TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC ATLANTIC SUNRISE PROJECT PROPOSED 42" CENTRAL PENN LINE SOUTH

BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET

EAST CAMERON, COAL, RALPHO TOWNSHIPS

NORTHUMBERLAND COUNTY

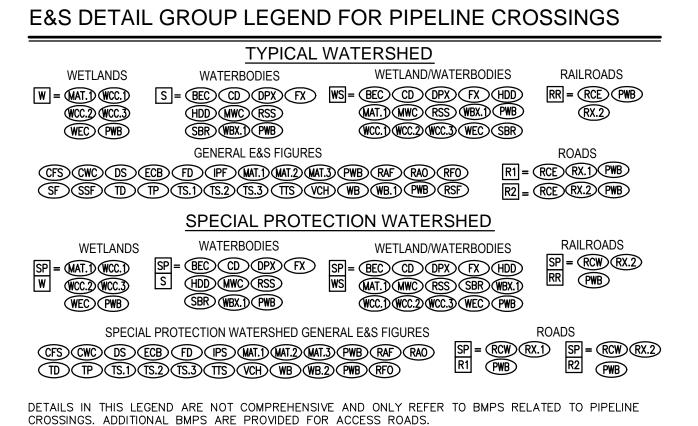
BMP DETAIL SUMMARY

FIGURE	FIGURE TITLE	SHEET NO.
ARF	ABACT ROCK FILTER	
- BBD	BROAD BASED DIP	
BEC	BRIDGE EQUIPMENT CROSSING	1
CD	COFFERDAM STREAM CROSSING	
СДМ	CHECK DAM	
CFS	COMPOST FILTER SOCK	
	CLEANOUT STAKE	
CST	COMPOST SOCK SEDIMENT TRAP	2
cwc	CLEAN WATER CROSSING (FLUME CROSSING)	
DPX	DAM AND PUMP STREAM CROSSING	
DS	HYDROSTATIC DEWATERING STRUCTURE	
ECB	EROSION CONTROL BLANKET	3
FD	FILTER SOCK DIVERSION	
FEN	CONSTRUCTION FENCE	
FX	FLUME STREAM CROSSING	
HDD	HORIZONTAL DIRECTIONAL DRILL	
- IPF	FILTER BAG INLET PROTECTION TYPE M	4
	STONE AND CONCRETE INLET PROTECTION TYPE M	
MAT.1	TIMBER MATTING IN WETLANDS OR AT LOW POINTS	
MAT.2	TIMBER MATTING WITH FILL OVER EXISTING PIPELINES	
MAT.3	TIMBER MATTING AIR BRIDGE	
MWC	WET MINOR WATERBODY CROSSING	5
PWB	PUMP WATER FILTER BAG	
RAO	RIP RAP APRON AT PIPE OUTLET WITHOUT FLARED END SECTION	
RAP	RIP RAP GRADATION	
RCE	ROCK CONSTRUCTION ENTRANCE	
RCW	ROCK CONSTRUCTION ENTRANCE WITH WASH RACK	6
RFO	ROCK FILTER OUTLET	Ç
RSF	REINFORCED SILT FENCE (30" HIGH)	
RSS	RIP RAP STREAM BANK STABILIZATION	
RX.1	TRENCHED ROAD CROSSING	
RX.2	BORED ROAD (ROSSING	7
	STREAM BANK STABILIZATION WITH REINFORCEMENT BLANKET	
SBR	STANDARD SILT FENCE (18" HIGH)	
SF		
SSF	SUPER SILT FENCE (33" HIGH)	
TD	TRENCH DEWATERING	8
TP	TRENCH PLUG INSTALLATION	
— TRV	TRASH RACK AND ANTI VORTEX DEVICE	
TS.1	TOPSOIL SEGREGATION (1)	
TS.2	TOPSOIL SEGREGATION (2)	9
TS.3	TOPSOIL SEGREGATION (3)	
TTS	SIDE SLOPE (TWO-TONE) CONSTRUCTION PROCEDURE	
VCH	VEGETATED CHANNEL	
WB	WATERBAR	
WB.1	WATERBAR END TREATMENT NON-SPECIAL PROTECTION WATERSHED	10
WB.2	COMPOST FILTER SOCK AND SUMP (PADEP APPROVED ALTERNATE DETAIL) AT WATERBAR DISCHARGE	
WBX.1	BORED WATERBODY CROSSING	
WCC.1	"UNSATURATED WETLAND" INSTALLATION PROCEDURE	
	"SATURATED WETLAND" INSTALLATION PROCEDURE	
WCC.3	"INUNDATED WETLAND" INSTALLATION PROCEDURE	11
	WATER DEFLECTOR	
WEC	WETLAND EQUIPMENT	

DETAILS THAT ARE NOT UTILIZED IN THIS COUNTY ARE STRUCK THROUGH IN THIS TABLE. THESE DETAILS ARE ALSO CROSSED OUT WITH A NOTE THAT READS "DETAILS ARE NOT UTILIZED IN THIS COUNTY" ON THEIR RESPECTIVE SHEET.

DRAWING INDEX

DRAWING NUMBER	SHEET NO.	DRAWING NAME
24-1600-70-28-A/LL113_9-BMP	1-1	COVER SHEET
ASR-BMP-GN	1-3	GENERAL NOTES
ASR-BMP	1-11	BEST MANAGEMENT PRACTICES STANDARD CONSTRUCTION DETAILS
24-1601-70-28-A/LL113_9-BMP-NO-TB	1-2	QUANTITY, CROSSING, AND ACIDIC SOIL TABLES



E&S DETAIL GROUP LEGEND IS ALSO PROVIDED ON THE PIPELINE E&S PLANS. LEGEND IS SHOWN HERE

FOR COORDINATION PURPOSES.

MILLION				REVISIONS				TRA	ANSC	ONTINENTAL G	AS PIPE LINE COMPANY, LLC		
MONWEAL	NO.	DATE	BY	DESCRIPTION	W.O. NO.	СНК.	APP.			ATLANTIC S	SUNRISE PROJECT		
REGISTERED	0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK	1	DR∩I	POSED 42" CE	NTRAL PENN LINE SOUTH		
PROFESSIONAL	1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK				T PRACTICES AND QUANTITIES PLAN	SFT	
SUZANNE MARIE KING	2	02/04/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK				COUNTY, PENNSYLVANIA	JLI	GAS PI
A SINGINEER DIL R	3	3/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	AJB		NOI	THOMBENDAND	COOMIT, I EMMOTEVAMA		
PE082757	4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	AJB						GAS PII
NEVINE										CO/	/er sheet		
The same								DRAWN BY: ELZ	DATE	: 05/15/15	ISSUED FOR BID:	SCALE:	
SUZANNE KING REG NO. PE 082757								0.050,650,000	4 5.75	• •		DE: 401011	
ARCHITECTURE							<u> </u>	CHECKED BY: JLK	DATE	:: 0//02/15	ISSUED FOR CONSTRUCTION:	REVISION:	
ENGINEERING ENVIRONMENTAL LAND SURVEYING								APPROVED BY: SMK	DATE	07/08/15	DRAWING NUMBER: 24-1600-70-28-A/LL113	_9-BMP	SHI
											i ·		

- 2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING. THE OWNER AND OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- 3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- 4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
- 5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- 6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- 7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- 8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H: 1V OR FLATTER.
- 9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSIÓN AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- 10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- 11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- 12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
- 13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
- 14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LIMIT OF DISTURBANCE TO PUBLIC ROADS WITHOUT PASSING OVER A ROCK CONSTRUCTION ENTRANCE.
- 15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK. INCLUDING CLEAN OUT. REPAIR. REPLACEMENT. REGRADING. RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- 16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- 17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- 18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS --PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING, FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
- 20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION. SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS, FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- 21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
- 22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- 23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
- 24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- 25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- 26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 100 FEET OF A HQ/EV SURFACE WATER AND WITHIN 50 FEET OF NON-HQ/EV SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- 27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
- 28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON—VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
- 29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS. THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
- 31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- 32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- 33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
- 34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
- 35. ALL SWALES SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- 36. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE SWALE SHALL BE IMMEDIATELY BACKFILLED AND THE SWALE RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE SWALE SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- 37. SWALES HAVING RIPRAP, RENO MATTRESS, OR GABION LININGS MUST BE SUFFICIENTLY OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
- 38. SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN/TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
- 39. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
- 40. ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED
- 41. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 42. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER, WITHIN 100' OF A STREAM OR WETLAND IN A HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, WITHIN 50' OF A STREAM OR WETLAND IN A NON-HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- 43. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN MAXIMUM 9 INCH LAYERED LIFTS AT 95% DENSITY.

GENERAL EROSION & SEDIMENT CONTROL NOTES

- 1. INSPECT SNOW PLACEMENT AREAS DURING THE THAW CYCLE. INSTALL EROSION & SEDIMENT CONTROL BMPS DURING QUICK THAWS AND WHEN SNOW MELT RUNOFF IS CONCENTRATED OR IS CAUSING EROSION.
- 2. DISCHARGING SEDIMENT LADEN WATER WHICH WILL CAUSE OR CONTRIBUTE TO THE DEGRADATION OF A BENEFICIAL USE OF A WATER OF THE STATE FROM THE CONSTRUCTION SITE, A DEWATERING SITE, OR SEDIMENT BASIN/TRAP INTO ANY WATER BODY OR STORM DRAIN WITHOUT FILTRATION OR EQUIVALENT TREATMENT IS
- 3. DISCHARGES ORIGINATING FROM OFF-SITE SOURCES, WHICH FLOW THROUGH OR ACROSS THE AREAS DISTURBED BY CONSTRUCTION, SHALL BE DIVERTED AROUND THE ACTIVE CONSTRUCTION AREA WHENEVER POSSIBLE.
- 4. STAGING AREAS, ASSEMBLY AREAS, TEMPORARY EQUIPMENT AND NON-HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED OUTSIDE THE 100-YR FLOOD ZONE. HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM SURFACE WATER BODIES.
- 5. ALL EXCAVATED MATERIALS THAT WILL NOT BE USED ON THE SITE CANNOT BE STORED IN THE FLOODPLAIN AND MUST BE HAULED TO A DISPOSAL SITE LOCATED OUTSIDE OF THE FLOODPLAIN.
- 6. CONSTRUCTION STAGING AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM THE EDGE OF A WETLAND.
- 7. MEASURES SHALL BE TAKEN TO PREVENT TRENCHES FROM DRAINING A WETLAND OR CHANGING ITS HYDROLOGY.
- 8. IT IS DESIRED THAT THE AMOUNT AND DURATION OF OPEN TRENCH BE MINIMIZED DURING THE PROJECT.
- 9. IF TOPSOIL PILES ARE EXPOSED FOR GREATER THAN 4 DAYS, THEY SHALL BE SEEDED WITH AN ANNUAL SEED MIXTURE AND MULCHED WITH STRAW.
- 10. NO EROSION CONTROL BLANKET SHALL BE INSTALLED IN AGRICULTURAL AREAS EXCEPT AS REQUIRED TO CONSTRUCT THE TEMPORARY FLUME CROSSINGS.
- 11. HYDRAULICALLY APPLIED EROSION CONTROL BLANKETS MAY BE USED IN LIEU OF EROSION CONTROL BLANKETS WITH PRIOR APPROVAL FROM THE COUNTY CONSERVATION DISTRICT.
- 12. LOCATION AND SPACING OF THE WATERBARS ARE SHOWN ON THE PLAN. WATERBARS MAY BE ADJUSTED IN THE FIELD DUE TO ACTUAL SITE CONDITIONS. HOWEVER INSTALLATION AND SPACING MUST CONFORM TO THE DETAILS PROVIDED AND APPROVAL MUST BE OBTAINED FROM THE LOCAL CONSERVATION DISTRICT OR PA DEP.
- 13. SEDIMENT REMOVED FROM PUBLIC ROADS OR BMPS WILL BE REUSED ON SITE OR DISPOSED OF AT A SITE WITH AN EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR DEP.
- 14. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SOIL EROSION AND SEDIMENT CONTROL NARRATIVE AND ENVIRONMENTAL CONSTRUCTION PLAN
- 15. CONTRACTOR SHALL MINIMIZE THE TOTAL AREA OF DISTURBANCE.
- 16. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED E&S PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED. THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED E&S, OR AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED E&S. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW. THE ON-SITE ENVIRONMENTAL INSPECTOR WILL LOG ACTIVITY WITHIN THE PROJECT LIMITS OF DISTURBANCE AND NOTIFY THE CONTRACTOR OF AREAS REQUIRING TEMPORARY STABILIZATION.
- 17. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BMPS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL COUNTY CONSERVATION DISTRICT AND/OR PADEP.
- 18. MAINTAIN TEMPORARY SOIL STOCKPILES.
- 19. NO EARTH DISTURBANCE ACTIVITIES WITHIN 50 FEET OF STREAM SWALES WILL BE PERFORMED UNTIL MATERIALS NEEDED TO COMPLETE THE CROSSING ARE AT THE NEAREST AVAILABLE
- 20. THE CONTRACTOR IS REQUIRED TO PROVIDE CONTINUOUS MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES WITHIN DISTURBED AREAS.
- 21. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE LONGER THAN 4 DAYS IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL SUCH INACTIVE
- 22. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
- 23. FOLLOW THE CONSTRUCTION/EROSION CONTROL IMPLEMENTATION PLAN AS OUTLINED ON THE DRAWINGS.
- 24. THE STAGING OF EARTHMOVING ACTIVITIES FOR THIS PROJECT IS A GENERAL DESCRIPTION OF THE WORK REQUIRED. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH PROJECT OWNER STANDARDS, THE PADEP REGULATIONS, AND ALL OTHER APPLICABLE FEDERAL, STATE OR LOCAL REQUIREMENTS.
- 25. SCHEDULE WORK TO BE PERFORMED IN A MANNER THAT MINIMIZES THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED TO THE ELEMENTS.
- 26. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THIS SEQUENCE. EACH STAGE SHALL BE COMPLETED AND IMMEDIATELY STABILIZED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. IMPLEMENT EROSION CONTROL MEASURES AS SPECIFIED; HOWEVER, THE CONTRACTOR MAY INSERT ADDITIONAL CONSTRUCTION PHASES IN ORDER TO EXPEDITE HIS WORK WHILE MAINTAINING THE SAME LEVEL OF PROTECTION.ANY DEVIATION FROM THE FOLLOWING SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL COUNTY CONSERVATION DISTRICT. CONSTRUCTION MUST BE IN ACCORDANCE WITH THE SEQUENCE OF BMP INSTALLATION INDICATED ON SITE SPECIFIC DETAIL SHEETS. THIS SEQUENCE IS DESIGNED TO MINIMIZE SOIL EROSION AND SEDIMENTATION. THE CONTRACTOR MAY DEVIATE SLIGHTLY FROM THE STAGING OF PERMANENT SITE IMPROVEMENTS, BUT NO DEVIATION FROM THE RELATIVE ORDER OF EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE LOCAL COUNTY CONSERVATION DISTRICT OR PADEP.
- 29. THE FLOODWAY/FLOODPLAIN LINE SHOWN ON THE PLANS WAS DEVELOPED FROM AVAILABLE FEMA FLOODWAY MAPPING, FEMA FLOODPLAIN MAPPING, AND THE PA
- 30. EROSION & SEDIMENT CONTROLS SHOWN HEREON ARE THE MINIMUM REQUIRED. AS SPECIFIC SITE CONDITIONS MAY DICTATE. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO MODIFY (OR REDLINE) THE DESIGNED BMPS WITHIN THE ROW AS MAY BE SHOWN WITHIN THE EROSION & SEDIMENT CONTROL PLAN TO BETTER ENSURE CHAPTER 102 COMPLIANCE.
- 31. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR DEP AND BE FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.

EXISTING CONDITIONS NOTES

- 1. FXISTING TOPOGRAPHY IS BASED UPON THE FOLLOWING
- A. PHOTOGRAMMETRIC SURVEY PROVIDED BY AEROMETRIC/QUANTUM AERIAL, BASED UPON DIGITAL AERIAL IMAGERY ACQUIRED MARCH THROUGH NOVEMBER OF 2012 AND APRIL OF 2013, AND COMPILED TO NATIONAL MAP ACCURACY STANDARDS FOR SCALE 1"=100' AND 2' CONTOUR INTERVAL
- B. SUPPLEMENTAL FIELD SURVEY DATA PROVIDED BY WILLIAMS SURVEY FOR AREAS WITHIN THE PROPOSED ACCESS ROADS CORRIDORS AND PROPOSED FACILITIES. 2. NORTH ARROW AND COORDINATES ARE BASED UPON UNIVERSAL TRANSVERSE MERCATOR WITH NORTH AMERICAN DATUM OF 1983, ZONE 18, U.S. FOOT, CENTRAL MERIDIAN 75° WEST (UTM83-18F).
- ELEVATIONS ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- 4. WETLAND AND WATERBODY DELINEATIONS ARE BASED ON ENVIRONMENTAL SURVEY DATA PROVIDED BY E&E AND ARE LIMITED TO THE AREAS WITHIN OR IN CLOSE PROXIMITY TO THE ACCESS ROADS CORRIDORS, PROPOSED FACILITIES, AND PIPELINES.
- 5. APPROXIMATE PROPERTY LINES ARE BASED UPON DIGITAL MAPPING PROVIDED BY WILLIAMS SURVEY AND ARE DEPICTED FOR GENERAL INFORMATION ONLY.
- 6. LAND OWNER IDENTIFICATION IS BASED ON INFORMATION PROVIDED BY WILLIAMS SURVEY AND IS FOR GENERAL INFORMATION ONLY.
- 7. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY WILLIAMS AND ITS ENGINEER OF
- ANY CONDITIONS THAT VARY FROM WHAT IS DEPICTED ON THIS PLAN. THERMAL IMPACT ANALYSIS
- IN ORDER TO AVOID THERMAL IMPACTS, THE LIMIT OF DISTURBANCE WITHIN THE PIPELINE RIGHT-OF-WAY HAS BEEN MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. ADDITIONALLY, ALL DISTURBED AREA WILL BE RESTORED TO AN EXISTING, VEGETATIVE CONDITION FOLLOWING CONSTRUCTION.
- THE FOLLOWING PROVISIONS RELATED TO THERMAL IMPACTS BY ACCESS ROADS ARE INCLUDED IN THE E&SC ACCESS ROAD PLANS:
- THE MINIMUM PERMANENT CHANGES IN LAND COVER, NECESSARY TO CONSTRUCT THE REQUIRED FACILITIES ARE BEING PROPOSED.
- RUNOFF FROM THE PERMANENT IMPERVIOUS AREA WILL BE COLLECTED AS PART OF THE POST CONSTRUCTION STORMWATER MANAGEMENT / SITE RESTORATION (PCSM/SR) PLAN AND ROUTED TO PCSM/SR BMPs. IN ADDITION, IMPERVIOUS AREAS WILL BE GRAVEL INSTEAD OF ASPHALT WHEREVER PRACTICAL.
- THE REMOVAL OF VEGETATION, ESPECIALLY TREE COVER, WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION.
- THE IMPACTS TO EXISTING RIPARIAN CORRIDORS WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION
- THE AMOUNT OF IMPERVIOUS SURFACES WILL BE LIMITED TO ONLY THAT NECESSARY TO SUPPORT THE CONSTRUCTION OF THE PIPELINE AND/OR OPERATION OF THE
- ALL DISTURBED AREAS WILL BE RESTORED TO AN EXISTING, VEGETATIVE CONDITION FOLLOWING CONSTRUCTION AND IN ACCORDANCE WITH CHAPTER 102 AND ESCGP-2 PERMIT REQUIREMENTS FOR LINEAR OIL AND GAS PROJECTS

NOTICES TO CONTRACTOR

- 1. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO STARTING WORK.
- 2. THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
- 3. WATERBARS IN AGRICULTURAL/FARM FIELDS ARE TEMPORARY AND SHALL BE REMOVED AND RESTABILIZED UPON ESTABLISHMENT OF A UNIFORM 70 PERCENT PERMANENT VEGETATIVE COVER WITHIN THE UPSLOPE TRIBUTARY DRAINAGE AREA PER PA CHAPTER 102.22.
- 4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE COORDINATED WITH THE AGENCY HAVING JURISDICTION.
- 5. FURNISH & INSTALL SWALES WHENEVER CONCENTRATED FLOWS HAVE THE POTENTIAL TO RUN ONTO OR THROUGH THE CONSTRUCTION AREA. DIRECT THE SWALE DISCHARGE TO A RIP RAP ENERGY DISSIPATER AND VEGETATED AREA.
- 6. THE CONTRACTORS SHALL BE ADDED AS CO-PERMITEES TO THE ESCGP-2 PERMIT. **RECEIVING WATERCOURSE - CHAPTER 93 DESIGNATION**

REFER TO THE PIPELINE AND ACCESS ROAD PLANS FOR THE LOCATION, NAME AND CHAPTER 93 WATERCOURSE DESIGNATIONS. A SUMMARY TABLE OF THE WATERBODIES CROSSED BY THE PIPELINE AND CHAPTER 93 DESIGNATIONS ARE PROVIDED IN THE COUNTY-SPECIFIC TABLES INCLUDED AT THE END OF THIS PLAN SET.

RECYCLING AND DISPOSAL METHODS

THE RESTORATION OF THE PIPELINE RIGHT-OF-WAY WILL REQUIRE THE REMOVAL OF THE TEMPORARY MATERIALS. THE TEMPORARY MATERIALS INCLUDE, BUT MAY NOT BE LIMITED TO, STONE SURFACES AND ASSOCIATED GEOTEXTILES. THE CONTRACTORS ARE REQUIRED TO DISPOSE OF THE MATERIALS AT SUITABLE DISPOSALS OR RECYCLING SITES AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

CONTRACTORS ARE REQUIRED TO INVENTORY AND MANAGE THEIR CONSTRUCTION SITE MATERIALS. THE GOAL IS TO BE AWARE OF THE MATERIALS ON-SITE, ENSURE THEY ARE PROPERLY MAINTAINED, USED, AND DISPOSED OF, AND TO MAKE SURE THE MATERIALS ARE NOT EXPOSED TO STORMWATER.

MATERIALS MANAGEMENT PLAN CAN BE MODIFIED TO ADDRESS ADDITIONAL MATERIALS USED ON-SITE): ACIDS

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON-SITE DURING CONSTRUCTION (NOTE: THIS LIST IS NOT AN ALL-INCLUSIVE LIST AND THE

DETERGENTS

MATERIALS COVERED

- FERTILIZERS (NITROGEN/PHOSPHORUS) HYDROSEEDING MIXTURES
- PETROLEUM BASED PRODUCTS
- SANITARY WASTES SOIL STABILIZATION ADDITIVES
- SOLDER SOLVENTS
- OTHER (LIST HERE):

THESE MATERIALS MUST BE STORED AS APPROPRIATE AND SHALL NOT CONTACT STORM OR NON-STORMWATER DISCHARGES. CONTRACTOR SHALL PROVIDE A WEATHER PROOF CONTAINER TO STORE CHEMICALS OR ERODIBLE SUBSTANCES THAT MUST BE KEPT ON THE SITE. CONTRACTOR IS RESPONSIBLE FOR READING, MAINTAINING, AND MAKING EMPLOYEES AND SUBCONTRACTORS AWARE OF MATERIAL SAFETY DATA SHEETS (MSDSs).

MATERIAL MANAGEMENT PRACTICES

THE FOLLOWING ARE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF.

1. GOOD HOUSEKEEPING PRACTICES

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ON SITE DURING CONSTRUCTION:

- STORE ONLY ENOUGH MATERIAL REQUIRED TO DO THE JOB.
- STORE MATERIALS IN A NEAT, ORDERLY MANNER. • STORE CHEMICALS IN WATERTIGHT CONTAINERS OR IN A STORAGE SHED, UNDER A ROOF, COMPLETELY ENCLOSED, WITH APPROPRIATE SECONDARY CONTAINMENT TO
- PREVENT SPILL OR LEAKAGE. DRIP PANS SHALL BE PROVIDED UNDER DISPENSERS. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED. INSPECTIONS WILL BE PERFORMED TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.
- COVER AND BERM LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (I.E. SOIL, SPOILS, AGGREGATE, ETC.). MINIMIZE EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION.
- MINIMIZE THE POTENTIAL FOR OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS.

2. HAZARDOUS PRODUCTS

THESE PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS. MSDSS FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE(S) WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. A MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN A FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS WITH THE ORIGINAL LABELS IN LEGIBLE CONDITION.
- ORIGINAL LABELS AND MSDSS WILL BE PRODUCED AND USED FOR EACH MATERIAL. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL/STATE/FEDERAL RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.
- 3. HAZARDOUS WASTES

BODIES.

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF BY THE CONTRACTOR IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. SITE PERSONNEL WILL BE INSTRUCTED.

4. CONCRETE AND OTHER WASH WATERS

PREVENT DISPOSAL OF RINSE, WASH WATERS, OR MATERIALS ON IMPERVIOUS OR PERVIOUS SURFACES, INTO STREAMS, WETLANDS OR OTHER WATER

CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE, BUT ONLY IN EITHER (1) SPECIFICALLY DESIGNATED DIKED AREAS WHICH HAVE BEEN PREPARED TO PREVENT CONTACT BETWEEN THE CONCRETE AND/OR WASHOUT AND SOIL AND STORMWATER HAVING THE POTENTIAL TO BE DISCHARGED FROM THE SITE OR (2) IN LOCATIONS WHERE WASTE CONCRETE CAN BE POURED INTO FORMS TO MAKE RIPRAP OR OTHER USEFUL CONCRETE PRODUCTS.

THE HARDENED RESIDUE FROM THE CONCRETE WASHOUT DIKED AREAS WILL BE DISPOSED OF IN THE SAME MANNER AS OTHER NON-HAZARDOUS CONSTRUCTION WASTE MATERIALS OR MAY BE BROKEN UP AND USED ON THE SITE AS DEEMED APPROPRIATE BY THE CONTRACTOR AND GEOTECHNICAL ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

ALL CONCRETE WASHOUT AREAS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE AREA CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. IF REQUIRED, ADDITIONAL BMPS MUST BE IMPLEMENTED TO PREVENT CONCRETE WASTES FROM CONTRIBUTING TO STORMWATER DISCHARGES. THE LOCATION OF THE CONCRETE WASHOUT AREA(S) MUST BE IDENTIFIED, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT, ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S) IN THIS ESCP.

5. SANITARY WASTES

ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGES IS NEGLIGIBLE. ADDITIONAL BMPS MUST BE IMPLEMENTED, SUCH AS CONTAINMENT TRAYS (PROVIDED BY THE RENTAL COMPANY) OR SPECIAL CONTAINMENT CREATED WITH 2"X4" LUMBER, IMPERVIOUS PLASTIC, AND GRAVEL. THE LOCATION OF THE SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S), IN THIS ESCP, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT.

6. SOLID AND CONSTRUCTION WASTES

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL COMPLY WITH ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. THE DUMPSTER/CONTAINER LIDS SHALL BE CLOSED AT THE END OF EVERY BUSINESS DAY AND DURING RAIN EVENTS. APPROPRIATE MEASURES SHALL BE TAKEN TO PRÉVENT DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE RECEIVING WATER. 7. CONSTRUCTION ACCESS

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED ROADS ADJACENT TO THE SITE ENTRANCE WILL BE INSPECTED DAILY AND SWEPT AS NECESSARY TO REMOVE ANY EXCESS MUD. DIRT. OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN AS NECESSARY.

ON-SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. PETROLEUM STORAGE TANKS ON SITE WILL HAVE A DIKE OR BERM CONTAINMENT STRUCTURE CONSTRUCTED AROUND IT TO CONTAIN SPILLS WHICH MAY OCCUR (CONTAINMENT VOLUME TO BE 110% OF VOLUME STORED). THE DIKE OR BERMED AREA SHALL BE LINED WITH AN IMPERVIOUS MATERIAL SUCH AS A HEAVY DUTY PLASTIC SHEET. DRIP PANS SHALL BE PROVIDED FOR ALL DISPENSERS. ANY

ASPHALT SUBSTANCES USED ON THE SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. 9. FERTILIZERS AND LANDSCAPE MATERIALS

FERTILIZERS WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO MINIMIZE THE POTENTIAL FOR EXPOSURE TO STORMWATER. STORAGE WILL BE UNDER COVER. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO MINIMIZE THE POTENTIAL FOR SPILLS. THE BIN SHALL BE LABELED APPROPRIATELY.

CONTAIN STOCKPILED MATERIALS, SUCH AS BUT NOT LIMITED TO, MULCHES, TOP SOIL, ROCKS AND GRAVEL, AND DECOMPOSED GRANITE, WHEN THEY ARE NOT ACTIVELY BEING USED. APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURER RECOMMENDATIONS OR BASED ON

WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL. DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE

MATERIAL WITHIN TWO DAYS PRIOR TO A FORECASTED RAIN EVENT OR DURING PERIODS OF PRECIPITATION.

10. PAINTS, PAINT SOLVENTS AND CLEANING SOLVENTS CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT IN USE. EXCESS PAINT AND SOLVENTS WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL/STATE/FEDERAL REGULATIONS.

11. CONTAMINATED SOILS

ANY CONTAMINATED SOILS (RESULTING FROM SPILLS OF MATERIALS WITH HAZARDOUS PROPERTIES) WHICH MAY RESULT FROM CONSTRUCTION ACTIVITIES WILL BE CONTAINED AND CLEANED UP IMMEDIATELY IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS. 12. OFF-SITE WASTE AND BORROW AREAS

CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS. EARTH DISTURBANCE ACTIVITY - PAST, PRESENT, AND FUTURE LAND USES

ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OF PADEP FULLY IMPLEMENTED PRIOR

TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF

REFER TO THE PIPELINE AND ACCESS ROAD EROSION AND SEDIMENTATION CONTROL PLANS FOR LAND USE INFORMATION.



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REVISIONS

PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET GENERAL NOTES ELZ DATE: 05/15/15 ISSUED FOR BID: SCALE RAWN BY: HECKED BY: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: 2 07/08/15 DRAWING ASR-BMP-GN APPROVED BY: SMK DATE: SHEET 1 OF **3**

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

ATLANTIC SUNRISE PROJECT

PIPELINE BMP INSTALLATION SEQUENCE

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- HOLD PRE-CONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL INSPECTORS, LOCAL COUNTY CONSERVATION DISTRICT (CCD), PADEP, AND DESIGN ENGINEER.
- I. LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE THE LOD.
- 5. LOCATE, STAKE AND/OR INSTALL ORANGE CONSTRUCTION FENCE AROUND SPECIAL AREAS OF CONCERN (I.E. WETLANDS, STREAMS, CULTURAL RESOURCES...)
- 5. PERFORM NON-MECHANIZED TREE CUTTING WHERE REQUIRED.
- . INSTALL CONSTRUCTION ENTRANCES.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR DEP AND BE FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.
- REMOVE BRUSH, INCLUDING STUMPS, ONLY IN AREAS NECESSARY TO EFFECTIVELY INSTALL PERIMETER SEDIMENT BARRIERS, UPSLOPE TEMPORARY FILTER SOCK DIVERSIONS AND TEMPORARY DIVERSION SWALES. LEVEL SIDE CUTS REQUIRED TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS AS SHOWN ON THE E&SC PLANS.
- 10. INSTALL PERIMETER CONTROLS (SEDIMENT BARRIERS). ACCESS REQUIREMENTS FOR PERIMETER CONTROLS ALONG PRIVATE DRIVES WITHIN THE LOD SHALL BE IN ACCORDANCE WITH THE LANDOWNER AGREEMENTS.
- . INSTALL PERMANENT AND TEMPORARY ACCESS ROADS AND ASSOCIATED BMPS (VEGETATED ROADSIDE DITCHES, DITCH RELIEF CULVERTS, AND RIPRAP OUTLET PROTECTION). 6. PRIOR TO ANY SEEDING, LIME, OR FERTILIZATION APPLICATION, A SOIL TEST SHALL BE PERFORMED TO DETERMINE THE pH FACTOR. ADDITIONAL LIME AND FERTILIZER MAY BE SEE ACCESS ROAD SEQUENCE OF CONSTRUCTION FOR SPECIFIC CONSTRUCTION STEPS ASSOCIATED WITH ROAD CONSTRUCTION (PROVIDED IN SECTION 2 OF THE ESCGP-2
- 12. THE COMPLIANCE MANAGER SHALL PROVIDE PADEP AT LEAST THREE DAYS' NOTICE PRIOR TO BULK EARTH DISTURBANCE AND UPON COMPLETED INSTALLATION OF PERIMETER EROSION CONTROLS.
- 13. HAVE SURVEY CREWS LOCATE AND RE-STAKE AS NEEDED, IF ANY STAKES ARE DAMAGED, IN ALL SPECIAL AREAS OF CONCERN (I.E., WETLANDS, STREAMS, ETC.)
- 14. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE THE CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED E&SC PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED E&SC, OR AN ACCEPTABLE E&SC BMP WHICH TEMPORARILY MINIMIZES ACCELERATED E&SC. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW.
- 15. PROCEED WITH MAJOR CLEARING AND GRUBBING.
- 16. BEGIN CONSTRUCTION STAKING FOR TEMPORARY GRADING.
- 17. INSTALL CLEAN WATER CROSSINGS, INCLUDING LINERS, RIP RAP APRON ENERGY DISSIPATERS AND FLUME CROSSINGS
- 18. AS THE GRUBBING OPERATION COMMENCES. INSTALL ROCK FILTERS AND WATERBARS ALONG THE ALIGNMENT
- 19. STRIP AND STOCKPILE TOPSOIL; INSTALL SEDIMENT BARRIERS AROUND STOCKPILES.
- 3. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF THESE AREAS. 20. HAUL PIPE TO RIGHT-OF-WAY. BEND, PLACE ON SUPPORTS, ALIGN, AND WELD. INSTALL STREAM AND WETLAND CROSSING BMPS (TIMBER MATTING, TIMBER MAT BRIDGES). LAY PIPE IN DITCH. IMMEDIATELY AFTER INSTALLING CROSSING, RESTORE DISTURBED AREA AND INSTALL STREAMBANK STABILIZATION.
- 21. CLEAR, GRUB, AND CONSTRUCT STREAM AND WETLAND CROSSINGS IN ACCORDANCE WITH CHAPTER 105, SECTION 404, 401, AND RELATED PERMITS. INSTALL STREAM FLUMES. AND/OR DAM AND PUMP AS SPECIFIED IN CHAPTER 105 PERMIT DOCUMENTS FOR CROSSING OF STREAM AND WETLAND AREAS. CONTRACTOR SHALL PLACE PIPE, INSTALL TRENCH PLUGS, BACKFILL TRENCH, AND TEMPORARILY STABILIZE WITHIN 48 HOURS OF EXCAVATING TRENCH IN RESOURCE CROSSING LOCATIONS.
- 22. DIG TRENCH OUTSIDE OF RESOURCE CROSSINGS. CONTRACTOR SHALL PLACE PIPE, INSTALL TRENCH PLUGS, AND BACKFILL TRENCH WITHIN 30 DAYS OF EXCAVATING TRENCH.
- 23. PERFORM NON-DESTRUCTIVE TESTING (NDT) INSPECTION OF WELDS AND APPLY COATING TO WELD AREA.
- 24. INSTALL TRENCH PLUGS.
- 25. BACKFILL PIPE TRENCH, REPAIR PERMANENT WATERBARS, REMOVE TEMPORARY WATERBARS, RETURN TEMPORARILY GRADED AREAS TO PRE-DEVELOPMENT GRADE, REPAIR/INSTALL EROSION CONTROL BLANKET AS NEEDED, IMMEDIATELY SEED AND STABILIZE DISTURBED AREAS (SLOPES, DITCHES AND CHANNELS) AS THEY ARE RETURNED TO FINAL GRADE. REFER TO PLANTING PLANS AND RIPARIAN BUFFER PLANTINGS, AS APPLICABLE, IN THE BMP PLAN SET AND E&S NARRATIVE.
- 26. PERFORM HYDROSTATIC PRESSURE TEST OF PIPELINE.
- 27. DEWATER PIPELINE UTILIZING APPROPRIATE BMPS, COMPLETE FINAL TIE-INS, AND DRY PIPELINE.
- 28. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
- 29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE PERMITTEE AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD AND/OR PADEP FOR AN INSPECTION PRIOR TO THE REMOVAL OF THE E&SC BMPS. REMOVAL OF TEMPORARY WETLAND AND STREAM CROSSINGS, TEMPORARY BMPS INCLUDING SEDIMENT BARRIERS, TEMPORARY FILTER SOCK DIVERSION SWALES, TEMPORARY CLEAN WATER DIVERSION SWALES (AND ASSOCIATED GRADING), CLEAN WATER CROSSING OUTFALL PROTECTION AND LEVEL SPREADERS, ROCK FILTERS, AND TEMPORARY WATERBARS ALONG THE ALIGNMENT.
- 30. COMPLETE SITE RESTORATION AND STABILIZATION. INCLUDING SOIL AERATION. SOIL TREATMENT. SEED APPLICATION AND MULCHING IN AREAS DISTURBED BY E&SC REMOVAL. INSTALL RIPARIAN BUFFER PLANTINGS PER THE RIPARIAN BUFFER PLANTING PLANS.
- 31. REMOVE AND PROPERLY DISPOSE OF/RECYCLE E&SC BMPS. REMOVE STAKES AND ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED DURING E&SC BMP REMOVAL.

