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LEGEND

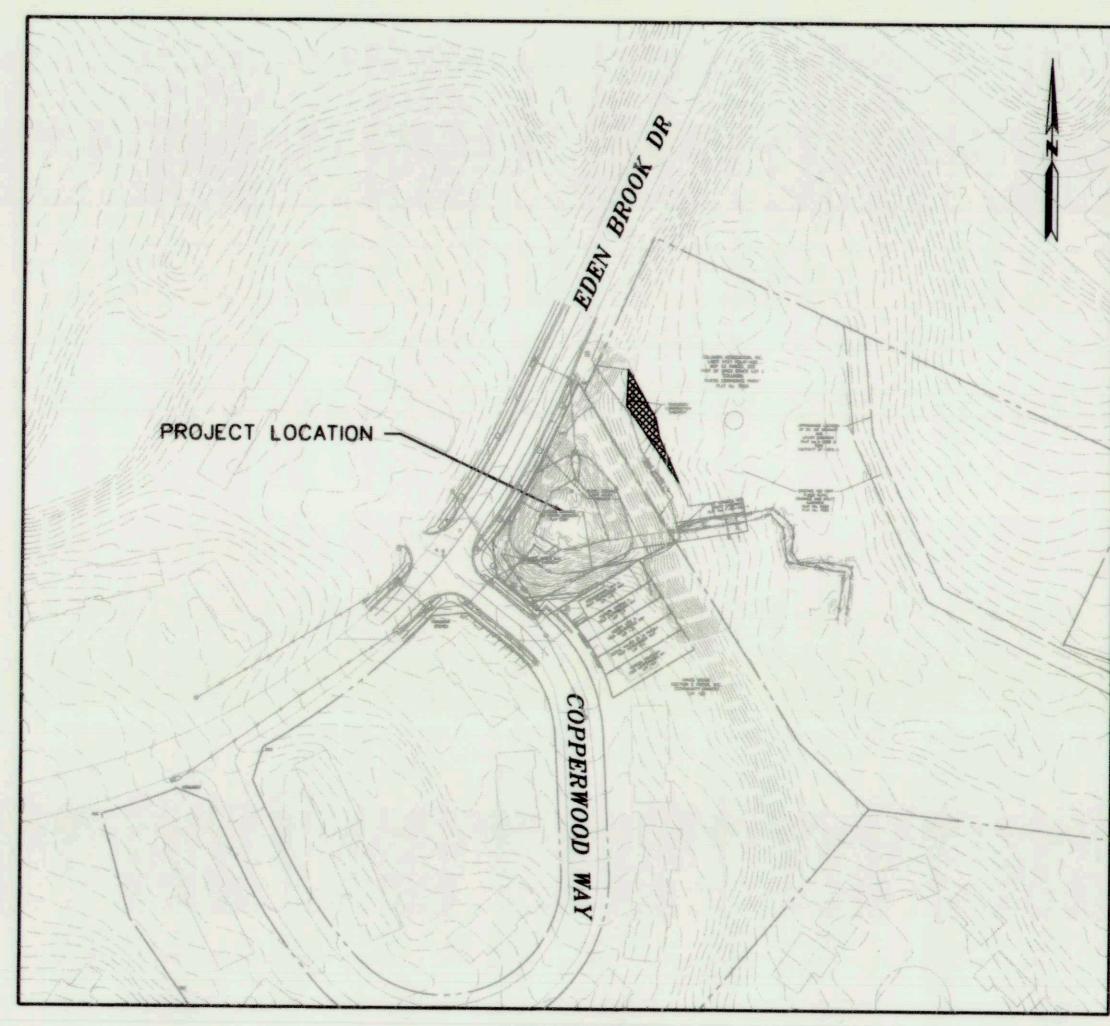
LIMIT OF DISTURBANCE	LOD
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
PROPOSED CONTOURS	387
EXISTING WOODSLINE	mm
PROPERTY LINE	
EASEMENT BOUNDARY	
EXISTING STORM DRAIN	
EXISTING STORM DRAIN INLET	50
EXISTING STORM DRAIN MANHOLE	(50)
EXISTING UTILITY POLE	
EXISTING SEWER LINE	-0-
EXISTING SEWER MANHOLE	
EXISTING EDGE OF PAVEMENT	(SS)
EXISTING RIPRAP	\$250 A
PROPOSED RIPRAP	
SANDBAG DAM	COCCOCCOCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
PUMP AROUND AND HOSES	
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REMOVABLE PUMP STATION	⊠ RPS
	⊠RPS ——SF——
REMOVABLE PUMP STATION	SF
REMOVABLE PUMP STATION	SF
REMOVABLE PUMP STATION	SF—OSF—
REMOVABLE PUMP STATION	- OSF
REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER	
REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER EXISTING WETLAND BOUNDARY	- OSF - WUS - S8
REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER EXISTING WETLAND BOUNDARY EXISTING 25' WETLAND BUFFER	- OSF - WUS - SB
REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER EXISTING WETLAND BOUNDARY EXISTING 25' WETLAND BUFFER WOODY-FREE ZONE BOUNDARY	- OSF - WUS - SB - WB
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REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER EXISTING WETLAND BOUNDARY EXISTING 25' WETLAND BUFFER WOODY-FREE ZONE BOUNDARY 100-YR WSE SOILS BOUNDARY	- OSF - OSF - WUS - SB - WB
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REMOVABLE PUMP STATION SILT FENCE ORANGE SAFETY FENCE STABILIZED CONSTRUCTION ENTRANCE EXISTING WATERS OF THE U.S. EXISTING 50' STREAM BUFFER EXISTING WETLAND BOUNDARY EXISTING 25' WETLAND BUFFER WOODY-FREE ZONE BOUNDARY 100-YR WSE SOILS BOUNDARY	- OSF - OSF - WUS - SB - WB

HOWARD	COUNTY	SURVEY C	CONTRO
DESIGNATION	NORTHING	EASTING	ELEVATION
42R1	166975.9455	411837.9135	114.545
42R2	166709.7177	412126.5502	101.026

KINGS MEADE POND REPAIR

HOWARD COUNTY, MARYLAND

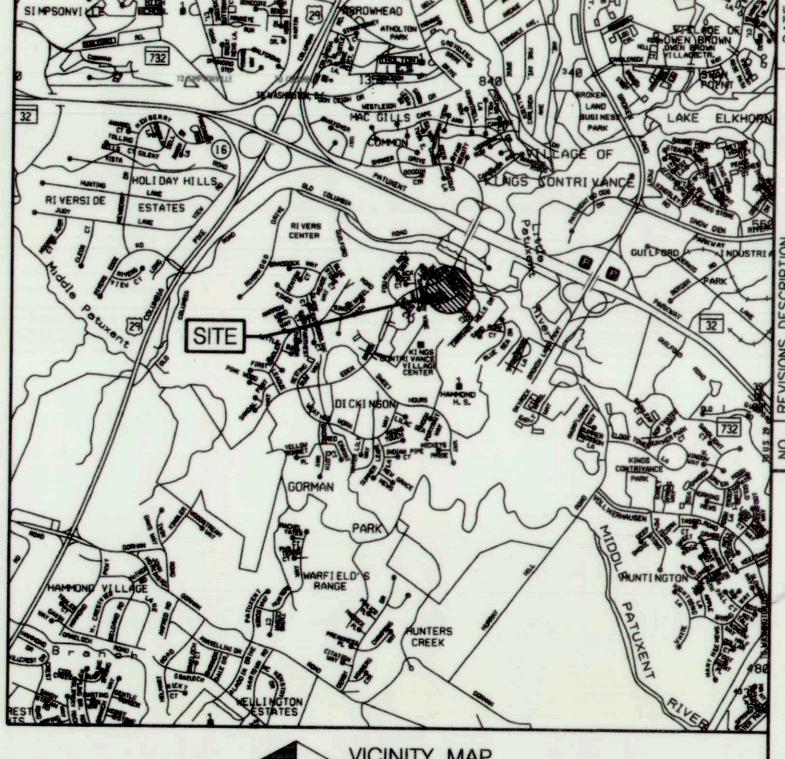
DEPARTMENT OF PUBLIC WORKS CAPITAL PROJECT D-1159

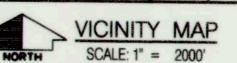


SITE LOCATION

SPECIAL CONTRACTOR NOTES

- PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME INTERVALS PROVIDED WITH THE 2011 MARYLAND STANDARDS & SPECIFICATIONS FOR SOIL EROSION & SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.

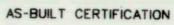




GENERAL INFORMATION

- 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 DECEMBER 27, 2013 TO VERIFY THE PRESENCE 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 JANUARY 2014.
- 13. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- 14. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT NOR 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. THERE ARE NO CRITICAL AREAS WITHIN THE PROJECT AREA.
- 17. THE RECEIVING STREAM IS A TRIBUTARY TO THE LITTLE PATUXENT RIVER, WHICH IS CONSIDERED IMPAIRED FOR A VARIETY OF CONDITIONS, INCLUDING TOTAL SUSPENDED

EP.15.02



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.

