MINIMUM ELONGATION OF 20 PERCENT (20%) WHEN TESTED IN ACCORDANCE WITH THE GRAB TENSILE STRENGTH REQUIREMENTS LISTED ABOVE.

CLASS F GEATEXTILE FABRICS FOR ALL SILT FENCE SHALL HAVE A 50LB./IN. MINIMUM TENSILE STRENGTH AND A 20 LB/IN MINIMUM TENSILE MODULES WHEN TESTED IN ACCORDANCE WITH MSMT 509. MATERIAL SHALL ALSO HAVE A 0.3 GAL./FT.SQUARED/MIN. FLOW RATE AND SEVENTY-FIVE PERCENT (75%) MINIMUM FILTERING EFFICIENCY WHEN TESTED IN ACCORDANCE

GEOTEXTILE FABRICS USED IN THE CONSTRUCTION OF THE SILT FENCE SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE. THE FABRIC SHALL CONTAIN SUFFICIENT AMOUNTS OF ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 12 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120 DEGREES F.

MATERIALS SPECIFICATIONS

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, **AND 100-YEAR FLOODPLAINS**

- 1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- 2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- 3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE, IF ADDITIONAL BACKFILL IS REQUIRED. USE CLEAN MATERIALS FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- 4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- 5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- 6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- 7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:
- * ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.)AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATIONOF THE SITE WHILE ALSO ALLOWING FOR THE
- * VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- 8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- 9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
- A. USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE DURING ANY YEAR.
- B. USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THORUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.

OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE

- C. USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR. 10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED
- TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY. 11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

ACTIVITY IS TO IMPOUND WATER.

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

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

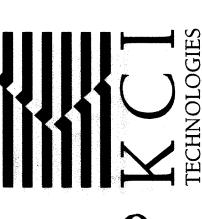
CHIFF, BUREAU OF ENVIRONMENTAL SERVICES

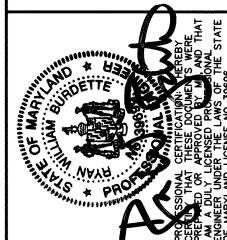
7/29/15 DATE

LEPHONE: (410) 316-7800

EAX: (410) 316-7818

www.kci.com SPARKS Telepho 936





NORTH WAY ENHANCEMENTS

EROSION AND SEDIMENT CONTROL NOTES

AS SHOWN JULY 2015 17-133314.45

SHEET NO.: 12 OF 16

B-4-3 STANDARDS AND SPECIFICATIONS

<u>FOR</u>

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Fh.....

To protect disturbed soils from crosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

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 hydrosceding. 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.
- 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 seeded 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. Seedbed must be firm after planting.
- Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydrosceding: Apply seed uniformly with hydrosceder (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.
- 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 hydrosecding 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.
- Wood Cellulose Fiber Mulch (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 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.
- 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 waterholding capacity of 90 percent minimum.

2. Application

- a. Apply mulch to all seeded areas immediately after seeding.
- b. 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 acre.
- c. 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 unon 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 750 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 Tax II, Terra Tack AR or other 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.
- 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-4-5 STANDARDS AND SPECIFICATIONS

<u>FOR</u>

PERMANENT STABILIZATION

<u>Definition</u>

Purpose

To stabilize disturbed soils with permanent vegetation.

*

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

<u>Criteria</u>

Seed Mixtures

1. General Us

- a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil
- d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures

- a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
- i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where

rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

- iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

- Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
- Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
- Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
- d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

						ertilizer Rat (10-20-20)	Lime Rate	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ 0	Trans was
				14-15 in	45 pounds	90 lb/ac	90 lb/ac	2 tons/ac
				%- % in	per acre (1.0 lb/	(2 lb/ 1000 sf)	b (2 lb/	(90 lb/
				%- ½ in	1000 sf)			1000 sf)

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

- Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- b. Sod must be machine cut at a uniform soil thickness of % inch, plus or minus % inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and tom or uneven ends will not be acceptable.
- c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- c. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

- a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
- b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
- c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
- d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

- a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- b. After the first week, sod watering is required as necessary to maintain adequate moisture
- c. Do not mow until the sod is firmly rooted. No more than % of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

