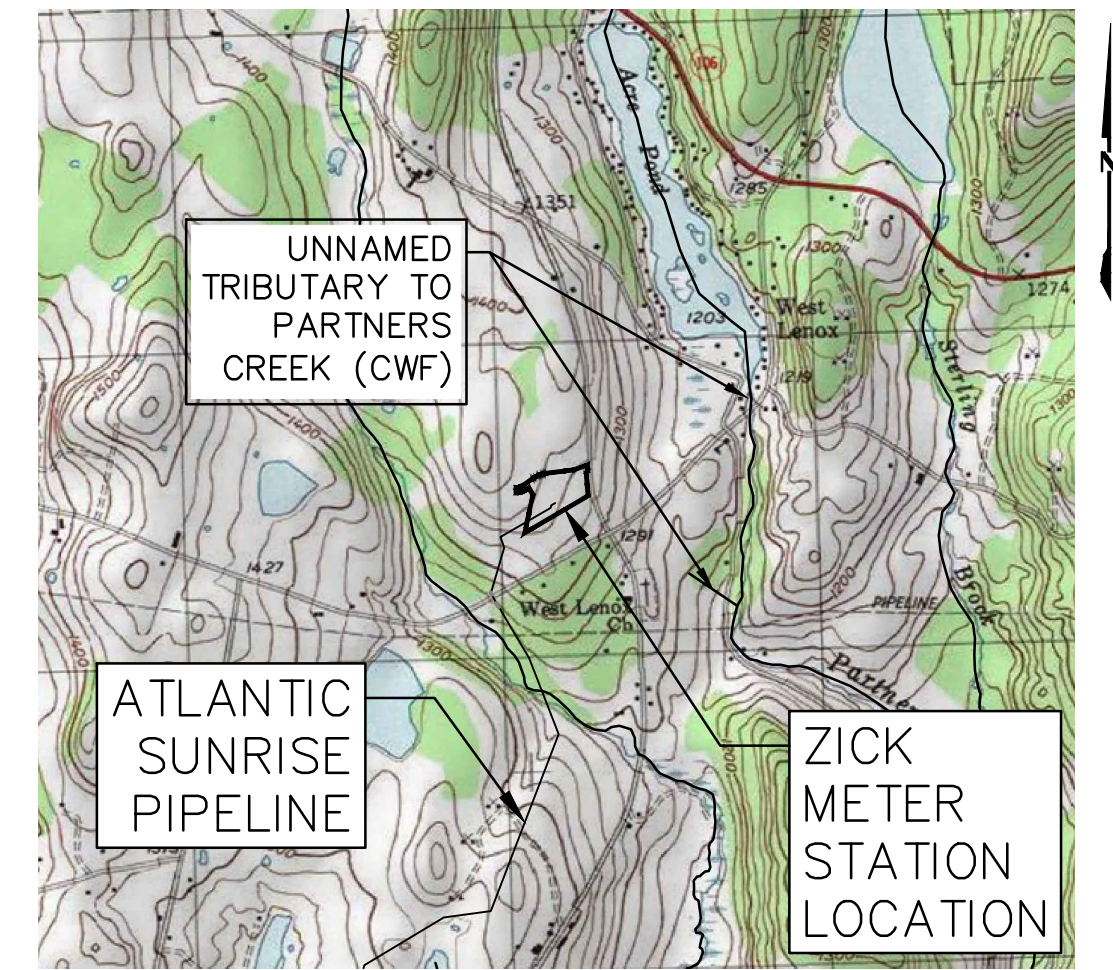


ATLANTIC SUNRISE PROJECT PROPOSED 30" NATURAL GAS PIPELINE

POST CONSTRUCTION STORMWATER MANAGEMENT PLANS FOR ZICK METER STATION & ASSOCIATED PERMANENT ACCESS ROADS



USGS LENOXVILLE QUADRANGLE
VICINITY MAP
SCALE: 1"=2,000'

FACILITY NAME & TYPE	DRAWING NO.	SHEET NO.	DRAWING NAME
ZICK METER STATION	(30-3680)MF-1A-9	1 of 6	COVER SHEET
	(30-3680)MF-1A-9	2 of 6	SENSITIVE RESOURCES MAP
	(30-3680)MF-1A-9	3 of 6	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
	(30-3680)MF-1A-9	4 of 6	PCSM NOTES AND DETAILS
	(30-3680)MF-1A-9	5 of 6	PCSM NOTES AND DETAILS
	(30-3680)MF-1A-9	6 of 6	PCSM NOTES AND DETAILS