MAINTENANCE PROGRAM

- I'HE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS AND STABILIZATION MEASURES. REFER TO BMP DETAILS FOR SPECIFIC OPERATION AND MAINTENANCE REQUIREMENTS.
- 1. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED ONCE EVERY SEVEN DAYS AND AFTER EACH RUNOFF EVENT. A WRITTEN REPORT MUST ALSO BE COMPLETED DOCUMENTING EACH INSPECTION AND, IF NECESSARY, ANY REPAIR, REPLACEMENT OR MAINTENANCE ACTIVITY.
- 2. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF REPAIRS OR ADDITIONAL MEASURES ARE FOUND TO BE NECESSARY, THEY WILL BE INITIATED WITHIN 24 HOURS OF THE INSPECTION REPORT.
- 3. BUILT UP SEDIMENT WILL BE REMOVED FROM PERIMETER BMPS WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE BMP.
- 4. PERIMETER BMPS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, DAMAGE, ETC., TO ENSURE THE MEASURE IS IN PROPER WORKING ORDER, AND THAT ANY POSTS/WOOD STAKES ARE SECURELY IN THE GROUND.
- 5. TEMPORARY SEDIMENT TRAPS, IF PRESENT, WILL BE INSPECTED FOR DEPTH OF SEDIMENT, AND BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES THE DESIGN CLEANOUT DEPTH.
- 6. TEMPORARY AND PERMANENT SEEDING, AND OTHER STABILIZATION MEASURES, WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
- 7. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. COPIES OF THE REPORT FORMS TO BE COMPLETED BY THE INSPECTOR ARE INCLUDED IN
- 8. THE INSPECTOR WILL IMPLEMENT INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS THAT ARE USED ON THE SITE IN GOOD WORKING ORDER. THE INSPECTOR WILL ALSO BE TRAINED IN THE COMPLETION OF, INITIATION OF ACTIONS REQUIRED BY, AND THE FILING OF THE
- 9. DISTURBED AREAS AND MATERIALS STORAGE AREAS WILL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING THE STORMWATER.
- A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN(S) WILL BE AVAILABLE ON THE SITE AT ALL TIMES.
- ONCE ANY EROSION CONTROL MEASURES ARE INSTALLED, THE MAINTENANCE AND INSPECTION PROCEDURES ABOVE SHALL BEGIN. THE CONTRACTOR SHOULD BE AWARE THAT THE INSPECTION FORMS BECOME AN INTEGRAL PART OF THE ESCP AND SHALL BE MADE READILY AVAILABLE TO THE GOVERNMENT INSPECTION OFFICIALS, THE PROJECT OWNER'S ENGINEER, AND THE PROJECT OWNER FOR REVIEW UPON REQUEST DURING VISITS TO THE PROJECT SITE.
- INSPECTORS SHOULD BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICE OF EROSION AND SEDIMENT CONTROLS AND POSSESS THE SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY AND TO ASSESS THE EFFECTIVENESS OF ANY SEDIMENT AND EROSION CONTROL MEASURES SELECTED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES FROM THE CONSTRUCTION SITE. THEY SHOULD ALSO HAVE READ AND UNDERSTOOD ALL PORTIONS OF THIS ESCP. INCLUDING THE ESCGP-2.
- THE INDIVIDUAL(S) RESPONSIBLE FOR POST—STORM AND STORM EVENT BMP INSPECTIONS, AND THE QUALIFIED PERSON(S) ASSIGNED RESPONSIBILITY TO ENSURE FULL COMPLIANCE WITH THE PERMIT AND IMPLEMENTATION OF ALL ELEMENTS OF THE ESCP, INCLUDING THE PREPARATION OF THE ANNUAL COMPLIANCE EVALUATION AND THE ELIMINATION OF ALL UNAUTHORIZED DISCHARGES ARE:

PHONE NUMBER:	EMERGENCY PHONE #:
COMPANY:	
RESPONSIBILITIES:	
NAME:	
PHONE NUMBER:	EMERGENCY PHONE #:
COMPANY:	
RESPONSIBILITIES:	

TEMPORARY AND PERMANENT STABILIZATION

- TEMPORARY STABILIZATION
- TEMPORARY SEEDING WITH STRAW MULCH COVER FOR INTERIM STABILIZATION IS A TYPE OF BMP THAT CAN USUALLY BE PROVIDED WHERE THE EARTH DISTURBANCE ACTIVITY TEMPORARILY CEASES (I.E. 4 DAYS OR MORE) UNLESS DIRECTED BY THE PROJECT OWNER, PADEP, OR CONSERVATION DISTRICT.
- THE INSTALLATION OF AN EROSION CONTROL BLANKET OR APPLICATION OF STRAW MULCH UPON SEEDED AREAS ARE BOTH CONSIDERED TO BE PERMANENT STABILIZATION BMPS TO PROTECT THE SEEDBED UNTIL VEGETATION IS ESTABLISHED.
- 2. PERMANENT STABILIZATION
 - UPON COMPLETION OF ANY EARTH DISTURBANCE ACTIVITY, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
 - EROSION & SEDIMENTATION CONTROLS SHALL BE LEFT IN PLACE UNTIL SUCH TIME AS THE DISTURBED AREAS HAVE PERMANENT STABILIZATION. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
- 3. STABILIZATION DURING NON-GROWING SEASONS
- WHEN UTILITY CONSTRUCTION MUST BE DONE AND IS COMPLETED DURING A NON-GROWING SEASON, INTERIM STABILIZATION BMPS MUST BE IMPLEMENTED AND ADEQUATELY MAINTAINED. THE APPLICATION OF STRAW MULCH AT THE RATE OF 3.0 TONS PER ACRE IS REQUIRED. THE BMPS SHOULD BE INSPECTED WEEKLY (UNLESS SNOW COVERED) AND AFTER EACH RUNOFF EVENT TO IDENTIFY AREAS THAT BECOME BARE
- BARE AREAS SHOULD BE COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET. ALL TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROLS MUST BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- 4. WHERE REQUIRED, STRAW MULCH MUST BE APPLIED AT A MINIMUM OF 3.0 TONS PER ACRE

REQUIRED. NO LIME OR FERTILIZERS SHALL BE USED IN WETLAND AREAS.

- 5. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT FINELY CHOPPED OR BROKEN.
- 7. LIME, FERTILIZE, SEED, AND MULCH DISTURBED AREAS PER THE EROSION AND SEDIMENT CONTROL PLANS, IN AREAS OF STEEP SLOPES OR OBVIOUS AREAS WHERE POTENTIAL EROSION MAY OCCUR, AND EROSION CONTROL MAT OR FLEXIBLE GROWTH MEDIUM (FGM) SHALL BE USED. FGM SHALL BE APPLIED PER MANUFACTURER SPECIFICATIONS. NO LIME OR FERTILIZERS SHALL BE USED IN WETLAND OR STREAM AREAS.
- 8. WATERBARS WITHIN AGRICULTURAL OR RESIDENTIAL AREAS SHALL BE USED AS TEMPORARY FEATURES. WATERBARS MAY BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA IS AT LEAST 70% STABILIZED WITH PERENNIAL VEGETATION AS PER PA CHAPTER 102.22.

PIPELINE WORK SEQUENCE IN WETLANDS

11. COMPACT BACKFILL AND GRADE THE SURFACE OF THE TRENCH AREA TO ALLOW FOR POSITIVE FOR WORK IN WETLANDS, THE FOLLOWING STEPS SHALL BE INSERTED IN THE GENERAL PIPELINE CONSTRUCTION SEQUENCE ABOVE:

- 1. INSTALL ORANGE FLAGGING AROUND PERIMETER OF WETLAND AND SEDIMENT BARRIERS ALONG THE LIMITS OF DISTURBANCE.
- 2. LOCATE STAGING AREAS AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND.
- 4. INSTALL CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS.
- 5. MATS, PADS, OR SIMILAR DEVICES SHALL BE USED DURING THE CROSSINGS OF WETLANDS. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD ON-SITE.
- 6. SOIL EXCAVATED FROM WETLAND AREAS SHALL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND SURFACE RESTITUTION.
- 7. DEWATER WORK AREA; WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT TRAP OR A FILTER BAG.
- 8. INSTALL PIPE
- 9. INSTALL TRENCH PLUGS IN WETLAND AREAS PER THE E&S PLAN TO PREVENT THE TRENCH FROM DRAINING THE WETLAND OR CHANGING ITS MICROHYDROLOGY.
- 10. BACKFILL PIPE TRENCH. BACKFILL THE TOP 12-INCHES OF THE EXCAVATED TRENCH WITH THE STOCKPILED WETLAND SOIL TO MATCH ORIGINAL SURFACE GRADES.

PIPELINE WORK SEQUENCE AT STREAM CROSSINGS

- FOR STREAM CROSSINGS, THE FOLLOWING STEPS SHALL BE INSERTED IN THE GENERAL PIPELINE CONSTRUCTION SEQUENCE ABOVE:
- 1. AFTER INSTALLATION OF SEDIMENTATION BMPS, INSTALL BYPASS HOSE, PUMP, OR COFFERDAM AS DESCRIBED IN STREAM CROSSING DETAILS AROUND THE WORK AREA.
- 2. DEWATER WORK AREA. WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG. WHERE POSSIBLE, EXCAVATION SHALL BE FROM THE TOP OF THE STREAM BANK.

3. STABILIZE CHANNEL EXCAVATION AND STREAM BANKS PRIOR TO REDIRECTING STREAM FLOW WITHIN 24 HOURS OF CROSSING BEING DONE FOR ALL STREAMS SMALLER THAN 10 FEET AND

48 HOURS FOR STREAMS LARGER THAN 10 FEET WIDE. 4. REMOVE BYPASS HOSE, PUMP, AND TEMPORARY DAM AS NEEDED.

ACCESS ROAD BMP INSTALLATION SEQUENCE

REFER TO SPECIFIC ACCESS ROAD CONSTRUCTION SEQUENCE NOTES INCLUDED IN THE ACCESS ROAD E&S PLAN SETS UNDER SEPARATE COVER.

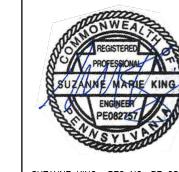
ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN

THE FOLLOWING ACID PRODUCING SOILS CONTROL PLAN WAS DEVELOPED TO IDENTIFY BMPS AND PROCEDURES FOR MINIMIZING THE POTENTIAL FOR POLLUTION ASSOCIATED WITH THE DISTURBANCE OF THE AREAS WITHIN THE PROPOSED RIGHT-OF-WAY THAT CONTAIN ACID-PRODUCING SOILS WITH A pH LESS THAN 4.0.

ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN:

TOPSOIL CONTAMINATION.

- 1. CONTRACTOR SHALL LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED. LOCATIONS WHERE ACIDIC SOILS ARE ANTICIPATED TO BE PRESENT ALONG THE PIPELINE CORRIDOR ARE PROVIDED IN THE COUNTY—SPECIFIC TABLE INCLUDED AT THE END OF THIS PLAN SET.
- 2. CONTRACTOR SHALL SEPARATELY STORE TOPSOIL STRIPPED FROM THE SITE AWAY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS AND BEDROCK S.
- 3. CONTRACTOR SHALL STOCKPILE HIGH ACID-PRODUCING SOILS AND BEDROCK MATERIAL ON LEVEL GROUND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THESE MATERIALS HAVE A HIGH CLAY CONTENT.
- 4. CONTRACTOR SHALL COVER TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL AND BEDROCK MATERIAL TO BE EXPOSED MORE THAN 7 DAYS WITH PROPERLY ANCHORED, HEAVY-GRATE SHEETS OF POLYETHYLENE, WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF THREE TO SIX INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. IN ADDITION, THE CONTRACTOR SHALL INSTALL SILT FENCE AT THE TOE OF THE STOCKPILE SLOPE TO CONTAIN MOVEMENT OF MATERIAL. CONTRACTOR SHALL NOT APPLY TOPSOIL TO THE HIGH ACID-PRODUCING SOIL OR BEDROCK STOCKPILES TO PREVENT
- 5. CONTRACTOR SHALL ULTIMATELY DISPOSE OF HIGH ACID-PRODUCING SOILS OR BEDROCK WITH A pH OF FOUR OR LESS, OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS) BY PLACING THE MATERIAL COMBINED WITH LIMESTONE AT THE RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERING THE MIXTURE WITH A MINIMUM OF 12 INCHES OF SETTLED SOILS WITH A PH OF FIVE OR MORE EXCEPT AS FOLLOWS:
- A. IN THE AREAS WHERE TREES OF SHRUBS ARE TO BE PLANTED, THE CONTRACTOR SHALL COVER THE LIMESTONE/SOIL MIXTURE WITH A MINIMUM OF 24 INCHES OF SOILS WITH A PH OF FIVE OR MORE.
- B. CONTRACTOR SHALL NOT LOCATE ANY DISPOSAL AREA WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHER SURFACE WATERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
- 6. AT THE END OF EACH DAY, CONTRACTOR SHALL CLEAN ALL EQUIPMENT USED TO HANDLE HIGH ACID-PRODUCING SOILS OR BEDROCK TO PREVENT SPREADING OF HIGH-ACID MATERIALS TO OTHER PARTS OF THE PROPOSED RIGHT-OF-WAY, INTO STREAMS, OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED CORROSION
- CONTRACTOR SHALL PROVIDE AND INSTALL NON-VEGETATIVE EROSION CONTROLS (STONE TRACKING PADS, STRATEGICALLY-PLACE LIMESTONE CHECK DAMS, SILT FENCES, WOOD CHIPS) TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF OF THE PROPOSED RIGHT-OF-WAY.
- 8. FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT-OF-WAY, TRANSCO SHALL MONITOR THE SITE FOR APPROXIMATELY SIX TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH-ACID SOIL OR BEDROCK PROBLEMS EMERGE. CONTRACTOR SHALL CORRECT ANY PROBLEMS THAT ARE DISCOVERED WITHIN THIS TIME PERIOD.
- 9. IF PROBLEMS OCCUR WHERE HIGH ACID-PRODUCING SOILS OR BEDROCK HAVE BEEN PLACED OR BURIED, THE APPLICANT SHALL MONITOR THESE AREAS FOR AT LEAST TWO YEARS TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE



DRAINAGE TO SOIL E&SCS AND TO PREPARE DISTURBED AREAS FOR PERMANENT TRENCH

12. MAINTAIN ALL E&SC DEVICES UNTIL SITE WORK IS COMPLETE AND A MINIMUM UNIFORM 70

70 PERCENT PERENNIAL VEGETATIVE COVER OVER THE DISTURBED AREA REGRADE AND

13. REMOVE ALL SOIL AND E&SC MEASURES UPON ESTABLISHMENT OF A MINIMUM UNIFORM

REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE SOIL E&SCS.

PERCENT PERENNIAL VEGETATIVE COVER IS ESTABLISHED

	REVISIONS								
NO.	DATE	BY	DESCRIPTION		W.O. NO				
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL		W057238				
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL		W057238				
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1		W057238				

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET GENERAL NOTES ELZ DATE: 05/15/15 ISSUED FOR BID: SCALE → DRAWN BY: 07/02/15 ISSUED FOR CONSTRUCTION: CHECKED BY: REVISION: 2

APPROVED BY: SMK DATE:

07/08/15 DRAWING ASR-BMP-GN

OF 3

RIP RAP GRADATION, FILTER BLANKET, & MAXIMUM VELOCITIES

	ipiap Gradat	ion, Filter Bla	assing (Squar		num velocitie	-
Class, Size NO.		rereality	assing (oqua	e openings/		
Rock Size (Inches)	R-8	R-7	R-6	R-5	R-4	R-3
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15					
12		0-15	15-50		100	
9				15-50		
6			0-15		15-50	100
4				0-15		
3					0-15	15-50
2						0-15
Nominal Placement Thickness (inches)	63	45	36	27	18	9
Filter Stone ¹	AASHTO #1	AASHTO #1	AASHTO #1	AASHTO #3	AASHTO #3	AASHTO #57
V _{max} (ft/sec)	17.0	14.5	13.0	11.5	9.0	6.5

Adapted from PennDOT Pub. 408, Section 703.2(c), Table C

ADAPTED FROM PENNDOT PUB. 408, SECTION 703.2 (c), TABLE C.

1. THIS IS A GENERAL STANDARD. SOIL CONDITIONS AT EACH SITE SHOULD BE ANALYZED TO DETERMINE ACTUAL FILTER SIZE. A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT, USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, MAY BE SUBSTITUTED FOR THE FILTER STONE FOR GRADIENTS < 10%.

LIMING AND FERTILIZER RATES

		lication Rate	J
Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	Notes
6 tons	240 lb.	2,480 lb.	Or as per soil test; may not be required in agricultural fields
1,000 lb.	25 lb.	210 lb.	Or as per soil test; may not be required in agricultural fields
Tempo	rary Seeding App	lication Rate	
1 ton	40 lb.	410 lb.	Typically not required for topsoil stockpiles
500 lb.	12.5 lb.	100 lb.	Typically not required for topsoil stockpiles
	1,000 lb. Tempo 1 ton	1,000 lb. 25 lb. Temporary Seeding App 1 ton 40 lb.	1,000 lb. 25 lb. 210 lb. Temporary Seeding Application Rate 1 ton 40 lb. 410 lb.

1. NO LIME AND/OR FERTILIZER MAY BE APPLIED IN WETLANDS.

SLOPE SEED MIX

Common Name	Scientific Name	# PLS/ acre	PLS/ sq ft	% of Mix
Big Bluestem	Andropogon gerardii	2	6	10
Little Bluestem	Schizachyrium scoparium	1	6	10
Switchgrass	Panicum virgatum	1.3	12	20
Timothy	Phleum prantense	0.4	12	20
Virginia Wildrye	Elymus virginicus	4.4	7.5	13
Deertongue	Dichanthelium clandestinum	0.7	6	10
Blackeyed Susan	Rudbeckia hirta	0.1	3	5
White Clover	Trifolium repens	0.2	3	5
Oxeye Sunflower	Heliopsis helianthoides	0.6	1.5	3
Partridge Pea	Chamaecrista fasciculata	1.1	1.5	3
Purple Coneflower	Echinacea purpurea	0.6	1.5	3
Total		12.3	60	100

1. PLS IS ROUNDED TO THE NEAREST TENTH OF A POUND. 2. PLS = PURE LIVE SEED

ROW SEED MIX

Common Name	Scientific Name	# PLS/ acre ¹	PLS/sq ft	% of Mix
Red Top	Agrostis gigantea	0.1	12.0	20
Timothy	Phleum prantense	0.4	12.0	20
Tall Fescue	Festuca arundinacea	1.7	9.0	15
Annual Rygrass	Lolium perenne multiflorum	1.7	9.0	15
Italian Ryegrass	Festulium	1.7	9.0	15
Alsike Clover	Trifolium hybridum	0.2	3.0	5
White Clover	Trifolium repens	0.2	3.0	5
Ladino White Clover	Trifolium repens latum	0.2	3.0	5
Total		6.2	60.0	100

. PLS IS ROUNDED TO THE NEAREST TENTH OF A POUND. 2. PLS = PURE LIVE SEED

COVER CROP SEED MIXES

Common Name	Cron Type	# PLS/	PLS/	% of Mix
Common Name	Clop Type	acre	sq ft	70 OI WIIX
	Warr	m Season		
Pearl Millett	Grass	6.9	12.6	70
Sunn Hemp	Legume	10.5	3.6	20
Nitro Radishes	Brassicas	3.1	1.8	10
Total		20.5	18	100
	Coc	l Season		
Annual ryegrass	Grass	8	35.1	65
Red Clover	Legume	3.2	13.5	25
Nitro Radishes	Brassicas	9.4	5.4	10
Total		20.6	54	100

1. PLS IS ROUNDED TO THE NEAREST TENTH OF A POUND. 2. PLS = PURE LIVE SEED

TEMPORARY SEED MIXTURE

TEMPORARY SEEDING SHALL CONSIST OF ANNUAL RYEGRASS (100 PERCENT BY WEIGHT), OR EQUIVALENT, AND SHALL BE PLACED AT THE RATE OF 5 POUNDS PER 1,000 SQUARE YARDS. TEMPORARY SEEDING SHALL BE APPLIED TO THOSE AREAS THAT ARE A POTENTIAL EROSION PROBLEM DURING CONSTRUCTION AND TO THOSE AREAS EXPOSED FOR LONGER THAN 20 CALENDAR DAYS, IF CONDITIONS DO NOT PERMIT TEMPORARY SEEDING, MULCHING SHALL BE EMPLOYED. ADDITIONALLY, NITROGEN FERTILIZER (50-50-50) @ ONE (1) TON PER ACRE, AGRICULTURAL LIME @ ONE (1) TON PER ACRE, AND STRAW MULCH @ THREE (3) TONS PER ACRE. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

SPECIES TYPE AND **SEASON OF PLANTING**

Species Type and Season of Planting					
Cover Crops ¹					
g	son - Spring	March 1 to June 1			
	ason	June 1 to August 15			
	son - Fall	August 15 - October 15			
rman	Pern	anent Crop ²			
		April 20 to June 15			
	(dormant)	October 10 - March 1			
	(dormant)	'			

1. SEEDING DATES FOR COVER CROPS ARE BASED ON DATES REFERENCED BY CLARK, ____.

2. SEEDING DATES FOR PERMANENT CROPS ARE BASED ON DATES REFERENCED BY LANDSHOOT, 1997 AND DELONG AND BRITTINGHAM, 2002.

SEED AFTER OCTOBER 10 WHEN GROUND TEMPERATURES AT A DEPTH OF 4 INCHES ARE 45 F OR LOWER AND COOLER AIR TEMPERATURES ARE FORECASTED.

DORMANT SEEDING CAN OCCUR UNTIL SOIL IS FROZEN AND ADEQUATE PENETRATION OF THE DRILL SEEDER DOES NOT

FACW MEADOW MIX ERNMX-122

Seeding Rate	20 lb per acre, or 1/2 lb per 1,000 sq ft
	Wet Meadow & Wetland Sites
31.0%	Fox Sedge, PA Ecotype (Carex vulpinoidea, PA Ecotype)
20.0%	Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
14.0%	Lurid (Shallow) Sedge, PA Ecotype (Carex Iurida, PA Ecotype)
5.0%	Green Bulrush, PA Ecotype (Scirpus atrovirens, PA Ecotype)
4.0%	Blue Vervain, PA Ecotype (Verbena hastata, PA Ecotype)
3.5%	Wood Reedgrass, PA Ecotype (Cinna arundinacea, PA Ecotype)
3.0%	Soft Rush (Juncus effusus)
3.0%	Blunt Broom Sedge, PA Ecotype (Carex scoparia, PA Ecotype)
3.0%	Hop Sedge, PA Ecotype (Carex Iupulina, PA Ecotype)
2.0%	Sensitive Fern (Onoclea sensibilis)
2.0%	Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1.0%	Rattlesnake Grass, PA Ecotype (Glyceria canadensis, PA Ecotype)
1.0%	Woolgrass, PA Ecotype (Scirpus cyperinus, PA Ecotype)
1.0%	Swamp Milkweed, PA Ecotype (Asclepias incarnata, PA Ecotype)
1.0%	New England Aster, PA Ecotype (Aster novae-angliae (Symphyotrichum n.), PA Ecotype)
1.0%	Flat Topped White Aster, PA Ecotype (Aster umbellatus (Doellingeria umbellata), PA Ecotype)
0.5%	Joe Pye Weed, PA Ecotype (Eupatorium fistulosum, PA Ecotype)
0.5%	Boneset, PA Ecotype (Eupatorium perfoliatum, PA Ecotype)
0.5%	Ditch Stonecrop, PA Ecotype (Penthorum sedoides, PA Ecotype)
0.5%	Narrowleaf Blue Eyed Grass (Sisyrinchium angustifolium)
0.5%	Seedbox, PA Ecotype (Ludwigia alternifolia, PA Ecotype)
0.5%	Great Blue Lobelia, PA Ecotype (Lobelia siphilitica, PA Ecotype)
0.5%	Mud Plantain (Water Plantain), PA Ecotype (Alisma subcordatum (A. plantago-aquatica), PA Ecotype)
0.5%	Square Stemmed Monkeyflower, PA Ecotype (Mimulus ringens, PA Ecotype)
0.4%	Bladder (Star) Sedge, PA Ecotype (Carex intumescens, PA Ecotype)
0.1%	Slender Mountainmint (Pycnanthemum tenuifolium)

RIPARIAN BUFFER MIX ERNMX-178

Seeding Rate	20 lb per acre with a cover crop at 30 lb per acre (dry sites - grain oats, Jan 1-Aug 1)
Mix Type	Riparian Sites
20.0%	Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
16.0%	Indiangrass, PA Ecotype (Sorghastrum nutans, PA Ecotype)
15.0%	Deertongue, 'Tioga' (Panicum clandestinum (Dichanthelium c.), 'Tioga')
12.5%	Big Bluestem, 'Niagara' (Andropogon gerardii, 'Niagara')
8.0%	Switchgrass, 'Carthage', NC Ecotype (Panicum virgatum, 'Carthage', NC Ecotype)
5.0%	Partridge Pea, PA Ecotype (Chamaecrista fasciculata (Cassia f.), PA Ecotype)
4.0%	Autumn Bentgrass, PA Ecotype (Agrostis perennans, PA Ecotype)
4.0%	Blue Vervain, PA Ecotype (Verbena hastata, PA Ecotype)
3.0%	Blackeyed Susan, Coastal Plain NC Ecotype (Rudbeckia hirta, Coastal Plain NC Ecotype)
3.0%	Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
2.3%	New England Aster, PA Ecotype (Aster novae-angliae (Symphyotrichum n.), PA Ecotype)
2.0%	Soft Rush (Juncus effusus)
1.0%	Boneset, PA Ecotype (Eupatorium perfoliatum, PA Ecotype)
1.0%	Joe Pye Weed, PA Ecotype (Eupatorium fistulosum, PA Ecotype)
1.0%	Blue False Indigo, Southern WV Ecotype (Baptisia australis, Southern WV Ecotype)
1.0%	New York Ironweed, PA Ecotype (Vernonia noveboracensis, PA Ecotype)
0.5%	Great Blue Lobelia, PA Ecotype (Lobelia siphilitica, PA Ecotype)
0.5%	Wild Bergamot, PA Ecotype (Monarda fistulosa, PA Ecotype)
0.2%	Grassleaf Goldenrod, PA Ecotype (Euthamia graminifolia (Solidago g.), PA Ecotype)

PERMANENT SEED MIXTURES COOL & WARM SEASON GRASSES

HAYFIELDS

Common Name	Scientific Name	#	PLS/sq	% of
Common Name	Scientific Name	PLS/acre	ft	Mix
Orchardgrass	Dactylis glomerata	4.0	60.0	40
Timothy	Phleum pratense	2.0	60.0	40
Ladino White Clover	Trifolium repens latum	0.8	15.0	10
Red Clover	Trifolium pratense	2.4	15.0	10
Total		9.2	150.0	100

PASTURES

Common Name	Scientific Name	#	PLS/sq	% of
Common Name	Scientific Name	PLS/acre	ft	Mix
Timothy	Phleum pratense	0.5	15.0	25%
Perennial Ryegrass	Lolium perenne	2.3	12.0	20%
Red Top	Agrostis gigantea	0.1	9.0	15%
Italian Ryegrass	Festulolium	1.7	9.0	15%
Alsike Clover	Trifolium hybridum	0.6	9.0	15%
Ladino White Clover	Trifolium repens latum	0.3	6.0	10%
Total		5.5	60.0	100%

SLOPING/FORESTED LAND

		#	PLS/sq	% of
Common Name	Scientific Name	PLS/acre	ft	Mix
Sideoats Grama	Bouteloua curtipendula	1.4	6.0	10%
Little Bluestem	Schizachyrium scoparium	1.0	6.0	10%
Switchgrass	Panicum virgatum	1.3	12.0	20%
Timothy	Phleum pratense	0.4	12.0	20%
Virginia Wildrye	Elymus virginicus	4.24	7.2	12%
Deertongue	Dichanthelium clandestinum	0.7	6.0	10%
Blackeyed Susan	Rudbeckia hirta	0.1	2.4	4%
White Clover	Trifolium repens	0.1	2.4	4%
Oxeye Sunflower	Heliopsis helianthoides	0.8	1.8	3%
Partridge Pea	Chamaecrista fasciculata	1.7	2.4	4%
Purple Coneflower	Echinacea purpurea	0.7	1.8	3%
Total		12.3	60.0	100%

DROUGHT/ROCKY SITES

		1	1	
Common Name	Scientific Name	#	PLS/sq	% of
Common Name	Scientific Name	PLS/acre	ft	Mix
Little Bluestem	Schizachyrium scoparium	1.5	9.0	15%
Timothy	Phleum pratense	0.3	9.0	15%
Prairie Junegrass	Koeleria macrantha	0.1	6.0	10%
Deertongue	Dichanthelium clandestinum	1.0	9.0	15%
Sideoats Grama	Bouteloua curtipendula	2.7	12.0	20%
Virginia Wildrye	Elymus virginicus	3.5	6.0	10%
Partridge Pea	Chamaecrista fasciculata	2.1	3.0	5%
Ladino White Clover	Trifolium repens latum	0.2	3.0	5%
Lanceleaf Coreopsis	Coreopsis lanceolata	0.6	3.0	5%
Total		12.0	60.0	100%

NON-AGRICULTURAL MEADOWS

NON-AGRICULTURAL MEADOWS				
Canana an Nama	Scientific Name	# PLS/acre	PLS/sq	% of
Common Name	Scientific Name		ft	Mix
Virginia Wildrye	Elymus virginicus	5.3	9.0	15%
Little Bluestem	Schizachyrium scoparium	1.5	9.0	15%
Sideoats Grama	Bouteloua curtipendula	2.1	9.0	15%
Deertongue	Dichanthelium clandestinum	1.0	9.0	15%
Partridge Pea	Chamaecrista fasciculata	4.2	6.0	10%
Oxeye Sunflower	Heliopsis helianthoides	1.3	3.0	5%
Lanceleaf Coreopsis	Coreopsis lanceolata	1.2	6.0	10%
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	5%
Butterfly Milkweed	Asclepias tuberosa	5.2	6.0	10%
Total		21.8	60.0	100%

NATIVE NON-NATIVE FOOD PLOT MIX

Carrage and Name a	Caiantifia Nama	#	PLS/sq	% o
Common Name	Scientific Name	PLS/acre	ft	Mix
Timothy	Phleum pratense	0.4	12.0	20%
Upland Bent Grass	Agrostis perennans	0.1	9.0	15%
Virginia Wildrye	Elymus virginicus	5.3	9.0	15%
White Clover	Trifolium repens	0.5	9.0	15%
Ladino White Clover	Trifolium repens latum	0.7	12.0	20%
Crimson Clover	Trifolium incarnatum	3.5	9.0	15%
Total		10.4	60.0	1009

POLLINATOR MIX (TO BE ADDED TO ANY MIX UPON LANDOWNER REQUEST)

	0 : .:r: N	#	PLS/sq	%
Common Name	Scientific Name	PLS/acre	ft	N
Butterfly Milkweed	Asclepias tuberosa	2.6	3.0	15
Purple Coneflower	Echinacea purpurea	1.1	3.0	15
Dense Blazing Star	Liatris spicata	0.7	2.0	10
Lanceleaf Coreopsis	Coreopsis lanceolata	0.4	2.0	10
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	15
Oxeye Sunflower	Heliopsis	1.3	3.0	15
Wild Bergamot	Monarda fistulosa	0.1	2.0	10
Hoary Mountainmint	Pycnanthemum	0.0	2.0	10
Total		6.3	20.0	10

BRASSICA MIX

Carara an Mara	Caiantifia Nama	#	PLS/sq	% of
Common Name	Scientific Name	PLS/acre	ft	Mix
Bonar (Rape)	Brassica napus	2.7	6.6	33%
Turnip	Brassica rapa	12.9	6.6	33%
Nitro Radish	Raphanus	11.8	6.8	34%
Total		27.4	20.0	100%

MULCH

- 1. MULCHES SHOULD BE APPLIED AT THE RATES SHOWN IN TABLE 11.6
- 2. STRAW AND HAY MULCH SHOULD BE ANCHORED OR TACKIFIED IMMEDIATELY AFTER APPLICATION TO PREVENT BEING WINDBLOWN. A TRACTOR-DRAWN IMPLEMENT MAY BE USED TO "CRIMP" THE STRAW OR HAY INTO THE SOIL - ABOUT 3 INCHES. THIS METHOD SHOULD BE LIMITED TO SLOPES NO STEEPER THAN 3H: 1V. THE MACHINERY SHOULD BE OPERATED ON THE CONTOUR. CRIMPING OF HAY OR STRAW BY RUNNING OVER IT WITH TRACKED MACHINERY IS NOT RECOMMENDED.
- 3. POLYMERIC AND GUM TACKIFIERS MIXED AND APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS MAY BE USED TO TACK MULCH. AVOID APPLICATION DURING RAIN AND ON WINDY DAYS. A 24-HOUR CURING PERIOD AND A SOIL TEMPERATURE HIGHER THAN 45°F ARE TYPICALLY REQUIRED. APPLICATION SHOULD GENERALLY BE HEAVIEST AT EDGES OF SEEDED AREAS AND AT CRESTS OF RIDGES AND BANKS TO PREVENT LOSS BY WIND. THE REMAINDER OF THE AREA SHOULD HAVE BINDER APPLIED UNIFORMLY. BINDERS MAY BE APPLIED AFTER MULCH IS SPREAD OR SPRAYED INTO THE MULCH AS IT IS BEING BLOWN ONTO THE SOIL. APPLYING STRAW AND BINDER TOGETHER IS
- 4. SYNTHETIC BINDERS, OR CHEMICAL BINDERS, MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THEY ARE NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
- 5. MULCH ON SLOPES 8% OR STEEPER SHOULD BE HELD IN PLACE WITH NETTING. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- 6. SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED. THE APPLICATION RATE FOR ANY HYDROMULCH SHOULD BE 2,000 LB/ACRE AT A MINIMUM.
- 7. HYDRAULICALLY APPLIED BLANKETS CAN BE AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. THEY MAKE USE OF A CROSS-LINKED HYDROCOLLOID TACKIFIER TO BOND THERMALLY PROCESSED WOOD FIVERS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS. IN ANY CASE, MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED. SHOULD NOT BE USED IN AREAS OF CONCENTRATED FLOW (E.G. SWALES).
- 8. NO MULCH MAY BE APPLIED IN WETLANDS.

GENERALLY MORE EFFECTIVE.