<u>Definition</u>

Purpose

To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

<u>Crite</u>

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

		ne (from Figure (from Table B.		Fertilizer Rate	Lime Rate	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	Diffe Rate
	Annual Ryegr ass	40	3/1-5/15 8/1-10/15	0.5	·	·
	Bar ley	96	3/1-5/15 8/1-10/15	1.0	436 lb/ac	2 tons/ac
	Foxtail Millet	30	5/16-7/31	0.5	(10 lb/1000 sf)	(90 lb/1000 sf)
	Pearl Millet	20	5/16-7/31	0.5		

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THESE PLANS FOR THE HOWARD SOIL CONSERVATION DISTRICT.

John K Politica

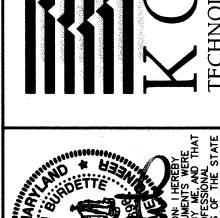
8/4/15 DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

Hule June 1/29/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

152 800

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
www.kci.com



ROTESSIONAL CERTIFICATION: I HEREBY
REFERENCE APPRICED BY ME, AND THAT
AM A DULY LICENSED TO PESSIONAL

EVALUATION / DESIGN-BUILD SERVICES

WHITWORTH WAY
POND ENHANCEMENTS

HOWARD COUNTY CONTRACT # CA 23-2013

EROSION AND SEDIMENT CONTROL NOTES II

AS SHOWN

DATE:

JULY 2015

KCI JOB NO.:

17-133314.45

CAPITAL PROJECT NO.:

D-1160

PERMIT ISSUE:

CONSTRUCTION ISSUE:

SHEET NO.: 13 OF 16

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
- 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for 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 done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 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:

WHITWORTH WAY POND

Total Area of Site 5.92 Acres Area Disturbed 1.93 Acres Area to be roofed or paved Area to be vegetatively stabilized 1.36 Acres **Total Cut** 2492 Cu. Yds. Total Fill 0 Cu. Yds. To Be Determined* Offsite waste/borrow area location and permit

- 7. Any sediment control practice that 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.
- 9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- 10. 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 workday, whichever is shorter.
- 11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
- 12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage 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 be stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

SEQUENCE OF CONSTRUCTION

GENERAL INFORMATION

CONTRACTOR SHALL TAKE EXTRA PRECAUTION WHEN OPERATING EQUIPMENT AND TRANSPORTING MATERIALS IN THIS RESIDENTIAL AREA.

ALL GRADING OPERATIONS SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND CRITERIA.

ALL EXCAVATED SEDIMENT SHALL BE TRANSPORTED TO AN APPROVED LOCATION OFFSITE.

CONTRACTOR SHALL MINIMIZE THE IMPACT ON EXISTING TREES, EXISTING UTILITIES, AND OTHER EXISTING FEATURES.

FOLLOWING SHALLOW WETLAND FACILITY CONSTRUCTION, PLACE PLANTINGS ACCORDING TO LANDSCAPE PLAN.

DURATION PRE-CONSTRUCTION

- 1. THE CONTRACTOR SHALL NOTIFY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION (410)-313-1880 24 HOURS PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. MDE TRACKING #201560282.
- 2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION, INCLUDING GRADING PERMIT, FROM THE COUNTY AT THE PRE-CONSTRUCTION MEETING.
- 3. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE COUNTY PROJECT MANAGER AND HOWARD COUNTY CONSTRUCTION INSPECTION, BUREAU OF UTILITY, AND ENGINEER.

3 DAYS

- 4. CONTRACTOR SHALL STAKE OUT LIMIT OF DISTURBANCE PRIOR TO PRE-CONSTRUCTION MEETING.
- 5. CLEAR AREAS AS NEEDED WITHIN THE LIMIT OF DISTURBANCE REQUIRED TO ESTABLISH THE PROPOSED SEDIMENT CONTROL MEASURES.
- 6. INSTALL ALL PERIMETER CONTROL DEVICES INCLUDING ORANGE SAFETY FENCE, SUPER SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE, AND STOCKPILE AREA AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
- 7. NO WORK SHALL BE PERFORMED UNTIL THESE DEVICES ARE APPROVED BY THE SEDIMENT CONTROL INSPECTOR. WITH PERMISSION FROM THE INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION PHASE 1.