AS SHOWN DECEMBER 2017 17133314.15 APITAL PROJECT NO.: CONSTRUCTION ISSUE:

AS-BUILT

TITLE

SHEET

SHEET NO.: 1 OF 11



PROFESSIONAL CERTIFICATION, I HERERBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT IAM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31201. EXPIRATION DATE: JANUARY 24, 2019

PERMIT INFORMATION CHART

KINGS MEADE SECTION 2 TAX MAP NO. ELECT. DIST 7 R-SC 42

HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
6751 COLUMBIA GATEWAY DRIVE COLUMBIA, MD 21046 410-313-6444

DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENVIRONMENTAL SERVICES CHIEF, STORMWATER MANAGEMENT DIVISION

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

ENGINEER'S CERTIFICATE

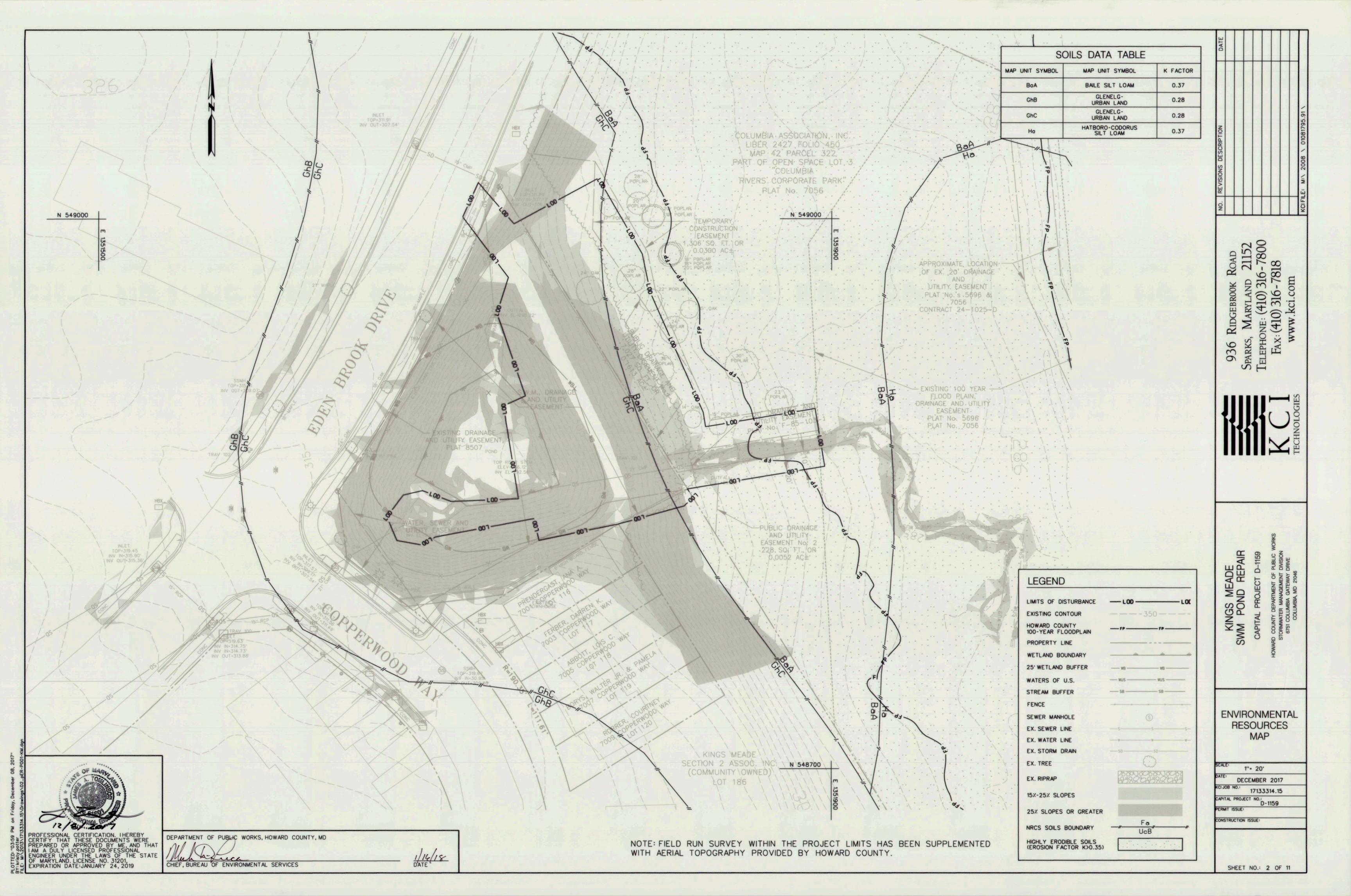
"ICERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE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