PHASE 2

LENOX TOWNSHIP
SUSQUEHANNA COUNTY

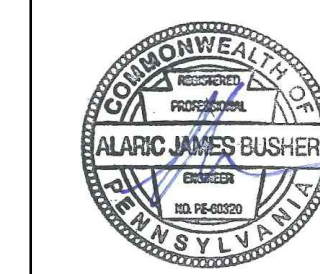
PENNSYLVANIA



PENNSYLVANIA ACT 287 (1974)
AS AMENDED BY PENNSYLVANIA
ACT 199 (2004) REQUIRES NO
LESS THAN THREE (3) WORKING
DAYS AND NO MORE THAN (10)
WORKING DAYS NOTICE TO
UTILITIES BEFORE YOU EXCAVATE,
DRILL, BLAST OR DEMOLISH.

ENGINEER OF RECORD
BL COMPANIES
4242 CARLISLE PIKE, SUITE 260
CAMP HILL, PA 17011
P:717-651-9850
F:717-651-9858

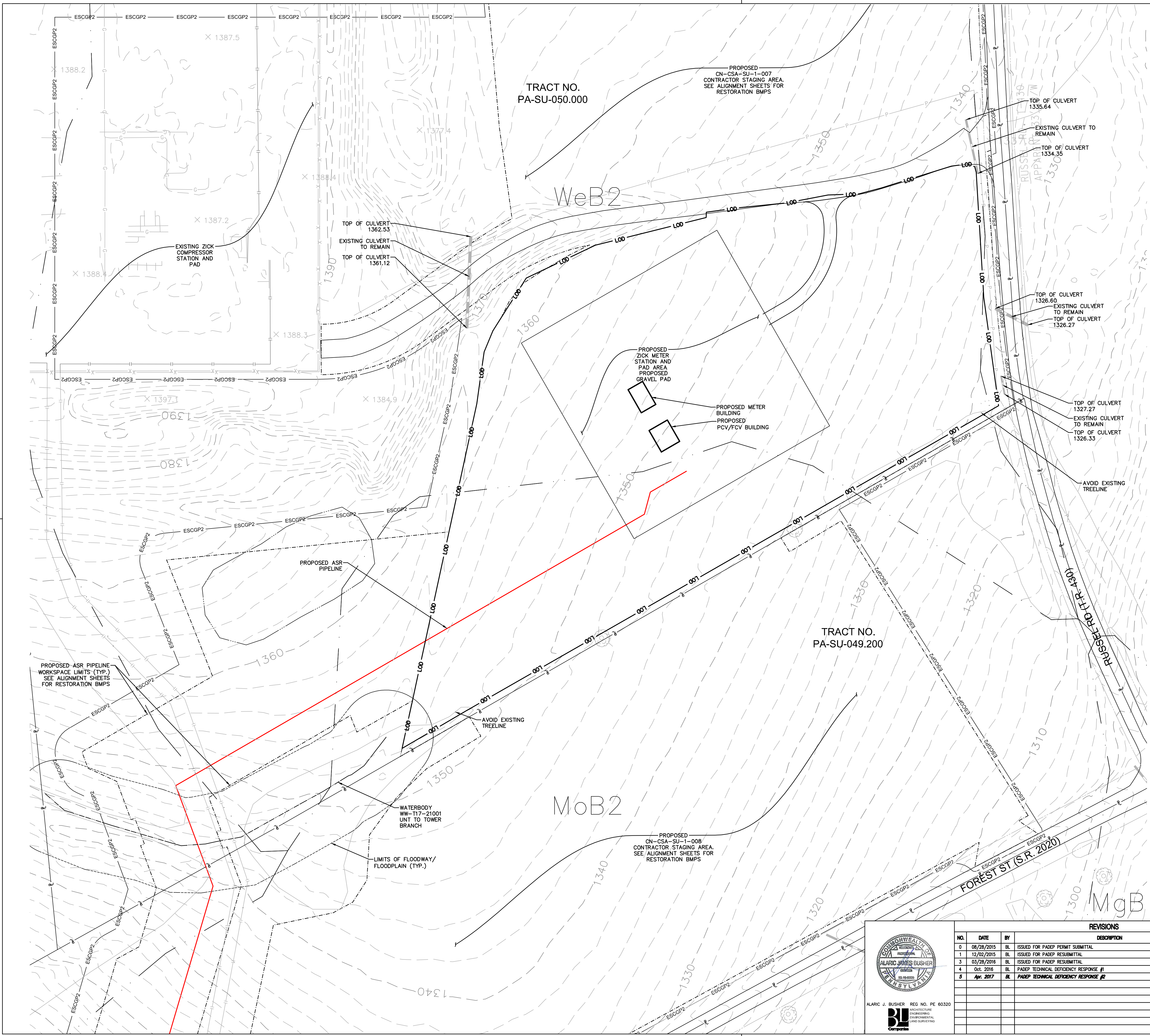
REVISIONS							TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC							
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE							
0	08/26/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL	W0161483	DAK	AJB	POST CONSTRUCTION STORMWATER MANAGEMENT PLANS							
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	DAK	AJB	FOR ZICK METER STATION & ASSOCIATED PERMANENT ACCESS ROADS							
3	03/29/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	AJB	AJB	LENOX TOWNSHIP, SUSQUEHANNA COUNTY, PENNSYLVANIA							
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W161483	AJB	AJB	COVER SHEET							
5	Apr. 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W161483	AJB	AJB								
							DRAWN BY:	JEC	DATE:	04/03/15	ISSUED FOR BID:	SCALE:	AS NOTED	
							CHECKED BY:	AJB	DATE:	04/03/15	ISSUED FOR CONSTRUCTION:	REVISION:	5	
							APPROVED BY:	AJB	DATE:	07/17/15	DRAWING NUMBER:	(30-3680)MF-1A-9	SHEET	1
							W.O.:	1161483				OF	6	