PHASE 1

* TREE REMOVAL WITHIN WOODY FREE ZONE ON THE EMBANKMENT SEE TABLE "A" GENERAL RECOMMENDATIONS FOR TREE REMOVAL BELOW

NOTE TO CONTRACTOR:

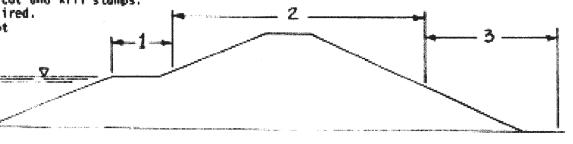
WITH PERMISSION FROM THE INSPECTOR, TREE REMOVAL ACTIVITIES CAN BE PERFORMED INDEPENDENTLY AND/OR CONCURRENTLY WITH PHASE 1 AND PHASE 2 OF CONSTRUCTION.

TABLE A

GENERAL RECOMMENDATIONS FOR TREE REMOVAL 1/

TREE OCATION	TREE TYPE A (TAP ROOT) DBH < 8" UBH _ 8"				TREE TYPE B (SPREADING ROOTS) OBH < 8* (BH ≥ 8*			
ZONE	L1GHT COVER	HEAVY COVER	LIGHT COVER	HEAVY COVER	LIGHT COYER	HEAVY COVER	LTGHT COYER	HEAVY COVER
. 8.5	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.
₂ ¥	Cut and 2kill stumps. 2	Cut and grub stumps and rout mass to 18" depth uniformly.	Cut and grub stumps and root mass to 24" depth in 1/2 crown width diam- eter area.	Cut and grub stumps and root mass to 24° depth uniformly.	Cut and 2 kill stumps 2	Cut and grub stumps and root mass to 12" depth uniformly.	Cut and grub stumps and root mass to 18° depth in crown width diam- eter area.	Cut and grub stump and root mass to 18" depth uniformly.
3 ¹ /	Cut and kill stumps.	Cut and grub stumps and root mass to 18" depth uniformly.	Cut and grub stumps and root mass to 24" depth in 1/2 crown width diam- eter area.	Cut and grub stumps and root mass uniformly to 18° depth.	Cut and kill stumps.5/	Cut and grub stumps and root mass to 12" depth uniformly. <u>5</u> /	Cut and grub stumps and root mass to 18° depth in crown width diam-3/ eter area. 5/	Cut and grub stumps and root mass uniformly to 12° depth, 6/

- rowth smaller than 2" DBM will be removed by spraying, injection or cutting and stump killing. Trees and shrubs planted for shoreline protection in Zone 1 shall be maintained at heights < 4 feet.
- in embanisment type (a) dispersed soil--cut stumps 12 inches below surface and backfill with compacted soil
- in embantment type (d) earthfill with low piping potential -- cut and kill stumps in riprapped or heavy rockfill sections grubbing is not required.
- mass in twice the crown width area. / For water-loving trees such as willows, remove stumps and
- root mass to 18" depth uniformly.
- Individual large trees in this zone may need the special treatment as described in Section 3.



PHASE 1 (CONT D)