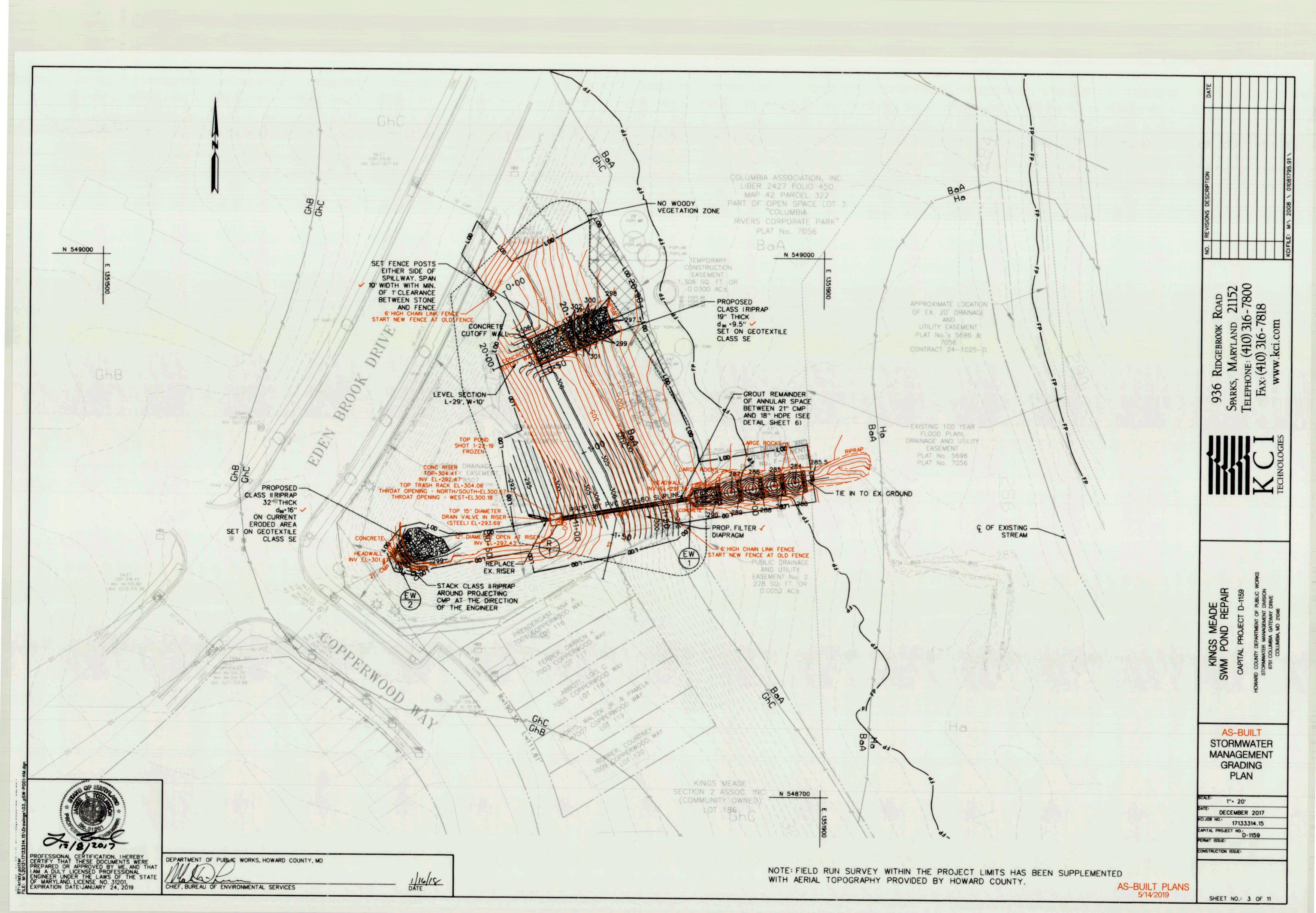
DEVELOPER'S CERTIFICATE

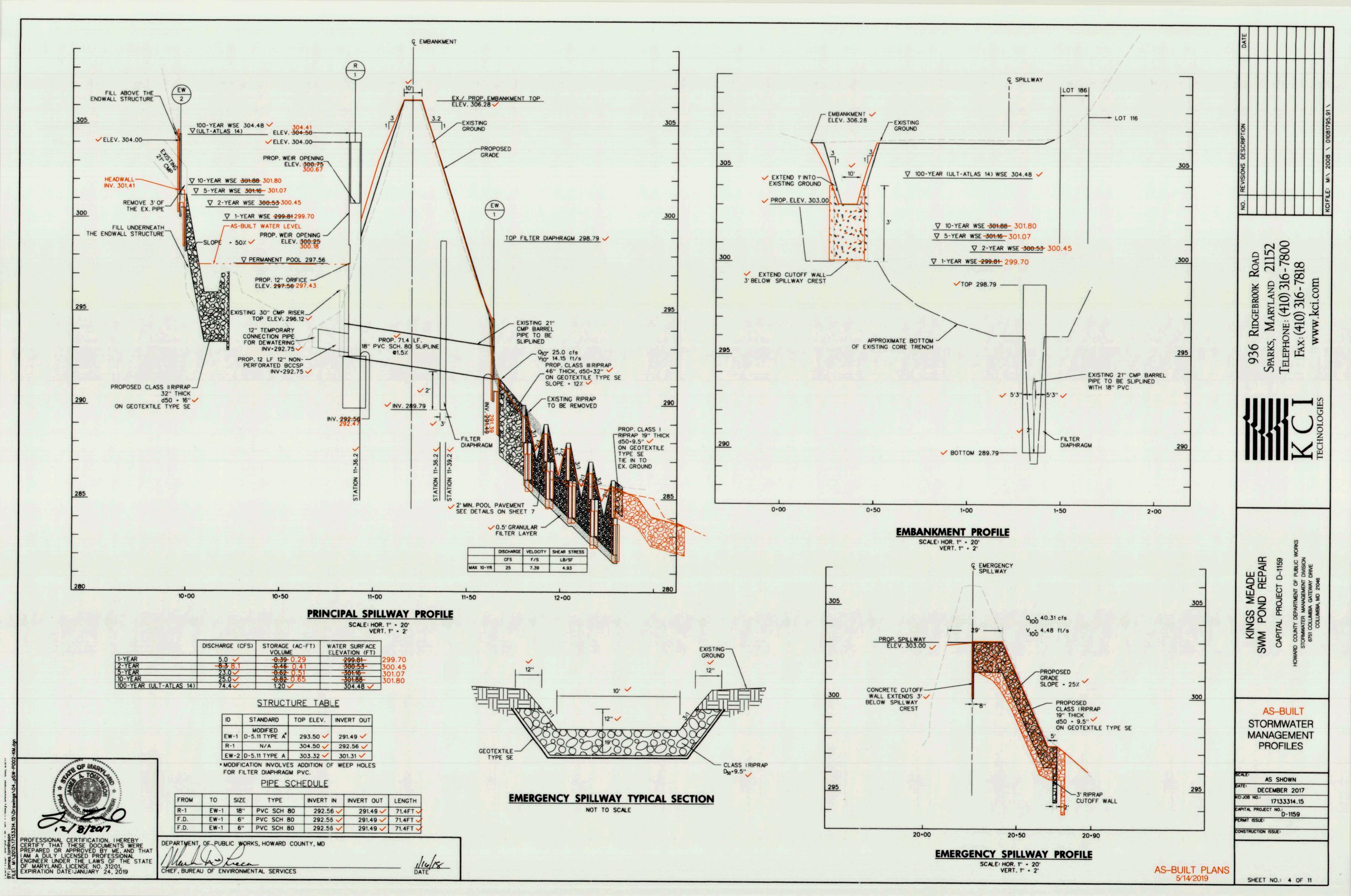
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

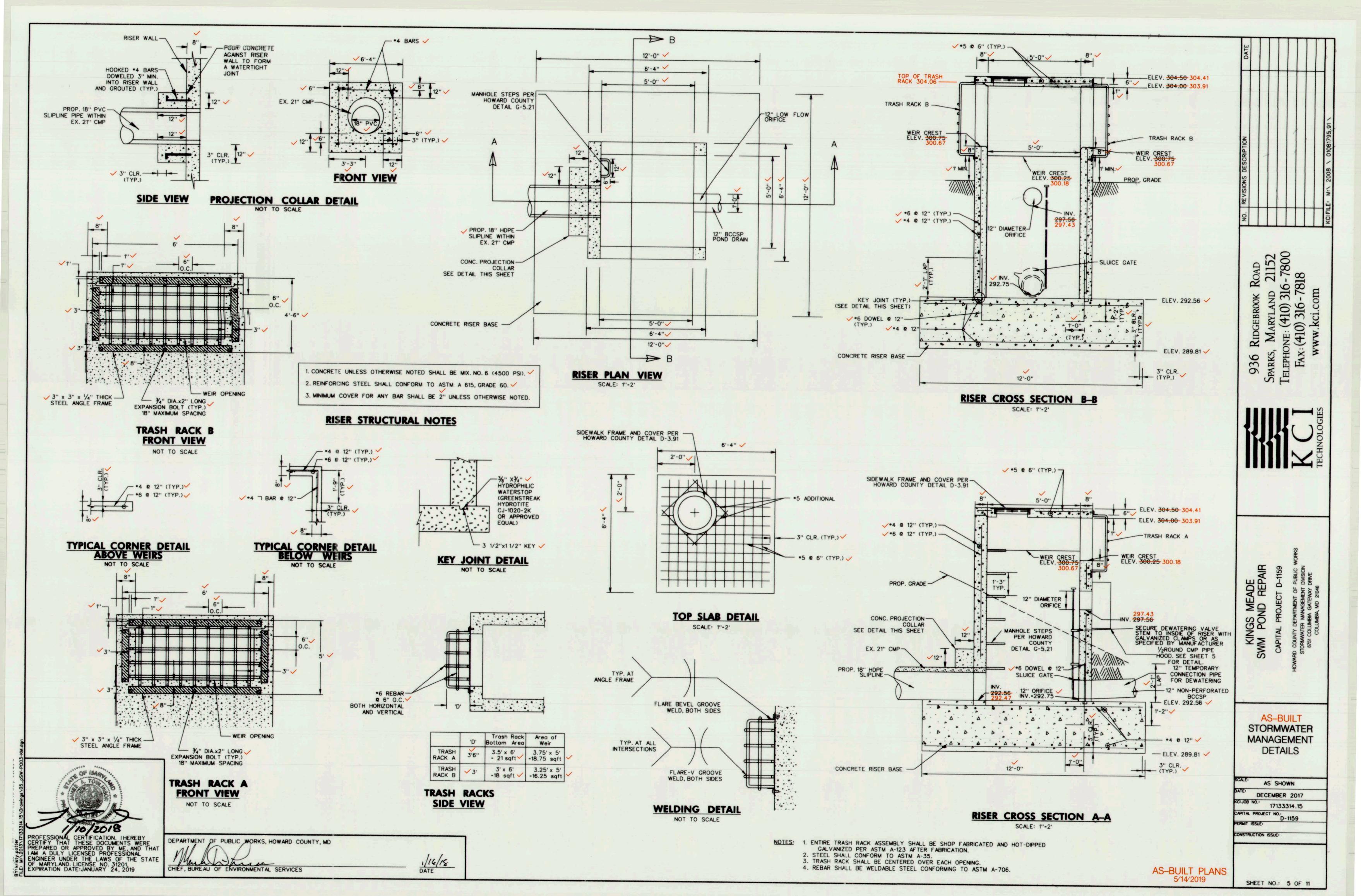
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. 1/23/18

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS









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 DISIGNATED 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 THAT 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

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 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 DEPARTS APRILITY.

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. 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 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

CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31201, EXPIRATION DATE: JANUARY 24, 2019

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

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.

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 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:

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

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.

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

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

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 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

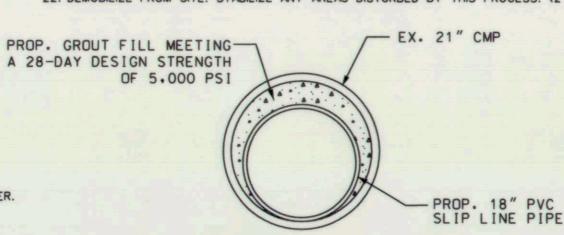
CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

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.