ALARIC J. BUSHER REG. NO. PE 60320
ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING



Drawn By & Date/Time: Jfjones Apr 27, 2017 - 4:22pm
 Drawing Location & Name: G:\0551\14C\14C4909\DWG\010-CPLN\FMS_PCSM14C4909(10)_ZICK.dwg



LEGEND

EXISTING FEATURES

- PROPERTY BOUNDARY LINE (APPROXIMATE)
- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' INTERVAL)
- FENCE
- STONE ROW
- SOIL BOUNDARY
- TREELINE
- CENTERLINE STREAM/EDGE WATERBODY
- DELINEATED WETLANDS
- SPOT ELEVATION
- TREE OR BUSH
- UTILITY POLE AND UTILITY LINE
- GUY POLE
- GUY POLE OR ANCHOR
- POST
- SIGN
- WATER WELL
- UTILITY BOX
- MONUMENT (PROPERTY BOUNDARY MARKER)
- IRON PIPE OR PIN (PROPERTY BOUNDARY MARKER)
- SOIL TYPE DESIGNATION
- CENTERLINE GAS PIPELINE
- ESCGP-2 PERMIT BOUNDARY
- LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- LIMIT OF DISTURBANCE (ZICK METER STATION)
- EXISTING ROAD
- ROW
- LIMITS OF FLOODWAY/FLOODPLAIN

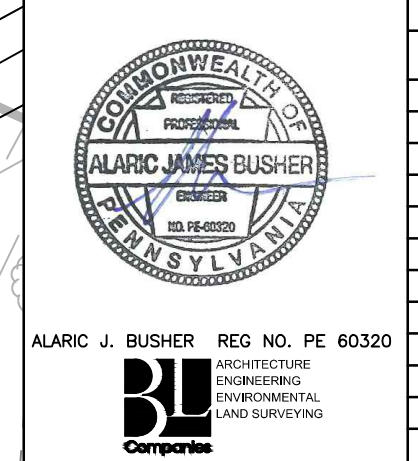
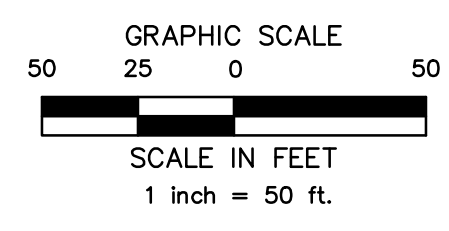
WsB

- CENTERLINE GAS PIPELINE
- ESCGP-2 PERMIT BOUNDARY
- LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- LIMIT OF DISTURBANCE (ZICK METER STATION)
- EXISTING ROAD
- ROW
- LIMITS OF FLOODWAY/FLOODPLAIN