- * BASEFLOW FROM STREAM AND RUNOFF FROM EXISTING 18" RCP TO BE CONTINUOUSLY PUMPED AROUND FACILITY TO RIPRAP PAD ON EMERGENCY SPILLWAY FOR THE ENTIRE DURATION OF PHASE 1.
- 8. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, INSTALL SANDBAG DAM AT POND INFLOW. DURING SANDBAG DAM INSTALLATION, PUMP ALL BASEFLOW THROUGH PUMP AROUND PRACTICE TO RIPRAP PAD ON DOWNSTREAM SIDE OF EMERGENCY SPILLWAY. DEWATER ANY DISTURBED AREAS THROUGH PUMP AROUND PRACTICE TO FILTER BAG ON DOWNSTREAM SIDE OF EMERGENCY SPILLWAY AS SHOWN.
- 1 DAY 9. ONCE SANDBAG DAM INSTALLED, BASEFLOW PUMP AROUND INSTALLED AND FUNCTIONING, AND POND INTERIOR DEWATERED, REMOVE THE EXISTING CONCRETE/BRICK RISER AND LOW FLOW PIPE AND INSTALL THE 21" FLEXIBLE BASEFLOW DIVERSION PIPE. ON THE DOWNSTREAM END, PLACE THE 21" DIVERSION PIPE DIRECTLY INSIDE EXISTING 24" RCP AND SECURE WITH SANDBAGS AS NEEDED. INSTALL THE 21" DIVERSION PIPE THROUGH THE SANDBAG DAM ON THE UPSTREAM END OF THE FACILITY AS SHOWN ON SHEET 8 OF 16.
 - 10. ALL BASEFLOW FROM STREAM AND RUNOFF FROM 18" RCP INFLOW SHOULD NOW GRAVITY FLOW THROUGH THE 21" FLEXIBLE DIVERSION PIPE FROM THE SANDBAG DAM UPSTREAM TO THE EXISTING 24" RCP BARREL PIPE DOWNSTREAM WITHOUT THE AID OF BASEFLOW PUMP AROUND PRACTICE. ONCE EXISTING RISER REMOVED AND FLEXIBLE DIVERSION PIPE AND SANDBAG DAM INSTALLED AND FUNCTIONING, WITH PERMISSION FROM INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION PHASE 2.

PHASE 2

- * BASEFLOW FROM STREAM AND RUNOFF FROM EXISTING 18" RCP SHOULD CONTINUOUSLY FLOW AROUND THE WORK AREA THROUGH THE 21" FLEXIBLE DIVERSION PIPE AND OUT THE EXISTING 24" RCP BARREL PIPE FOR THE ENTIRE DURATION OF PHASE 2.
- * ANY DEWATERING OF SEDIMENT LADEN SURFACE WATER DURING PHASE 2 WORK SHALL BE THROUGH A PUMP AROUND PRACTICE TO A FILTER BAG, OTHER APPROVED DEWATERING DEVICE.
- * ONCE PHASE 1 IS COMPLETE AND EROSION AND SEDIMENT CONTROL DEVICES FOR PHASE 2 ARE IN PLACE AND FUNCTIONING PROPERLY, THE CONTRACTOR MAY PERFORM EMERGENCY SPILLWAY ADJUSTMENTS AT ANY TIME.
- 11. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, BEGIN GRADING OPERATIONS BY EXCAVATING ACCESS PATH DOWN INTO THE FACILITY AS SHOWN ON STORMWATER GRADING PLAN, SHEET 2 OF 16. ONCE EQUIPMENT ACCESS TO THE POND INTERIOR IS ACHIEVED, CONTINUE GRADING SHALLOW WETLAND CONFIGURATION AS SHOWN. TEMPORARILY SHIFT 4 WEEKS SANDBAGS AND 21" FLEXIBLE DEWATERING PIPE TO PERFORM TIE-IN GRADING AND INSTALL INFLOW RIPRAP AS SHOWN ON SHEET 9 OF 16. REMOVABLE PUMPING STATIONS CAN BE INSTALLED IN THE POND INTERIOR AS NEEDED TO DRAWDOWN GROUNDWATER OR AS INSTRUCTED BY THE SEDIMENT CONTROL INSPECTOR DURING GRADING OPERATIONS.
 - 12. ONCE ALL GRADING OPERATIONS IN PHASE 2 ARE COMPLETE, THE INFLOW RIPRAP INSTALLED, AND EMERGENCY SPILLWAY ADJUSTMENTS COMPLETE, WITH PERMISSION FROM THE INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION TO PHASE 3.