SEQUENCE OF CONSTRUCTION

- I. OBTAIN GRADING PERMIT. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH MDE PERMIT NO. 201461155/14-NT-3211. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION, AND THE MD. DEPARTMENT OF ENVIRONMENT DAM SAFETY DIVISION (410-537-3538) AT LEAST FIVE (5) DAYS PRIOR TO DOING ANY WORK (410-313-1855).
- 2. CONTRACTOR SHALL COORDINATE AN ONSITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, MDE REPRESENTATIVE, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. CONTRACTOR MUST SUBMIT DETAILS ON THE SLIPLINER MATERIAL, GROUT MIX. GROUTING PROCEDURES, AND FILTER DIAPHRAGM MATERIAL AT LEAST TWO WEEKS PRIOR TO THE START OF WORK. (2 WEEKS)
- 3. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE TO PROVIDE ACCESS TO THE SITE. MARK LIMITS OF DISTURBANCE AND SET ORANGE SAFETY FENCE ALONG THE
- 4. INSTALL PUMP AROUND *1 AND *2. DEWATER EXISTING POND. ENSURE ALL AREAS ARE UNDISTURBED OR STABILIZED, AND MONITOR OUTLET TO VERIFY WATER IS CLEAR. ONCE POND IS DEWATERED, OR IF DAYS:
- 5. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION UPON COMPLETION OF INSTALLATION OF SEDIMENT CONTROLS. (1 DAY)
- 6. WITH A MINIMUM OF 72 HOURS OF FORECASTED DRY WEATHER, REMOVE REMAINING RISER STRUCTURE. FOR ALL WORK WITHIN THE INTERIOR OF THE POND, SITE SHALL BE FULLY STABILIZED AT THE END OF EACH WORK DAY. (1 DAY)
- 7. SEAL ALL LEAKING JOINTS AND HOLES IN CMP SPILLWAY WITH A FLEXIBLE, WATERTIGHT GROUT, TAKING CARE TO FILL ANY EXISTING VOIDS. LARGER VOIDS IN THE BACKFILL MAY BE PRE-FILLED WITH CEMENT GROUT. ALLOW GROUT TO CURE BEFORE INSTALLING
- 8. INSTALL SLIPLINER FROM DOWNSTREAM END ASSURING SECTIONS ARE COMPLETELY CONNECTED AT THE JOINTS ACCORDING TO MANUFATURER'S RECOMMENDATIONS. IT IS NECESSARY TO PLACE SPACERS ALONG OUTSIDE FACE OF SLIPLINER AT THE 10:00 AND 2:00 POSITIONS TO ASSURE THE LINER REMAINS CENTERED IN THE PIPE DURING THE GROUTING PROCEDURE. (1 DAY)
- 9. INSTALL CONCRETE BULKHEADS AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE PIPE TO SEAL IN GROUT, ENSURING THAT THE SLIPLINER IS CENTERED. THE SLIPLINER SHOULD EXTEND THROUGH THE DOWNSTREAM BULKHEAD BY APPROXIMATELY HALF A FOOT TO
- 10. GROUT FROM THE DOWNSTREAM END USING A SERIES OF 1" TO 2" DIAMETER PVC DELIVERY PIPES. EXTEND THE FIRST DELIVERY PIPE APPROXIMATELY TWO THIRDS OF THE LENGTH OF VOID BETWEEN THE PIPE AND LINER, THE SECOND APPROXIMATELY HALFWAY, AND THE THIRD APPROXIMATELY 10 FEET OR LESS. (1 DAY)
- 11. USE GROUT MEETING THE SPECIFICATIONS FOR US CONCRETE PRODUCTS SPECIFICATION FOR U.S. GROUT 715 VOID AND CAVITY FILL GROUT. (NOTE: GROUT SHOULD BE AT LEAST 1000 PSI STRENGTH, AND MUST BE SAMPLED IN THE FIELD AND TESTED IN A LAB FOR STRENGTH AT 7 AND 28 DAYS. FLOWABLE FILL IS NOT SPECIFICATION FOR U.S. USE A SMALL GROUT PUMP TO PUMP INTO DELIVERY PIPES STARTING WITH THE LONGEST PIPE AND WORKING DOWN THE PIPE TOWARD THE OUTLET END ASSURING ALL VOIDS ARE FILLED. (NOTE: DEPENDING ON THE SIZE AND TYPE OF THE SLIPLINER, GROUT MAY BE INJECTED THROUGH THE PIPE FITTINGS THROUGH THE SLIPLINER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. GROUT DELIVERY PIPES MAY REMAIN INSIDE GROUT.
- 12. OBTAIN SAMPLES (CYLINDERS) OF GROUT FOR LABORATORY STRENGTH TESTING AT 7 AND 28 DAYS FOR EACH 50 TO 100 CUBIC FEET OF GROUT PLACED. (28 DAYS)
- 13. INSTALL FILTER DIAPHRAGHM AROUND DOWNSTREAM END OF PIPE USING GRANULAR MATERIALS APPROVED BY THE ENGINEER. (3 DAYS)
- 14. ONCE PERMISSION FROM CID INSPECTOR RECERIVED, INSTALL CONCRETE RISER (R-1). PERFORM EMBANKMENT GRADING AS NECESSARY FOR INSTALLATION. CONCRETE STRENGTH TESTING SHOULD BE PERFORMED IN A LABORATORYAT 7 AND 28 DAYS IF THE RISER IS CONSTRUCTED ON SITE. (10 DAYS)
- 15. COMPLETE GRADING OF UPSTREAM SIDE AND TOP OF EMBANKMENT. CONSTRUCT EMERGENCY SPILLWAY. (10 DAYS)
- 16. STABILIZE DISTURBED AREAS DRAINING TO THE POND. MAINTAIN DEWATERING PRACTICE IN PLACE. INSTALL SLOPE STABILIZATON MATTING. (3 DAYS)
- 17. INSTALL ENDWALL (EW-1). CONSTRUCT DOWNSTREAM-MOST STEP IN CHANNEL STABILIZATION (5 DAYS).
- 18. INSTALL SANDBAGS AT EW-1, AND INSTALL PUMP AROUND *3 FOR CLEAN-WATER FLOWS. RELOCATE INTAKE FOR PUMP AND FILTER BAG TO 12+24 PUMP AROUND *4. (1 DAY)
- 9. COMPLETE RESTORATION OF THE POND OUTFALL CHANNEL. STABILIZE ALL DISTURBED AREAS WITHIN THE CHANNEL AT THE END OF EACH WORKING DAY. (10 DAYS)
- 20. PERFORM FINAL GRADING. STABILIZE DISTURBED AREAS. (5 DAYS)
- 21. UPON COMPLETION AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES. (2 DAYS)
- 22. DEMOBILIZE FROM SITE. STABILIZE ANY AREAS DISTURBED BY THIS PROCESS. (2 DAYS)



GROUT FILL DETAIL

EL. 298.79

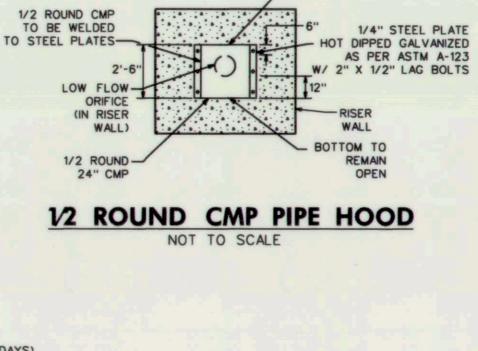
EL. 289.79

NOT TO SCALE

SAND FILTER DIAPHRAGM ASTM C-33 STONE 1'-6"

> SECTION Z-Z PVC LATERAL DETAIL

3'-0"



13'-3"

5'-9"

3'-9" (TYP.)

GEOTEXTILE CLASS 'SE

291.75

SECTION C-C

SCALE: 1"-3"

TOP PLATE

24" CMP

SPOT WELDED

- TO 1/2 ROUND

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, THE AS-BUILT PLANS AND CERTIFICATION WILL BE PREPARED BY THE ENGINEER FOR SUBMISSION TO HOWARD COUNTY.

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, 2011, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.

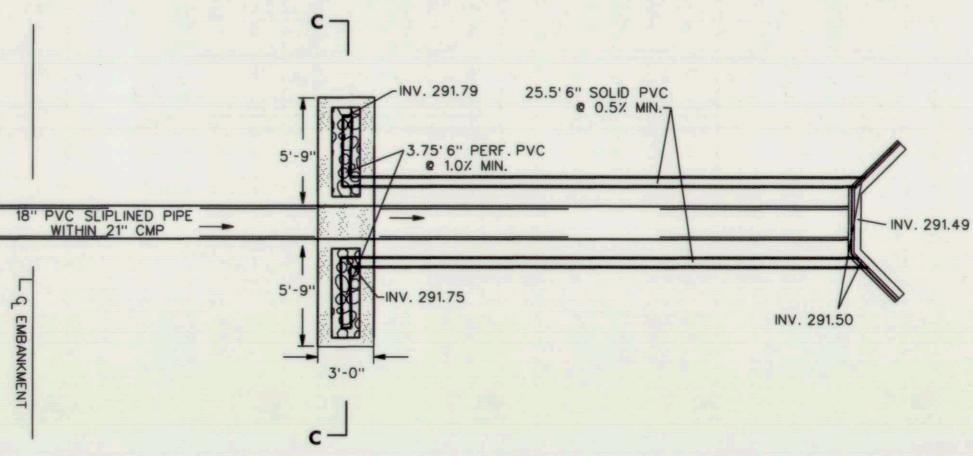
OPERATION AND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

- 1. FACILITY SHALL BE INSPECTED ONCE EVERY THREE YEARS. INSPECTIONS SHALL BE PERFORMED DURING OR SHORTLY AFTER 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
- 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 SPILLWAY 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.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE EMBANKMENT, DEWATERING SYSTEM, AND OVERFLOWS SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE.