SENSITIVE NATURAL RESOURCES TABLE

EXISTING NATURAL SENSITIVE RESOURCE	MAPPED? YES/NO/N/A	TOTAL AREA (AC.)	PROTECTED AREA (AC.)
WATERBODIES	N/A	0.00	0.00
FLOODPLAINS	N/A	0.00	0.00
RIPARIAN AREAS	N/A	0.00	0.00
WETLANDS	N/A	0.00	0.00
WOODLANDS	N/A	0.00	0.00
NATURAL DRAINAGE WAYS	N/A	0.00	0.00
STEEP SLOPES, 15%-25%	N/A	0.00	0.00
STEEP SLOPES, OVER 25%	N/A	0.00	0.00
OTHER:	N/A	0.00	0.00
OTHER:	N/A	0.00	0.00
TOTAL EXISTING:		0.00	0.00

SEE DEP STANDARD WORKSHEET 2 IN THE POST CONSTRUCTION STORMWATER MANAGEMENT COMPUTATIONS.



REVISIONS

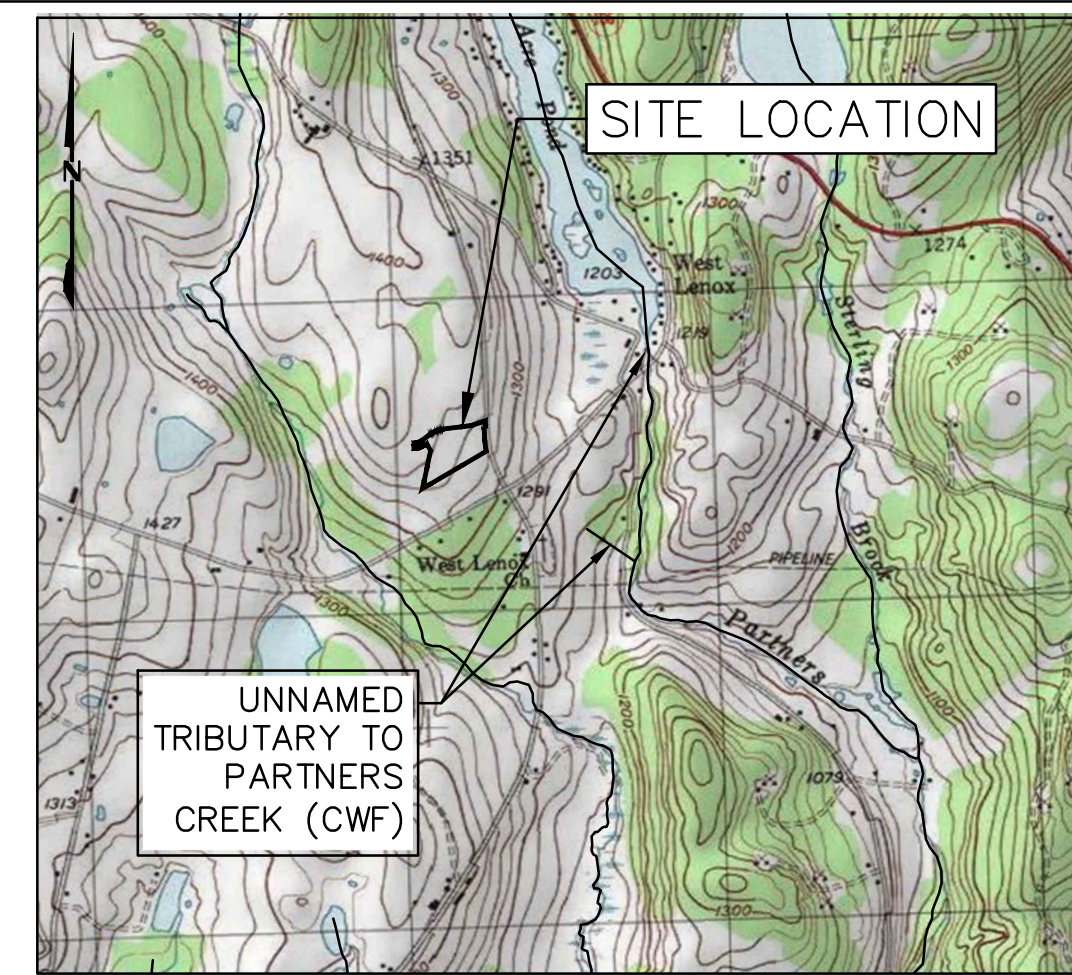
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE
 POST CONSTRUCTION STORMWATER MANAGEMENT PLANS
 FOR ZICK METER STATION & ASSOCIATED PERMANENT ACCESS ROADS
 LENOX TOWNSHIP, SUSQUEHANNA COUNTY, PENNSYLVANIA