		TABL	E 11.6	5
		MULCH APF	PLICATION RATES	5
MULCH	AP	PLICATION RATE	(MIN.)	
TYPE	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YD.	NOTES
STRAW	3 TONS	140 LB.	1,240 LB.	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
WOOD CHIPS	4-6 TONS	185–275 LB.	1,650-2,500 LB.	MAY PRVENT GERMINATION OF GRASSES AND LEGUMES
HYDRO- MULCH	1 TON	47 LB.	415 LB.	SEE LIMITATIONS ABOVE
HYDRAULICALLY APPLIED BLANKETS	3,000 LB. 4,000 LB.	N/A N/A	N/A N/A	SLOPES UP TO 3H:1V SLOPES STEEPER THAN 3H:1V

OPERATIONS AND MAINTENANCE PROGRAM PERMANENT STORMWATER FACILITIES

THE PERMIT APPLICANT SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PERMANENT STORMWATER FACILITIES LOCATED ON THE SUBJECT PROPERTIES. PERMANENT MAINTENANCE OF THE STORM SYSTEM AFTER ACCEPTANCE WILL PRIMARILY CONSIST OF ROUTINE CLEANING OF ACCUMULATED SEDIMENT AND DEBRIS BY FACILITY STAFF OR PRIVATE CONTRACTORS. THE SPECIFIC MAINTENANCE STEPS AND SCHEDULE ARE LISTED BELOW:

- 1. VEGETATED SWALES
 ALL SWALES MUST BE KEPT FREE OF OF OBSTRUCTIONS SUCH AS FILL, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIAL/WASTES. SWALES SHALL BE KEPT MOWED AND/OR FREE OF ALL WEEDY. BRUSHY OR WOODY GROWTH. ANY UNDERGROUND UTILITIES RUNNING ACROSS/THROUGH THE SWALE(S) SHALL BE IMMEDIATELY BACKFILLED AND THE SWALE(S) REPAIRED AND STABILIZED PER THE SWALE CROSS SECTION DETAIL. ANY DISTURBANCE TO THE SWALES SHALL BE IMMEDIATELY REPAIRED AND STABILIZED PER THE SWALE CROSS SECTION DETAIL. REFER TO THE ADJACENT TABLE FOR THE OPERATION AND MAINTENANCE PROCEDURES FOR THE VEGETATED SWALES.
- ALL VALVE SITES MUST BE KEPT FREE OF OF OBSTRUCTIONS SUCH AS FILL, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIAL/WASTES. ANY DISTURBANCE TO THE VALVE SITE SHALL BE IMMEDIATELY REPAIRED AND STABILIZED. COMPACTION OF THE VALVE SITE BOTTOM SHALL BE PREVENTED.
- ANNUAL CERTIFICATION OF MAINTENANCE PROCEDURES THE OWNER SHALL MAINTAIN A CHECKLIST WHENEVER THE PERMANENT FACILITES ARE INSPECTED AND CLEANED. AN ANNUAL LIST OF INSPECTIONS AND MAJOR CLEANING OPERATIONS AND REPAIRS (REPAIR CHECK DAMS. REPLACE AGGREGATE, ETC.) SHALL BE MAINTAINED. THE COUNTY CONSERVATION DISTRICT(S) OR ENFORCEMENT OFFICIALS SHALL HAVE ACCESS TO THOSE RECORDS.
- COMPLIANCE WITH ESCGP-2 REQUIREMENTS AND RECORD KEEPING FOR PERMANENT STORMWATER DISCHARGE AND MAINTENANCE AND OTHER APPLICABLE ESCGP-2 AND DEP REQUIREMENTS REGARDING DISCHARGES.
- 5. PROTECT SENSITIVE/SPECIAL VALUE FEATURES
 PROTECTED AREAS SHALL REMAIN UNDISTURBED AFTER CONSTRUCTION ACTIVITIES CEASE. PROTECTED AREAS
 SHALL RECEIVE A BIANNUAL HEALTH INSPECTION. DEAD OR DYING VEGETATION SHALL BE IMMEDIATELY
 REPLACED WITH SUITABLE SPECIES. RESEED BARE AREAS AND INSTALL APPROPRIATE EROSION CONTROLS WHEN SOIL IS EXPOSED. ORANGE CONSTRUCTION FENCE WILL BE USED TO PROTECT SPECIAL VALUE/SENSITIVE AREAS
- 6. MINIMIZE SOIL COMPACTION PROTECTED AREAS — RESTRICT VEHICLE ACCESS, DO NOT CLEAR VEGETATION. AVOID EARTH DISTURBANCE. CONDUCT BIANNUAL HEALTH INSPECTIONS AND IMMEDIATELY REPLACE DEAD OR DYING VEGETATION WITH SUITABLE SPECIES. RESEED BARE AREAS AND APPLY APPROPRIATE EROSION CONTROL WHERE SOIL IS EXPOSED. MINIMUM DISTURBANCE AREAS - RESTRICT VEHICLE ACCESS.

OPERATION & MAINTENANCE PROCEDURES		
ACTIVITY	SCHEDULE	
PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT. RESEED BARE AREAS; ROTOTILL OR CULTIVATE THE SURFACE OF THE SAND/SOIL BED OF DRY SWALES IF THE SWALE DOES NOT DRAW DOWN WITHIN 48 HOURS. WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDES WHEN NECESSARY. REMOVE SEDIMENT BUILD—UP WITHIN THE BOTTOM OF THE SWALE ONCE IT HAS ACCUMULATED TO 25% OF THE ORIGINAL DESIGN VOLUME, OR ONCE IT HAS COVERED VEGETATION.		
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, DAMAGE TO ROCK FILTERS, AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES, & CORRECT. MOW AND TRIM VEGETATION TO ENSURE SAFETY, PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS—SECTION & LONGITUDINAL SLOPE, CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED.	ANNUAL	
INSPECT SWALE IMMEDIATELY AFTER SPRING MELT. REMOVE RESIDUALS AND REPLACE DAMAGED VEGETATION. IF ROADSIDE OR PARKING LOT RUNOFF IS DIRECTED TO THE SWALE, MULCHING &/OR SOIL AERATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE & MOISTURE CAPACITY & TO REDUCE THE IMPACT OF DEICING AGENTS. USE NONTOXIC, ORGANIC DEICING AGENTS. PLANT SALT TOLERANT VEGETATION IN SWALES.	WINTER	

VEGETATED CIAVALE

TOPSOIL APPLICATION

GRADED AREAS SHOULD BE SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREAS AND TO PROVIDE A ROUGHENED SURFACE TO PREVENT TOPSOIL FROM SLIDING DOWN

TOPSOIL SHOULD BE UNIFORMLY DISTRIBUTED ACROSS THE DISTURBED AREA TO A DEPTH OF 4 TO 8 INCHES MINIMUM — 2 INCHES ON FILL OUTSLOPES. SPREADING SHOULD BE DONE IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL PREPARATION OR TILLAGE. IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOIL PLACEMENT SHOULD BE AND SELECTION OF DEPRESSIONS UNLESS SUCH DEPRESSIONS ARE PART OF THE PCSM PLAN.

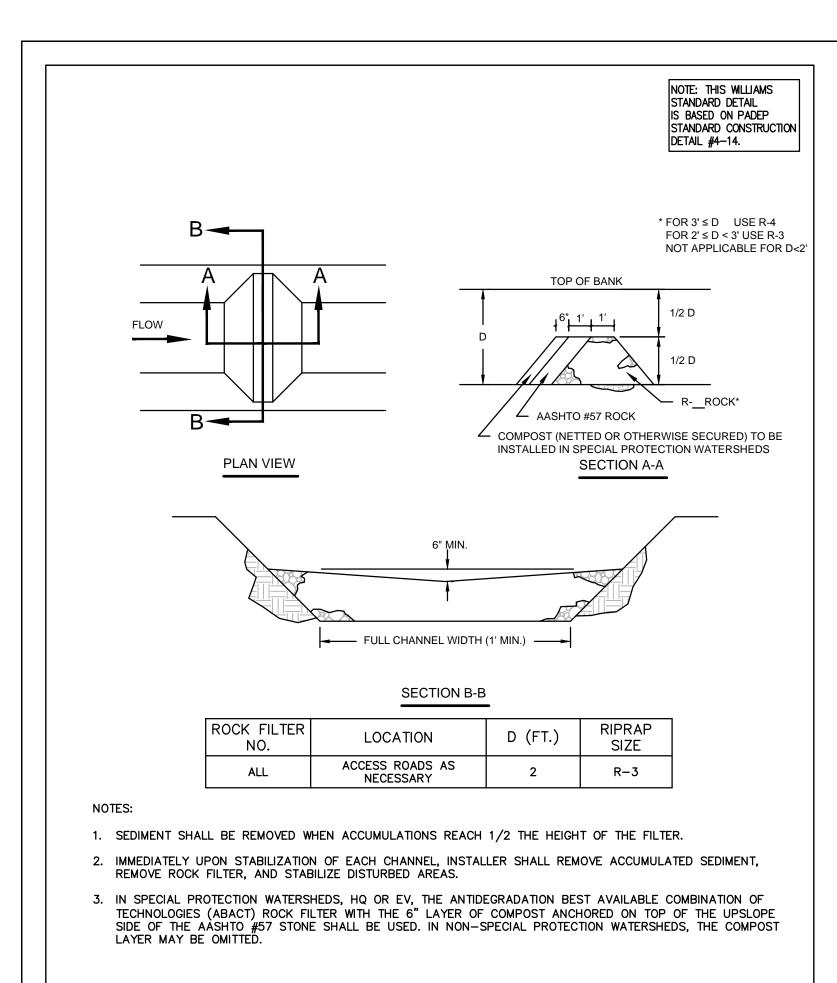
TOPSOIL SHOULD NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDED PROPER TO COMPACTED SOILS SHOULD BE SCARIFIED 6 TO 12 INCHES ALONG CONTOUR WHEREVER POSSIBLE

TABLE 11.1

Depth (in)	Per 1,000 Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806
7	21.7	940
8	24.8	1,074

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	1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK	7	, , , , ,	DLO: "	" " " " " " " " " " " " " " " " " " "	THE GOVERNMENT	I B WY OLI	
3	2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK]						William
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												·		GAS PIPE
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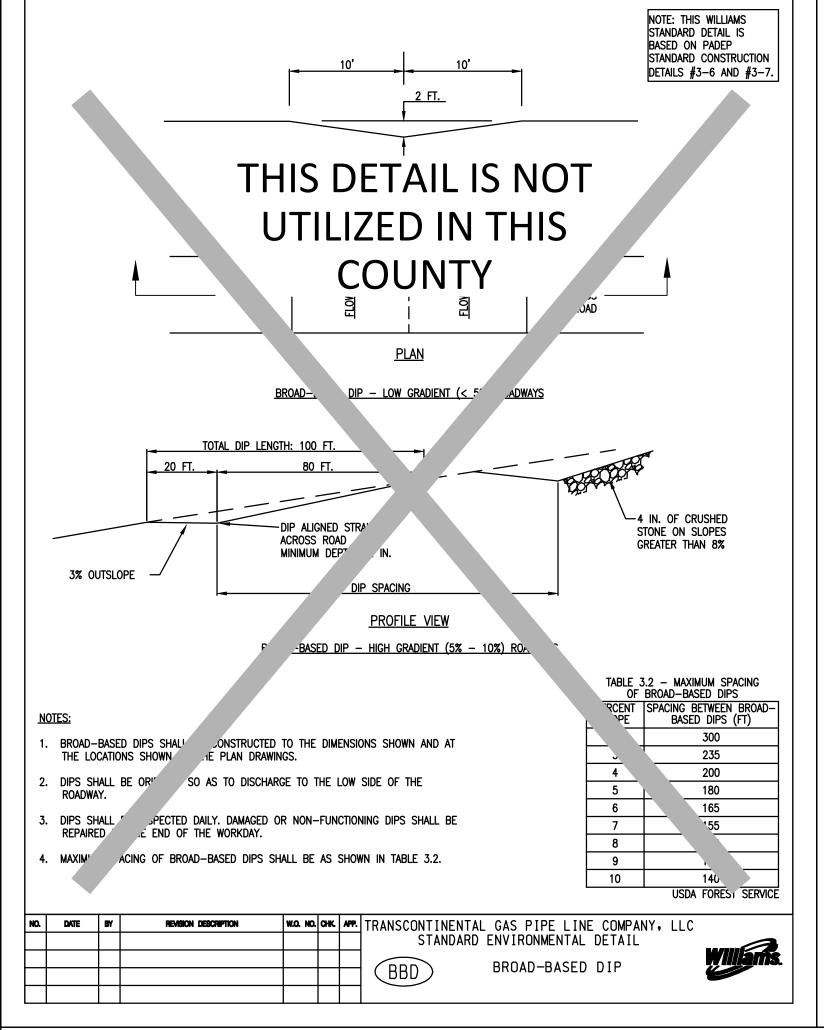
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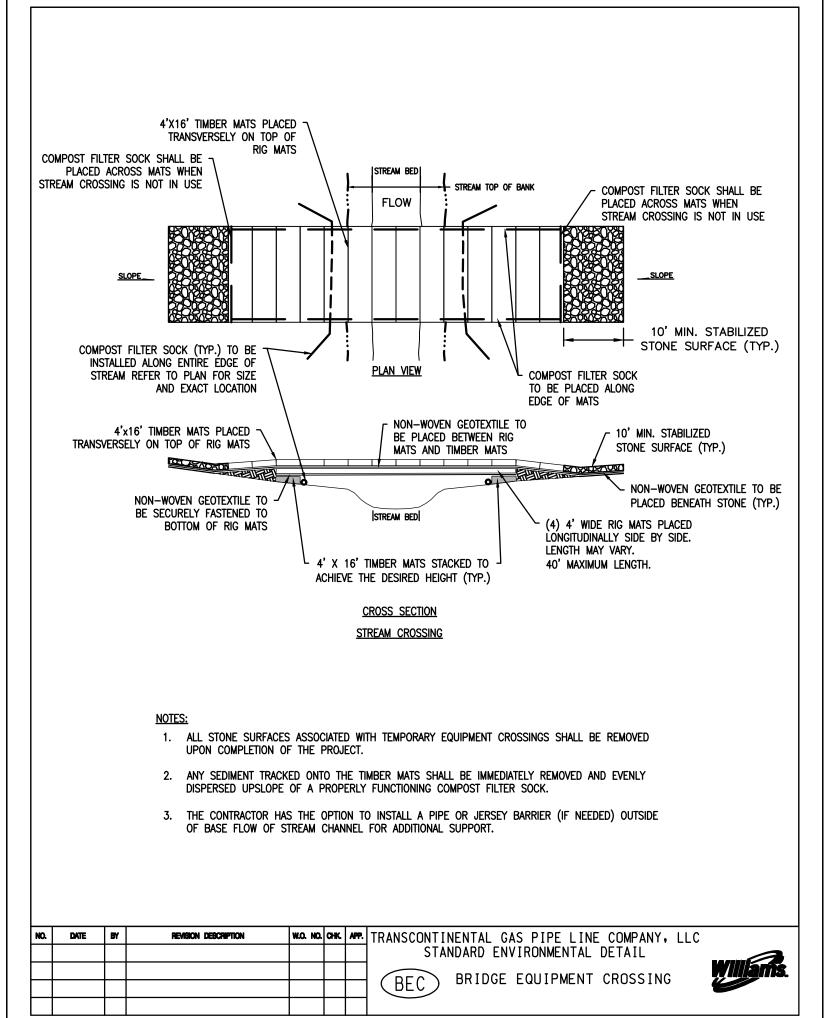
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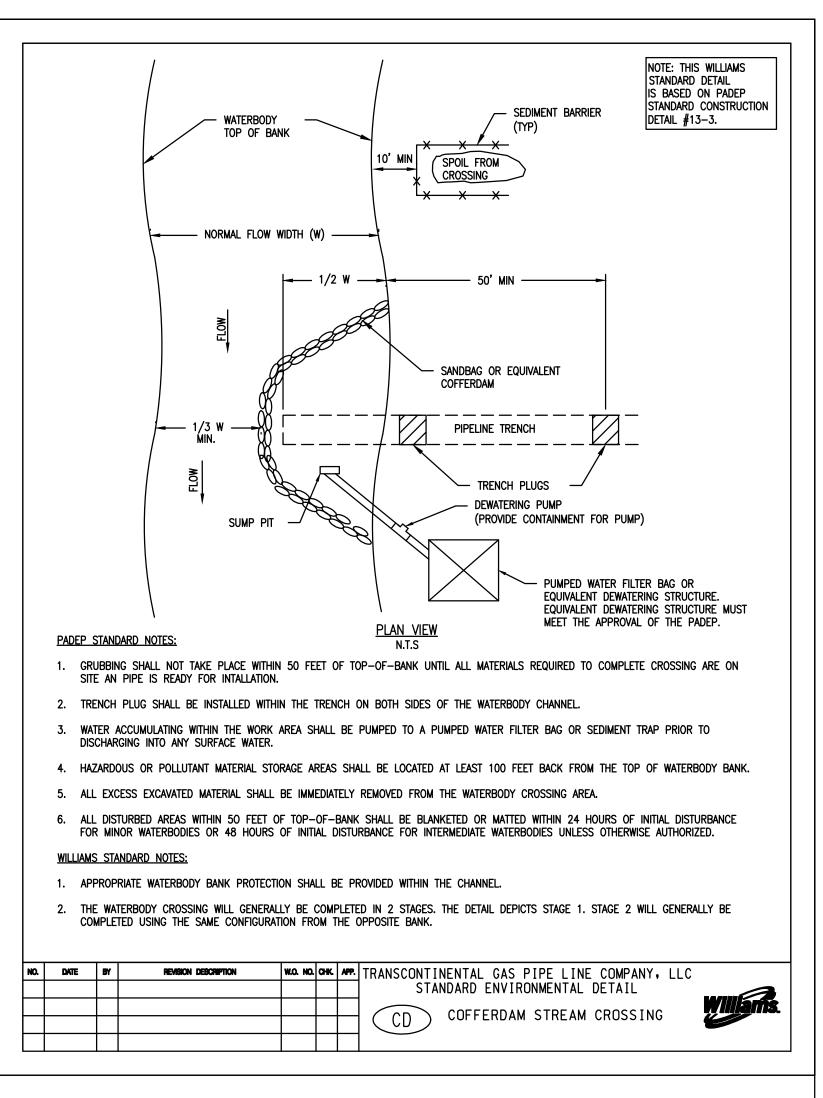
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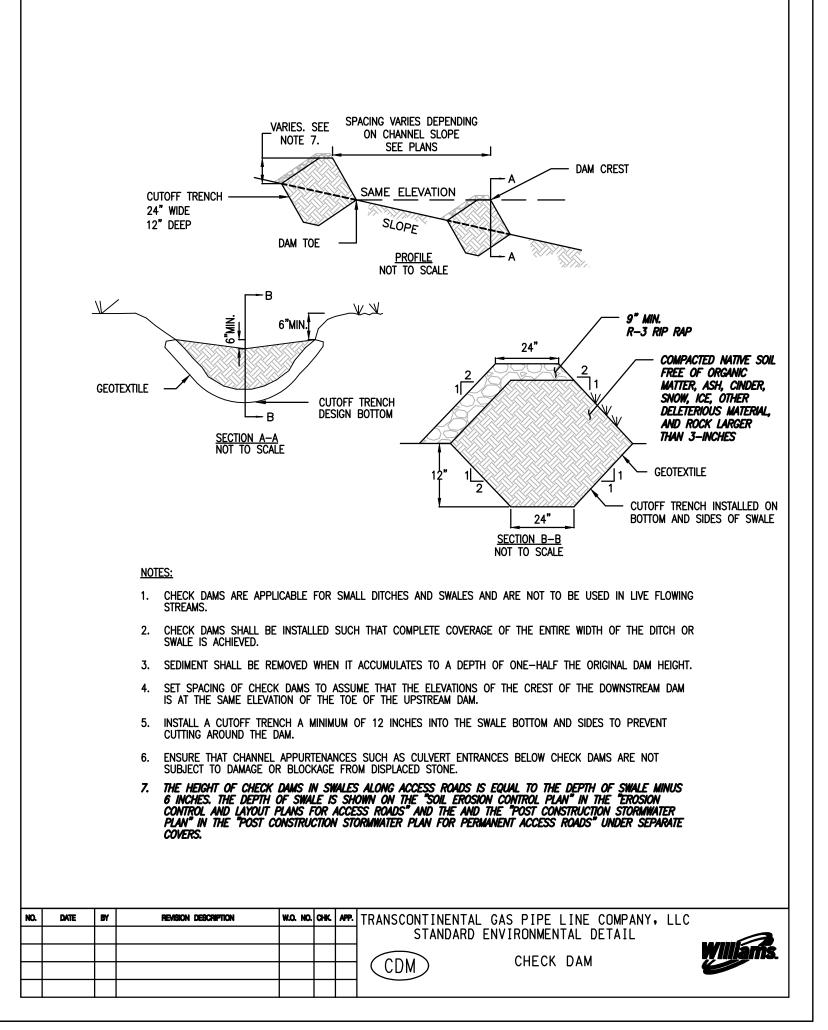
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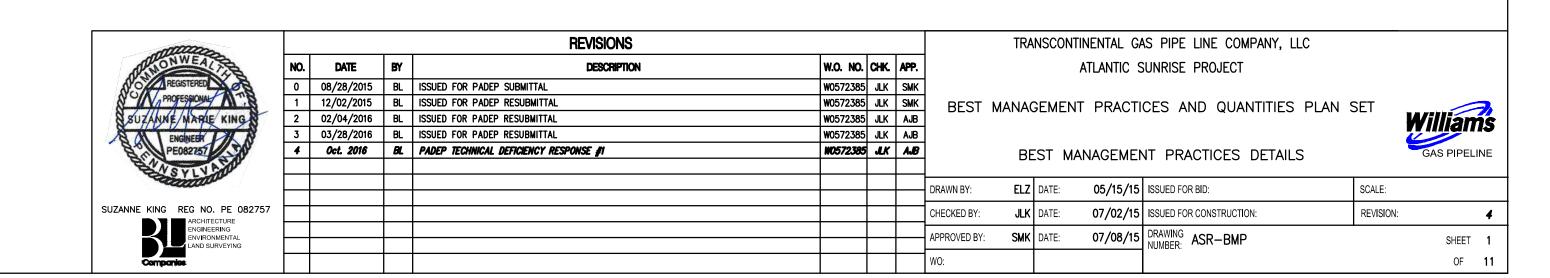
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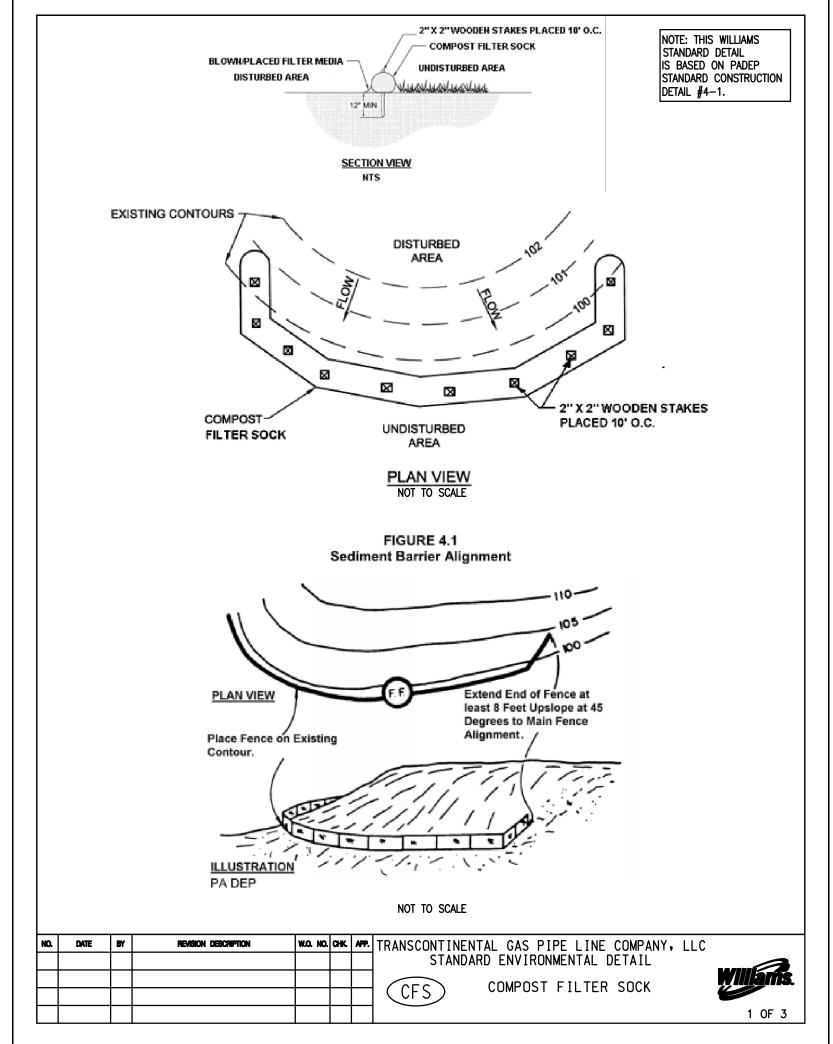


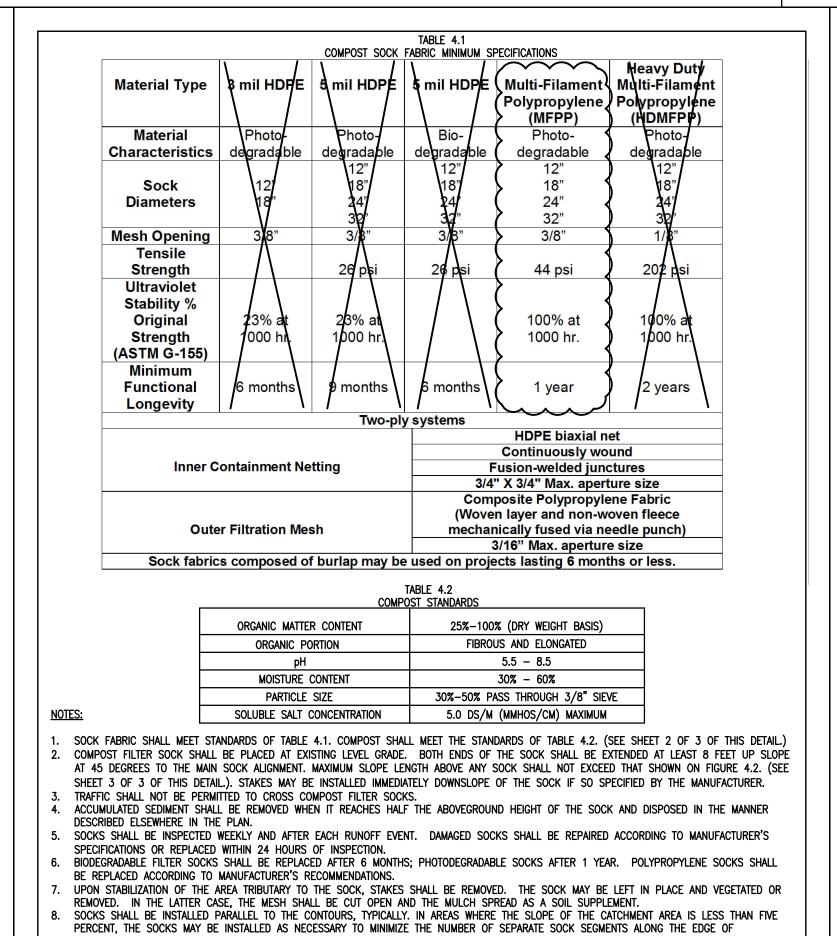












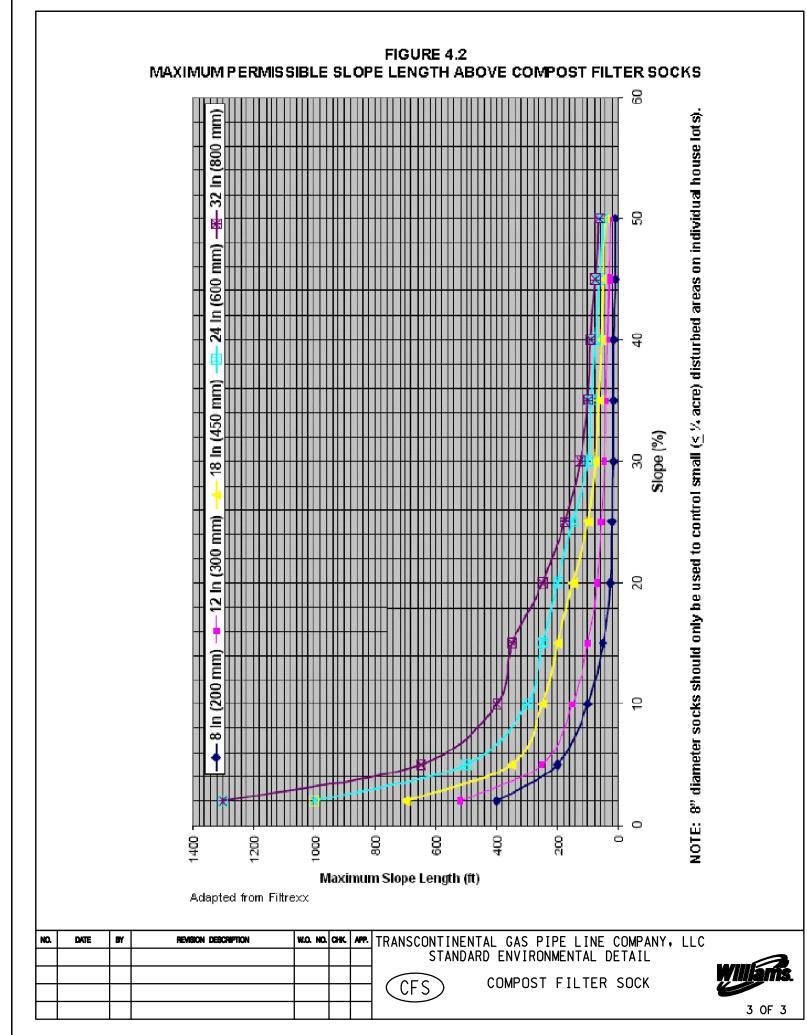
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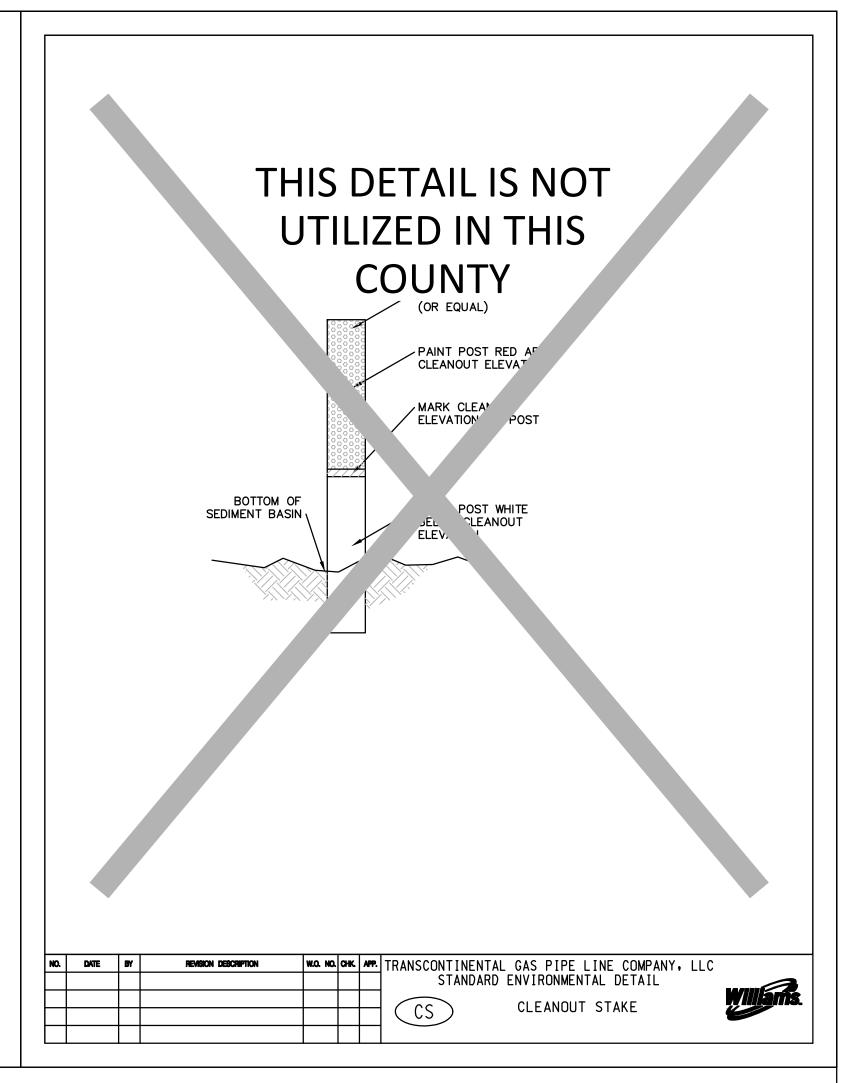
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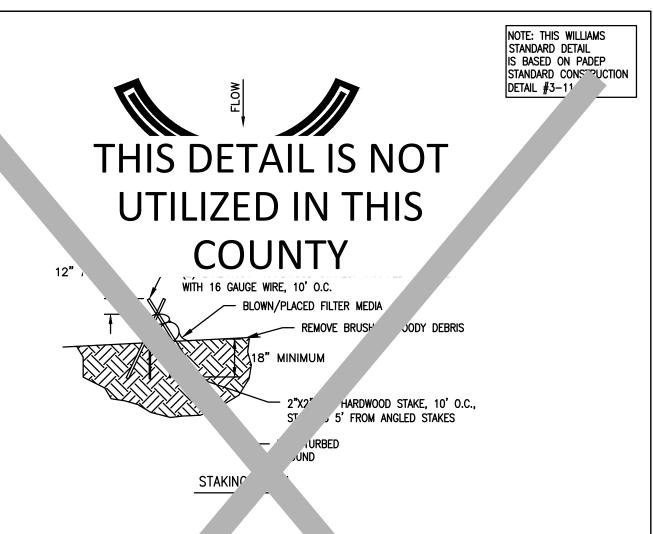
2 OF 3

NO. DATE BY

REVISION DESCRIPTION







- SEE COMPOST FILTER SOCK (CFS) DETAIL FOR MORE INFORMATION. SOCK MATERIA. L. MEET THE STANDARDS OF TABLE 4.1. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2.
- MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER S

 ADDITIONAL STORAGE MAY BE PROVIDE. MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE S

 ALONG THE LOWER SIDE OF THE TRAP.
- 3. THE MAXIMUM TRIBUTARY DRAINAGE ART 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THK" NO SPILLWAY IS REQUIRED.
- 4. COMPOST SOCK SEDIMENT TRAPS S' JE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEL SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE LKS.
- PHOTODEGRADABLE AND BIO DABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.
- A. COMPOST SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2,000 CUBIC FEET OF STORAGE CAPACITY 12" FREEBOARD FOR EACH AC ABUTARY TO THE TRAP.
 - B. MIN' JASE WIDTH IS EQUIVALENT TO THE HEIGHT.
 - C JENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
 - JOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYE. INDICATED TO THE LEFT.
- E. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC	
							STANDARD ENVIRONMENTAL DETAIL	
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							(C21) COMI OST SOCK SEDIMENT THAT	

REVISION DESCRIPTION | W.O. NO. CHK | APP. | TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC NO. DATE BY STANDARD ENVIRONMENTAL DETAIL CLEAN WATER CROSSING (FLUME CROSSING)