PLAN SCALE: 1"=5"

THE SAND SHALL MEET THE FINE CONCRETE AGGREGATE REQUIREMENTS OF ASTM C-33 MATERIAL. THE MAXIMUM DRY DENSITY SHALL NOT BE LESS THAN 105 LB/FT3

FILTER DIAPHRAGM COMPACTION NOTE:

THE FILTER DIAPHRAGM SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS 18 TO 24 INCHES THICK (BEFORE COMPACTION). THE FILTER SHALL BE BUILT WITH THE EMBANKMENT. ONE WAY OF CONSTRUCTING THE FILTER IS TO ALLOW EVERY SUCCESSIVE LAYER OF THE EMBANKMENT MATERIAL TO BE PLACED OVER THE FILTER AND COMPACTED. THEN EXCAVATE DOWN TO THE TOP OF THE FILTER MATERIAL FROM THE PREVIOUS LAYER. THE THICKNESS OF THE FILL OVER THE FILTER BETWEEN LAYERS SHALL NOT EXCEED 4 FEET. IT IS ESSENTIAL TO KEEP GOOD GROUND CONTROL TO ASSURE CONTINUITY OF THE FILTER.

CARE SHALL BE TAKEN SO THAT THE FILTER MATERIAL DOES NOT GET CONTAMINATED. ANY CONTAMINATED FILTER MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED MATERIAL. PROTECTIVE COVERING OVER THE FILTER MAY BE NECESSARY BETWEEN THE LIFTS.

THE WATER CONTENT OF THE FILTER MATERIAL BEFORE AND DURING COMPACTION SHALL BE UNIFORM THROUGHOUT EACH LAYER OF THE MATERIAL. THE WATER CONTENT SHALL BE SUFFICIENT TO ATTAIN REQUIRED DENSITY OF THE MATERIAL INPLACE WHEN COMPACTED. THE MATERIAL SHALL BE THOROUGHLY WETTED TO ATTAIN REQUIRED COMPACTION, BUT SHALL NOT CONTAIN WATER TO THE EXTENT WHICH WILL INTERFERE WITH THE OPERATION OF THE CONTRACTOR'S HAULING. PLACING, OR COMPACTION EQUIPMENT. THE WATER SHALL BE APPLIED BY SPRINKLING ON THE MATERIAL INPLACE USING POTABLE WATER.

DECEMBER 2017 17133314.15 APITAL PROJECT NO. D-1159 RMIT ISSUE: INSTRUCTION ISSUE:

SHEET NO .: 6 OF 11

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DEPARIMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

FILTER DIAPHRAGM AS SHOWN

(TYP.)

6" PERF. PVC

IN NO. 67 STONE

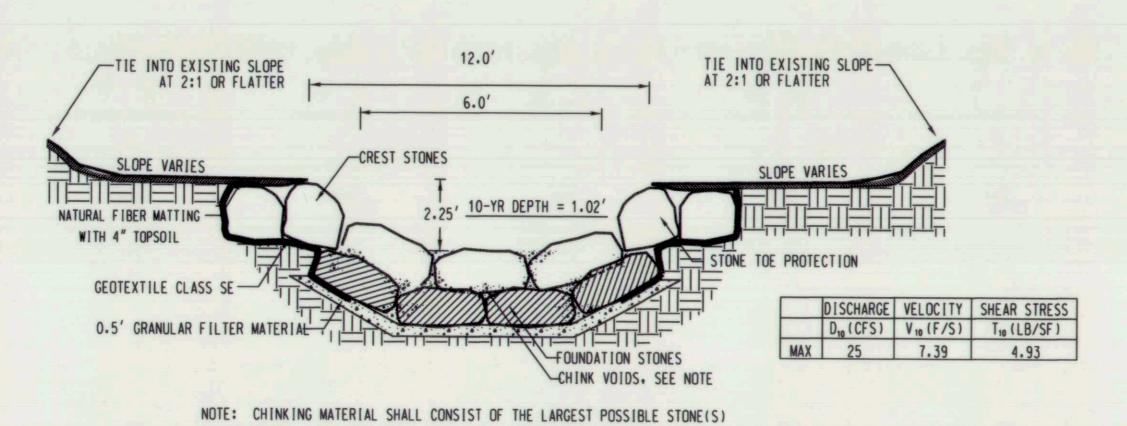
@ MIN. 1.0%

KINGS MEADE SWM POND REPAIR 4 P F

SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
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STORMWATER MANAGEMENT NOTES & DETAILS

N/A

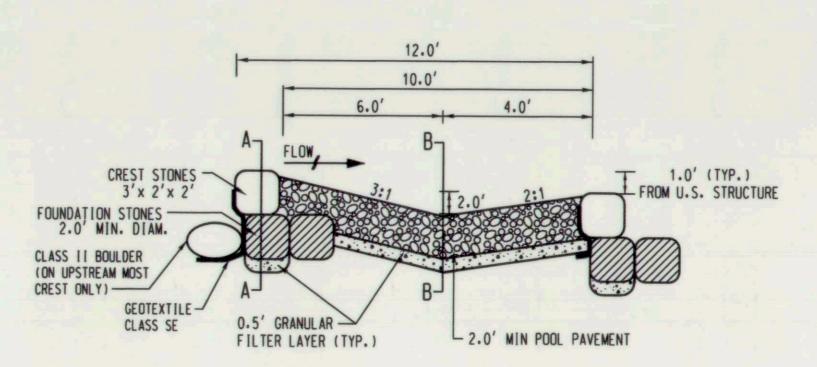


TO SECURELY FILL THE VOID. VOIDS SHALL NOT EXCEED 2"IN DIAMETER. TYPICAL CROSS SECTION OF STEP-POOL CREST A-A

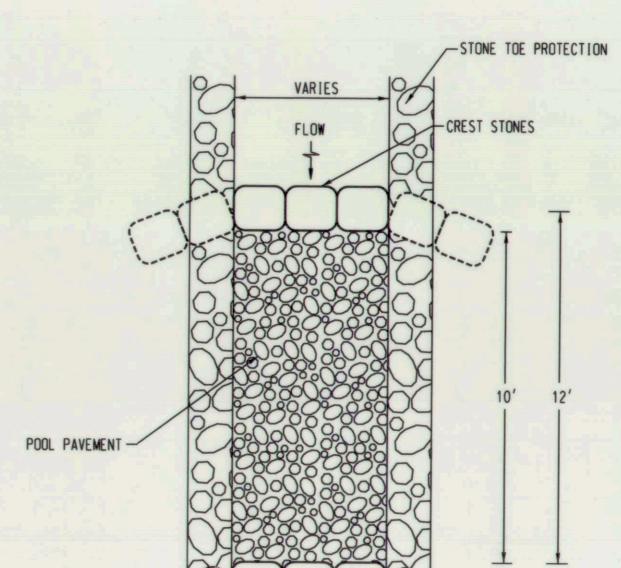
NOT TO SCALE

A = LONGEST AXIS (LENGTH) B = INTERMEDIATE AXIS (WIDTH) C = SHORTEST AXIS (THICKNESS)

> STONE AXIS DEFINITION NOT TO SCALE



TYPICAL PROFILE THROUGH STEP-POOL NOT TO SCALE



A(LONGEST)

WEIR

B(INTERMEDIATE)

C(SHORTEST)

PLAN VIEW OF STEP-POOL SYSTEM NOT TO SCALE

NOTE: WASH IN CHANNEL SAND & GRAVEL TO FILL VOID SPACE OF POOL PAVEMENT

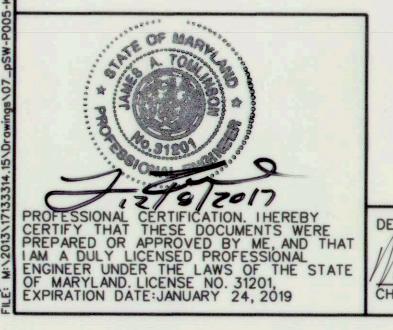
	TIES INTO EX	ISTING GRAI	DE —	
12.0'				
SLOPE VARIES 4.0'	SLOPE V	ARIES		
10-YR DEPTH = 3.38'				
NATURAL FIBER MATTING				
GEOTEXTILE CLASS SE	- MIX 75	TOE PROTEC % CLASS I	RIPRAP	
POOL PAVEMENT		% CLASS II VOIDS WITH	RIPRAP WASH IN MA	TERIAL
-0.5' GRANULAR	FILTER LAYER			
NOTE: WASH IN CHANNEL SAND & GRAVEL TO FILL VOID SPACE OF RIPRAP		DISCHARGE	VELOCITY	SHEAR STRESS
		D10 (CFS)	V 10 (F/S)	T ₁₀ (LB/SF)
	MAX	25	1.17	0.05

TYPICAL CROSS SECTION OF POOL B-B NOT TO SCALE

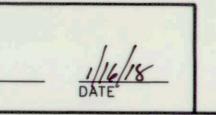
POOL PAVEMENT								
% LESS THAN	US STD SIEVE							
100	12.2 in							
84	9.7 in							
60	6.0 in							
30	4.1 in							
10	1.4 in							

NOTE: CHANNEL BED MATERIAL SHALL BE SALVAGED WHEN POSSIBLE.
ONLY FURNISH CHANNEL BED MATERIAL WHEN SALVAGED MATERIAL IS NOT AVAILABLE. ALL POOL MATERIAL SHALL BE SALVAGED ON SITE.