PHASE 3

- 13. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, INSTALL BASEFLOW PUMP AROUND PRACTICE AS SHOWN AND REMOVE THE 21" FLEXIBLE DIVERSION PIPE.
- 14. INSTALL PROPOSED RISER STRUCTURE, S-1, 24" RCP BARREL PIPE AND PROJECTION COLLAR, ANTI-SEEP COLLAR AND CONCRETE CRADLE, AND FILTER DIAPHRAGM AND DRAIN OUTLET TO EXISTING ENDWALL. CONTRACTOR TO ENSURE THAT THE CONNECTION BETWEEN THE EXISTING BARREL PIPE, CONCRETE CRADLE, AND PROPOSED RISER BOX IS INSTALLED 2 WEEKS PROPERLY AND WATERTIGHT. BACK FILL ABOVE PROPOSED BARREL AND COMPLETE GRADING OF
 - PROPOSED BENCH AREA SURROUNDING THE RISER AS SHOWN.
 - 15. INSTALL LANDSCAPE PLANTINGS PER THE LANDSCAPE PLANS (SHEETS 15 AND 16).
 - 16. WITH PERMISSION FROM THE INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREA.
 - 17. REMOVE ALL STOCKPILE AREAS AND STABILIZE THE AREA TO EXISTING CONDITION.
 - 18. REPLACE/REPAIR ANY DAMAGE TO CURB, TRAIL, AND/OR SIDEWALK PRIOR TO COMPLETION OF THE PROJECT.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

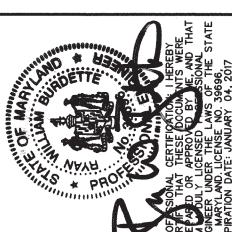
M. SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

ND 2115 316-780 -7818 ARKS, MARYLAND LEPHONE: (410) 31 FAX: (410) 316-7 www.kci.con SPARKS, Telepho 936