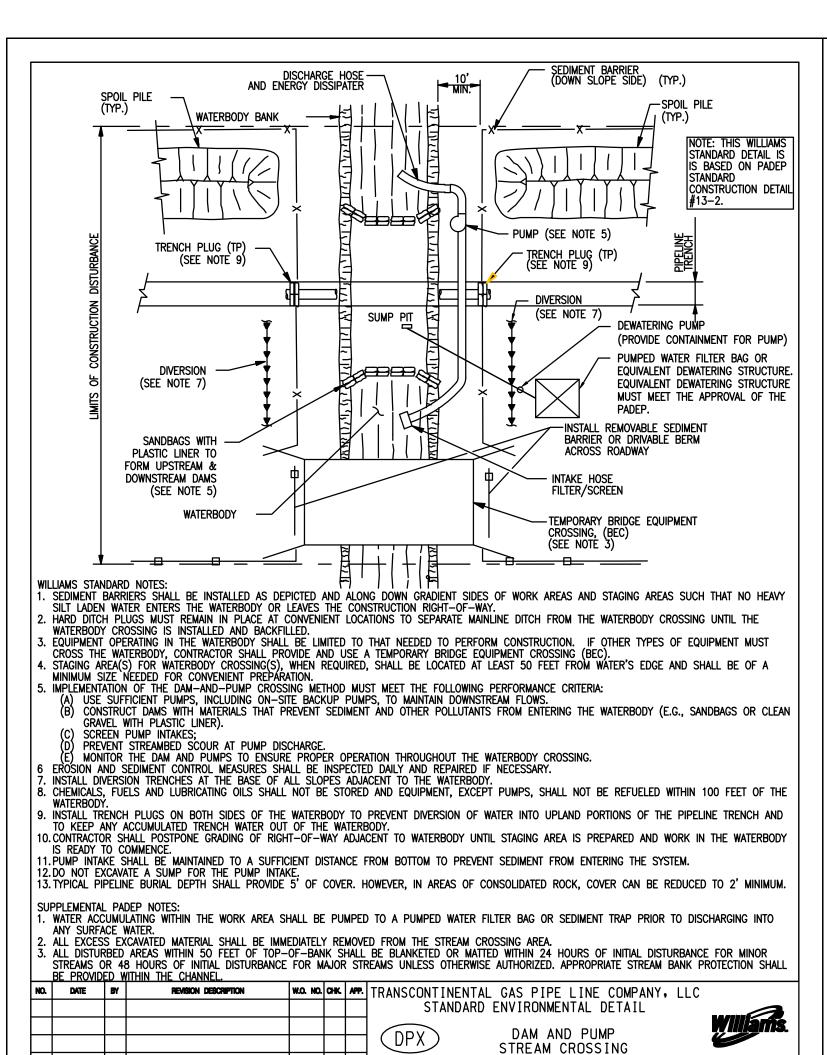
REFER TO THE QUANTITY, CROSSING AND ACIDIC SOIL TABLES FOR DETAIL AND DESIGN

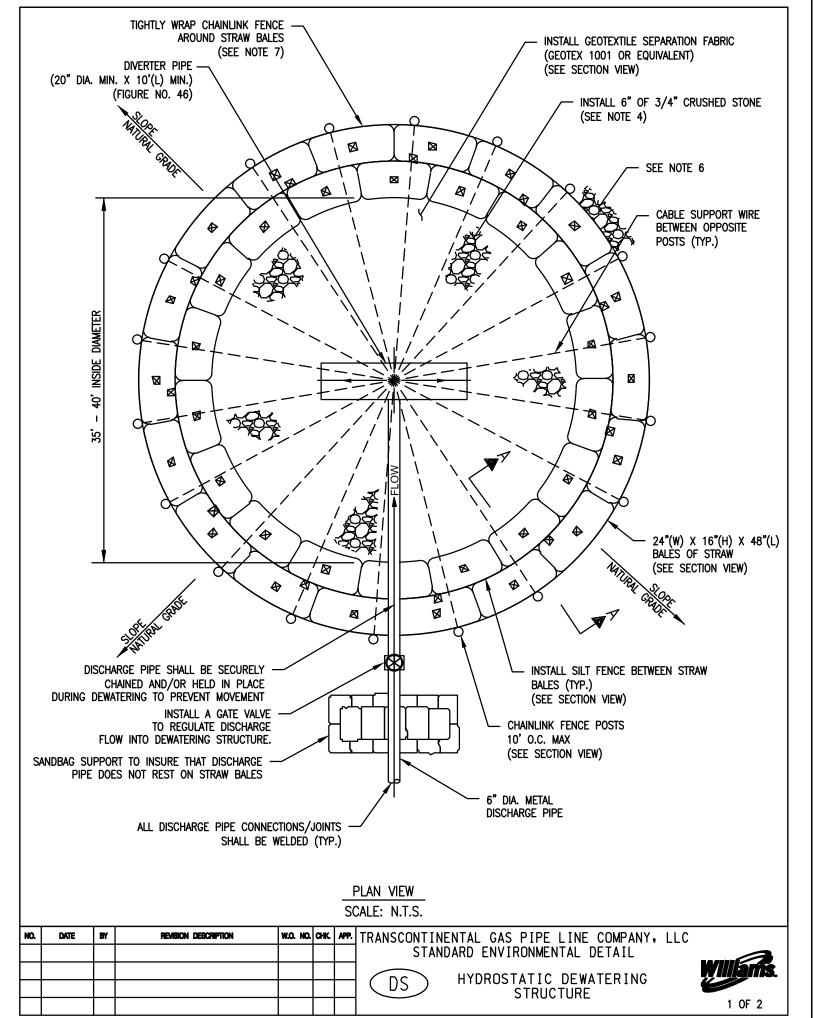
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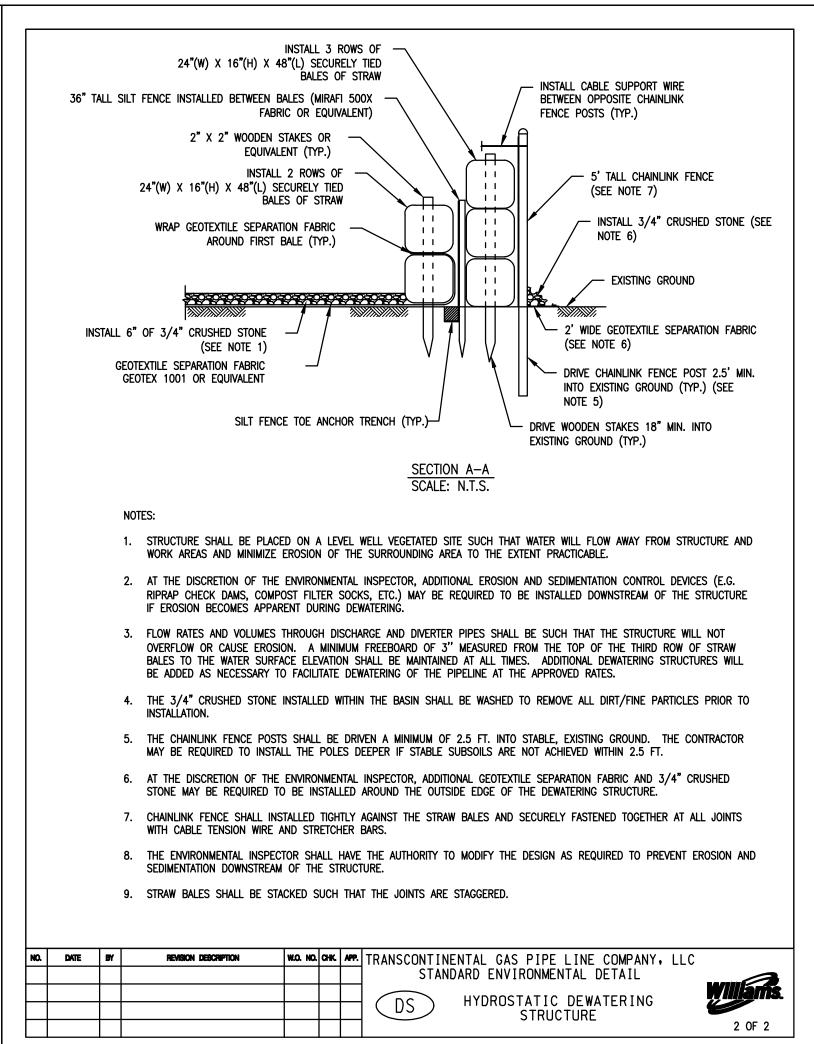
REVISIONS TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC W.O. NO. CHK. APP. ATLANTIC SUNRISE PROJECT W0572385 JLK SMK W0572385 JLK SMK BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET BEST MANAGEMENT PRACTICES DETAILS ELZ DATE: 05/15/15 ISSUED FOR BID: JLK DATE: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: APPROVED BY: SMK DATE: 07/08/15 DRAWING NUMBER: ASR-BMP SHEET 2

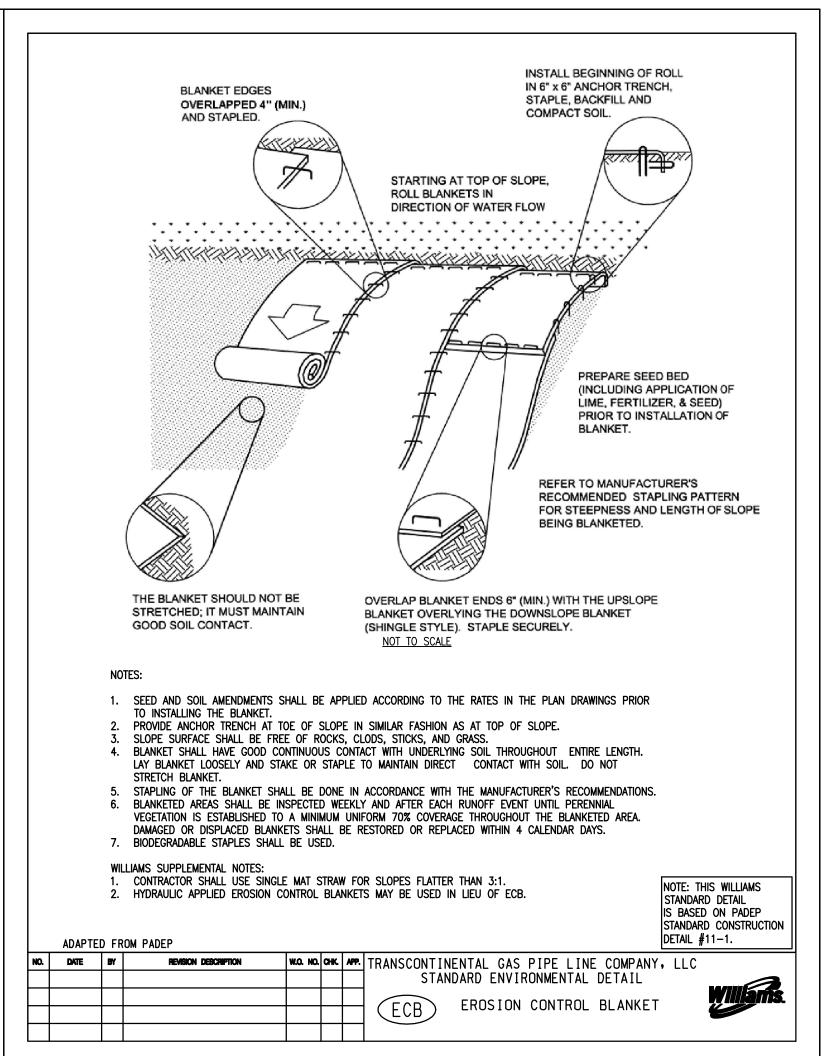
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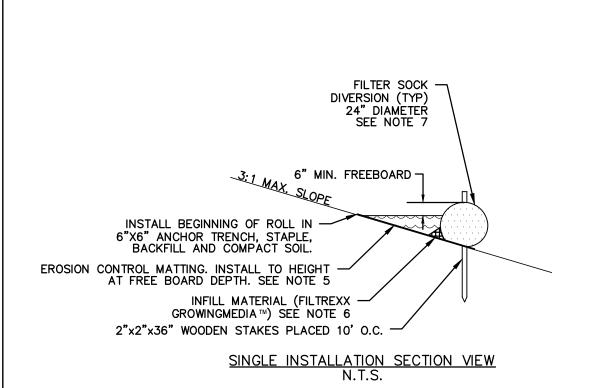
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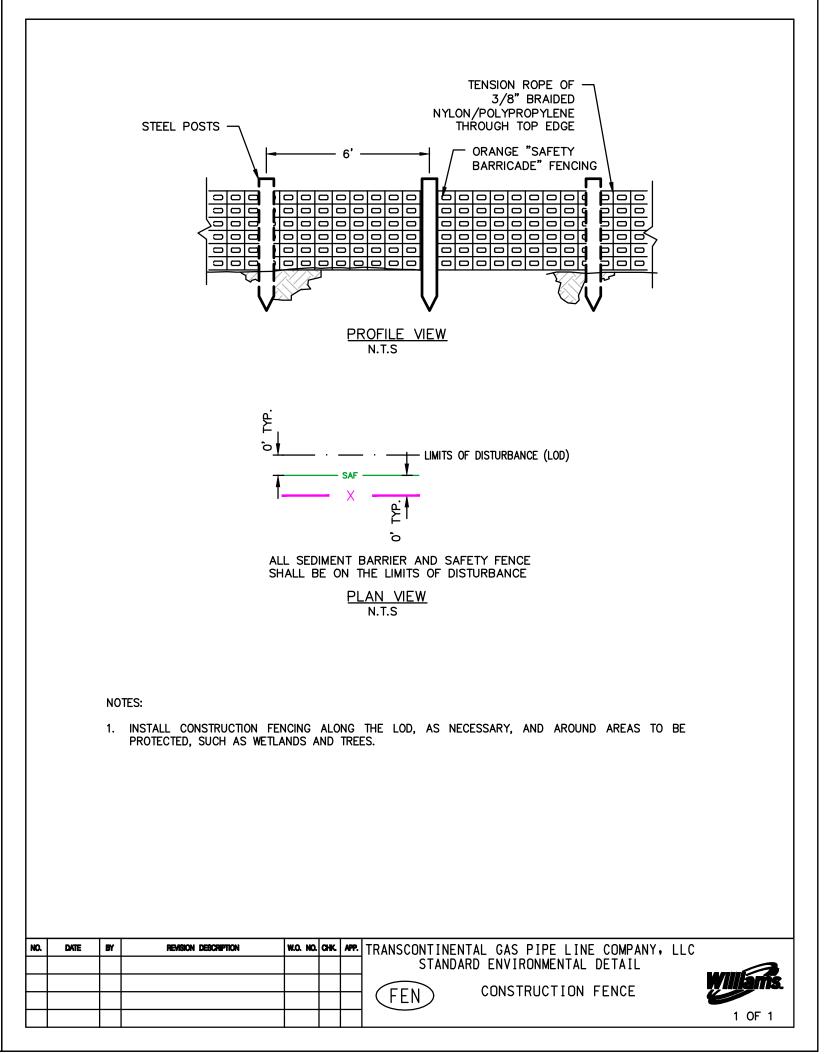


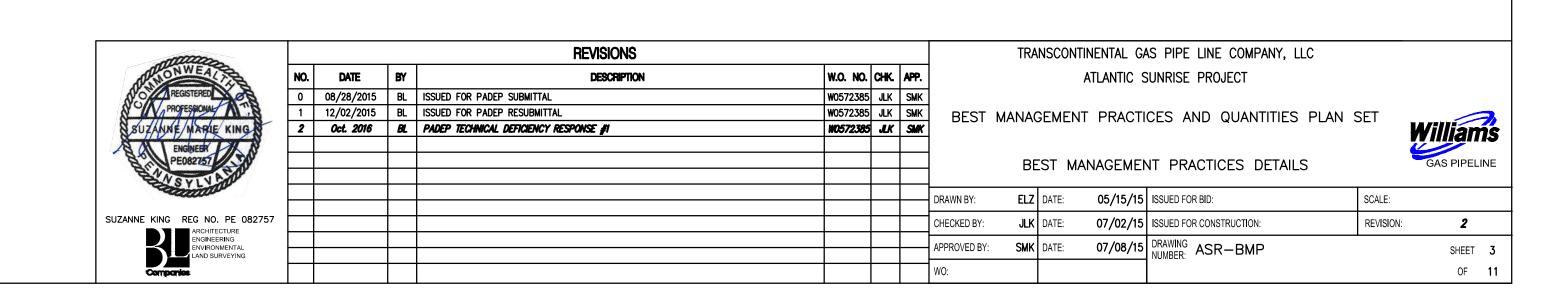


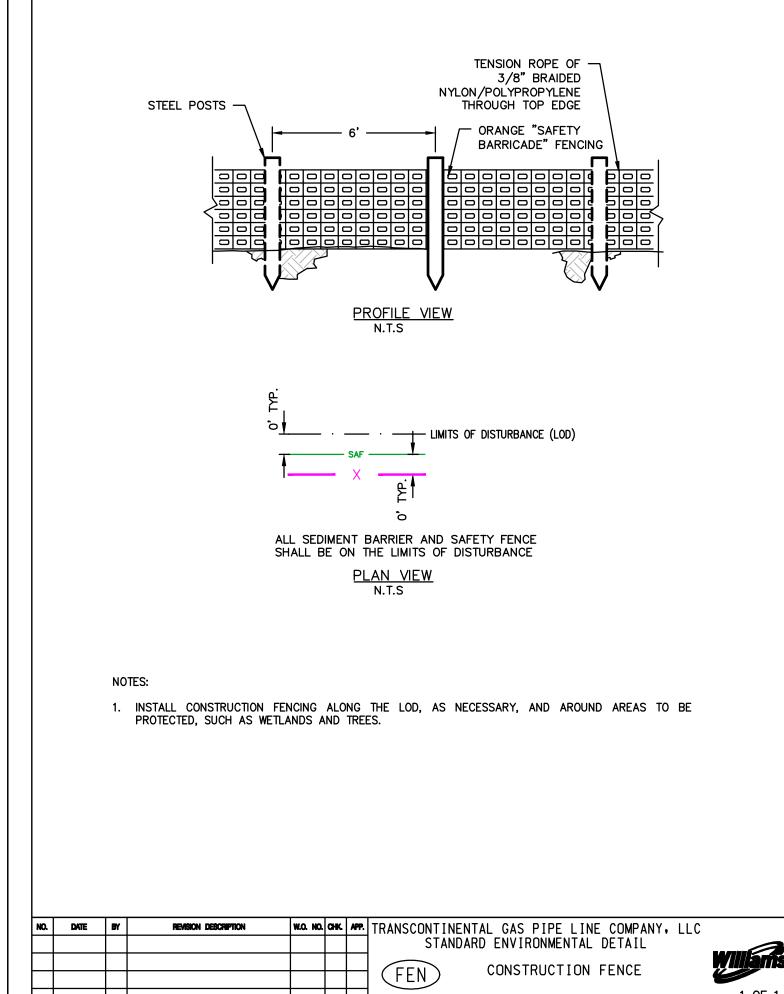
1. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE FILTER SOCK DIVERSION WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE FILTER SOCK DIVERSION. SEDIMENT SHALL ALSO BE REMOVED DURING INSTALLATION OF FINAL STABILIZATION MEASURES (E.G. EROSION CONTROL MATTING, SEEDING, MULCHING, ETC.) TO LIMIT POTENTIAL DISTURBANCE FROM CONSTRUCTION EQUIPMENT WHILE VEGETATION IS ESTABLISHING.

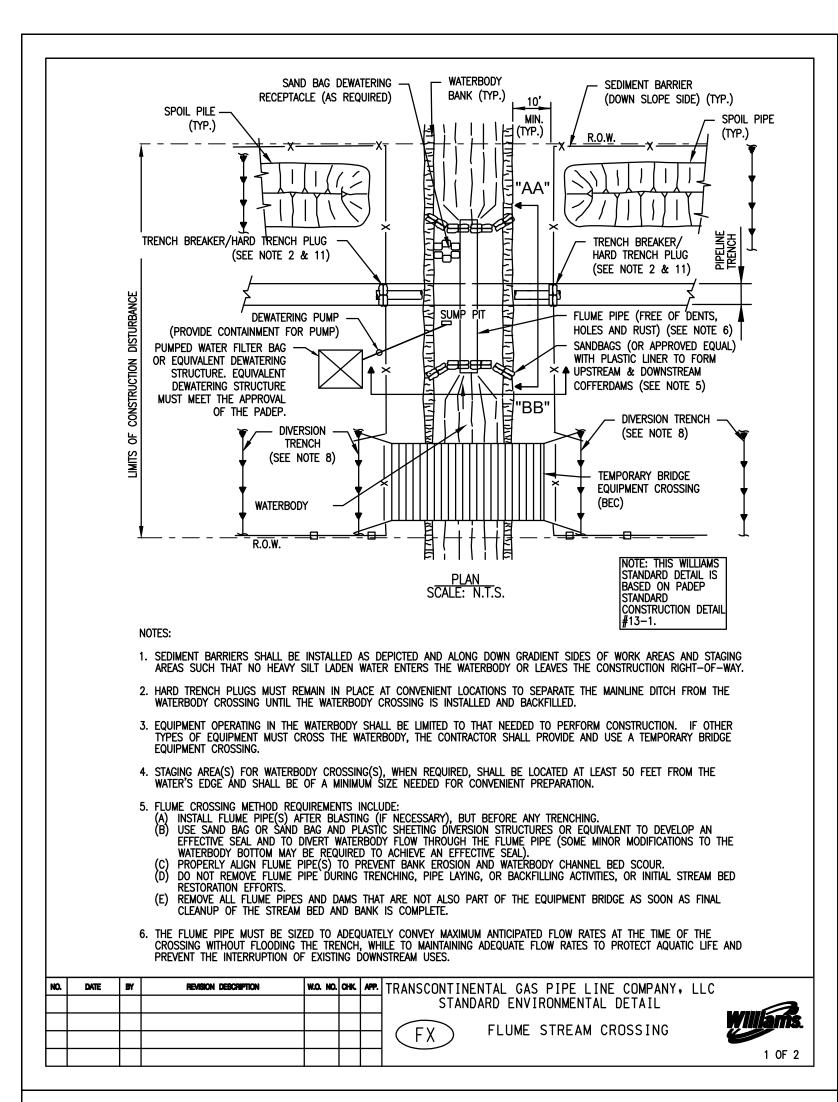
- 2. SLOPES GREATER THAN 5% MAY REQUIRE ADDITIONAL STABILIZATION PRACTICES AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR.
- 3. THE FILTER SOCK DIVERSION SHALL BE FILLED WITH FILTREXX GROWINGMEDIA™ OR APPROVED EQUAL AND SEEDED AT THE TIME OF INSTALLATION. SOIL OR AND MAY BE ADDED TO THE GROWINGMEDIA™ TO ADD WIGHT AND BALLAST TO THE RUNOFF DIVERSION.
- 4. IF UNDERMINING IS OBSERVED CONTRACTOR SHALL PROVIDE AND MAINTAIN GROWING MEDIA PACKING AT TOE OF FILTER SOCK DIVERSION.
- 5. EROSION CONTROL MATTING INSTALLED UNDER AND ADJACENT TO THE FILTER SOCK DIVERSION FOR ACCESS ROADS SHALL BE NORTH AMERICAN GREEN C-125™ OR APPROVED EQUIVALENT AND SEEDED AT THE TIME OF INSTALLATION. REFER TO TABLE 2: TEMPORARY CLEAN WATER DIVERSION OF THIS PLAN SET FOR THE REQUIRED NORTH AMERICAN GREEN (OR APPROVED EQUIVALENT) LINING ASSOCIATED WITH THE PIPELINE FILTER SOCK DIVERSIONS. REFER TO THE EROSION CONTROL BLANKET DETAIL (ECB) ON PAGE 3 FOR PROPER INSTALLATION OF EROSION CONTROL MATTING.
- 6. INFILL MATERIAL (FILTREXX GROWINGMEDIA™ OR APPROVED EQUAL) SHALL BE MODIFIED TO REDUCE PERMEABILITY AND PROMOTE VEGETATIVE GROWTH IN ACCORDANCE WITH BMP REQUIREMENTS. THE GROWINGMEDIA™ SHALL BE DISPERSED ON SITE OR THE FILTER SOCK DIVERSION SHALL BE REMOVED ONCE THE DISTURBED AREA HAS BEEN PERMANENTLY STABILIZED OR AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR.
- 7. MAXIMUM EFFECTIVE HEIGHT OF A 24" FILTER SOCK IS 19", THEREFORE TOTAL DEPTH IS ALSO 19". EFFECTIVE HEIGHT MINUS FREEBOARD (6") SHOULD NOT EXCEED 13".

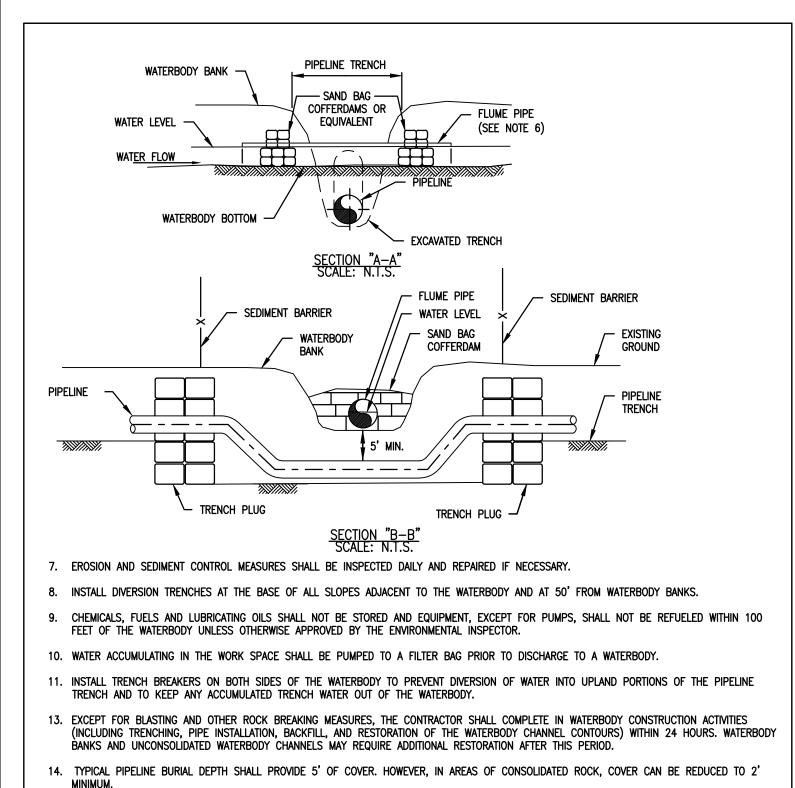
		8.	EROSION CONTROL MATTING	SHOUL	D NO	OT E	EXTEND UPHILL PAST THE LIMIT OF DISTURBANCE.	
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	СНК	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL	
								Willams.
							FD FILTER SOCK DIVERSION	
								1 OF 1











WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING

| W.O. NO. CHK | APP. | TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

STANDARD ENVIRONMENTAL DETAIL

FLUME STREAM CROSSING

(SECTIONS)

2 OF 2

3. ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAM BANK

2. ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.

SUPPLEMENTAL PADEP NOTES:

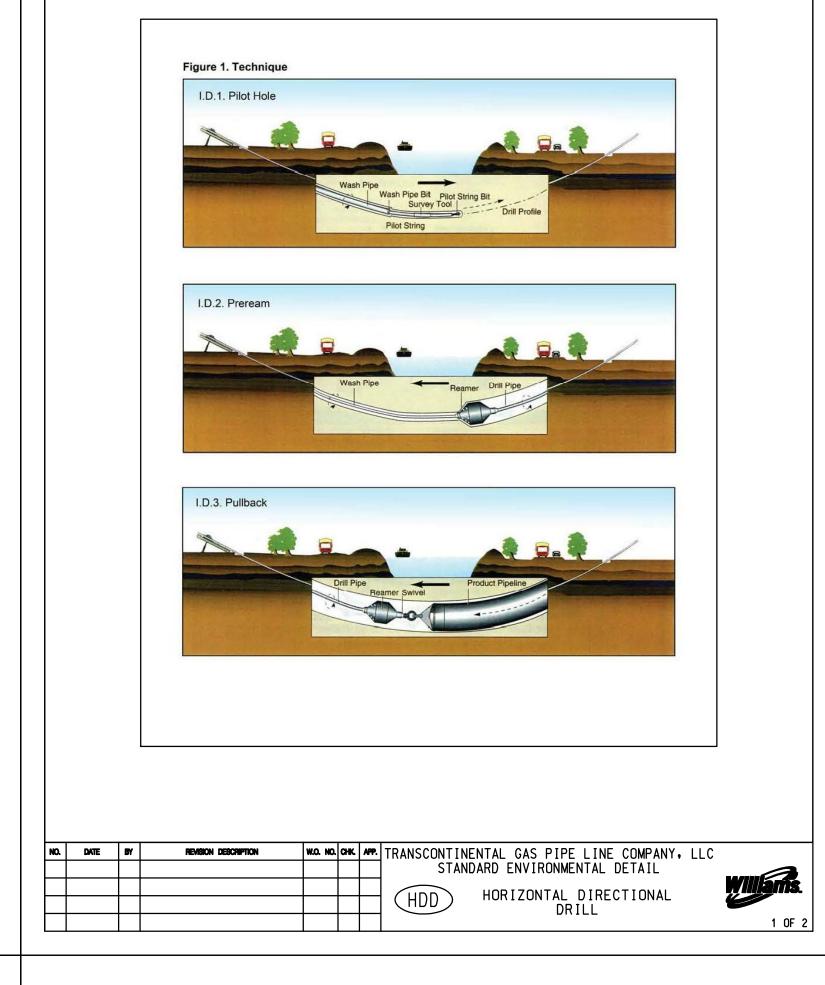
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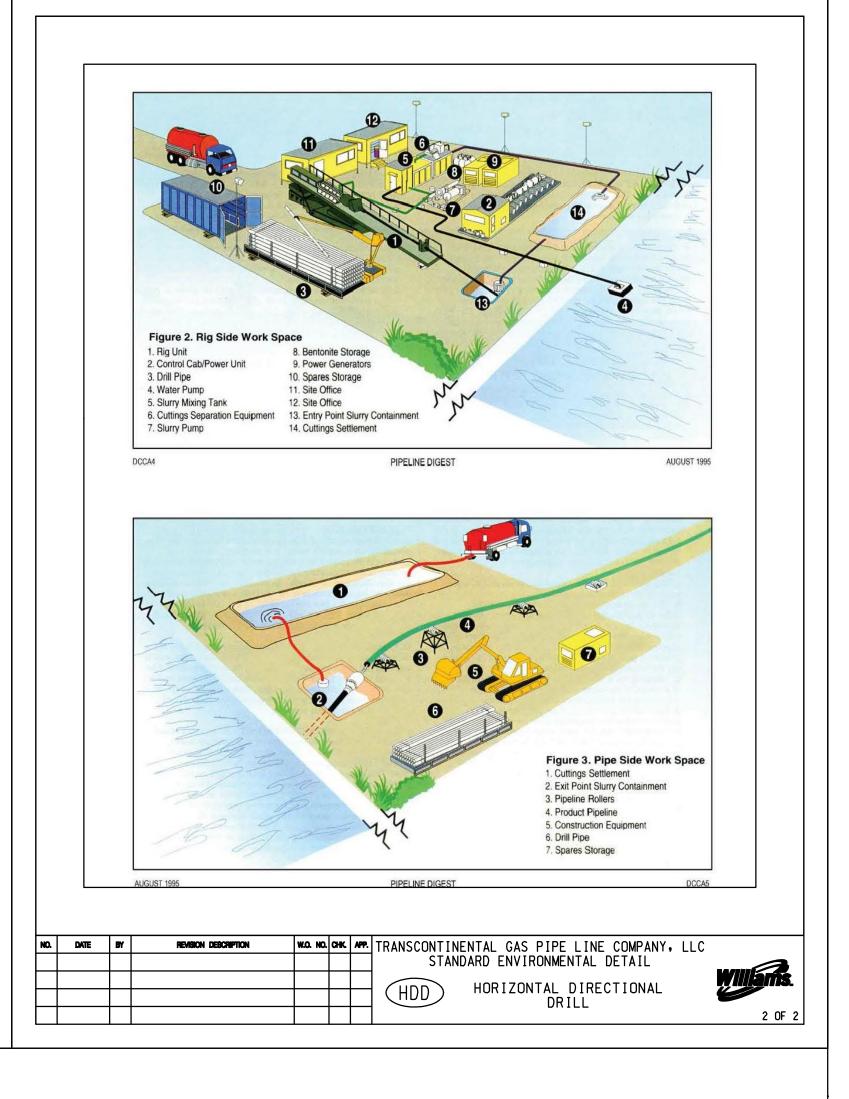
NO. DATE BY

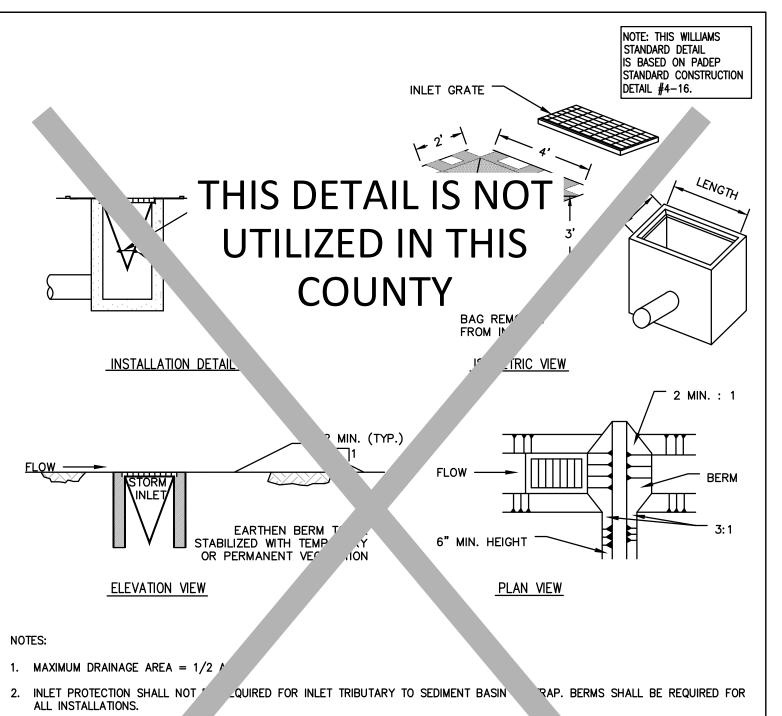
INTO ANY SURFACE WATER.

PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

REVISION DESCRIPTION







ROLLED EARTHEN BERM IN ADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAL BERM SHALL BE

COMPLETED OR REMA' ... AMANENTLY.

S ALL USED BAGS ACCORDING TO THE PLAN NOTES.

6. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

NOT PASSING J. 40 SIEVE.