GRANULAR FILTER MATERIAL							
% LESS THAN	US STD SIEVE						
100	2.5 in						
85-100	1.0 in						
60-100	0.5 in						
35-70	No. 10						
20-50	No. 40						
3-20	No. 200						



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD CHIEF, BUREAU OF ENVIRONMENTAL SERVICES



DECEMBER 2017 17133314.15 CAPITAL PROJECT NO.: D-1159 PERMIT ISSUE: CONSTRUCTION ISSUE:

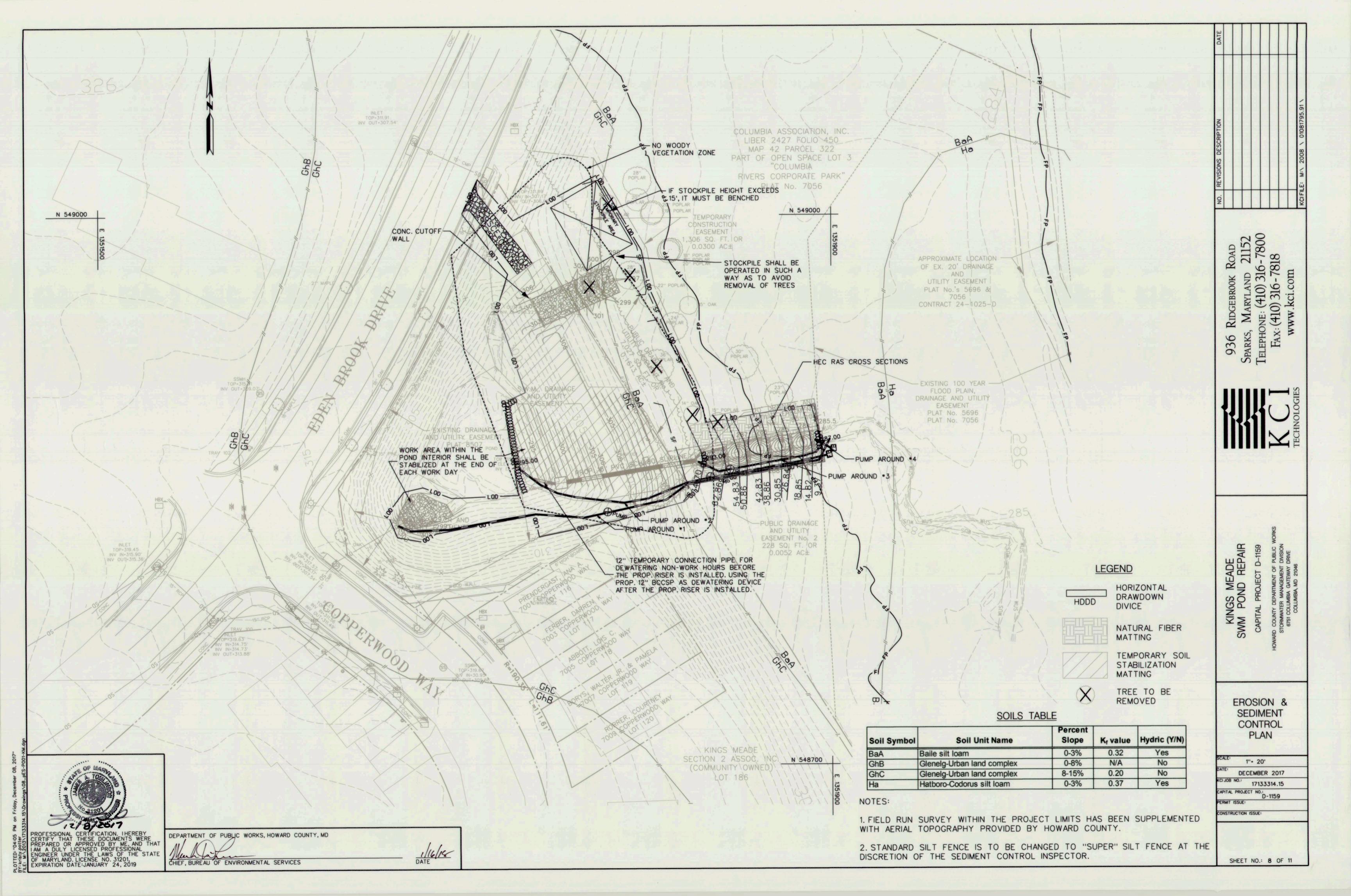
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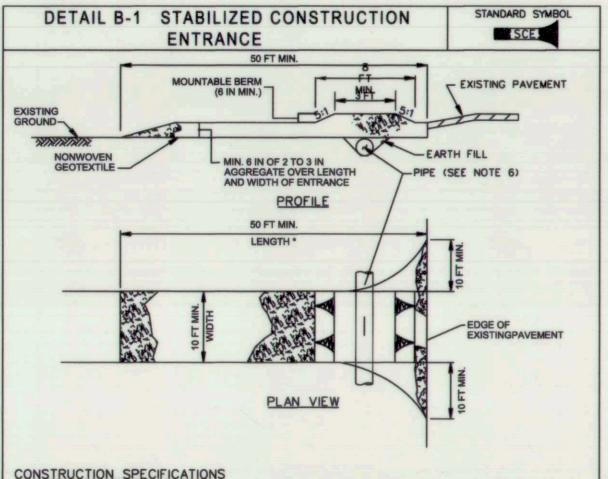
KINGS MEADE SWM POND REPAIR CAPITAL PROJECT D-1159

STREAM **DETAILS**

AS SHOWN

SHEET NO .: 7 OF 11





CONSTRUCTION SPECIFICATIONS

Anchor posts should be minimum

2" steel U-channel or 2"X2" timber

at least 6' in length.

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN, VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

U.S. DEPARTMENT OF AGRICULTURE TURAL RESOURCES CONSERVATION SERVI MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION

should be attached to

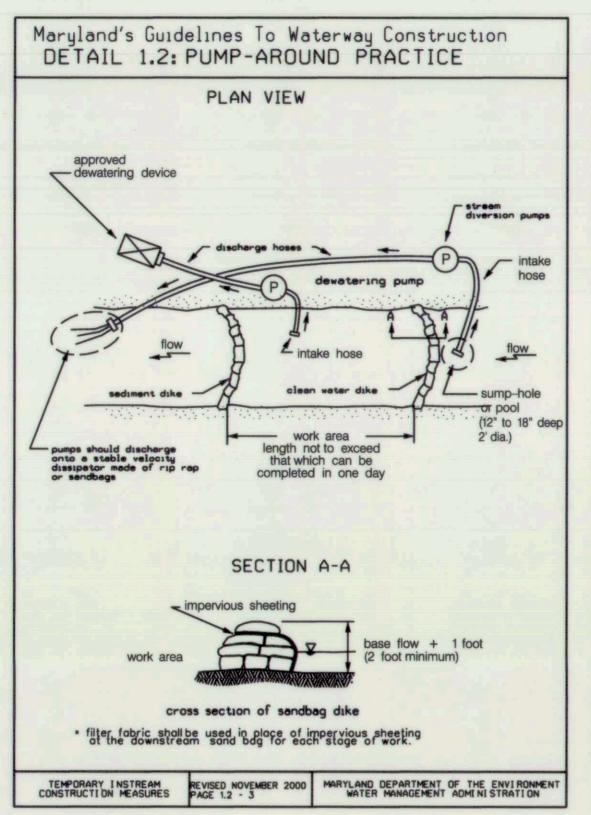
/-Use 2"X4" lumber

for cross bracing

the tops of the

anchor posts.

MAXIMUM



MGWC 1.2: PUMP-AROUND PRACTICE Temporary measure for dewatering in channel construction sites

The work should consist of installing a temporary pump around and supporting measures to divertible around in-stream construction sites.

The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each workday, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags. 8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mots or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).

9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the

11. A pump around must be installed on any tributary or storm drain outfall, which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main along the stream.

12. If a tributary is to be restored, construction should take place on the tributary before work on the main steom reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem. The contractor is responsible for providing access to and maintaining allerasion and sediment control devices until the sediment control inspector approves their removal.

TEMPORARY SOIL

STABILIZATION

MATTING SLOPE APPLICATION

ISOMETRIC VIEW

USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM)
NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND
DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT
MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND
NON-INJURIOUS TO THE SKIN, IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM
MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG
LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT
MATERIAL.

S. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF

6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD,

12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.

4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.

. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.