SENSITIVE RESOURCES MAP

WILLIAMS

DRAWN BY: JEC	DATE: 04/03/15	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: AJB	DATE: 04/03/15	ISSUED FOR CONSTRUCTION:	REVISION: 5
APPROVED BY: AJB	DATE: 07/17/15	DRAWING NUMBER: (30-3680)MF-1A-9	SHEET 2 OF 6
W.D.:	1161483		



LOCATION MAP

USGS LENOXVILLE QUADRANGLE
SCALE: 1"=2,000'

SITE SOIL TYPES

WB2	WELLSBORO FLAGGY SILT LOAM, 3 TO 8 PERCENT SLOPES
WeB2	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
WC2	WELLSBORO FLAGGY SILT LOAM, 8 TO 15 PERCENT SLOPES
MgB	MARDIN CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
MoB2	MORRIS CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
LoD	LORDSTOWN AND OQUAGA VERY STONY SILT LOAMS, 12 TO 30 PERCENT SLOPES

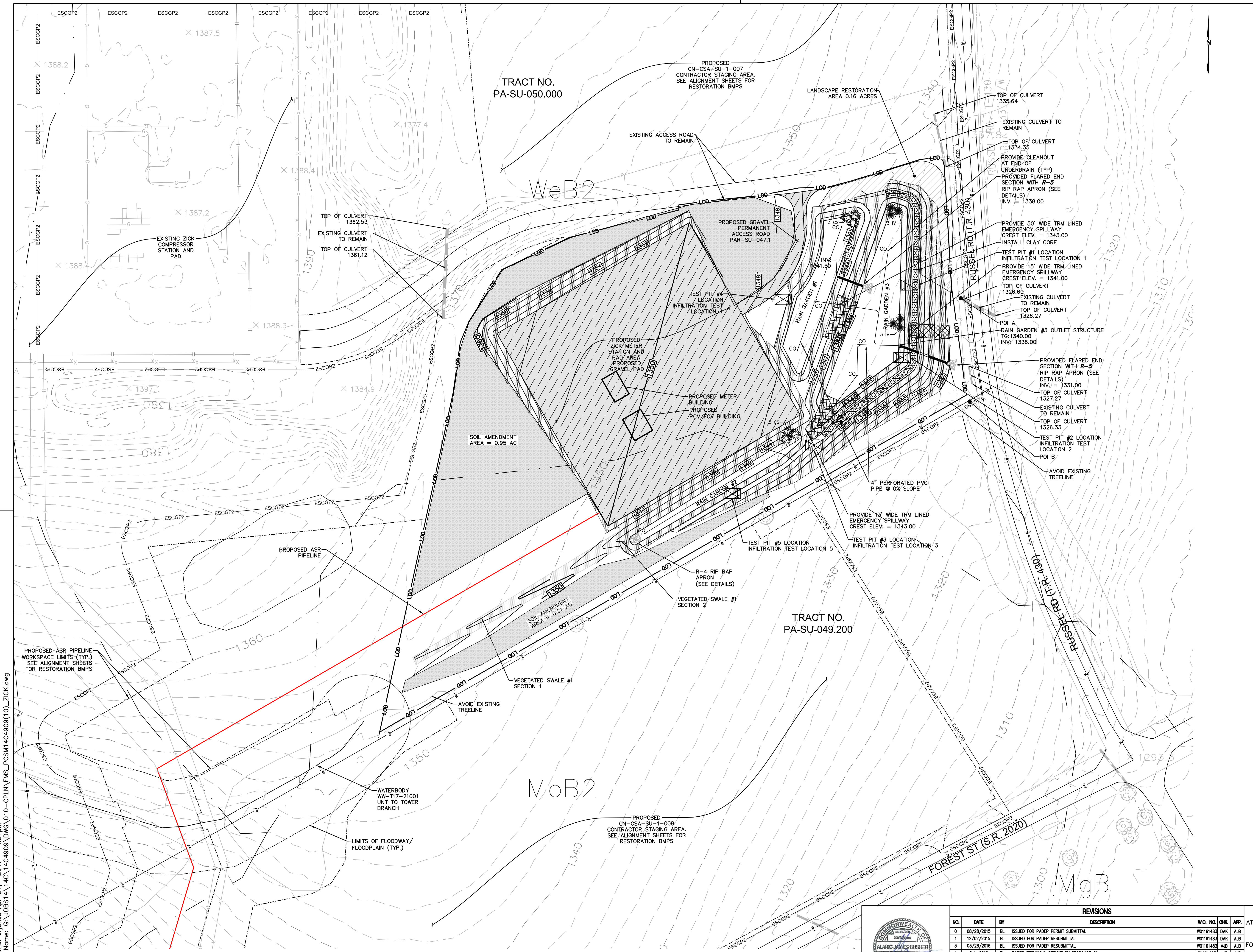
ESCGP-2 PERMIT TABLE

LIMIT OF PERMIT BOUNDARY/SITE AREA	5.22
LIMIT OF DISTURBANCE	5.22
AREA OF PROTECTED/ SENSITIVE VALUE FEATURES	0.00
AREA OF RIPARIAN FOREST BUFFER PROTECTION	0.00
AREA OF MINIMUM DISTURBANCE/REDUCED GRADING	0.00
IMPERVIOUS AREA (ACCESS ROADS, BLDG. & PAD)	1.53
DEVELOPED AREA CONTROLLED BY BMPs	1.53

PROPOSED FEATURES