NO. DATE BY

MAINTAINED UNTIL ROAF IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNI. RMANENT STABILIZATION IS

4. AT A MINIMUM, TO BRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM, TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TO THE NG ALL PARTICLES

INLET FILT AGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL SMPTIED AND

RINSED ... PLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOO. OR BYPASSING

LET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR LACEMENT

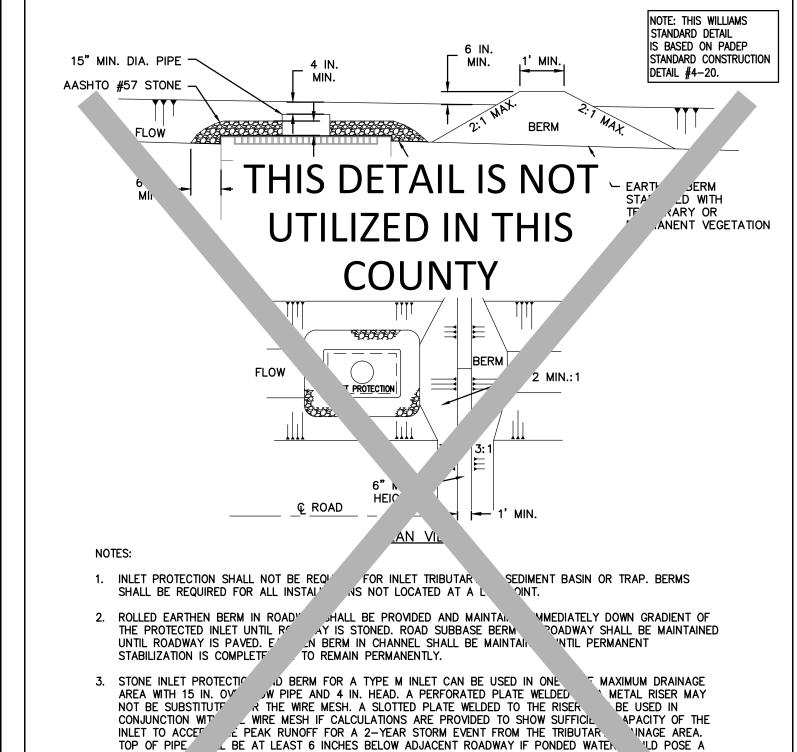
. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATE DIMENT AS

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STANDARD ENVIRONMENTAL DETAIL

FILTER BAG INLET

PROTECTION - TYPE M



4. SEDIMEN ALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED ON GED

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 IN. THICK COMPOST LAYER SHALL BE

RELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN

| W.O. NO. CHK | APP. | TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

STANDARD ENVIRONMENTAL DETAIL

STONE AND CONCRETE INLET

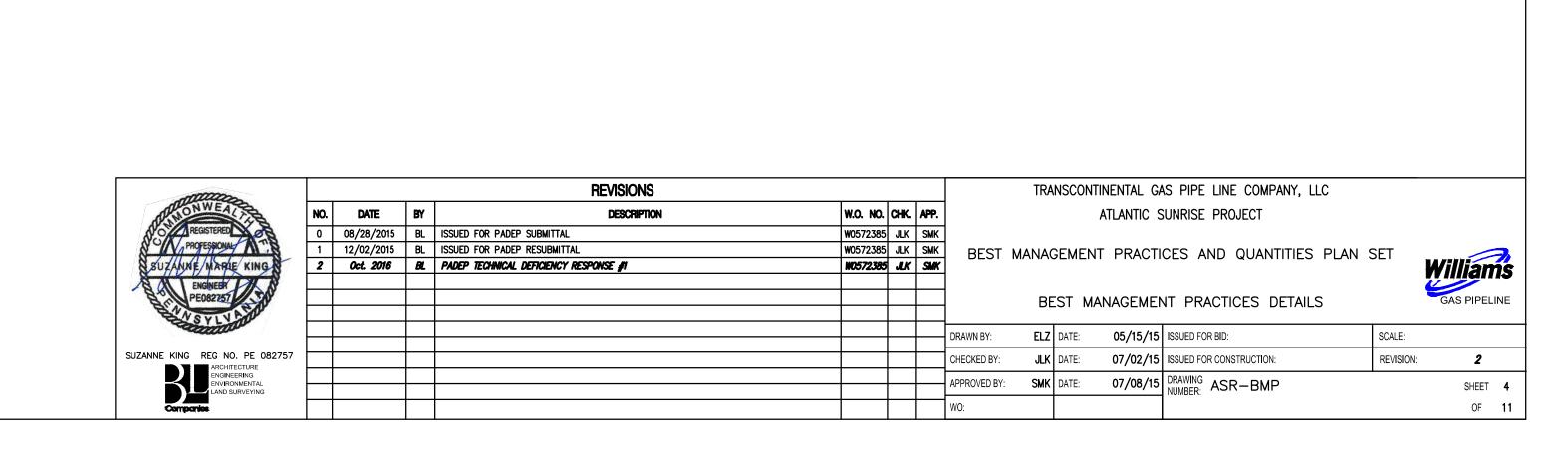
PROTECTION - TYPE M

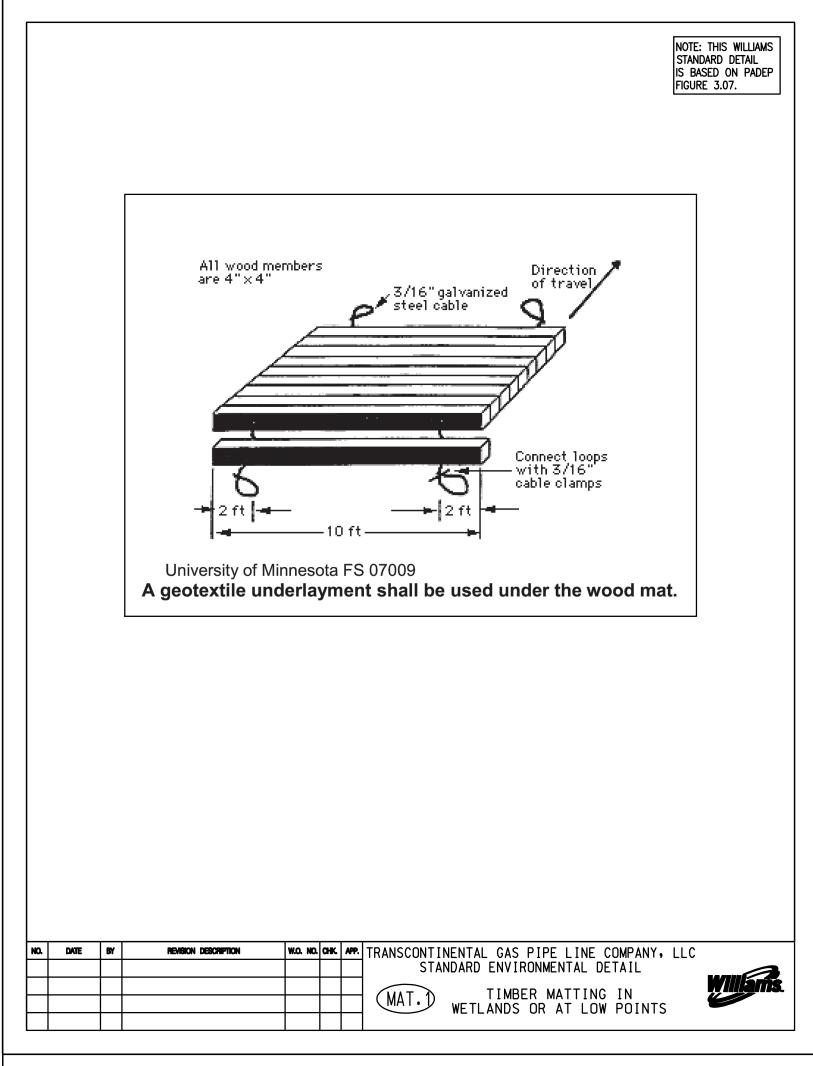
SAFETY HAT TO TRAFFIC. EARTHEN BERM SHALL BE ROLLED.

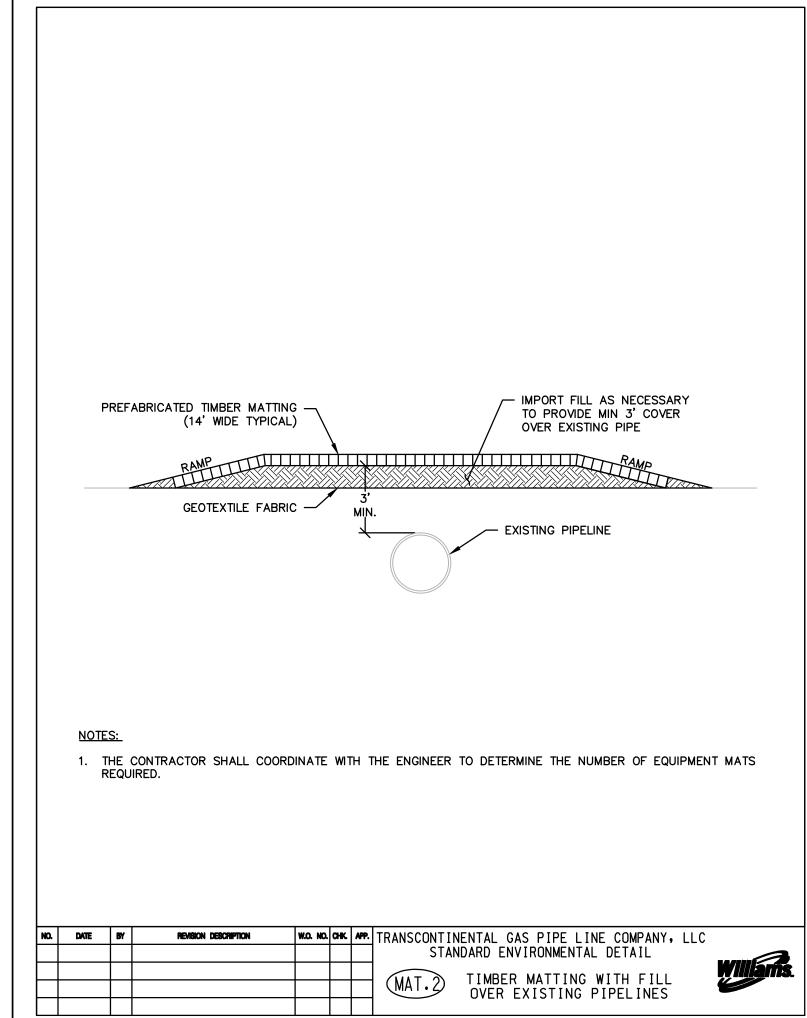
INSTA' JNS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

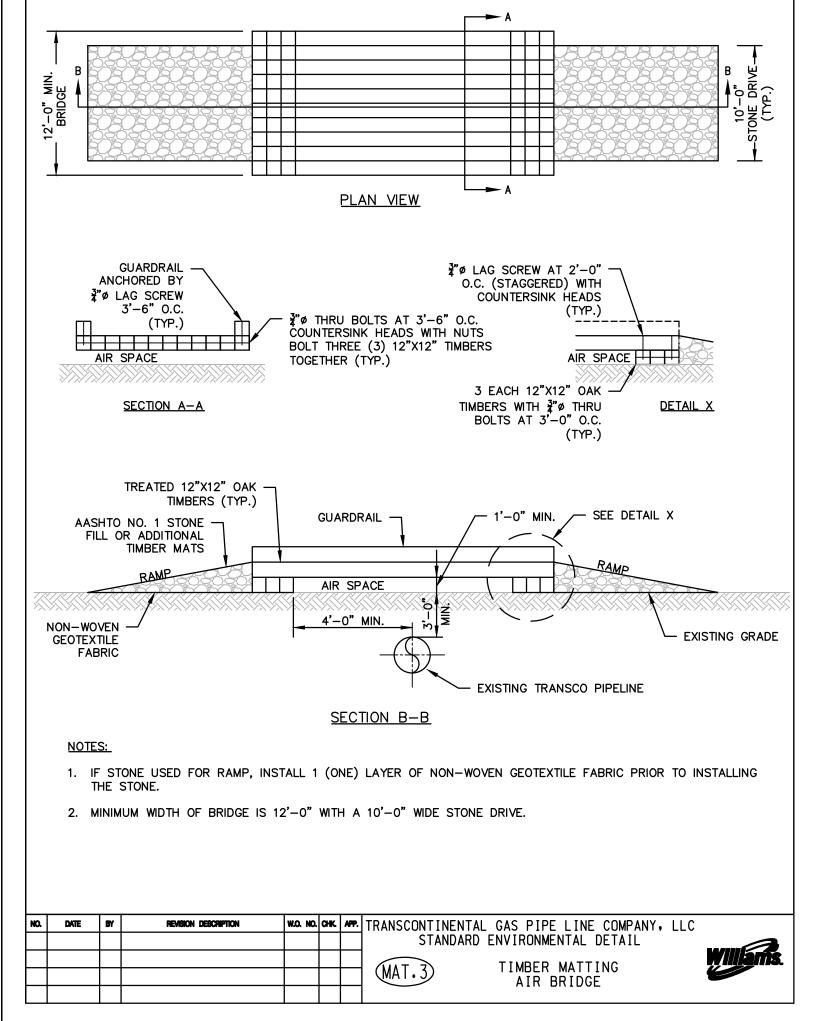
JLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

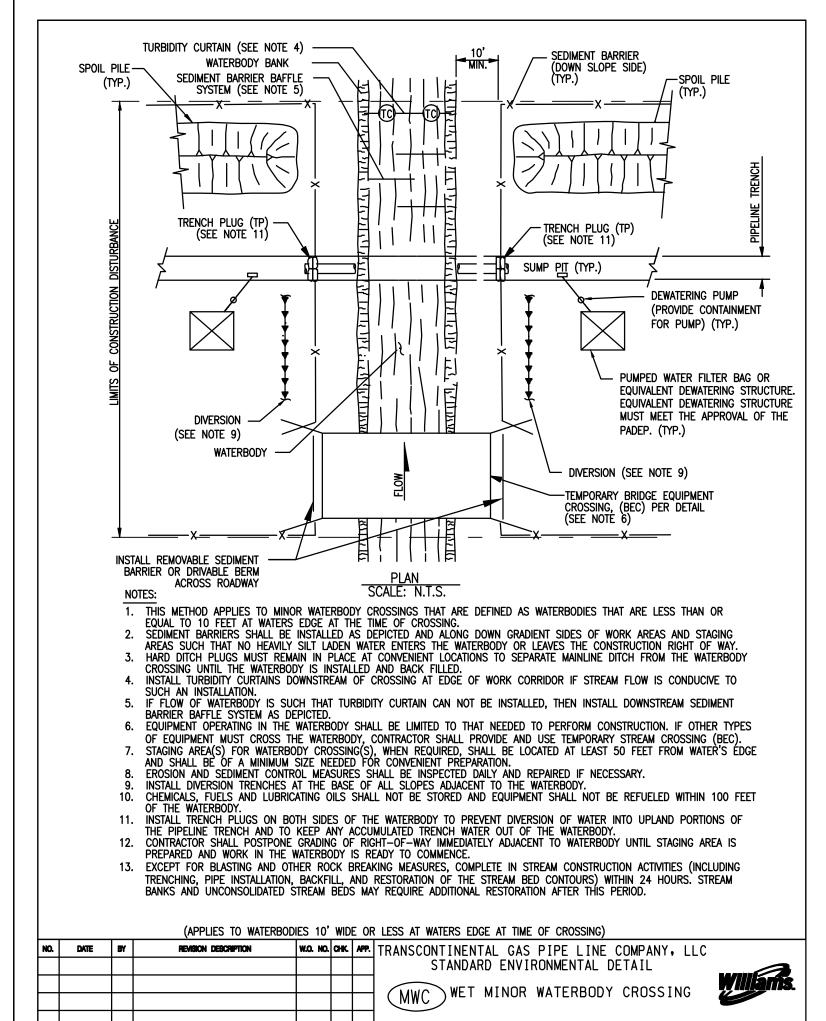
REVISION DESCRIPTION

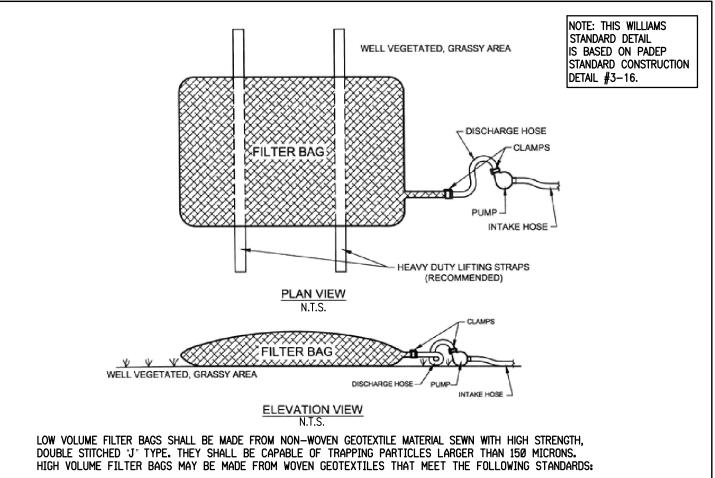












TEST METHOD PROPERTY MINIMUM STANDARD AVG. WIDE WIDTH STRENGTH ASTM D-4884 60 LB/IN **GRAB TENSILE** ASTM D-4632 205 LB PUNCTURE ASTM D-4833 110 LB

ASTM D-4355 UV RESISTANCE A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS TO BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

ASTM D-3786

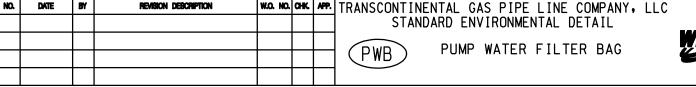
BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

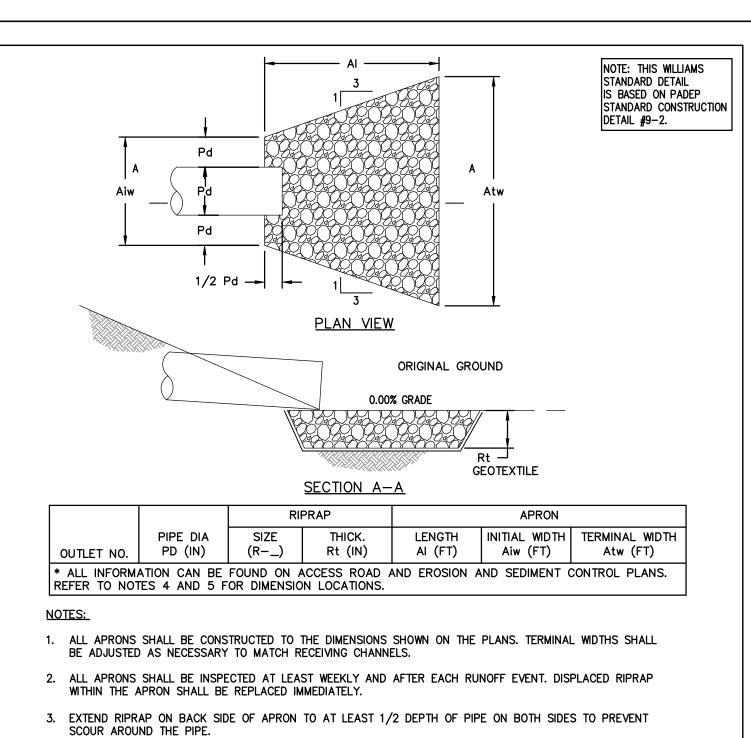
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ½ THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

350 PSI





WHERE: L = LENGTH OF APRON OR "AI" AS SHOWN IN THE PLAN VIEW ABOVE D = DEPTH OF RIP RAP OR "Rt" AS SHOWN IN THE SECTION ABOVE

DIMENSIONS LOCATED ON TABLE 2: TEMPORARY CLEAN WATER DIVERSION SUMMARY: a. RIP RAP SIZE (R-_) UNDER WATERBODY AND FLUME (CLEAN WATER CROSSING)

c. APRON TERMINAL WIDTH (Atw) IS EQUAL TO LEVEL SPREADER LENGTH

SHOWN IN THE PLAN VIEW ABOVE

DIMENSIONS LOCATED ON CLEAN WATER CROSSING DETAIL

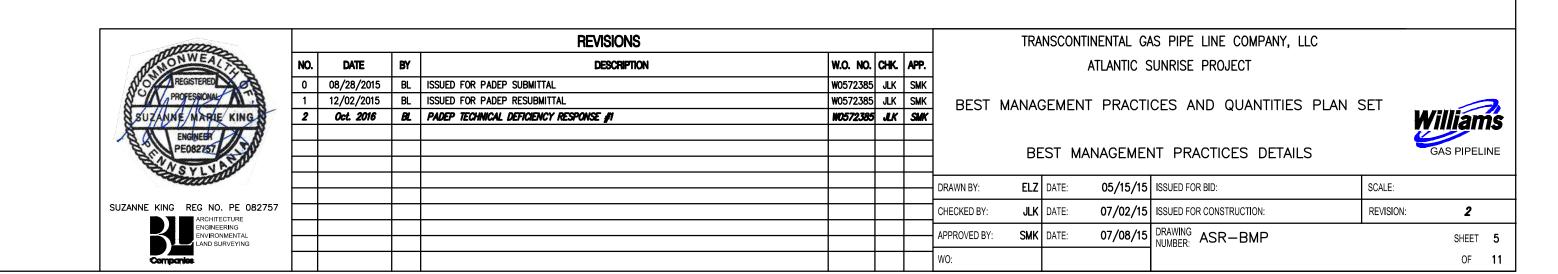
FILTER SOCK DIVERSIONS.

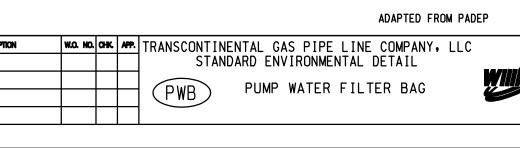
a. RIP RAP THICKNESS (Rt)

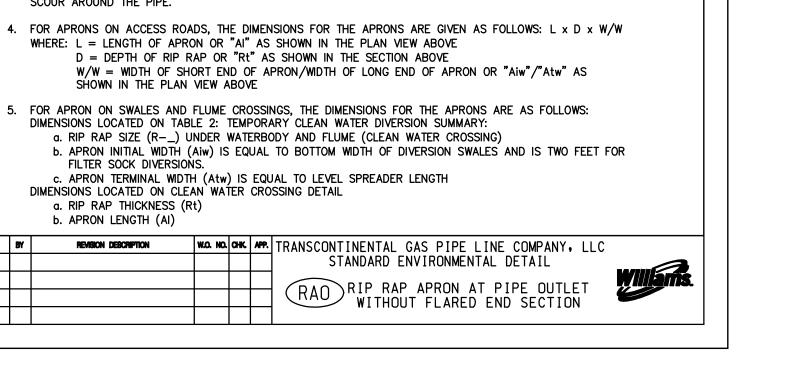
b. APRON LENGTH (AI)

REVISION DESCRIPTION

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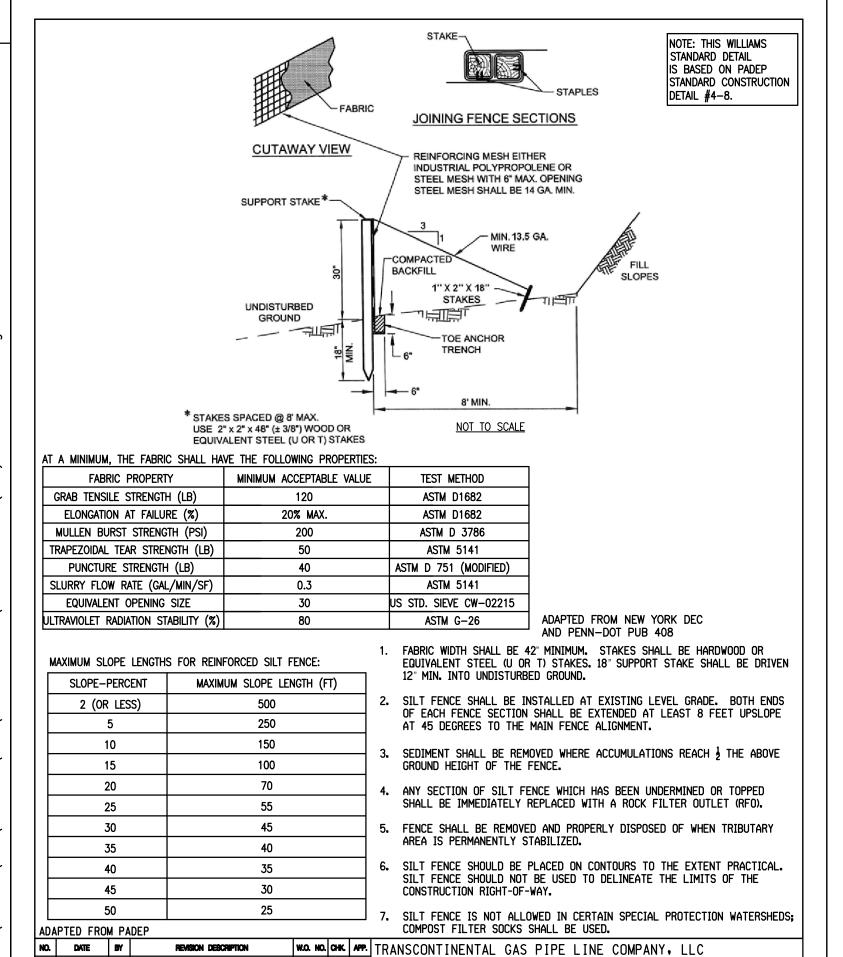
1 This is a general standard. Soil conditions at each site should be analyzed to determine actual filter size. A suitable woven or non-woven geotextile underlayment, used according to the manufacturer's recommendations, may be substituted for the filter stone for gradients < 10%.

Comparison of Various Gradations of Coarse Aggregates

AASHTO NUMBER	6 1/2	4"	3 1/2"	2 1/2	2"	1 ½ "	1"	3/4 "	1/2"	3/8"	#4	#8	#16	#30	#100
1		100	90-100	25-60		0-15		0-5							
3	8			100	90-100	35-70	0-15		0-5						
5						100	90-100	20-55	0-10	0-5					
57						100	90-100		25-60		0-10	0-5			
67							100	90-100		20-55	0-10	0-5			
7								100	90-100	40-70	0-15	0-5			
8			1		72		7		100	85-100	10-30	0-10	0-5		
10			-			100	9	1		100	75-100				10-3

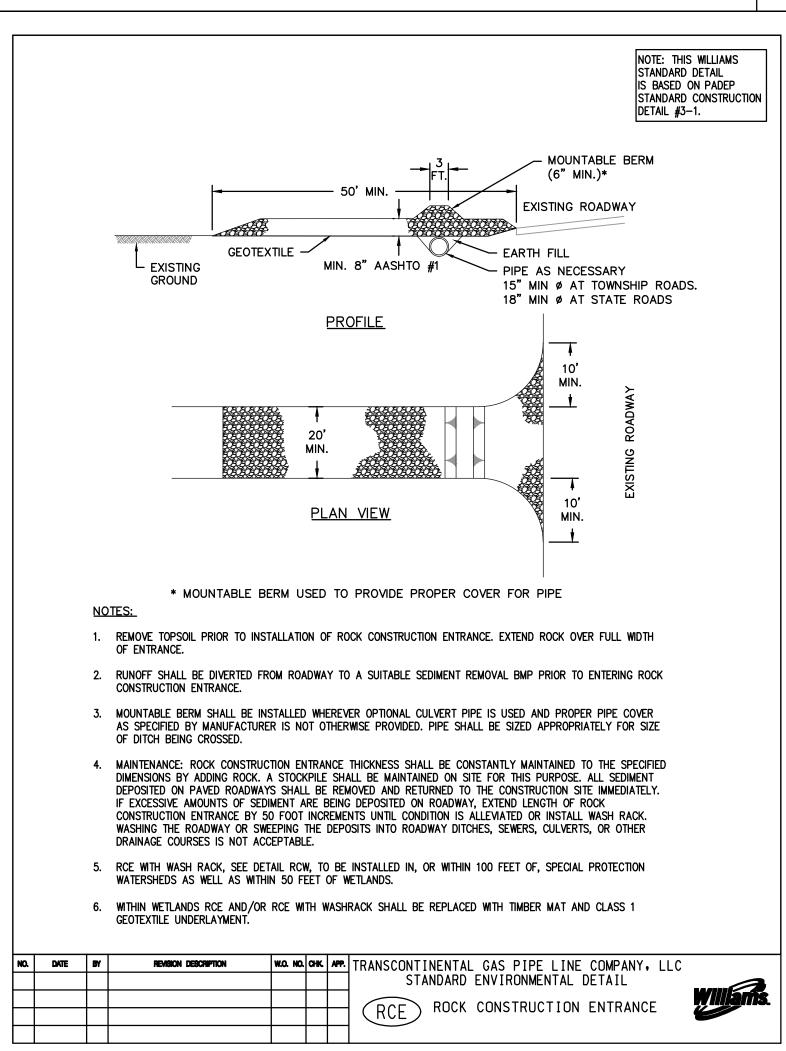
7		1 6		100	90-100	40-70	0-15	0-5		
8	7) 71	77.	0		100	85-100	10-30	0-10	0-5	
10	8		0			100	75-100			10-30

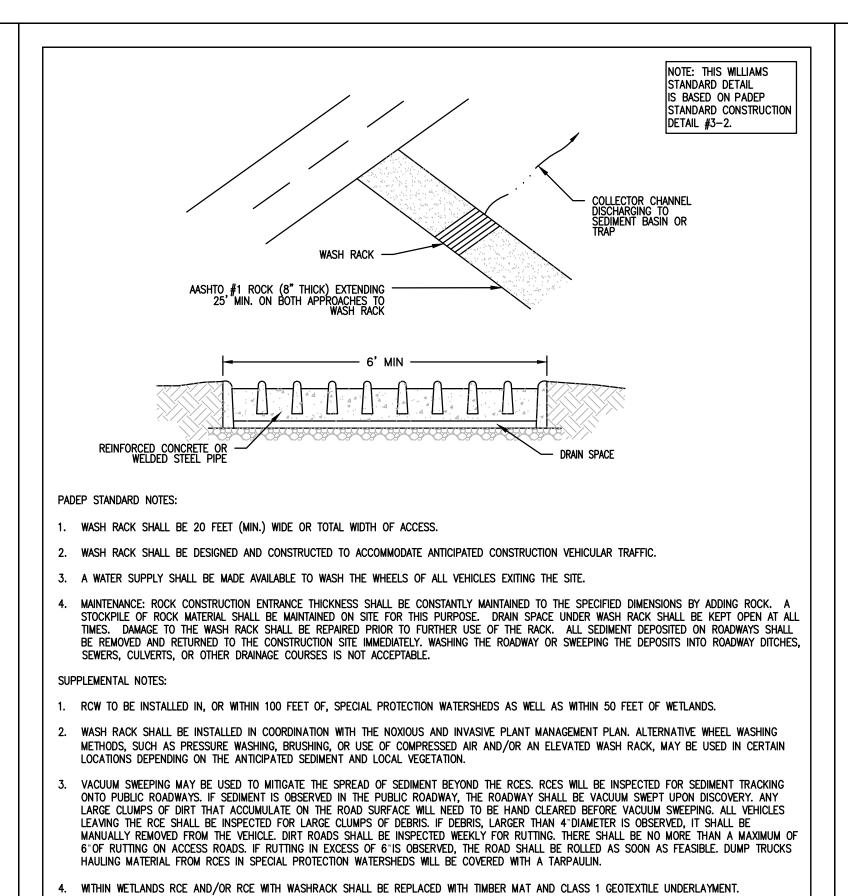
DATE BY REVISION DESCRIPTION W.O. NO. CHK APP. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL RIP RAP GRADATION RAP



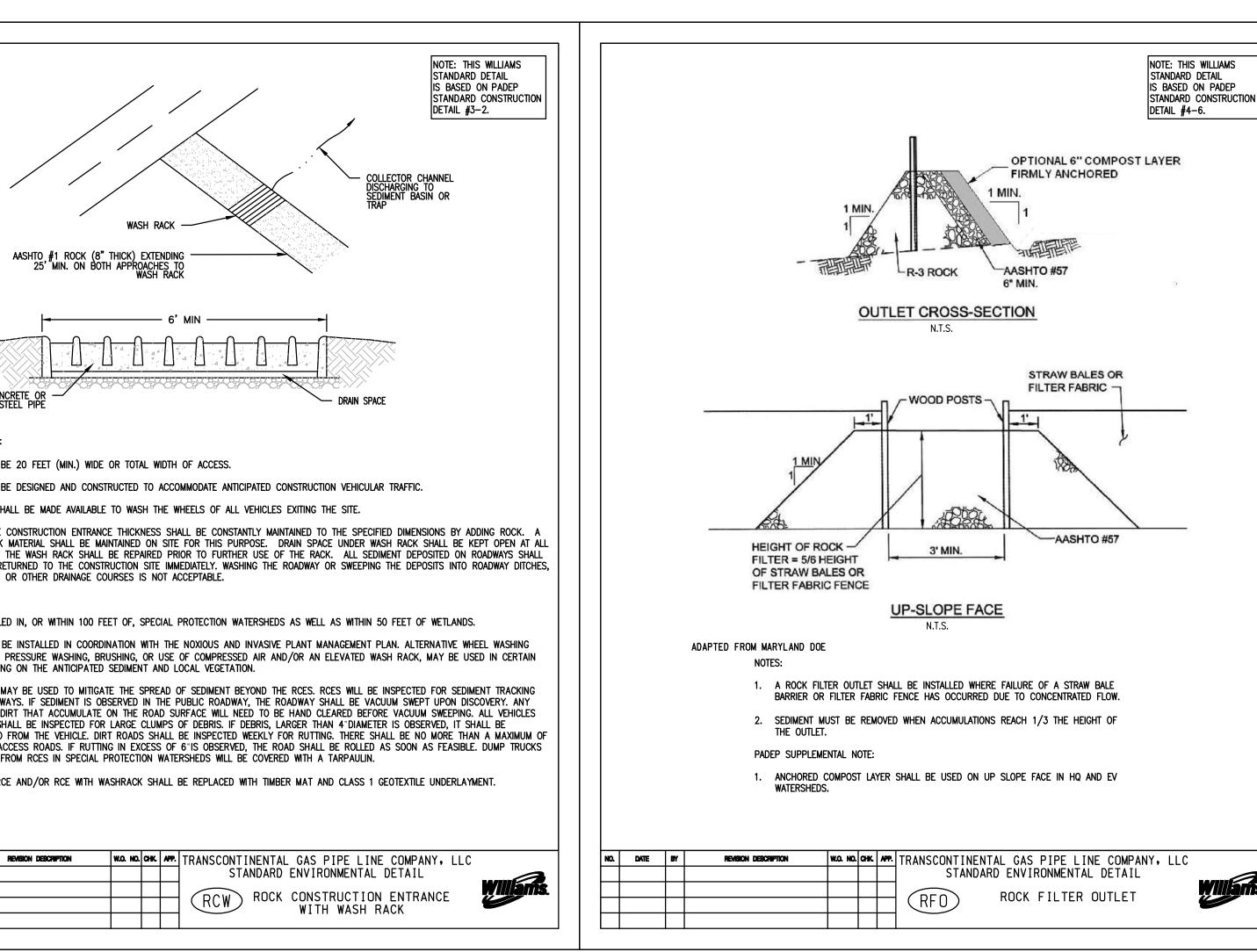
STANDARD ENVIRONMENTAL DETAIL

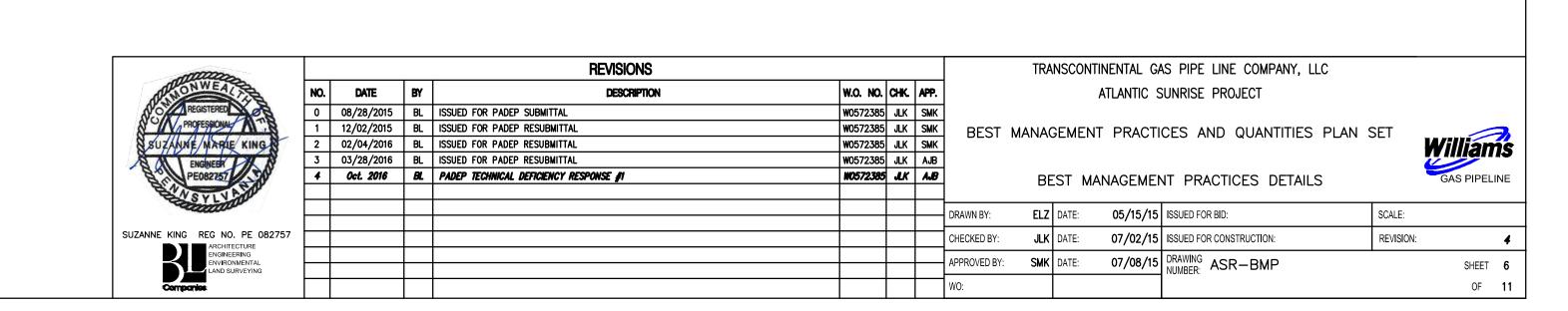
REINFORCED SILT FENCE (30" HIGH)

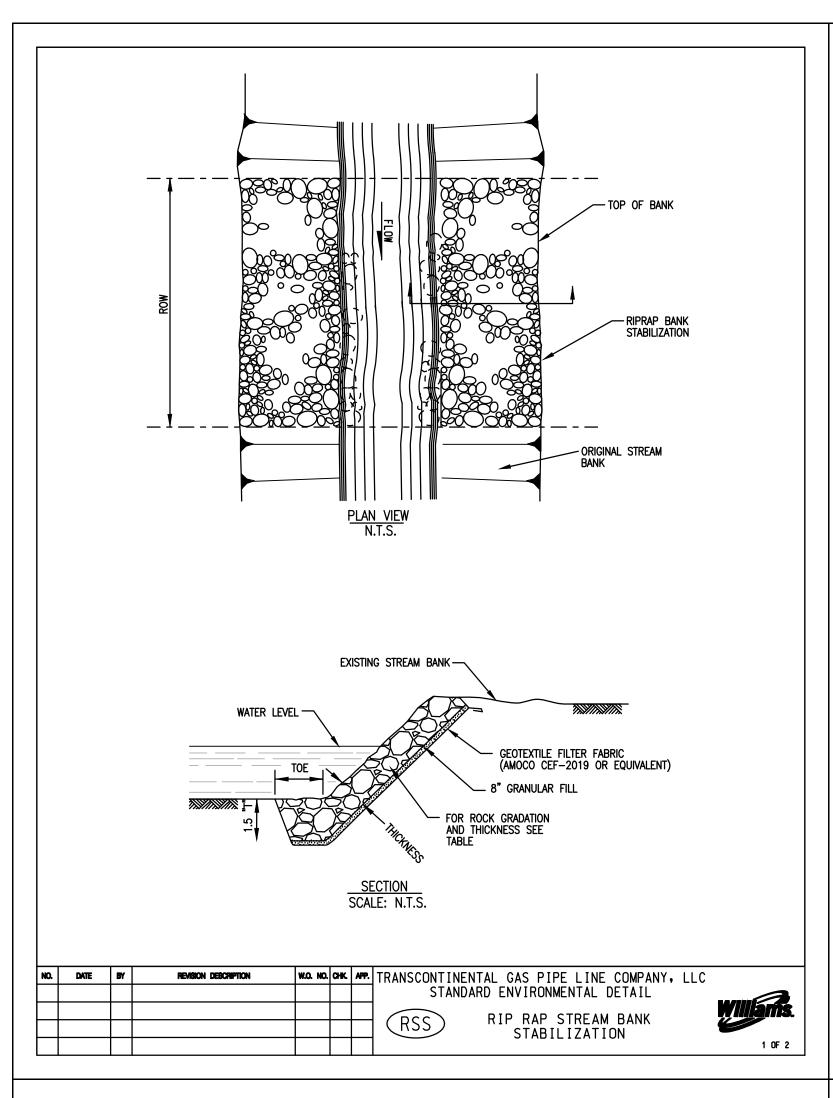


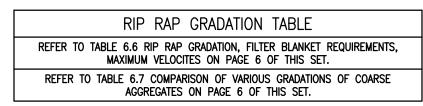


NO. DATE BY









- ROCK UTILIZED FOR RIPRAP SHALL CONSIST OF SOUND, DURABLE ROCK, INSOLUBLE IN WATER, AND RESISTANT TO WEATHERING.
- 2. ALL MATERIAL SHALL BE FREE OF STRUCTURAL DEFECTS, SHALE SEAMS AND ORGANIC MATTER.
- INDIVIDUAL PIECES SHOULD BE SHARPLY ANGULAR, BLOCK SHAPED AND HAVE A MINIMUM SPECIFIC GRAVITY OF 2.5.
- 4. NO PIECE SHALL HAVE A LENGTH EXCEEDING THREE (3) TIMES ITS WIDTH OR DEPTH.
- EACH LOAD OF ROCK SHALL BE OF WELL-GRADED MIXTURE. A WELL-GRADED MIXTURE, AS USED HEREIN, IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE, BUT WITH A SUFFICIENT MIXTURE OF SMALLER SIZES TO FILL THE VOIDS.
- MATERIAL SHALL MEET NSA SPECIFICATIONS SEE TABLE ABOVE.
- 7. IF STREAM WIDTH IS EQUAL TO OR LESS THAN 2 TIMES THE TOE WIDTH, RIPRAP SHALL BE PLACED ACROSS THE ENTIRE STREAM WIDTH.
- RIPRAP SHALL BE PLACED TO THE FULL COURSE THICKNESS IN ONE CONTINUOUS OPERATION. OPERATIONS WHICH CAUSE SEGREGATION OF THE MATERIALS SHALL NOT BE PERMITTED. INDIVIDUAL ROCKS MAY BE REARRANGED, AND THE VOIDS FILLED WITH HAND PLACED SMALLER ROCK IN ORDER TO ACHIEVE THE DESIRED UNIFORM ARMOR.
- SLOPE SHALL BE GRADED TO 2:1 OR FLATTER PRIOR TO PLACING GRANULAR FILL, FILTER FABRIC, OR RIPRAP.
- 10. ENDS OF THE RIPRAP SHALL BE KEYED INTO A STABLE BANK. WHEN TYING INTO OTHER STRUCTURES, LARGER RIPRAP CAN BE LAID IN STEPS OR STACKED AS NEEDED TO FIT. STONES LARGER THAN THOSE DESIGNED FOR FLOW SHALL BE USED FOR THIS PURPOSE.