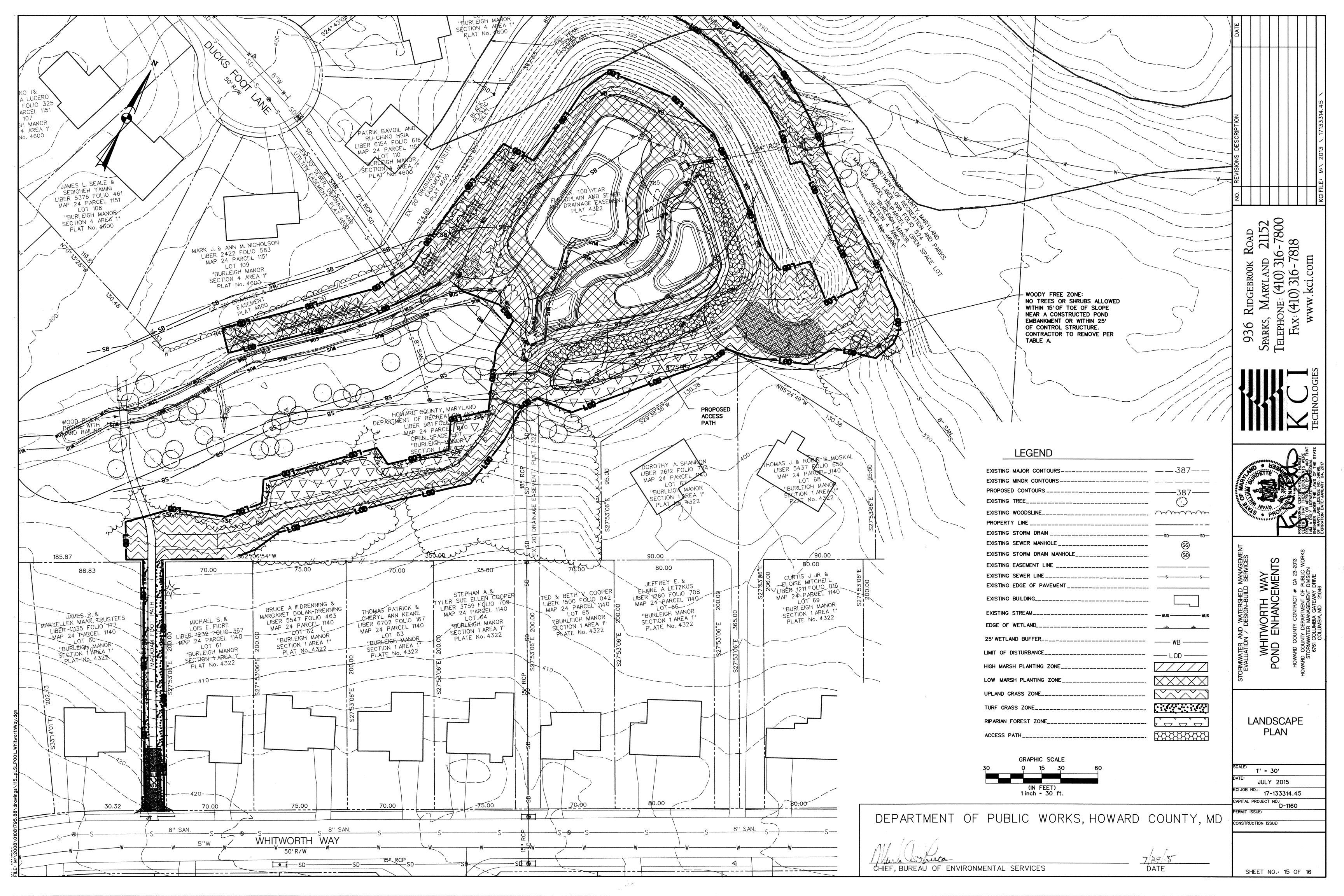


EROSION AND SEDIMENT CONTROL NOTES III

AS SHOWN JULY 2015 17-133314.45

CAPITAL PROJECT NO.: D-1160

SHEET NO.: 14 OF 16



MASTER PLANT SCHEDULE

Common Name

Silky dogwood

Pickerel rush

Common Name

Red maple

White oak

Redbud

Black walnut

Highbush blueberry

Black willow

Sweet gum

High Marsh Planting Zone

Liquidambar styraciflua

Vaccinium corymbosum

(5,079 SF / 0.116 AC)

Botanical Name

Cornus amomum

Pontedaria cordata

Riparian Forest Zone

(6,768 SF / 0.155 AC)

Botanical Name

Acer rubrum

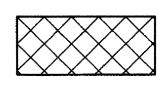
Juglans nigra

Quercus alba

Cornus florida

Cercis canadensis

Amelanchier canadensis-Serviceberry



Low Marsh Planting Zone 7,415 SF / 0.170 AC) Spacing Quantity Size **Botanical Name Common Name** 2' O.C. Peltrandra virginica Arrow arum 2' O.C. 265 Plug Saggitaria latifolia Arrowhead 2' O.C. Plug 265 Elodea canadensis Broad water weed 2' O.C. Plug 265 Andropogon glomeratus Bushy beardgrass 2' O.C. Plug 265 Scirpus pungens Common three square 2' O.C. 265 Blue flag iris Iris versicolor

Form

Container

Plug

Form

5' Height Container 10' O.C. 5' Height Container 10' O.C.

Container 6' O.C.

6' O.C.

2' O.C.