	PROPOSED MAJOR CONTOUR (10' INTERVAL)
	PROPOSED MINOR CONTOUR (2' INTERVAL)
	LIMIT OF DISTURBANCE (ZICK METER STATION)
	LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
	ESCGP-2 PERMIT BOUNDARY
	CENTERLINE GAS PIPELINE
	SWALE LINING
	EROSION CONTROL BLANKET (N-30150 OR APPROVED EQUAL)
	ROCK OUTLET/RIPRAP APRON
	SOIL AMENDMENT AREA
	LANDSCAPE RESTORATION AREA
	TRM LINING
	CLAY CORE LIMITS
	TEST PIT LOCATION
	INFILTRATION TEST LOCATION
	DISCONNECT STORM SEWERS IMPERVIOUS AREA

NOTE: WITHOUT APPROVAL FROM THE CONSERVATION DISTRICT OR PADEP OWNER/OPERATOR SHALL NOT INSTALL INLETS OR OTHER STORMWATER COLLECTION DEVICES, SO AS TO MAINTAIN DISCONNECTION OF GRAVEL AREAS FROM STORM SEWERS. OWNER/OPERATOR SHALL NOT PAVE GRAVEL AREAS WITHOUT APPROVAL FROM THE CONSERVATION DISTRICT OR PADEP, SO AS TO MAINTAIN REDUCED PARKING AREA IMPERVIOUSNESS.

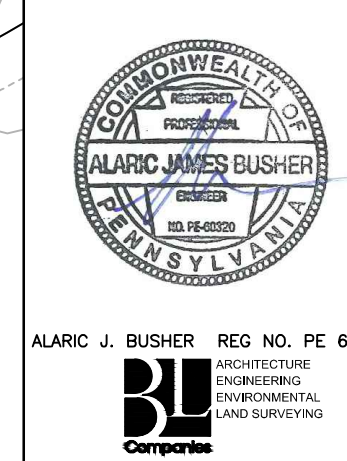
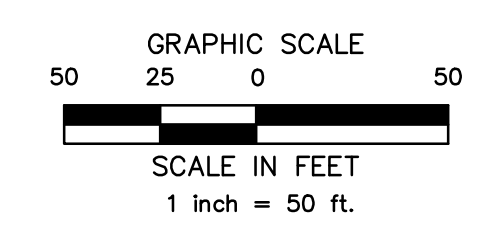


RECEIVING WATERS

PARTNERS CREEK TO TUNKHANNOCK CREEK, CWF
APPROXIMATE DISTANCE FROM SITE TO UNIT TO PARTNERS CREEK TO TUNKHANNOCK CREEK:
POI A: 440 FT (EAST)
POI B: 1,120 FT (SOUTH)