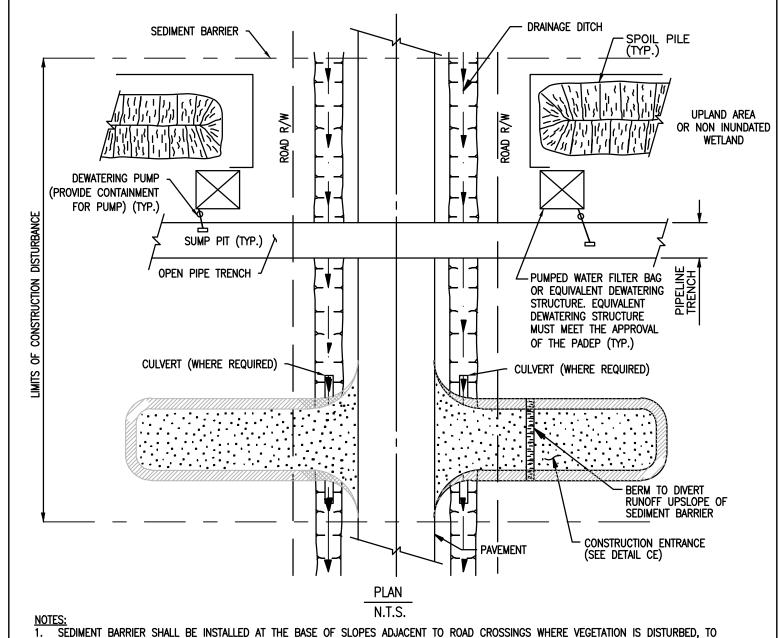
RIP RAP STREAM BANK

STABILIZATION

2 OF 2

11. REMAINING DISTURBED AREAS SHALL BE GRADED AND PERMANENTLY SEEDED AND MULCHED.

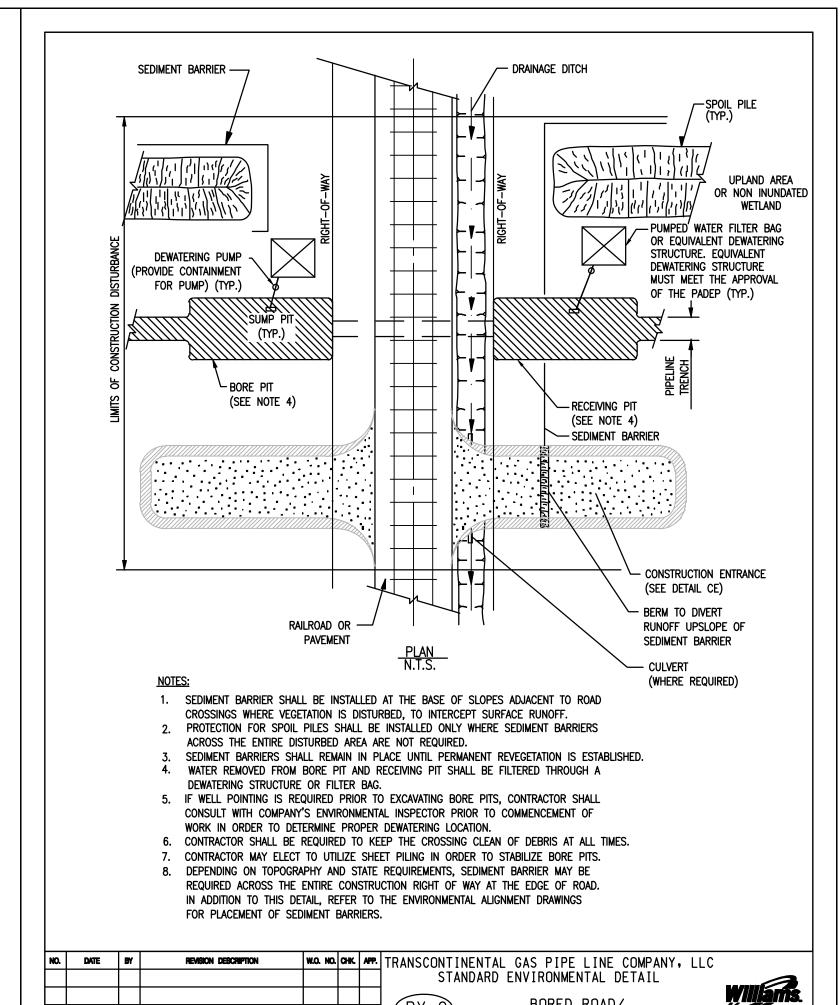
DATE	BY	REVISION DESCRIPTION	W.O. NO	снк.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
						STANDARD ENVIRONMENTAL DETAIL



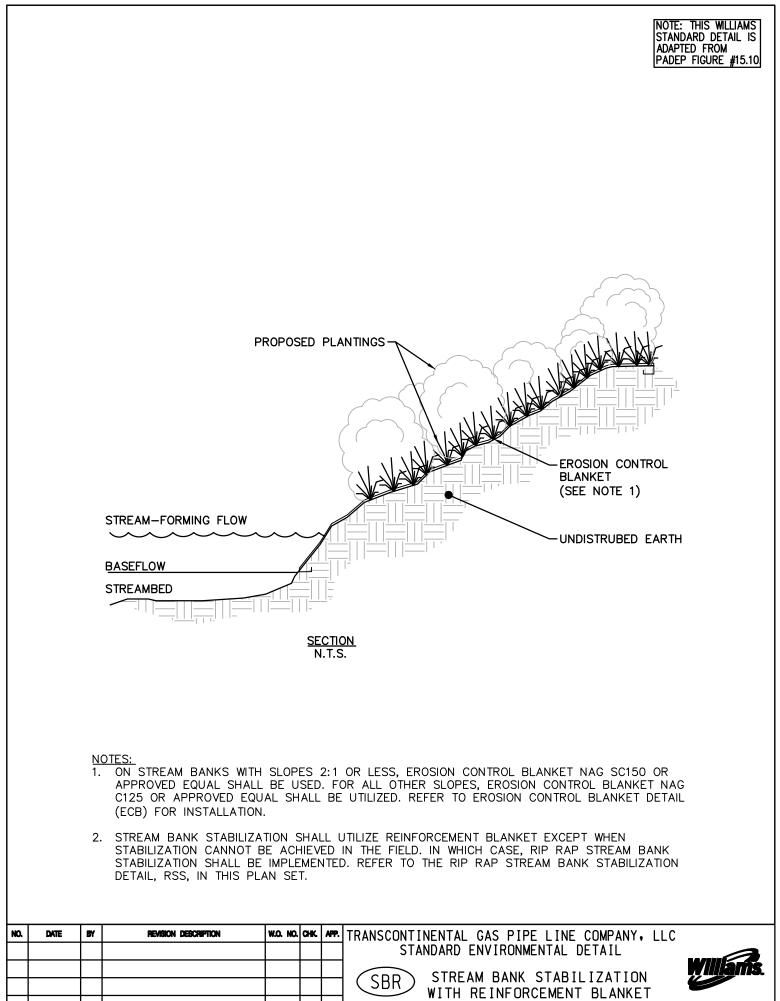
INTERCEPT SURFACE RUNOFF. TEMPORARILY RELOCATE SEDIMENT BARRIERS WITHIN LIMITS OF TRENCH OPENING AS NEEDED TO INSTALL PIPE. IMMEDIATELY REPLACE BARRIERS AFTER BACKFILLING TRENCH.

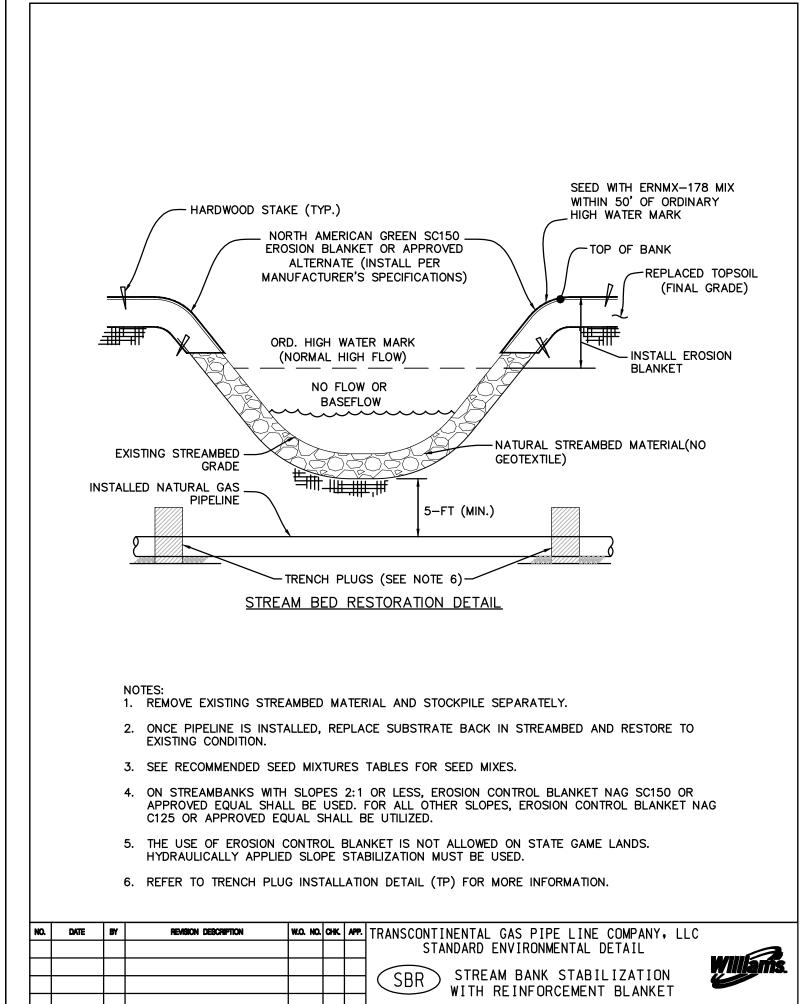
- 2. PROTECTION FOR SPOIL PILES SHALL BE INSTALLED ONLY WHERE SEDIMENT BARRIERS ACROSS THE ENTIRE DISTURBED AREA ARE NOT REQUIRED.
- 3. SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL PERMANENT REVEGETATION IS ESTABLISHED.
- 4. CULVERTS TO BE SIZED AND PLACED WHERE REQUIRED TO MAINTAIN WATER FLOW.
- 5. CONTRACTOR SHALL BE REQUIRED TO KEEP THE ROAD CLEAN OF DEBRIS AT ALL TIMES.
- 6. CONTRACTOR MAY ELECT TO UTILIZE SHEET PILING IN ORDER TO STABILIZE PIPE TRENCH.
- 7. CONTRACTOR MAY ELECT TO UTILIZE WELL-POINTS IN ORDER TO REDUCE THE WATER TABLE PRIOR TO COMMENCING EXCAVATION.
- 8. DEPENDING ON TOPOGRAPHY AND STATE REQUIREMENTS, SEDIMENT BARRIER MAY BE REQUIRED ACROSS THE ENTIRE CONSTRUCTION RIGHT-OF-WAY AT THE EDGE OF ROAD. IN ADDITION TO THIS DETAIL, REFER TO THE ENVIRONMENTAL ALIGNMENT DRAWINGS FOR PLACEMENT OF SEDIMENT BARRIERS.
- 9. CONSTRUCTION ENTRANCE NEEDED AS SHOWN ON SPECIFIC PLAN.

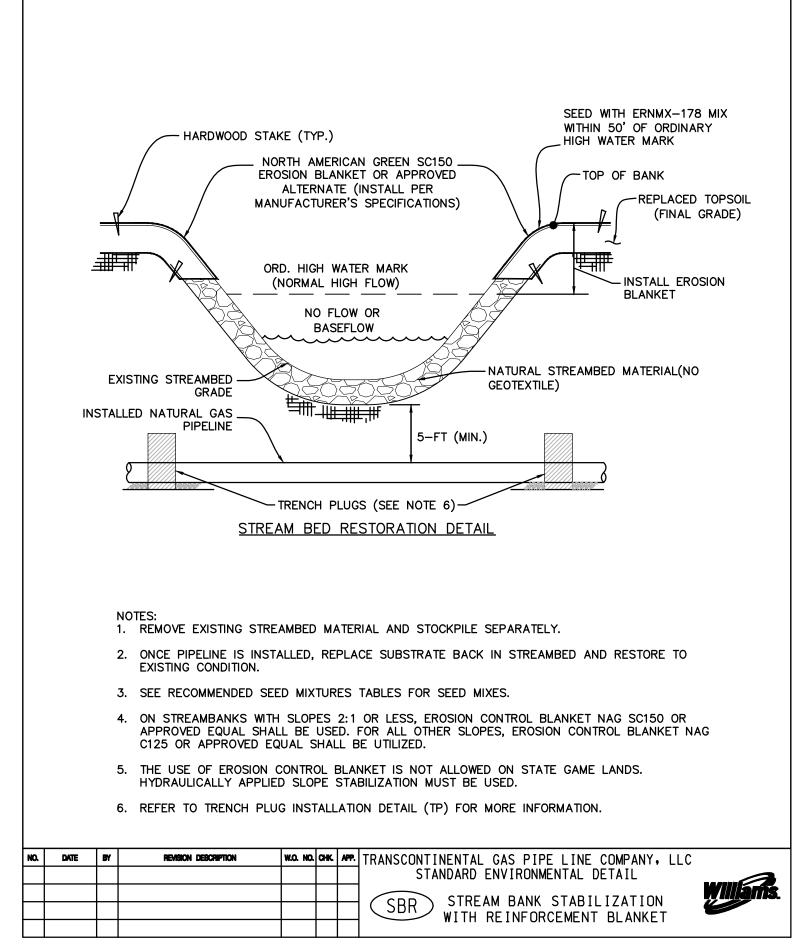
 BY	REVISION DESCRIPTION	W.O. NO	. СНК.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
					STANDARD ENVIRONMENTAL DETAIL
					DV 1) TRENCHED ROAD CROSSING
					RX.1) THENCHED ROAD CROSSING