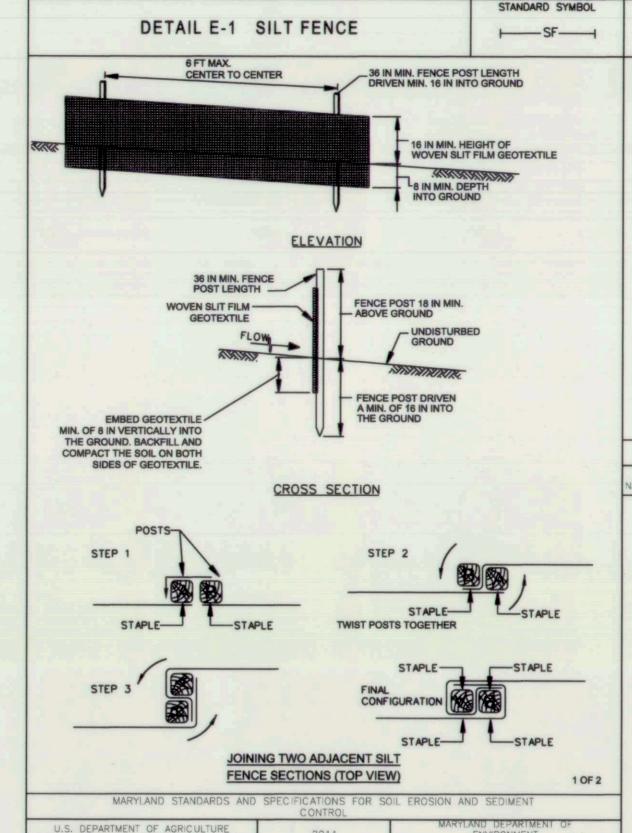
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.

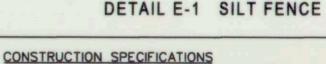
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.

After construction, oil disturbed areas should be regraded and revegetated as per the planting

STANDARD SYMBOL

TSSMS - 1.75 lb/ft





. USE WOOD POSTS 134 X 134 ± 1/6 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.

USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET

USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.

STANDARD SYMBOL

-SF-

PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.

WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL

EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

U.S. DEPARTMENT OF AGRICULTURE TURAL RESOURCES CONSERVATION SERV 2011

B-4-4 STANDARDS AND SPECIFICATIONS

TEMPORARY STABILIZATION

FOR

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.

- 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

Seed Mixture	Fertilizer	Lime Rate				
Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	Line Rate	
Cereal Rye	112	3/1-5/31 8/1-11/15	1.0	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)	
Foxtail Millet	30	5/16-7/31	0.5			
	Species Cereal Rye Foxtail	Species Application Rate (lb/ac) Cereal Rye 112 Foxtail 20	Species Application Rate (lb/ac) Seeding Dates Cer eal Rye 112 3/1-5/31 8/1-11/15 Foxtail 30 5/10, 7/91	Species Application Rate (lb/ac) Seeding Dates Seeding Depths Cereal Rye 112 3/1-5/31 8/1-11/15 1.0 Foxtail 30 5/10/7/21 2.5	Species Application Seeding Dates Depths	

REINFORCE WITH STAKES (18" SPACING) AND BACKFILL TOP OF DOWNSTREAM FABRIC ON TOP OF DOWNSTREAM FABRIC 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 TOP OF BAN KEY-IN BOTTOM 1' (MIN.) DEPTH BEHIND COIR FIBER ROLL OR TOE BOULDER TYPICAL PLAN VIEW NATURAL FIBER MATTING AND REINFORCED NATURAL FIBER MATTING NOT TO SCALE

NOTES FOR NATURAL AND REINFORCED NATURAL FIBER MATTING:

- NATURAL FIBER MATTING TO BE ROLLED LENGTHWISE ALONG STREAMBANK EXTENDING TO THE BOTTOM OF TOE PROTECTION AND A MINIMUM OF TWO FEET PAST THE LIMITS OF GRADING. IF MORE THAN ONE ROLL IS REQUIRED. MID-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAKES. AT TRANSITION BETWEEN NATURAL FIBER MATTING AND REINFORCED NATURAL FIBER MATTING. MATTING SHOULD BE OVERLAPPED A MINIMUM OF ONE FOOT AND SECURELY
- 2. NATURAL FIBER MATTING IS TO BE INSTALLED ON ALL GRADED SLOPES. HIGHLY ERODIBLE SOILS (SEE SHEET 2). AND WETLAND AREAS.
- 3. NATURAL FIBER MATTING. MATTING FOR THE BANK TREATMENT AREAS SHALL CONSIST OF A MACHINE PRODUCED MAT OF DEGRADABLE NATURAL FIBERS AND SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS:

WOVEN COIR FIBER YARN OR TWINE THICKNESS: 0.25 IN. ELONGATION (DRY/WET): 29%/35% WEIGHT: 20 OZ/SY OPEN AREA: 50% SIZE: 6 FT. WIDE X 150 FT IN LENGTH (100 SY PER ROLL)
FLOW VELOCITY: 8 FT./SEC.
LIFE EXPECTANCY: 3 YEARS

4. REINFORCED NATURAL FIBER MATTING. MATTING FOR ALTERNATING ROUGHNESS AND WOODY TOE SHALL CONSIST OF A DOUBLE-LAYERED BIODEGRADABLE FABRIC:
A BOTTOM LAYER OF JUTE FABRIC AND A TOP LAYER OF HIGH STRENGTH COIR MATTING.
CONNECTED TOGETHER. REINFORCED NATURAL FIBER MATTING SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS:

MATERIALS: WOVEN COIR FIBER (TOP LAYER) AND JUTE FABRIC (BOTTOM LAYER) THICKNESS: 0.35 IN. ELONGATION (DRY/WET): 30%/26% (TOP LAYER) AND 8%/9% (BOTTOM LAYER) WEIGHT: 33.3 OZ/SY

5. MATTING STAKES. STAKES FOR SECURING THE MATTING ALONG OTHER PORTIONS OF THE MATTING MATERIAL ABOVE THE TOE TRENCH AND FOR THE KEY-IN TRENCH AT THE TOP OF THE SLOPE SHALL CONSIST OF 1-1/2" X 1-1/2" HARDWOOD STAKES.

18-INCHES IN LENGTH. TAPERED AT THE BOTTOM END FOR EASY INSERTION INTO THE SOIL AND FLAT AT THE TOP END FOR HAMMERING.

SHEAR STRESS: 4.5 PSF FLOW VELOCITY: 12 FT./SEC. LIFE EXPECTANCY: 3 YEARS IN REINFORCED NATURAL FIBER MATTING

6. SEE DETAIL B-4-6-B ON THIS SHEET FOR ADDITIONAL INFORMATION ON INSTALLATION.

OK ROAD
ND 21152
316-7800
5-7818 MARYLANI NE: (410) 3 (410) 316-(410) 936 PARKS

KINGS MEADE SWM POND REPAIR CAPITAL

EROSION AND SEDIMENT CONTROL DETAILS

AS SHOWN DECEMBER 2017 17133314.15 APITAL PROJECT NO .: D-1159 RMIT ISSUE: INSTRUCTION ISSUE:

SHEET NO.: 9 OF 11

CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31201, EXPIRATION DATE: JANUARY 24, 2019

6 FEET anchor posts must be put in the ground to a depth of at least STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG. Use an 8" wire 1/3 of the total height "U" to secure of the post the bottom DETAIL FOR BLAZE ORANGE PLASTIC

MESH SAFETY FENCE

NOT TO SCALE

PUMP DISCHARGE MULCH, LEAF/WOOD COMPOST. WOODCHIPS, SAND, OR STRAW PLAN VIEW BALES THE WALL PROPERTY OF THE PROPE FILTER BAG ELEVATION CONSTRUCTION SPECIFICATIONS

DETAIL F-4 FILTER BAG

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A

CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING

REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY, RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.

USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE PUNCTURE ASTM D-4632 ASTM D-4833 FLOW RATE 70 GAL/MIN/FT? ASTM D-4491 PERMITTIVITY (SEC-1) 1.2 SEC-1 ASTM D-4491 70% STRENGTH @ 500 HOURS ASTM D-4355 APPARENT OPENING SIZE (AOS)

REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

0.15-0.18 MM ASTM D-4751

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STANDARD SYMBOL

8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

DETAIL B-4-6-B

OVERLAP OR ABU

6 IN DEEP (MIN.) -

ROLL EDGES (TYP.)

CONSTRUCTION SPECIFICATIONS

ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL NATURAL RESOURCES CONSERVATION SERVICE

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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.

A. Soil Preparation

1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter 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

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:

SoilpH between 6.0 and 7.0.

disking or other suitable means.

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. 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

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. 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 1 1/2 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.

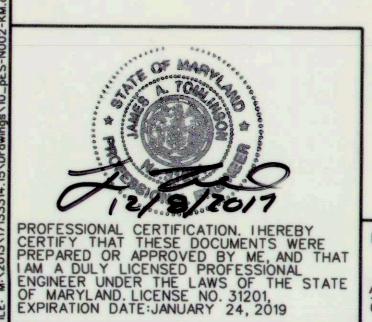
Soil Amendments (Fertilizer and Lime Specifications)

. 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

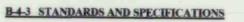
and warranty of the producer. 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass 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.