Spacing Quantity

5' Height

3' Height

5' Height

Spacing Quantity

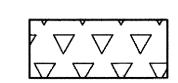
21

21

265

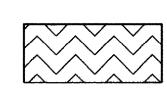
13

13



Nyssa sylvatica-Black gum

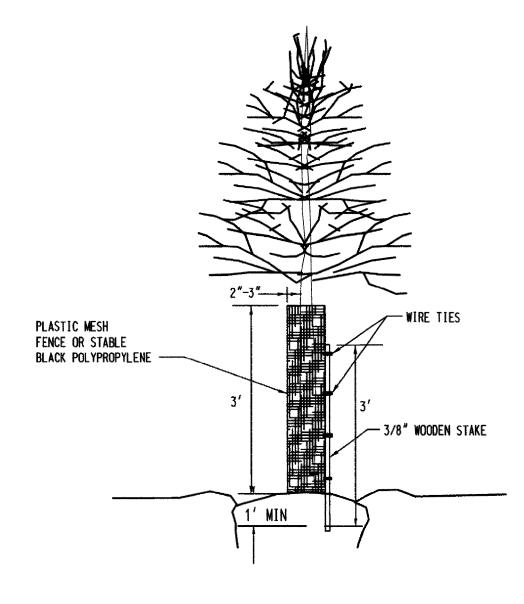
Cornus alternifolia - Pagoda dogwood



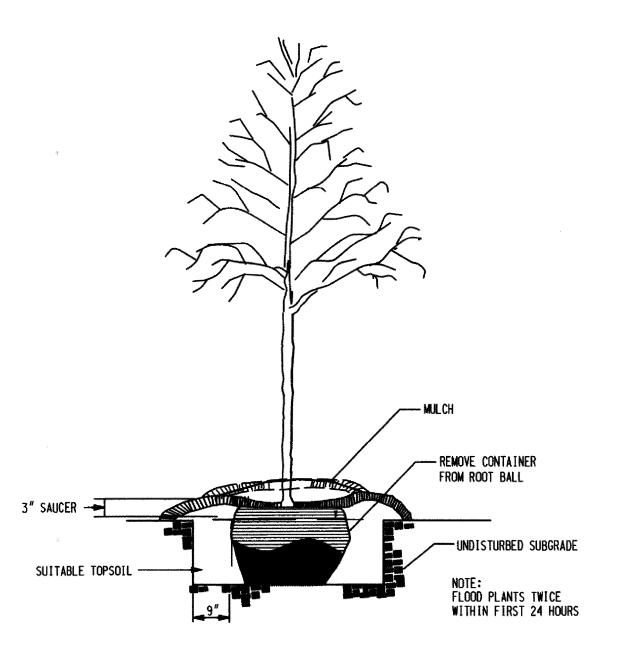
Upland Grass Zone (43,368 SF/0.996 AC.) Seed Rate Quantity Seed Mix 15lb per acre 14.9 ERNST Upland Grass Mix ERNMX-720



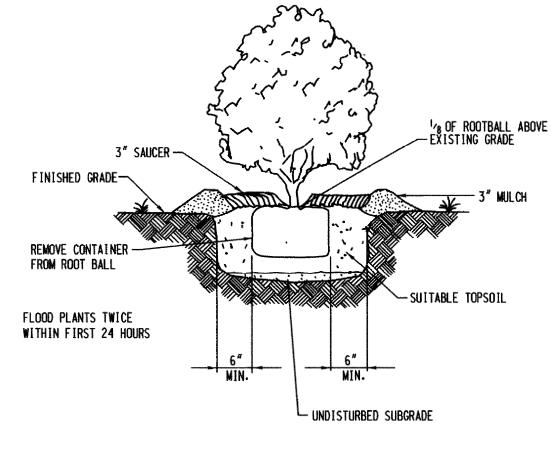
Turf Grass Zone		ur akaine (Pengli unila menan gaja in sila tau tila lakei na urandila mila til fatilistensa silam sa angala salam s angala salam sa
(2,000 SF / 0.046 AC)		800 - 1 A A-44 (1000) 2004 (2004) (1004) (1004) (1004) (1004) (1004) (1004) (1004) (1004) (1004) (1004) (1004)
Quantity (lbs)	Seed Mix	memenguse mengut magan panggal panggan mengunakan panggal panggan panggan panggan panggan panggan panggan pang Panggan panggan panggan Panggan panggan
9.2	SHA special purpose seed mix 920.06.07 (b)	
Application rate = 200 lbs. / AC		
* No K31 grass shall be placed in an	y wetland or wetland buffer area	
Use sod if requested		



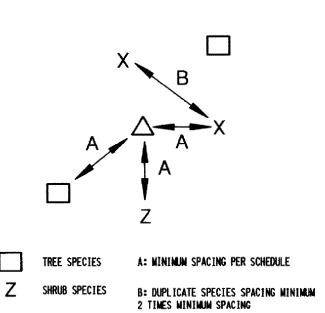




TREE PLANTING DETAIL NOT TO SCALE



SHRUB PLANTING DETAIL NOT TO SCALE



TREE AND SHRUB RANDOM SPACING NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

WMA Permit No. 15-MR-0059

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE

SHEET NO.: 16 OF 16

LANDSCAPE

NOTES

& DETAILS

N.T.S.

JULY 2015

KCI JOB NO.: 17-13.3314.45

CONSTRUCTION ISSUE:

ROOK ROAD JAND 21152 0)316-7800 16-7818

RIDGEBROOK

936

ORMWATER AND WATERSHED MANAGEMI EVALUATION / DESIGN-BUILD SERVICES

EP-15-027