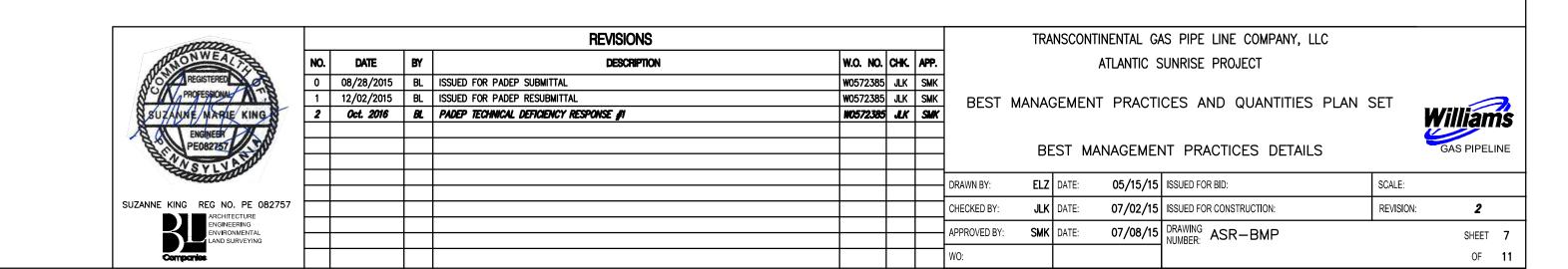


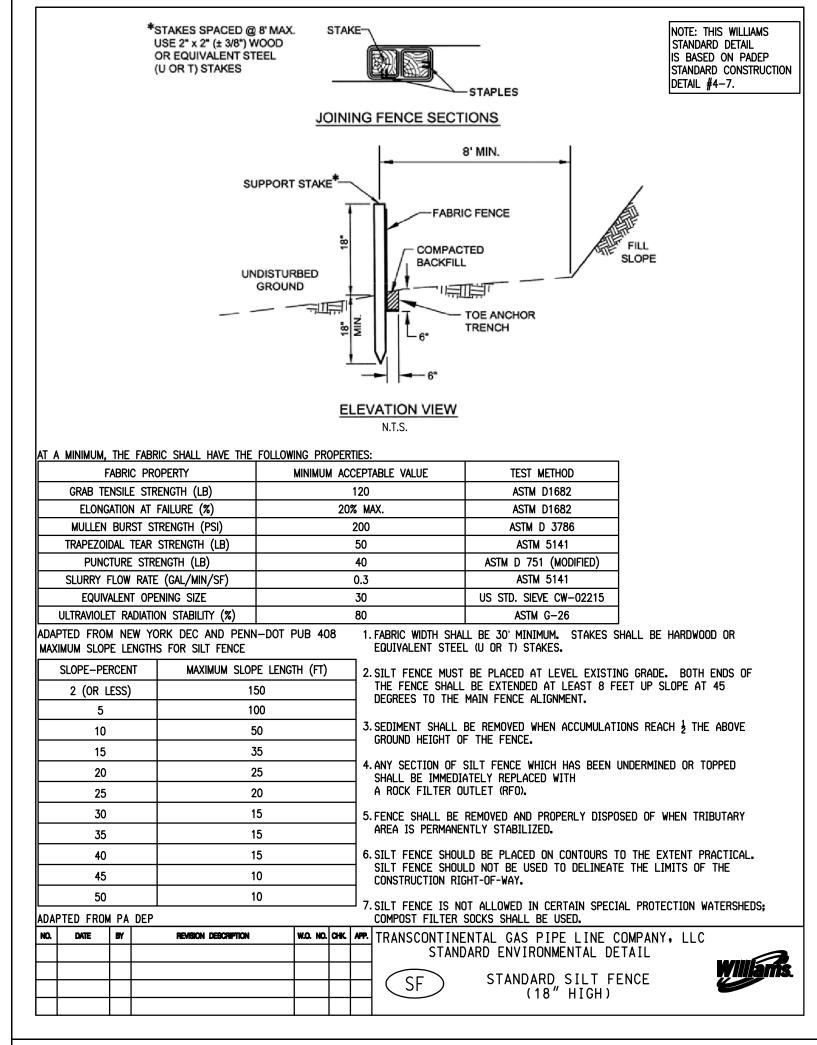
RAILROAD CROSSING

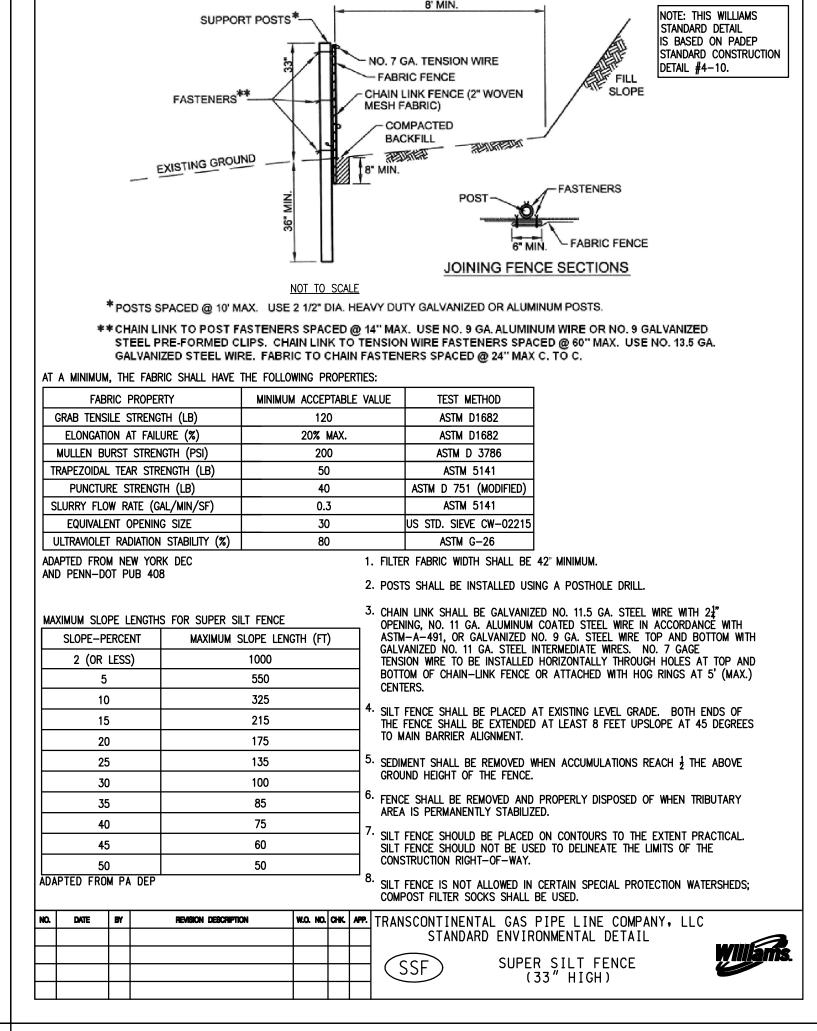


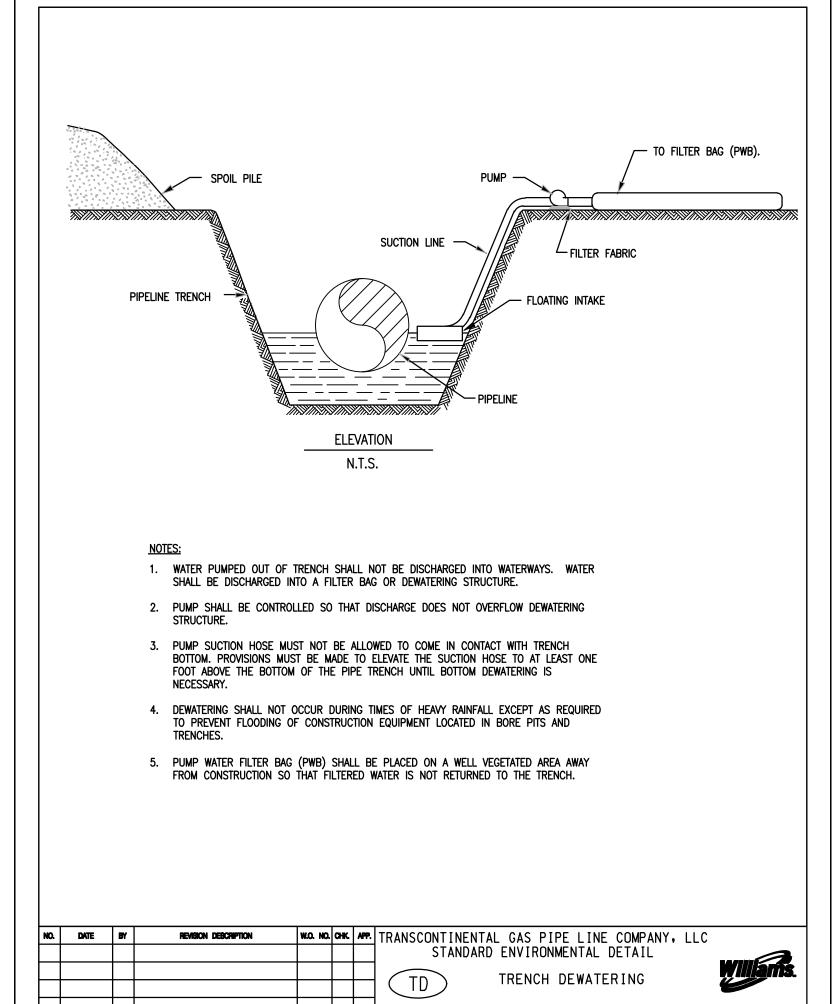


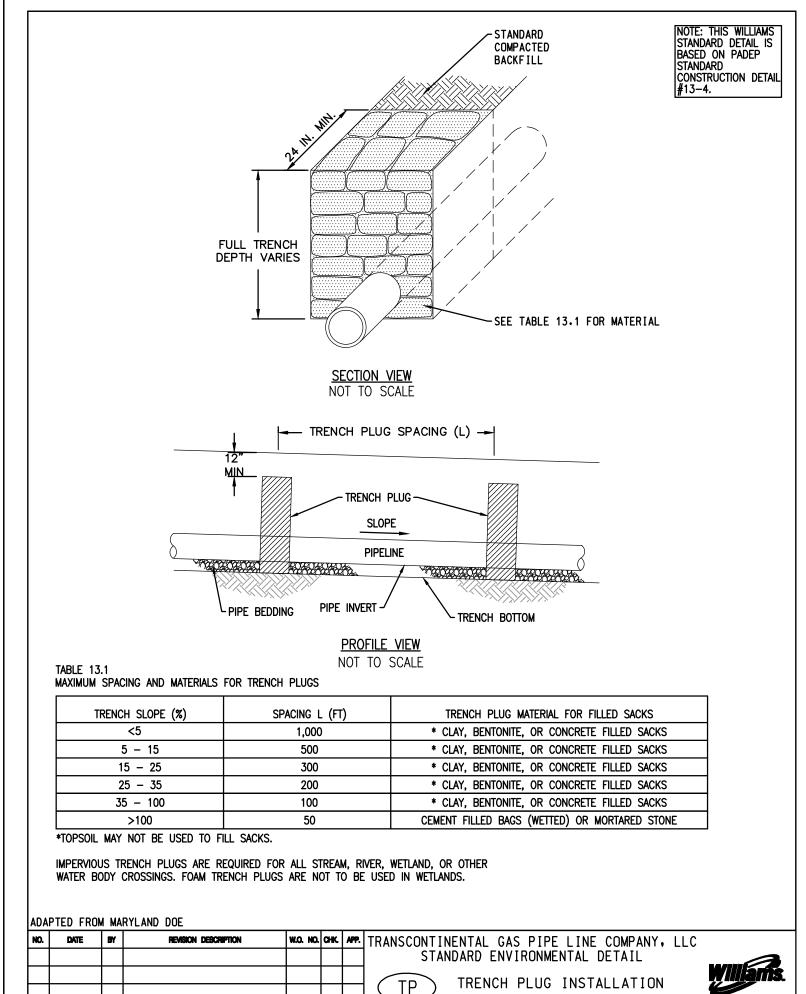


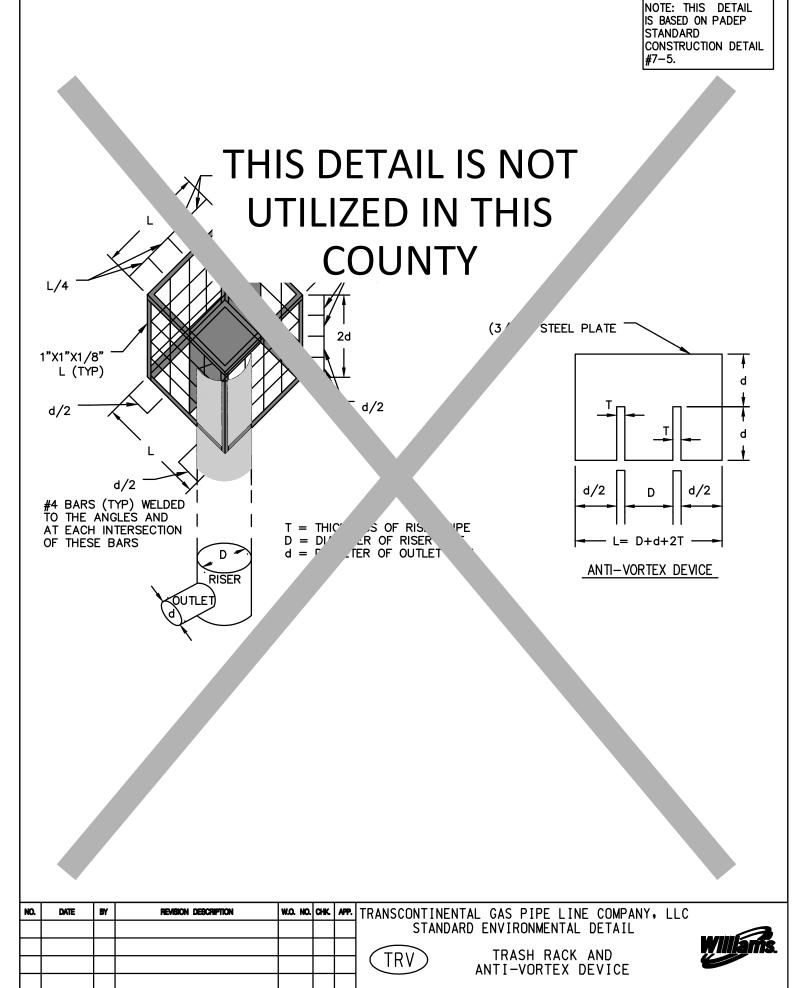


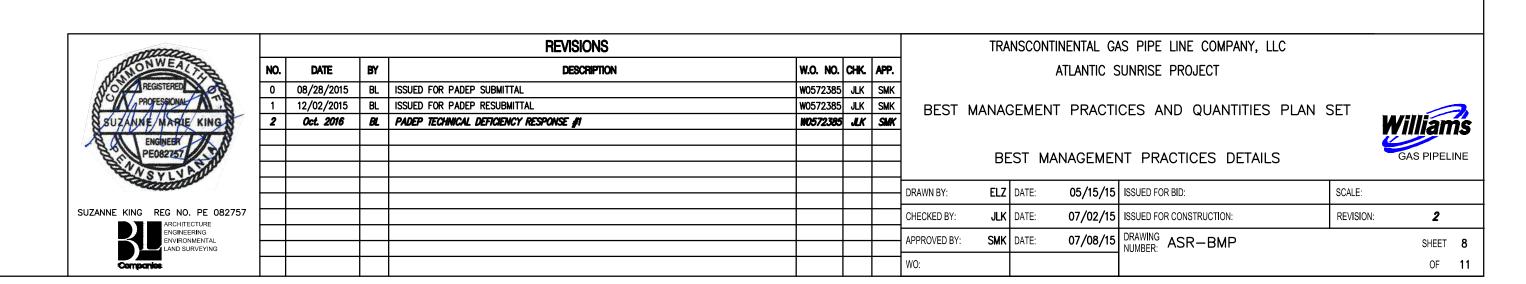


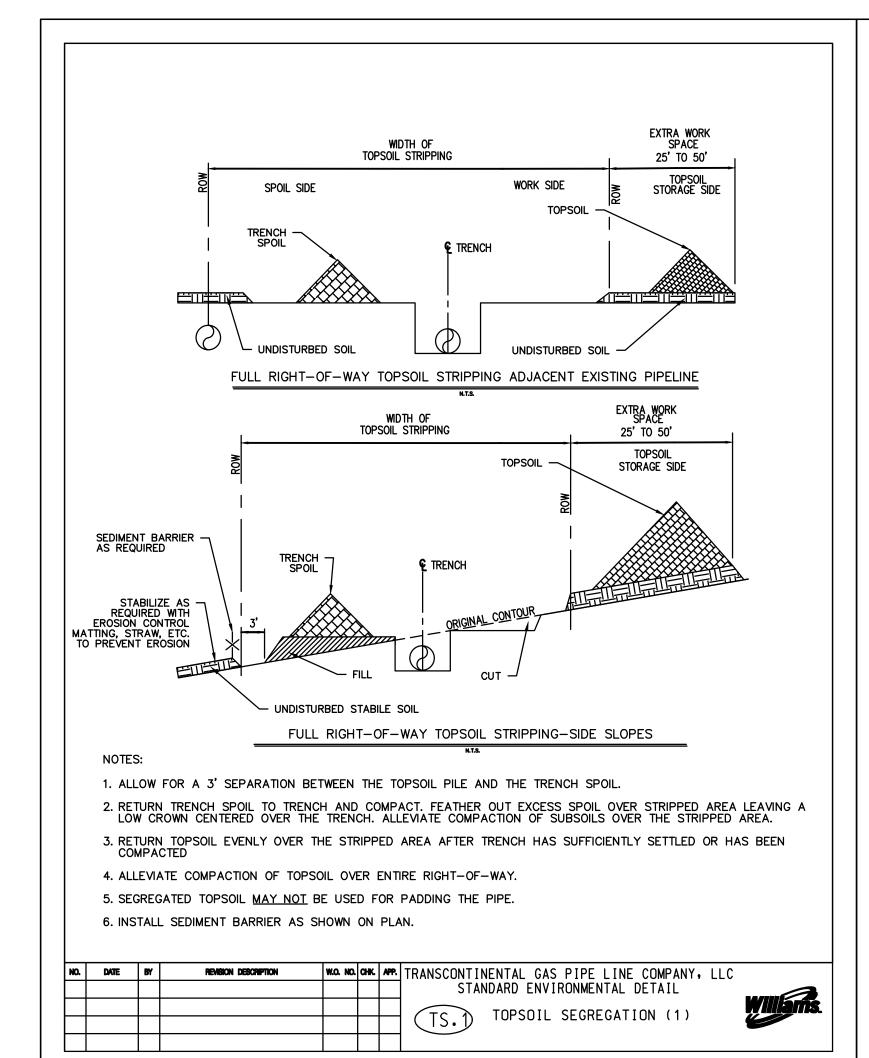


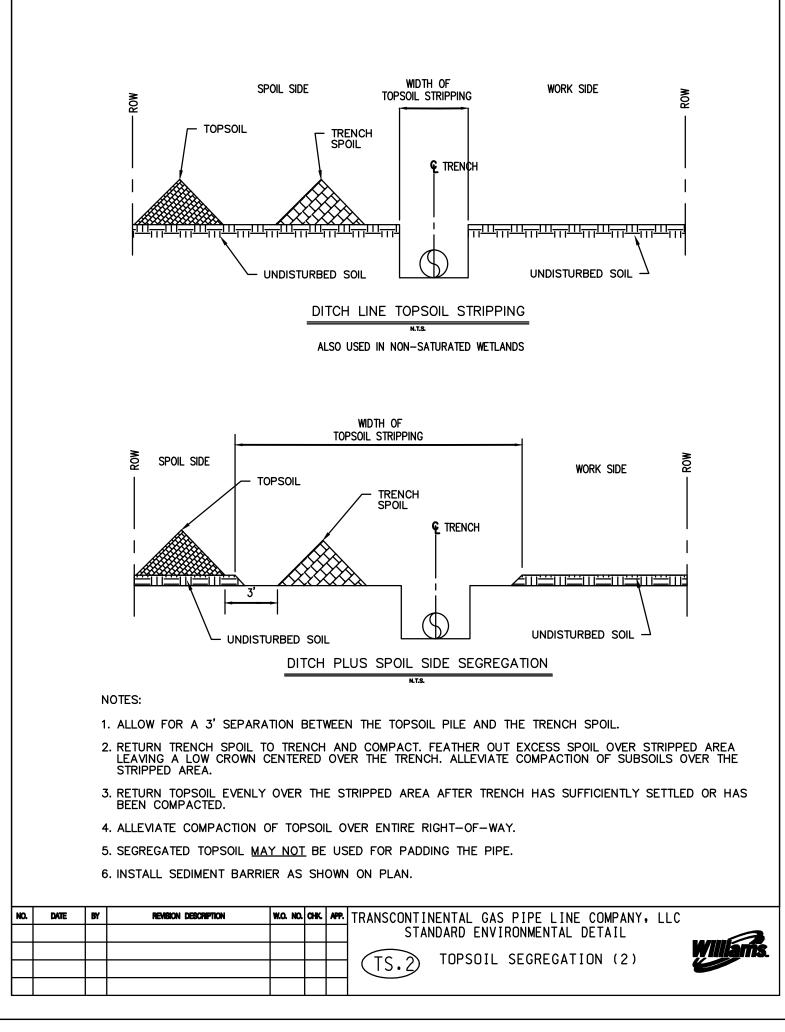


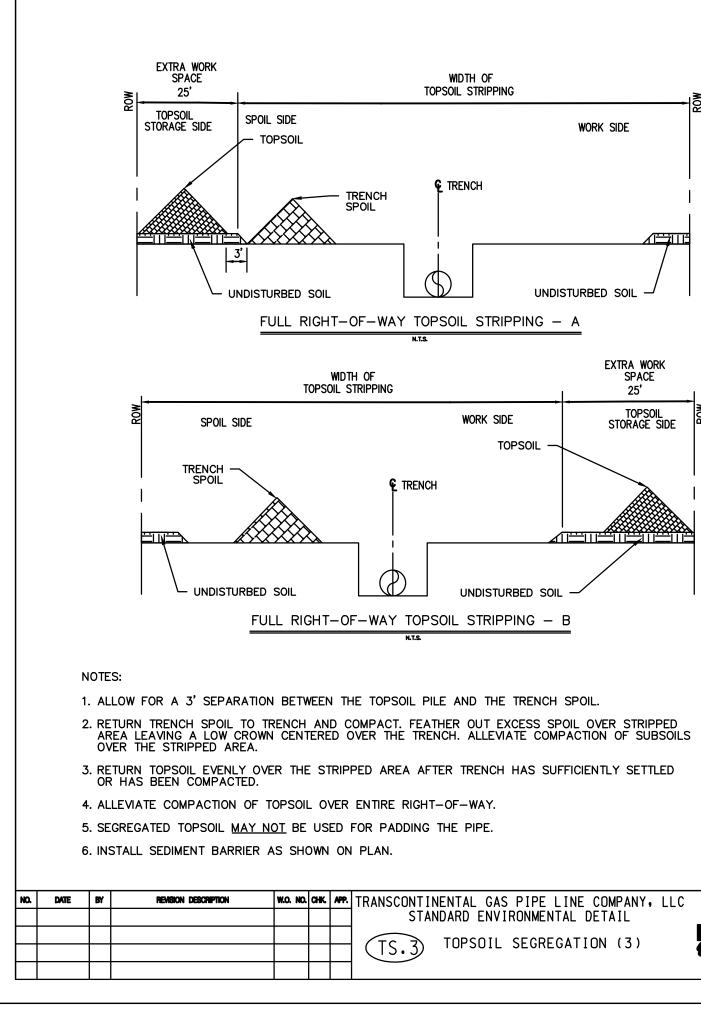


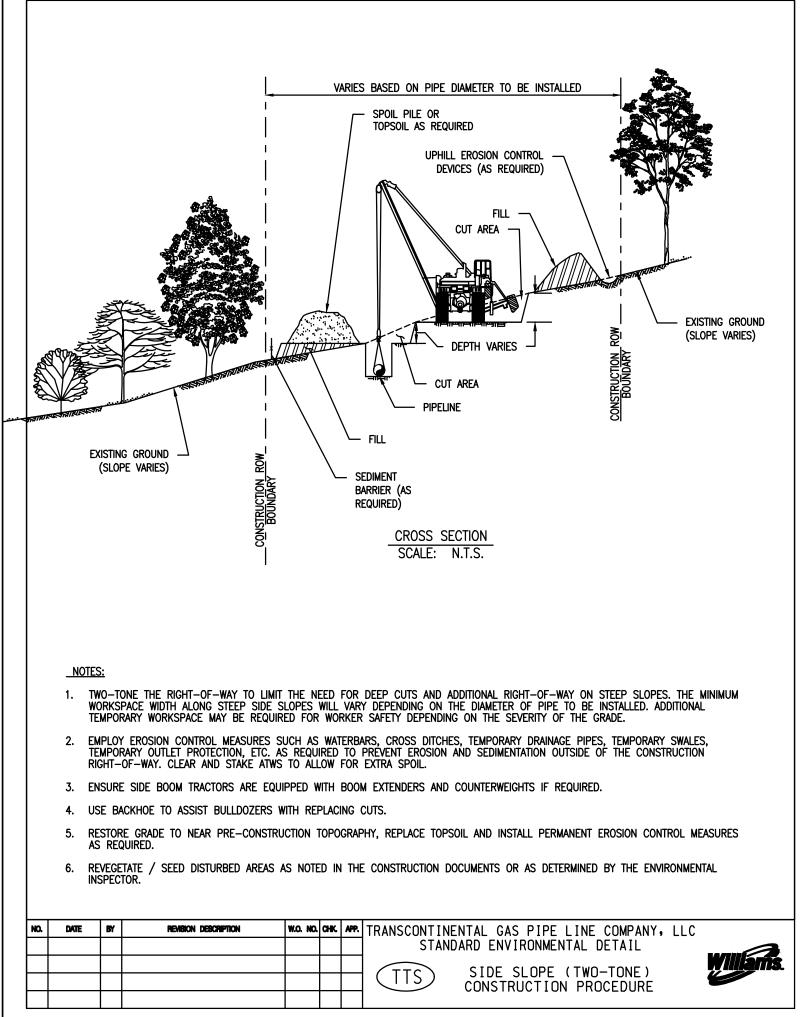


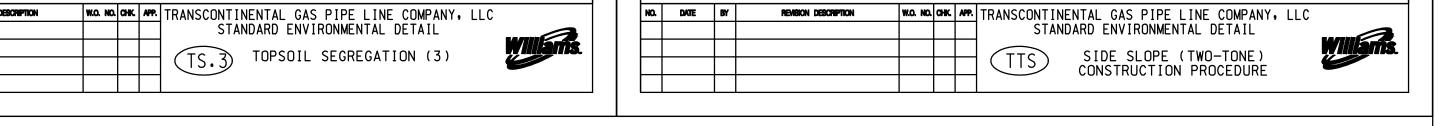


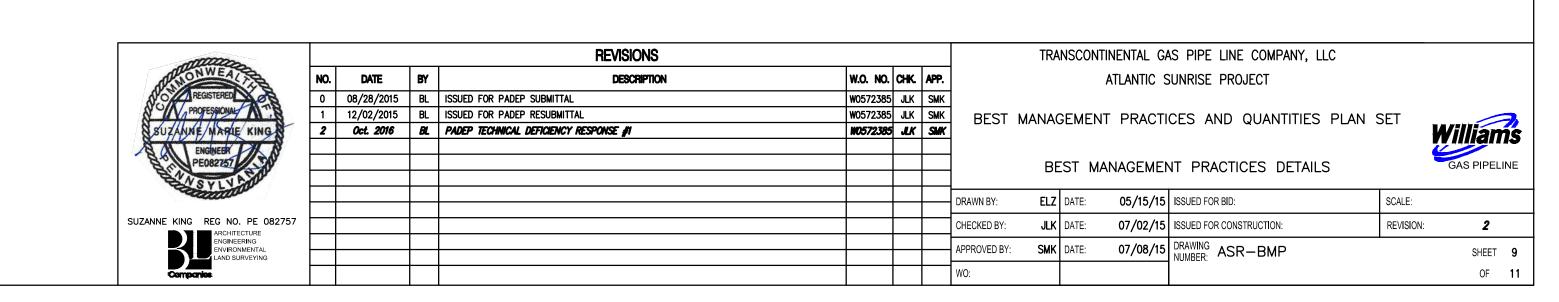




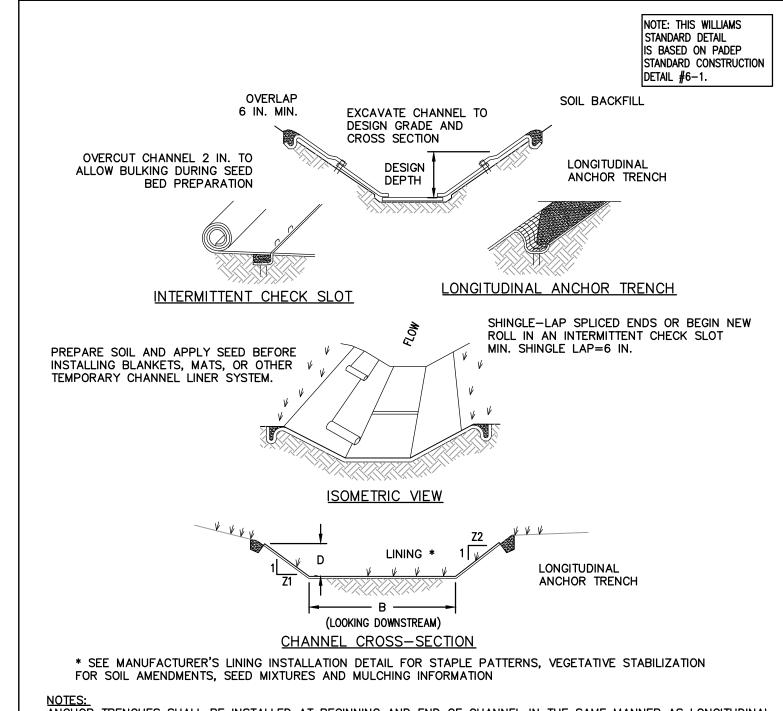








awing Location & Name: G:\JOBS14\14C\14C4909\DWG\BMPs&DETAILS\PL_DN14C4909(20N)_NO-BMP-



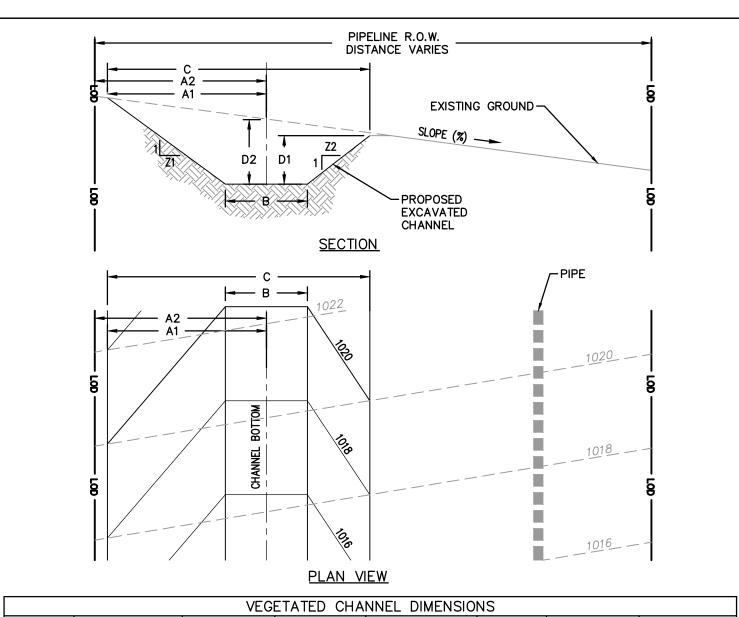
<u>NOTES:</u> ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

REFER TO "TABLE 2: TEMPORARY CLEAN WATER DIVERSION SUMMARY" AT THE END OF THIS PLAN SET FOR CHANNEL INFORMATION CHART FOR THE DIVERSION SWALES ALONG THE PIPELINE RIGHT OF WAY.

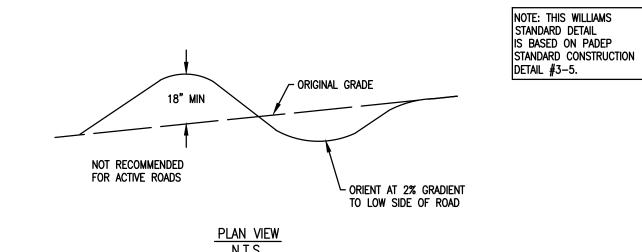
Э.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	СНК	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY,
							STANDARD ENVIRONMENTAL DETAIL
							VCU VEGETATED CHANNEL
							VCH VEGETATED CHANNEL



SLOPE ACROSS R.O.W. % (SLOPE)	CENTERLINE OF SWALE TO EDGE OF GRADING FT (A1)	CENTERLINE OF SWALE TO LOD FT (A2)	BOTTOM WIDTH OF SWALE FT (B)	TOTAL WIDTH OF SWALE AT EDGE OF GRADING FT (C)	SWALE DEPTH FT (D1)	SWALE DEPTH AT EXISTING GRADE FT (D2)	SIDE SLOPES OF SWALE (Z1 AND Z2)
0-5	6.11	7	2	11.1100	2	2.25	2:1
0-5	7.33	8	2	13.3300	2.5	2.80	2:1
0-5	8.56	9	2	15.5600	3	3.35	2:1
5–15	9.28	10	2	14.2800	2	2.75	2:1
5–15	11.14	12	2	17.1400	2.5	3.40	2:1
5–15	13	13	2	20	3	4.05	2:1
15-25	15	15	2	20	2	3.25	2:1
15-25	18	18	2	24	2.5	4.00	2:1
15-25	21	21	2	28	3	4.75	2:1
25-33	25	25	2	30	2	3.65	2:1
25-33	30	30	2	36	2.5	4.48	2:1
25-33	35	35	2	42	3	5.31	2:1

1.	SWALES	SHALL	ΒE	CONSTRUCTED	AT.	Α	STANDARD	DEPTH	(D2)	FROM	CENTERLINE	OF	SWALE	BOTTOM	TO	EXISTING
	GRADE.															

DATE	B	REVISION DESCRIPTION	W.O. NO.	СНК	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, L
						STANDARD ENVIRONMENTAL DETAIL
						VCU VEGETATED CHANNEL
						GRADING
						ONADINO



PADEP STANDARD NOTES:

- 1. WATERBARS SHALL DISCHARGE TO A STABLE AREA.
- 2. WATERBARS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.
- MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.
- 4. WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED.

WILLIAMS STANDARD NOTES:

STEEP SLOPE AREAS.

- 1. ALL WATERBARS SHOWN ON THE PLANS ARE INTENDED TO BE PERMANENT BMPS.
- 2. ADDITIONAL WATERBARS MAY BE INSTALLED AS APPROPRIATE DURING CONSTRUCTION.
- 3. WATERBARS SHOULD BE CONSTRUCTED TO DISCHARGE TO ALTERNATE SIDES OF THE ROW, WHERE POSSIBLE/PRACTICAL.
- 4. A "SOFT" TRENCH PLUG MAY BE USED TO CONTROL INSTANCES WHERE A WATERBAR DISCHARGES TO THE TRENCH IN
- 5. A "J-HOOK" OUTLET MAY BE USED AT WATERBARS TO CONTROL THE FLOW OF RUNOFF. STRAW BALES, SILT SOCKS OR SUPER SILT FENCE TRENCHED IN MAY BE USED AS "J-HOOK" OUTLETS.
- 6. THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM) FOR THE LINEAR PORTION OF THIS PROJECT IS TO RESTORE THE CONSTRUCTION RIGHT-OF-WAY TO ITS ORIGINAL CONTOURS FOLLOWING PIPELINE INSTALLATION AND RESTORATION. THE ENTIRE AREA WILL BE PERMANENTLY RE-VEGETATED OR STABILIZED WITH PERVIOUS MATERIAL. WATER BARS INSTALLED DURING CONSTRUCTION ACTIVITIES WILL REMAIN AS PERMANENT WATER BARS AND ACT AS PCSM BMPS.

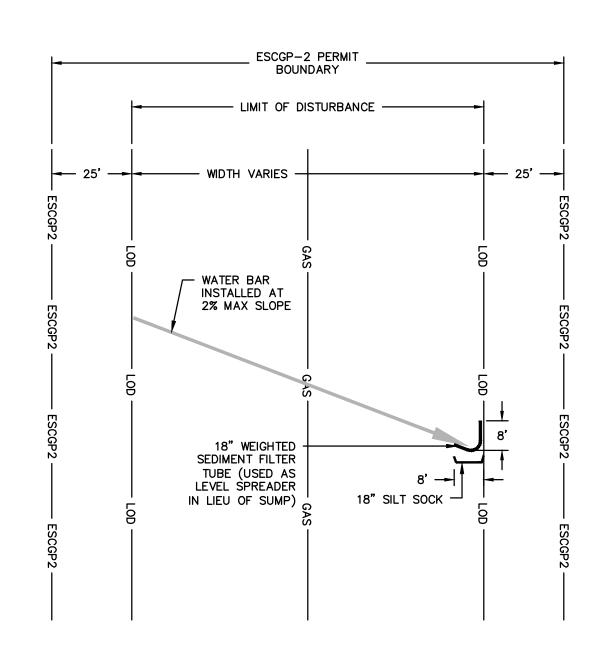
SUPPLEMENTAL NOTE:

- 1. DO NOT EXCAVATE UPHILL SWALE WITHIN 10' OF CENTERLINE OF PIPE TO MAINTAIN MINIMUM 3' COVER OVER THE PIPE. SLIGHTLY MODIFY WATERBAR FLOWLINE GRADING TO PROMITE POSITIVE DRAINAGE TO LOW SIDE OF WATERBAR.
- 2. ALL WATERBARS ARE PERMANENT EXCEPT FOR THOSE LOCATED IN AGRICULTURAL AREAS, WETLANDS, TRANSPORATION FACILITIES, AND LAWNS. ALL WATERBARS IN THESE AREAS ARE TO BE REMOVED DURING FINAL RESTORATION.

TABLE 3.1 -	MAXIMUM	WATERBAR	SPACING
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PERCENT SLOPE	SPACING (FT)	
<5	200	
5–15	150	
>15-30	100	
>30	50	

E	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC	
						STANDARD ENVIRONMENTAL DETAIL	
						WATERBAR	
						(MR) "ALLINDAN	

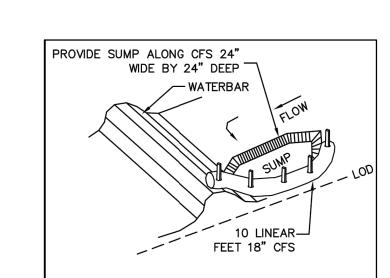


NOTE:
1. DO NOT USE WITHIN 100' OF ANY REGULATED WETLANDS OR STREAMS

- 18 INCH WEIGHTED SEDIMENT FILTER TUBE SHALL BE INSTALLED WITH ONE END RESTING ON THE WATERBAR, ALLOWING FOR 8 FEET OF EFFECTIVE LENGTH.
- 3. THE 5 FOOT WIDE X 96 INCH LONG X 14.5 INCH EFFECTIVE HEIGHT WEIGHTED SEDIMENT FILTER TUBE WILL PROVIDE 48 CUBIC FEET OF STORAGE. THE APPROVED ALTERNATE PROVIDES 40 CUBIC FEET OF STORAGE.
- 4. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- 5. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE TUBE AND DISPOSED IN ACCORDANCE WITH WILLIAMS STANDARDS. TUBES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED TUBES SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	снк.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
							STANDARD ENVIRONMENTAL DETAIL
							WR 1 WATERBAR END TREATMENT
							WB.1 WATERBAR END TREATMENT NON-SPECIAL PROTECTION WATERSHED
							Non or Edine The Teat I and Entered

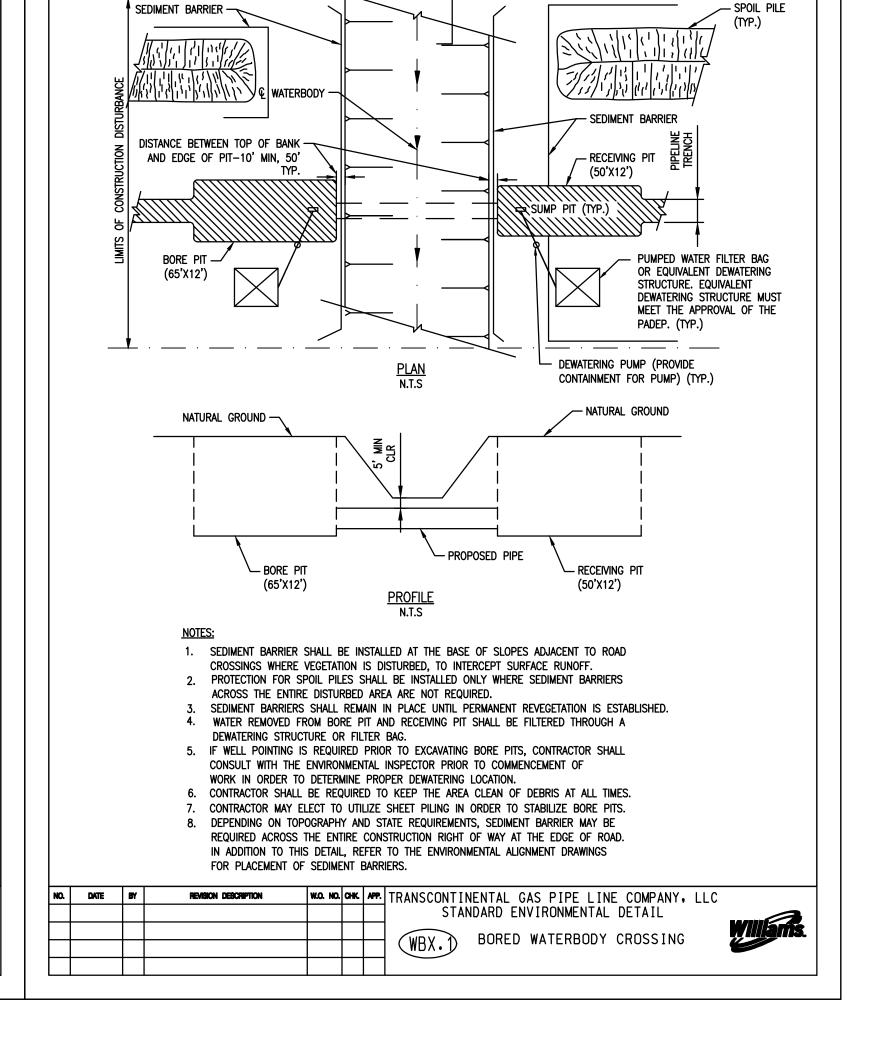


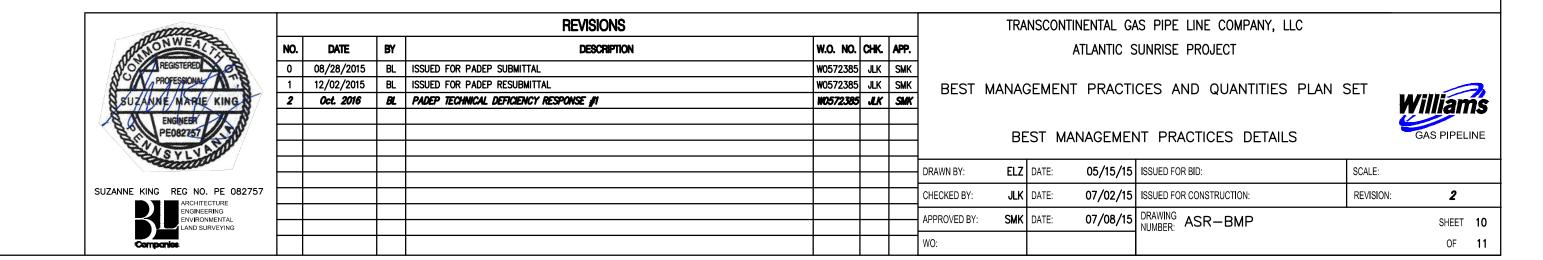


NOTES:

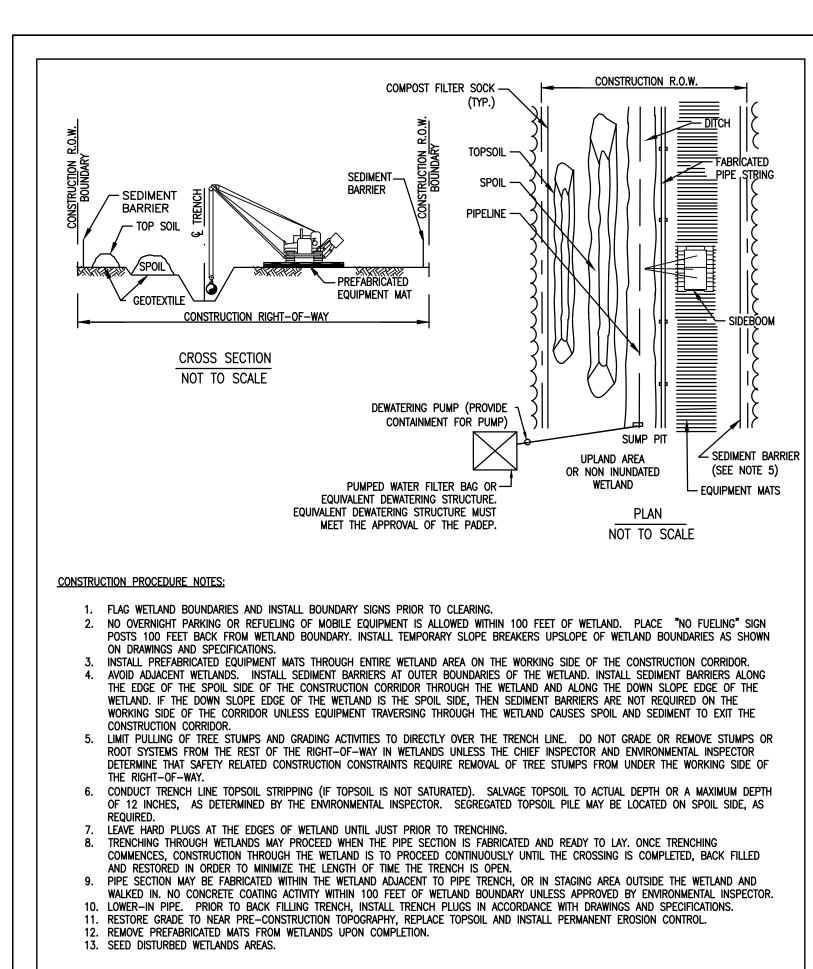
- 1. 10 LINEAR FEET OF 18 INCH COMPOST FILTER SOCK (CFS) SHALL BE INSTALLED WITH ONE END RESTING ON THE WATERBAR AS PER DETAIL CFS, ALLOWING FOR 8 FEET OF EFFECTIVE LENGTH AND A SPECIFIED FLOW THROUGH RATE OF 15 GALLONS PER MINUTE PER LINEAR FOOT. A PASS THROUGH FLOW OF 0.26 CUBIC FEET PER SECOND CAN BE ACCOMMODATED THROUGH THE FILTER SOCK. THIS FLOW RATE IS ADEQUATE FOR 20,000 SQUARE FEET OF DRAINAGE AREA FOR THE 2-YEAR, 24-HOUR STORM, 5 MINUTE TIME OF CONCENTRATION (RATIONAL METHOD).
- 2. CONSTRUCTION OF A 24" WIDE AND 24" DEEP SUMP AT THE DISCHARGE END OF THE WATERBAR WILL REDUCE VELOCITY AND PROVIDE A SHEET FLOW CONDITION TO THE CFS. THE SUMP SHALL BE MAINTAINED AND CLEANEDOUT WHEN IT BECOMES A MINIMUM OF 12" DEEP. THE SUMP SHALL BE FILLED AND STABILIZED WHEN THE CFS IS REMOVED AFTER SITE STABILIZATION.
- 3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- 4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN ACCORDANCE WITH WILLIAMS STANDARDS. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- 5. BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
						STANDARD ENVIRONMENTAL DETAIL
						COMPOST FILTER SOCK AND SUMP
						(WB.2) AT WATERBAR DISCHARGE
						(PADEP APPROVED ALTERNATE DETAIL)





ı By & Date/Time: joutlaw Nov 13, — 2016 — 1:58pm ng Location & Name: G:\JOBS14\14C\14C4909\DWG\BMPs&DETAILS\PL_DN14C4909(20N)_NO—BMP—10.a



W.O. NO. CHK APP. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

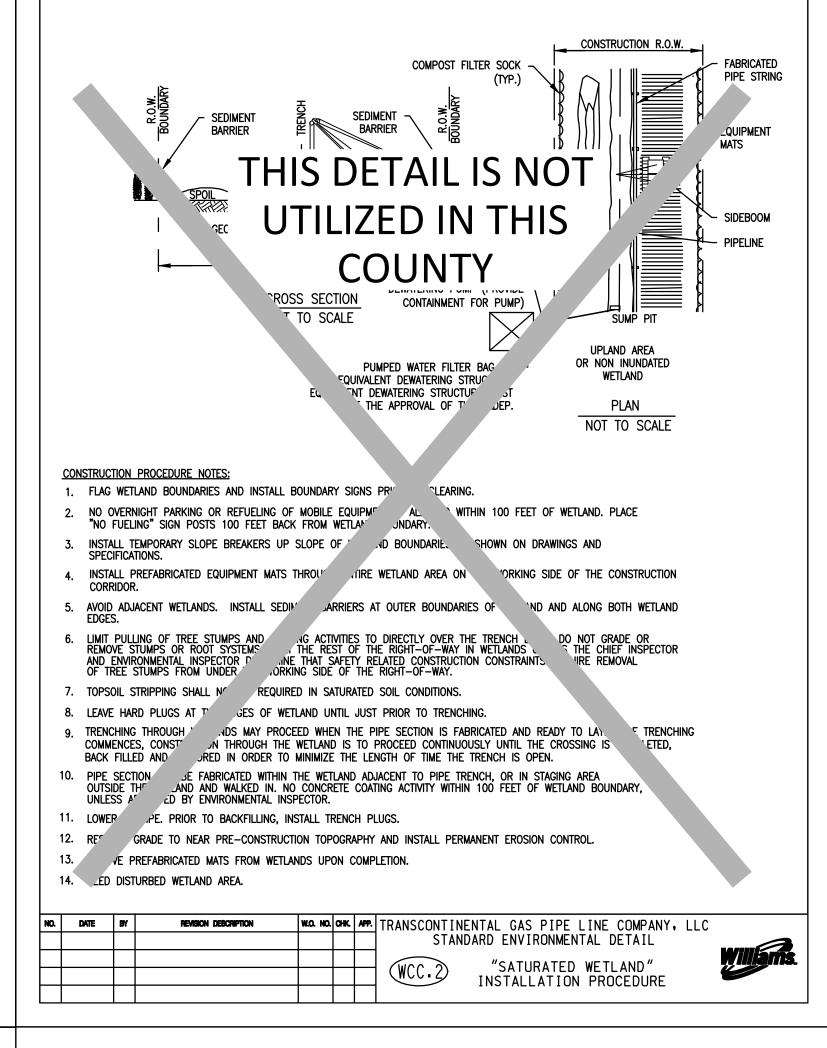
STANDARD ENVIRONMENTAL DETAIL

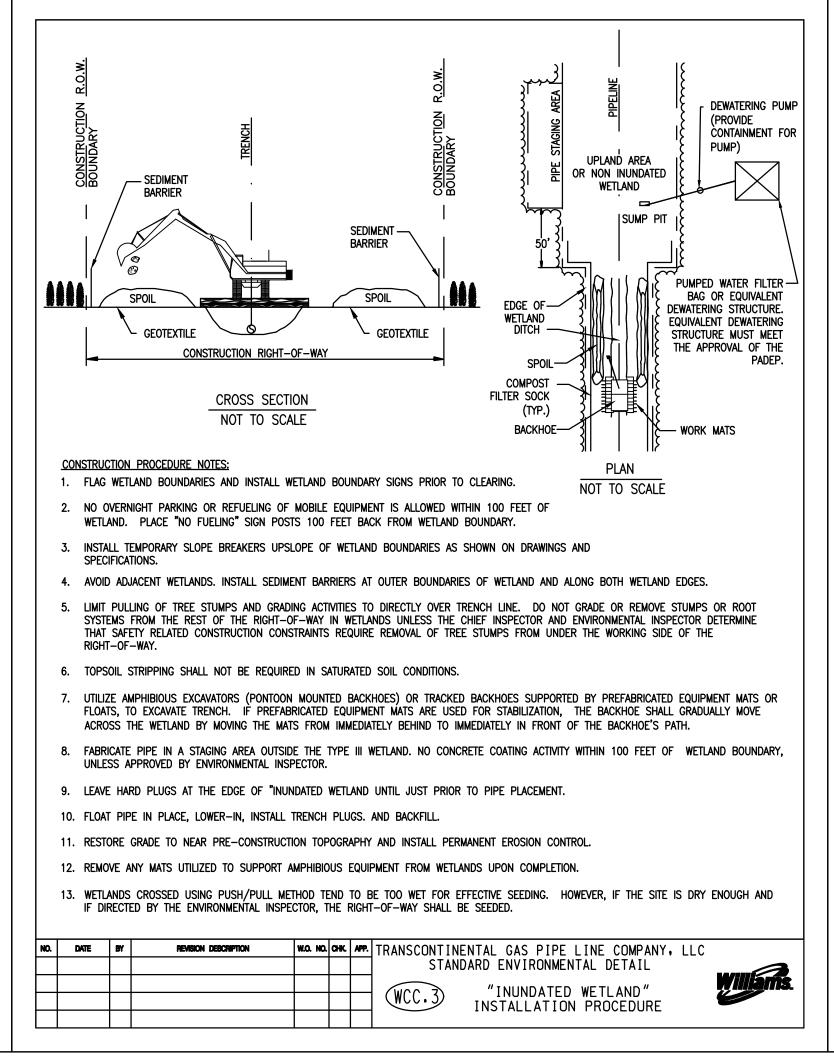
"UNSATURATED WETLAND"