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

Mach to true CHIEF, BUREAU OF ENVIRONMENTAL SERVICES



FOR SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover.

To protect disturbed soils from erosion 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.

1. Specifications

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders

i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, anent 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

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. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.

ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding

iii. Mix seed and fertilizer on site and seed immediately and without interruption.

iv. When hydroseeding do not incorporate seed into the soil.

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 no musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

b. Wood Cellulose Fiber 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

v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

a. Apply mulch to all seeded areas immediately after seeding.

b. When straw mulch is used, 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.

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 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

B.17

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

B-4-5 STANDARDS AND SPECIFICATIONS

PERMANENT STABILIZATION

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

A. Seed Mixtures

1. General Use

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

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: 11/2 to 3 pounds per 1000 square feet.

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,

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)

provides a reliable means of consumer protection and assures a pure genetic line

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 11/2 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 (1/2 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

		tone (from Figure re (from Table B.		Fertilizer Rate (10-20-20)					
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ 0	Lime Rat	
	SEE SUMMAR ON THIS			1/4- 1/2 in	45 pounds	00.11-/	(2 lb/	(2 lb/	1
				1/4- 1/2 in	per acre (1.0 lb/	90 lb/ac (2 lb/			2 tons/ac (90 lb/
				1/4- 1/2 in	1000 sf)	1000 sf)	1000 sf)	1000 sf)	

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

1. General Specifications

a. 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 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn 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

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. 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

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 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

 A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:

a. Prior to the start of earth disturbance,

b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,

Prior to the start of another phase of construction or opening of another grading unit, d. Prior to the removal or modification of sediment control practices.

Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan. 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are

to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR

SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

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 topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).

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 CID.

Site Analysis: Total Area of Site: Area Disturbed: Acres Area to be roofed or paved: 0.0 Acres Area to be vegetatively stabilized: Acres Total Cut: Cu. Yds. Total Fill: Cu. Yds. To Be Determined: Offsite waste/borrow area location

Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:

Inspection date

• Inspection type (routine, pre-storm event, during rain event) Name and title of inspector

• Weather information (current conditions as well as time and amount of last recorded

• Brief description of project's status (e.g., percent complete) and/or current activities Evidence of sediment discharges

 Identification of plan deficiencies · Identification of sediment controls that require maintenance

 Identification of missing or improperly installed sediment controls • Compliance status regarding the sequence of construction and stabilization requirements

 Photographs Monitoring/sampling

 Maintenance and/or corrective action performed · Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).

Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.

Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD-approved field changes. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum 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 been stabilized and approved by the CID. Unless otherwise specified and approved by the CID, no more than 30 acres cumulatively may be disturbed at a given time. 12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a

sediment basin or other approved washout structure. 13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.

14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.

15. Stream channels must not be disturbed during the following restricted time periods (inclusive): Use I and IP March 1 - June 15

• Use III and IIIP October 1 - April 30

Use IV March 1 - May 31

16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when

PERMANENT SEEDING SUMMARY

	Hardiness Zone (from Figure B.3): 6B Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K 20	Lime Rate	
Mix #3	Deer tongue	20	Mar 1-June 15	1/4-1/2 in		90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)		
	Canada Wild Rye	3						2 tons/ac (90 lb/ 1000 sf)	
MIX #0	Redtop	1							
	Common Lespedeza	10							
	Orchard Grass	25	Mar 1-May 15 Aug 1-Oct 15	1	/4-1/2 in 45 pounds per acre (1.0 lb/ 1000 sf)				
	Creeping Red Fescue	10		1/4-1/2 in					
Mix #10	Redtop	1							
MIX #10	Alsike Clover	3							
	White Clover	3							
	Foxtail	2							
	Foxtail	4	May 16-July 31	1/4-1/2 in					
Mix #12	Creeping Red Fescue	25	Mar 1-May 15 Aug 1-Oct 15						
	Hard Fescue	25							
	Sheep Fescue	25							
	White Clover	3							
	Red Clover	3							

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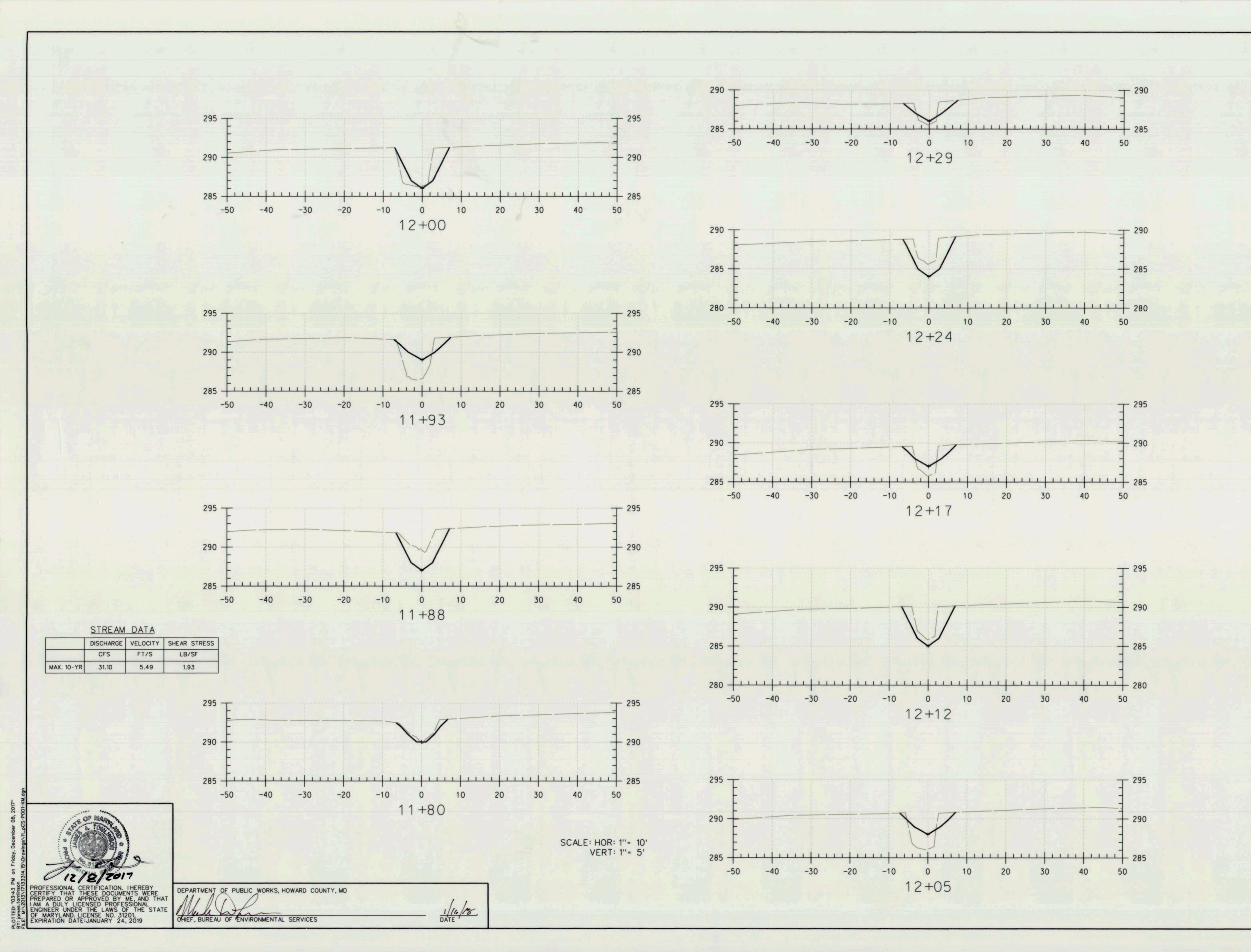
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KINGS MEADE SWM POND REPAIR

EROSION AND SEDIMENT CONTROL NOTES

AS SHOWN DECEMBER 2017 17133314.15 APITAL PROJECT NO. RMIT ISSUE: CONSTRUCTION ISSUE:

SHEET NO.: 10 OF 11

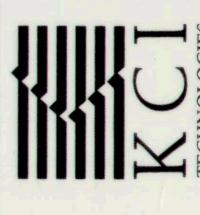


NO. REVISIONS DESCRIPTION

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



ECT D-1159
ENT OF PUBLIC WORKS

SWM POND REPAIR
CAPITAL PROJECT D-1159
HOWARD COUNTY DEPARTMENT OF PUBLIC
STORMWATER MANAGEMENT DIVISION

CROSS SECTIONS

SCALE: AS SHOWN

DATE: DECEMBER 2017

KCI JOB NO.: 17133314.15

CAPITAL PROJECT NO.: D-1159

PERMIT ISSUE:

CONSTRUCTION ISSUE:

SHEET NO.: 11 OF 11