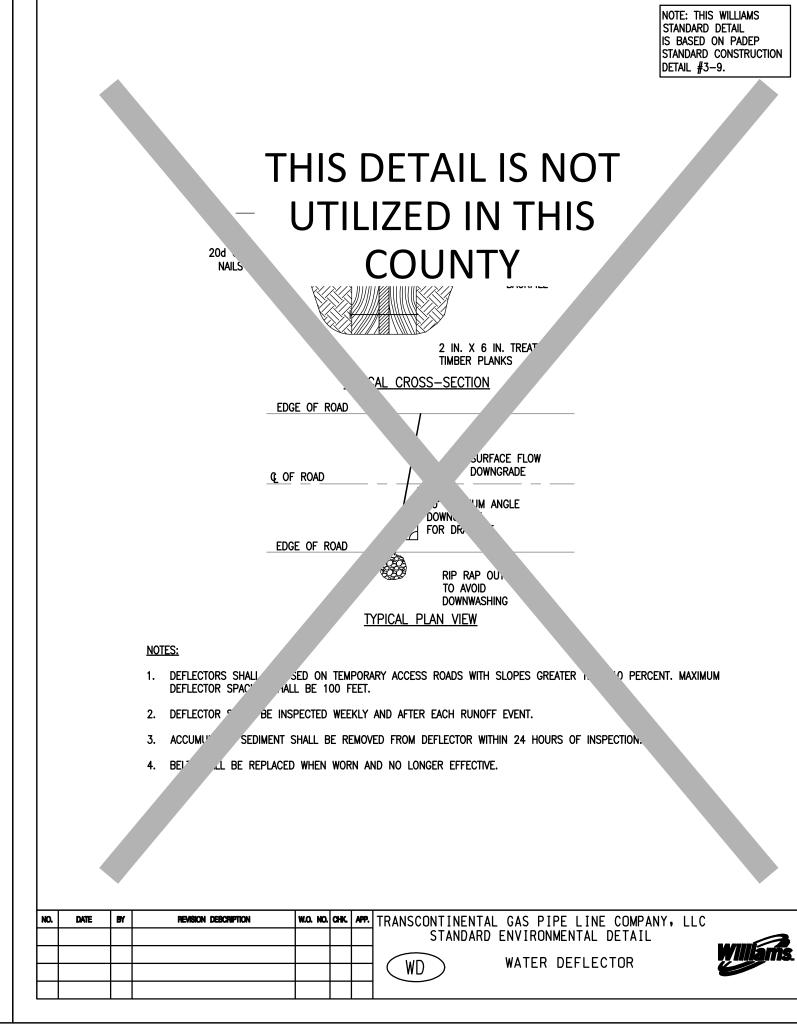
INSTALLATION PROCEDURE

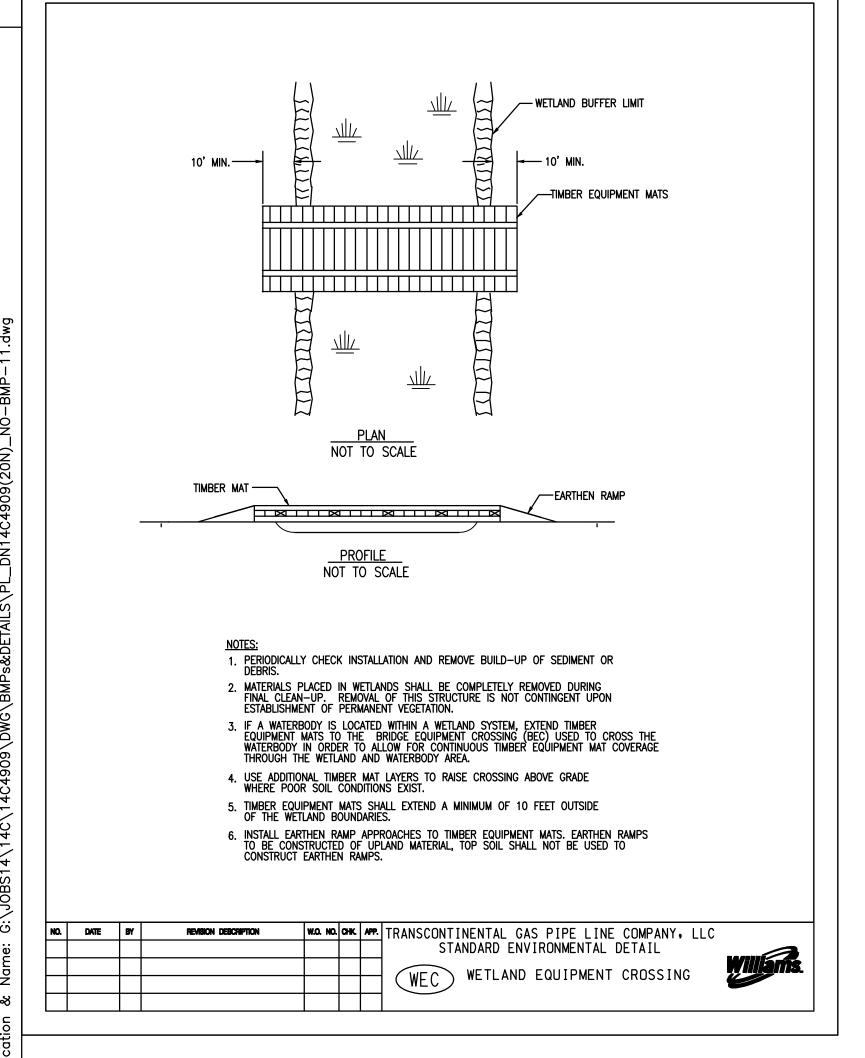
DATE BY

REVISION DESCRIPTION









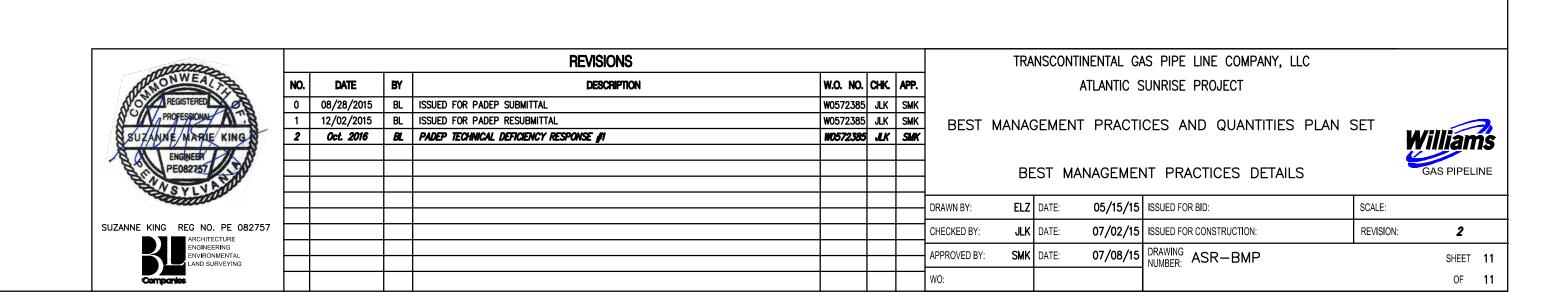
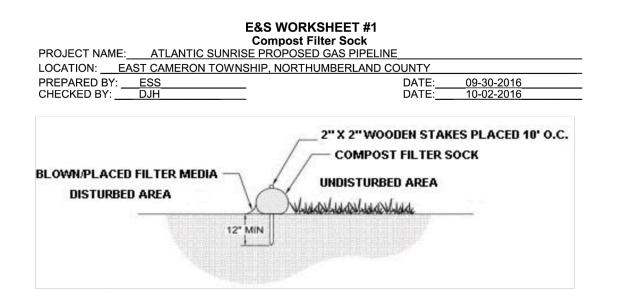


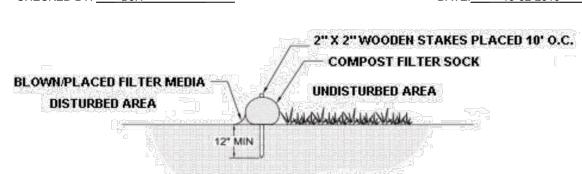
TABLE 1: SEDIMENT BARRIER SUMMARY



MILEPOST	Dia.		LO	CATION		SLOPE	SLOPE LENGTH ABOVE BARRIER		
NO.	ln.	BEGIN STA.		END STA.	TYPE	PERCENT	(FT)		
M-0247	24	19+59	to	21+00		41	64		
	24	4367+50	to	4393+20		22	60		
83	24	4393+25	to	4402+50		12	88		
	12	4402+50	to	4403+50	Stream	13	100		
	24	4403+50	to	4404+75		14	85		
	12	4404+75	to	4405+25	Wetland	2	170		
	24	4405+25	to	4414+00	Dand	14	85		
	12	4414+00	to	4414+00 4419+35	Road	10	101		
	12	4414+00	to		D I	12	115		
	18	4419+35	to	4419+35	Road	32	45		
	24	4419+35	to	4450+30		45	25		
84	32	4450+30	to	4453+90		7	420		
	12	4453+90	to	4457+00		11	120		
	12	4457+00	to	4457+00	Road	23	400		
	24	4457+00	to	4470+25		8	85		
M-0252 & M-0323	18	0+00	to	6+50		20	100		
	12	4+75	to	6+25	Road	12	50		
	12	4477+75	to	4480+00		12	100		
	24	4480+00	to	4487+00		14	100		
85	12	4487+50	to	4487+50	Road	8	60		
	12	4487+50	to	4493+00		6	120		
	12	4493+20	to	4493+20	Road	15	10		
	12	4494+00	to	4495+75		6	120		
	12	4496+00	to	4496+00	Road	20	20		
	24	4496+00	to	4500+75		6	120		
	12	4501+20	to	4501+20	Road	20	20		
	24	4501+25	to	4504+25		6	120		
	12	4504+50	to	4508+00		6	120		
	12	4508+30	to	4508+30	Road	2	150		
	12	4508+50	to	4510+25		6	120		
	12	4510+50	to	4510+50	Road	6	150		
	12	4510+50	to	4511+50		5	106		
	12	4511+50	to	4511+50	Stream	5	106		
	24	4512+00	to	4521+50		5	106		
	12	4521+50	to	4521+50	Road	2	320		
M-0240	12	4521+50	to	0+75		2	320		

SOURCE: Pennsylvania Erosion and Sediment Pollution Control Manual, Page 372

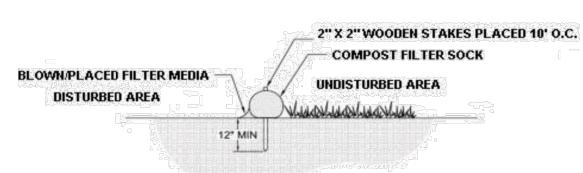
E&S WORKSHEET #1 Compost Filter Sock PROJECT NAME: ATLANTIC SUNRISE PROPOSED GAS PIPELINE LOCATION: NORTHUMBERLAND COUNTY PREPARED BY: ESS CHECKED BY: DJH DATE: 09-30-2016 DATE: 10-02-2016



MILEPOST	Dia.			LOCATION	_	SLOPE	SLOPE LENGTH ABOVE BARRIER		
NO.	ln.	BEGIN STA.		END STA.	TYPE	PERCENT	(FT)		
	12	4525+25	to	3+00	Road	20	25		
	32	1+00	to	3+00	Road	31	94		
	24	2+25	to	3+25		37	83		
	24	3+50	to	3+50	Road	50	37		
	24	3+50	to	4+50		54	43		
	32	5+00	to	6+50	Road	50	55		
	24	5+50	to	6+50		20	25		
	18	6+50	to	7+25	Road	40	40		
	18	7+25	to	8+00		40	40		
	12	8+00	to	8+75	Road	7	50		
	12	8+75	to	9+75		7	50		
	12	10+00	to	10+75	Road	18	37		
	24	10+50	to	11+50	Stream	60	36		
	12	11+25	to	12+00		10	150		
86	18	12+25	to	16+00		17	85		
	18	16+00	to	16+50	Road	40	50		
	24	16+00	to	19+24		17	85		
	24	4546+50	to	4555+50		17	85		
	32	4551+50	to	4555+50	Road	40	50		
	24	4555+75	to	4558+00		17	85		
	24	4558+00	to	4561+50	Road	40	55		
	24	4559+50	to	4560+00		17	85		
	24	4561+50	to	4571+50		17	85		
M-0235	12	4571+75	to	4+50	Road/Stream	4	70		
	24	4572+75	to	4+00	Í	4	70		
M-0372	24	4+50	to	3+50		15	224		
	12	3+50	to	4+25	Road	9	45		
	12	4+25	to	6+00		8	177		
	18	6+00	to	<i>7</i> +25	Stream	15	122		
	24	7+50	to	10+50		39	56		
	18	11+00	to	13+00		62	31		
	24	14+00	to	14+75		82	36		
	12	15+50	to	20+00		28	40		

SOURCE: Pennsylvania Erosion and Sediment Pollution Control Manual, Page 372

E&S WORKSHEET #1
Compost Filter Sock
PROJECT NAME: ATLANTIC SUNRISE PROPOSED GAS PIPELINE
LOCATION: NORTHUMBERLAND COUNTY
PREPARED BY: ESS PREPARED BY: ESS
CHECKED BY: DJH DATE: 09-30-2016 DATE: 10-02-2016

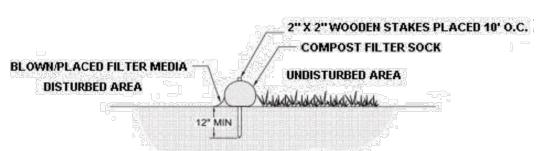


MILEPOST	Dia.		LC	CATION		SLOPE	SLOPE LENGTH ABOVE BARRIER
NO.	ln.	BEGIN STA.		END STA.	TYPE	PERCENT	(FT)
87	18	20+00	to	29+00		14	117
	12	23+00	to	28+00	Road	3	12
	12	23+50	to	28+25	Road	10	108
	12	24+00	to	29+00	Road	13	118
	24	27+50	to	34+00		13	100
	24	34+00	to	34+00	Road	50	40
	24	34+00	to	37+25		13	100
	18	37+00	to	37+25	Road	24	65
	24	37+25	to	45+00		7	125
	18	45+00	to	48+25		4	420
	24	48+25	to	<i>58+75</i>		10	150
	24	59+00	to	59+00	Road	28	100
	24	59+25	to	61+00		10	150
	18	60+50	to	60+50	Stream	24	91
	18	61+00	to	61+00	Road	30	50
	24	61+00	to	65+75		10	150
	18	65+75	to	65+75	Road	30	55
	24	4639+00	to	4646+50		10	150
88	24	4647+00	to	4647+50	Road	27	111
	24	4646+50	to	4648+75		27	111
	24	4648+75	to	4650+75		6	320
	24	4650+75	to	4753+50		5	175
	18	4653+50	to	4653+50	Road	31	51
	24	4653+50	to	4754+50		5	175
	24	4754+50	to	4761+00		5	175
	18	4661+30	to	4661+30	Road	14	120
	24	4761+25	to	4763+50		5	175
	24	4664+75	to	4664+75	Road	26	100
	24	4765+00	to	4769+00		5	175
	18	4670+30	to	4670+30	Road	15	125
	24	4670+25	to	4672+00		20	65
89	24	4672+00	to	4682+00		20	65
	12	4682+50	to	4682+50	Road	15	100
	24	4682+50	to	4688+00		20	65
	12	4689+00	to	4691+50	Wetland	20	65
	24	4692+50	to	4694+25		20	65

SOURCE: Pennsylvania Erosion and Sediment Pollution Control Manual, Page 372

E&S WORKSHEET #1 Compost Filter Sock

PROJECT NAME: ATLANTIC SUNRISE PROPOSED GAS PIPELINE LOCATION: NORTHUMBERLAND COUNTY PREPARED BY: ESS
CHECKED BY: DJH DATE: 09-30-2016 DATE: 10-02-2016



MILEPOST	Dia.			LOCATION		SLOPE	SLOPE LENGTH ABOVE BARRIER
NO.	In.	BEGIN STA.		END STA.	TYPE	PERCENT	(FT)
89	12	4693+25	to	4694+50	Stream	20	65
,	24	4694+50	to	4703+25		20	65
1	12	4703+50	to	4703+50	Wetland/Road	6	61
	12	4704+75	to	4704+75	Waterbody	6	61
	12	4705+75	to	4705+25	Wetland	6	61
	12	4703+50	to	4706+00		20	65
	24	4706+00	to	4735+75		20	65
	12	4734+75	to	4734+75	Road	22	50
	24	4735+75	to	4739+75		26	112
	24	4739+75	to	4739+75	Road	50	50
	24	4739+75	to	4743+00		45	50
•	24	4743+00	to	4743+00	Road	31	60
90	24	4743+00	to	4752+75		30	100
	12	4752+75	to	4752+75	Road	9	26
	24	4752+75	to	4760+50		10	123
	12	4761+00	to	4764+50	Road	2	220
	24	4764+00	to	4767+50		5	208
	12	4768+00	to	4768+00	Road	6	85
M-0167	12	4768+50	to	6+00		7	130
	12	6+00	to	14+50		8	150
	32	14+50	to	14+75	Road	11	241
	32	14+50	to	4790+25		7	493
	12	4790+25	to	4795+00		4	140
	24	4795+00	to	4803+50		3	176
91	12	4803+50	to	4804+50	Stream	5	145
ALIGN	MENT EXIT	S NORTHUMBER	RLAN	D COUNTY AND	RE-ENTERS AT APPI	ROX. STA 48	344+25
	12	4844+50	to	4845+50	Stream	5	129
	24	4845+75	to	4857+00		27	100
92	24	4857+00	to	4861+50		15	154
M-0271/ M-0437	24	4861+50	to	1+75		35	50
	12	1+50	to	2+75	Stream/Wetland	42	172

SOURCE: Pennsylvania Erosion and Sediment Pollution Control Manual, Page 372

SUZANNE KING REG NO. PE 082757

			REVISIONS			
NO.	DATE	BY	DESCRIPTION	W.O. NO.	снк.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT PROPOSED 42" CENTRAL PENN LINE SOUTH PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET NORTHUMBERLAND COUNTY, PENNSYLVANIA

	QUANT	TITY,	CROSSING	AND ACIDIC SOIL TABLES		JAS PIPELI	IINE
DRAWN BY:	ELZ	DATE:	05/15/15	ISSUED FOR BID:	SCALE:		
CHECKED BY:	JLK	DATE:	07/02/15	ISSUED FOR CONSTRUCTION:	REVISION:	2	
APPROVED BY:	SMK	DATE:	07/08/15	DRAWING NUMBER:		SHEET	1
WO:				224-1600-70-28-A/LL113_9-	-BMP-NO-TI	B OF	2

TABLE 2: TEMPORARY CLEAN WATER DIVERSION SUMMARY

	TEMPORARY DIVERSION SUMMARY - NORTHUMBE													ERLAND COUNTY, PENNSYLVANIA										
					DIVERS	ION					W	ATERBO)Y**		FLUME (CLEAN W	ATER) CROSSING					LEVEL SPR	READER		
MILE POST	DIVERSION ID	DIVERSION TYPE	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W		Z2 (FT)	TEMPORARY LINING	PERMANENT LINING	DISCHARGE TYPE		LENGTH (FT)		FLUME SLOPE (%)		FLUME CHANNEL LINING		Q (CFS)	H (FT)	c _w	LENGTH DOWN	I	ALLOWABLE VELOCITY (FT/S)	VELOCIT
84																								
	84.01	SWALE	2	2.5	12	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	10	14	P550	R-4	17.28	0.195	3.0	67 F0	OREST	2	1.99
	84.02	SWALE	2	2.5	12	2	2	SC250	REINFORCED VEGETATION	FLUME	-	-	-	11	12	W3000	R-4	48.48	0.195	3.0	188 F0	OREST	2	1.99
	84.03	SWALE	2	2	10	2	2	SC250	REINFORCED VEGETATION	FLUME	-	-	-	12	12	W3000	R-4	28.16	0.195	3.0	109 F0	OREST	2	1.99
	84.04	SWALE	2	2	10	2	2	W3000	REINFORCED VEGETATION	FLUME	-	-	-	12	12	W3000	R-4	37.76	0.195	3.0	146 F0	OREST	2	1.99
	84.05	FILTER SOCK	0	2	12	0	6	W3000	REINFORCED VEGETATION	FLUME	-	-	-	28	10	W3000	R-5	2.88	0.195	3.0	11 F0	OREST	2	1.99
85																								
	85.01	SWALE	2	2	10	2	2	SC250	REINFORCED VEGETATION	FLUME	-	-	-	5	14	P550	R-4	23.36	0.195	3.0	90 F0	OREST	2	1.99
86											-	-	-											
	86.01	SWALE	2	2	10	2	2	SC250	REINFORCED VEGETATION	WATERBODY	2	12	R-4	-	-	-	-	11.36	N/A	N/A	N/A	N/A	N/A	N/A
87																								
	87.01	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME/OFF-SITE	14	8	R-4	6	14	P550	R-4	4.32	N/A	_	N/A	N/A	N/A	N/A
	87.02	SWALE	2	2	10	2	2	C125	REINFORCED VEGETATION	FLUME/OFF-SITE	14	12	R-4	7	14	P550	R-4	17.28	N/A	N/A	N/A	N/A	N/A	N/A
90																								
	90.01*	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	7	14	P550	R-4	15.08	0.5	3.0	14 G	iRASS	4	3.18

** Diversion End Treatment to Stream or Wetland *** Sizing was determined using maximum allowable velocity outlined in Table 6.6 of the PA DEP Erosion and Sediment Pollution Control Program Manual, dated March 2012

	3:1 MAX (TEMPOR) DIVERSION TRANSITIO BOTTOM E FLUME CR DOWNSTRE UPSTREAM DRAINAGE	GRADE TO RARY PIPE SWALE N GRADE (LEVATION OSSING A EAM END	TO OF 2'		- 1% MIN. RETURN TO GRADE CHANNEL LINING CLASS		LIMIT OF DISTURBANCE 12" HIGH STONE LEVEL SPREADER (SEE INSET) EXISTING GRADE	
SLOPE RANGE ID	RIGHT-OF-WAY SLOPE	Q, CFS	WIDTH (W), FT	CHANNEL LINING	* RIPRAP APRON, R-#	RIPRAP NOMINAL PLACEMENT THICKNESS (T), IN	RIPRAP APRON LENGTH, FT	
1	0 - 2%	≤ 50	17	C125	R-4	18	15	l

R-4

FILTER SOCK DIVERSION DIVERSION SWALE

FLUME CHANNEL

SEE TABLE BELOW

0% SLOPE

- LEVEL SPREADER WIDTH VARIES

──\ 0% SLOPE →

CROSS-SECTION

RIGHT-OF-WAY ----

INSTALL LEVEL SPREADER AT 0% SLOPE ACROSS TOP OF DEVICE. SEE DIVERSION CHANNEL SUMMARY FOR WIDTH AT EACH LOCATION.

24" CLEAN WATER FILTER SOCK — DIVERSION DISCHARGE TO FLUME CHANNEL CROSSING

PIPE TRENCH

EXTEND RIP RAP TO -OUTER EDGE OF LEVEL SPREADER

LIMIT OF DISTURBANCE

36" TEMPORARY PIPE TO CONVEY WATER
OVER TRENCH

2 - 10% ≤ 50 14

10 - 20% ≤ 50 12

WIDTH VARIES

APRON (R-#)

CLASS I GEOTEXTILE

- 12" HIGH STONE

LEVEL SPREADER (R-4)**

CLEAN WATER DIVERSION SWALE DISCHARGE TO FLUME CHANNEL CROSSING

- EXISTING ROW GRADE (LEVEL)

20 - 30% ≤ 50 10 R-5 W3000 15 30 - 40% ≤ 50 8 15 40 - 50% ≤ 50 8 RIPRAP APRON SIZING WAS DETERMINED USING MAXIMUM ALLOWABLE VELOCITY OUTLINED IN TABLE 6.6 OF THE PA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, DATED MARCH 2012

P550

** REFER TO TEMPORARY DIVERSION SUMMARY FOR LEVEL SPREADER DESIGN

DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY LL
						STANDARD ENVIRONMENTAL DETAIL
						CWC CLEAN WATER CROSSING
						CWC CLEAN WATER CROSSING

TABLE 3: WATERBODIES CROSSED BY CPLS PIPELINE AND ACCESS ROADS IN NORTHUMBERLAND COUNTY

Waterbody ID	Waterbody Name	Milepost	County	Township	Stream Type	State Water Quality Use Classification - Designated Use	State Fishery Classification	Crossing Method	Crossing Window
WW-T44-10002C	UNT to Mahanoy Creek(WW-T44-10002C)	83.38	Northumberland	East Cameron	Perennial	WWF, MF	None	Flume	None
WW-T01-10001	Mahanoy Creek(WW-T01-10001)	83.39	Northumberland	East Cameron	Perennial	WWF, MF	None	Flume	None
WW-T04-10002	UNT to Shamokin Creek(WW-T04-10002)	85.45	Northumberland	Coal	Intermittent	WWF, MF	None	Dam-and-Pump	None
WW-T04-10001	Shamokin Creek(WW-T04-10001)	MOC-0240 0.20	Northumberland	Coal	Perennial	WWF, MF	None	Dam-and-Pump	None
WW-T18-10002	Quaker Run(WW-T18-10002)	86.60	Northumberland	Coal	Perennial	CWF, MF	None	Flume	None
WW-T68-11001B	UNT to Quaker Run(WW-T68-11001B)	M-03720.11	Northumberland	Coal	Ephemeral	CWF, MF	None	Flume	None
WW-T68-11001	UNT to Quaker Run(WW-T68-11001)	M-03720.13	Northumberland	Coal	Intermittent	CWF, MF	None	Dam-and-Pump	None
WW-T58-11001	Coal Run(WW-T58-11001)	MOC-0235 1.15	Northumberland	Coal	Intermittent	CWF, MF	None	Dam-and-Pump	None
WW-T44-11002	UNT to South Branch Roaring Creek(WW-T44-11002)	88.89	Northumberland	Coal	Perennial	HQ-CWF, MF	Approved Trout Waters, Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T47-11002	South Branch Roaring Creek(WW-T47-11002)	91.76	Northumberland	Ralpho	Perennial	HQ-CWF, MF	Class A Wild Trout Waters	Dam-and-Pump	April 2 through September 30
WW-T44-11001A	UNT to South Branch Roaring Creek(WW-T44-11001A)	M-04370.03	Northumberland	Ralpho	Intermittent	HQ-CWF, MF	Class A Wild Trout Waters	Dam-and-Pump	April 2 through September 30
Access Roads					•				
WW-T44-10002	UNT to Mahanoy Creek	AR-NO-075	Northumberland	East Cameron	Perennial	WWF, MF	None	N/A	None
WW-T68-10001	UNT to Shamokin Creek	AR-NO-079.1	Northumberland	Coal	Ephemeral	WWF, MF	None	N/A	None
WW-T58-11001A	Coal Run	AR-NO-082	Northumberland	Coal	Ephemeral	CWF, MF	None	N/A	None
Waterbody IDs wit	th "RS" designations are in non-surveyed area and are ba	ased on remote se	ensing						

CWF = Coldwater Fishes **HQ=High Quality** WWF=Warm Water Fishes

MF = Migratory Fishes TSF=Trout Stocked Fishes UNT = Unnamed Tributary EV=Exceptional Value

TABLE 6: LOCATIONS OF ACIDIC BEDROCK ALONG CPLS PIPELINE IN NORTHUMBERLAND COUNTY

Pipeline Facility/	Mile	Post	Linear	Bedrock Formation	Acid Potential	Karst	Rock Type	Rippability	MoC Number MP to MP	Formation	Rock Type				
County	From	То	Distance	Bedrock Formation	Acid Potential	Kaist	Rock Type	Кірравіііцу	MOC NUMBER WE TO WE	Formation	Rock Type				
Northumberland	82.6	83.1	0.5	Catskill (Duncannon member) / Spechty Kopf / Pocono	Typically Non-acid sulfide bearing.		Sandstone, siltstone, and mudstone	Difficult	M-0194 0.9 to 1.13	tskill Duncannon & S.K	same				
Northumberland	83.0	83.5	0.5	Mauch Chunk	Typically Non-acid sulfide bearing.		Shale, sandstone, and siltstone	Moderately easy to moderately difficult							
Northumberland	83.8	84.6	0.8	Pottsville Group	Typically anthracite coal-bearing.		Sandstone, siltstone, shale & conglomerate	Difficult							
Northumberland	84.8	85.0	0.2	Mauch Chunk	Typically Non-acid sulfide bearing.		Shale, sandstone, and siltstone	Moderately easy to moderately difficult							
Northumberland	86.2	86.4	0.2	Llewellyn	Typically anthracite coal-bearing.		Sandstone, siltstone, & conglomerate	Difficult							
Northumberland	88.9	89.2	0.3	Mauch Chunk	Typically Non-acid sulfide bearing.		Shale, sandstone, and siltstone	Moderately easy to moderately difficult							
Northumberland	89.4	89.7	0.3	Pocono	Typically Non-acid sulfide bearing.		Sandstone, siltstone, conglomerate	Difficult							
Northumberland	89.9	90.2	0.3	0 (1) (0 1)	T : 11 N : 15 I I I		Shale, siltstone, and	Moderately difficult, easy	M-0167 0.0 to 0.34	Catskill Buddys Run	same				
Columbia	100.2	100.7	0.5	Catskill (Buddys Run member)	Typically Non-acid sulfide bearing.	ypically Non-acid sulfide bearing.	pically Non-acid sulfide bearing.	ypically Non-acid sulfide bearing.	ypically Non-acid sulfide bearing.		sandstone	in shale	M-0197 0.0 to 0.4 M-0174 0.0 to 0.3	Catskill Irsih Valley Catskill Buddys Run	sandstone, siltstone same

TABLE 4: WETLANDS CROSSED BY CPLS PIPELINE AND ACCESS ROADS IN NORTHUMBERLAND COUNTY

Wetland ID	Milepost	County	Township	Wetland Classes Impacted
W-T44-11001C	88.83	Northumberland	Coal	PFO
W-T44-11001A /W-T44-11001A-2	89.08	Northumberland	Coal	PEM
W-T18-10001	83.43	Northumberland	East Cameron	PEM
W-T49-11001	91.77	Northumberland	Ralpho	PEM
W-T49-11003	M-04370.05	Northumberland	Ralpho	PEM
Access Roads				
W-T68-10001	AR-NO-079.1	Northumberland	Coal	PEM
Wetland IDs with "RS" designation Key:	s are in non-su	rveyed area and a	re based on ren	note sensing

PEM = Palustrine Emergent PFO = Palustrine Forested PSS = Palustrine Scrub-Shrub

TABLE 5: LOCATIONS OF ACID SOILS ALONG CPLS PIPELINE IN NORTHUMBERLAND COUNTY

Sym bol

DeF

County

MP Begin MP End

M-0194 0.89 | M-0194 1.04 | Northumberland

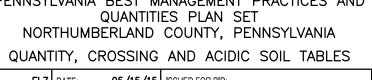
WF0194 0.09	100 134 1.04	Northanibenand	Dei	5.1
M-0194 1.07	M-0194 1.18	Northumberland	DeF	5.1
82.59	82.67	Northumberland	DeF	5.1
82.78	83.14	Northumberland	HuF	4.6
83.14	83.33	Northumberland	LdD	4.6
	10-14/4-14/47/2015 1985	(db. 1810/ 36 748000000000000000000000000000000000000		1000000000
83.33	83.41	Northumberland	AbB	5.6
83.41	83.43	Northumberland	W	Water
83.43	83.46	Northumberland	Uf	6.2
83.46	83.52	Northumberland	LdF	4.6
83.52	83.77	Northumberland	MkC	4.6
83.77	84.11	Northumberland	WkE	5.3
84.11	84.33	Northumberland	HuD	4.6
84.33	84.60	Northumberland	HuB	4.6
84.60	84.71	Northumberland	HuD	4.6
84.71	84.73	Northumberland	Uh	Udorthents
84.73	84.92	Northumberland	HuD	4.6
84.92	84.98	Northumberland	Uh	Udorthents
84.98	85.09	Northumberland	HuD	4.6
85.09	85.13	Northumberland	HuF	4.6
85.13	85.28	Northumberland	Uh	Udorthents
85.28	85.38	Northumberland	BxD	4.6
85.38	85.43	Northumberland	BxB	4.6
85.43	85.49	Northumberland	SmB	4.6
85.49	85.55	Northumberland	HuD	4.6
85.55	85.62	Northumberland	HuB	4.6
85.62	85.81	Northumberland	BxB	4.6
85.81	85.87	Northumberland	HuF	4.6
85.87	85.98	Northumberland	Uf	6.2
85.98	86.02	Northumberland	Du	Dumps, mine
86.02	86.08	Northumberland	Uh	Udorthents
86.08	86.15	Northumberland	HuF	4.6
86.15	86.32	Northumberland	HuD	4.6
86.32	86.38	Northumberland	HuF	4.6
86.38	86.41	Northumberland	Uh	Udorthents
1990 1000 9100 100 1	Manager and Tele	The term of the second	174,500	
86.41	86.50	Northumberland	HuF	4.6
86.50	87.03	Northumberland	Uh	Udorthents
87.03	87.20	Northumberland	HuD	4.6
87.20	87.32	Northumberland	Uh	Udorthents
				4.6
87.32	87.43	Northumberland	HuD	
87.43	87.54	Northumberland	HuB	4.6
87.54	87.68	Northumberland	HuD	4.6
87.68	87.75	Northumberland	HuF	4.6
87.75	88.13	Northumberland	Uh	Udorthents
88.13	88.17	Northumberland	HuD	4.6
700.7100.00	K-040-04-04-04-04-04-04-04-04-04-04-04-04			
88.17	88.23	Northumberland	Uh	Udorthents
88.23	88.32	Northumberland	HuD	4.6
88.32	88.47	Northumberland	HuF	4.6
88.47	88.53	Northumberland	HuD	4.6
88.53	88.62	Northumberland	DeF	5.1
88.62	88.97	Northumberland	LdD	4.6
88.97	89.10	Northumberland	BxD	4.6
89.10	89.13	Northumberland	SmB	4.6
89.13	89.17	Northumberland	BxB	4.6
89.17	89.25	Northumberland	BxD	4.6
	100000000000000000000000000000000000000			
89.25	89.48	Northumberland	LdD	4.6
89.48	89.86	Northumberland	DeF	5.1
89.86	90.16	Northumberland	LdD	4.6
90.16	90.37	Northumberland	MkB	4.6
90.10	90.39	Northumberland		5.3
		10. 10. 10. 1 0. 1 0. 1 1 1 1 1 1 1 1 1	CaB	
M-0167 0.00	M-0167 0.17	Northumberland	CaB	5.3
M-0167 0.17	M-0167 0.34	Northumberland	CaC	5.3
90.73	90.75	Northumberland	CaC	5.3
90.71	90.82	Northumberland	CaB	5.3
		Northumberland		
90.82	90.89	***************************************	CaC	5.3
90.89	90.92	Northumberland	CaD	5.3
90.92	90.93	Northumberland	WkE	5.3
90.93	90.94	Northumberland	Ug	6.2
90.93	90.94			
JU 94	In the second second	Northumberland	WkE	5.3
		Northumberland	Ug	6.2
90.97	90.98		Hv	6.5
	90.98 91.76	Northumberland	П	
90.97		Northumberland Northumberland	WkE	5.3
90.97 91.74 91.76	91.76 91.82	Northumberland	WkE	
90.97 91.74 91.76 91.82	91.76 91.82 91.96	Northumberland Northumberland	WkE WeD	5
90.97 91.74 91.76 91.82 91.96	91.76 91.82 91.96 92.02	Northumberland Northumberland Northumberland	WkE WeD WeC	5 5
90.97 91.74 91.76 91.82	91.76 91.82 91.96	Northumberland Northumberland	WkE WeD	5
90.97 91.74 91.76 91.82 91.96	91.76 91.82 91.96 92.02	Northumberland Northumberland Northumberland	WkE WeD WeC	5 5

NOTE: SEE THE SUPPORTING PIPELINE AND ACCESS ROAD EROSION AND SEDIMENT CONTROL NARRATIVES FOR DEFINITIONS AND DESCRIPTIONS OF THE MAP UNIT SYMBOL



			REVISIONS			
NO.	DATE	BY	DESCRIPTION	W.O. NO.	снк.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT PROPOSED 42" CENTRAL PENN LINE SOUTH PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET NORTHUMBERLAND COUNTY, PENNSYLVANIA



ELZ DATE: 05/15/15 ISSUED FOR BID: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: APPROVED BY: SMK DATE: **224-1600-70-28-A/LL113_9-BMP-NO-TB** OF 2

^{*}High Quality or Exceptional Value Watershed