LANDSCAPE SCHEDULE

Symbol	Quant	Botanical Name	Common Name	Caliper	Height	Spread	Root	Notes
CS	6	Cornus serica	Redosier Dogwood 'Winter Flame'	0	18-24"	18-24"	3 gal	Full
IV	6	Ilex verticillata	Common Winterberry	0	24-30"	18-24"	5 gal	Full plant to base



REVISIONS			
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DRAWING NUMBER:	(30-3680)MF-1A-9	SHEET:	3
NO.:	1161483	OF:	6

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PCSM STANDARD NOTES

PERMIT TERMINATION
UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER § 102.22(A)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPs IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH §§ 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS), AND PCSM REQUIREMENTS, THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:
(1) THE FACILITY NAME, ADDRESS AND LOCATION.
(2) THE OPERATOR NAME AND ADDRESS.
(3) THE PERMIT NUMBER.
(4) THE REASON FOR PERMIT TERMINATION.

(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs IN ACCORDANCE WITH § 102.8(M) AND PROOF OF COMPLIANCE WITH § 102.8(M)(2).

PCSM REQUIREMENTS

PCSM REPORTING AND RECORD KEEPING: THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES: A LICENSED PROFESSIONAL OR A DESIGNER SHALL BE PRESENT ON-SITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPs, STRUCTURALLY ENGINEERED BMPs, OR OTHER BMPs AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

FINAL CERTIFICATION: THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS: "I (NAME) DO HEREBY PURSUANT TO THE PENALTIES OF 18 PA.C.S.A. § 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

(1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
(2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs.

PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPs ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE. THE DEPARTMENT OR CONSERVATION DISTRICT WILL CONDUCT A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION WITHIN 30 DAYS.

THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs.

FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPs AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUCCESSOR GRANTEE, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER § 102.7(B)(5) (RELATING TO PERMIT TERMINATION).

THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPs OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs LOCATED ON THE PROPERTY.

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.)

CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE:

FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL AND MUST BE KEPT ON SITE AND MADE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. FAILURE TO PRODUCE THE FORM UPON REQUEST MAY RESULT IN THE REVOKING, SUSPENSION OR TERMINATION OF YOUR PERMIT COVERAGE. A COPY OF FORM FP-001 CAN BE FOUND AT THE END OF THESE INSTRUCTIONS.

ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.

RECYCLING AND DISPOSAL OF MATERIALS

BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE § 102.8(V)(v). PROPER TRASH DISPOSAL, RECYCLING OF MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.

UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPs BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.

WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING: FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIME, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENT'S EMBRARY AT WWW.DEPEWES.STATE.PA.US.

SILT, SEDIMENT, TRASH, CONSTRUCTION WASTES AND ALL OTHER WASTES GENERATED DURING OPERATION AND MAINTENANCE ACTIVITIES SHALL BE PROPERLY MANAGED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.

RESPONSIBLE PARTY

OPERATION AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF WILLIAMS (APPLICANT).

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.

- VEGETATED SWALES**
VEGETATED SWALES ARE TO BE INSPECTED ANNUALLY FOR SEDIMENT, BUILD-UP, EROSION DEBRIS, AND DAMAGE DUE TO TRAFFIC. DITCHES SHOULD BE MAINTAINED TO ENSURE THAT THE SPECIFIED DESIGN DIMENSIONS AND VEGETATIVE LINING ARE AVAILABLE AT ALL TIMES. NO MORE THAN ONE-THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 3 AND 6 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY. ANY LITTER, DEBRIS, SEDIMENT, VEGETATION, OR OTHER ITEMS REMOVED DURING MAINTENANCE ACTIVITIES WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE ESCGP-2 REQUIREMENTS.
- RAIN GARDEN**
INSPECT RAIN GARDEN ANNUALLY AND INSPECT SOIL, REPAIR ERODED AREAS AND REMOVE LITTER AND DEBRIS AS NEEDED. INSPECT TWICE A YEAR FOR SEDIMENT BUILDUP, EROSION AND VEGETATIVE CONDITIONS. REMOVE AND REPLACE DEAD AND DISEASED VEGETATION. ANY LITTER, DEBRIS, SEDIMENT, VEGETATION, OR OTHER ITEMS REMOVED DURING MAINTENANCE ACTIVITIES WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE ESCGP-2 REQUIREMENTS.
- DISCONNECTION FROM STORM SEWERS**
DISCONNECTED IMPERVIOUS AREAS SHALL CONTINUE TO BE DIRECTED TO INFILTRATION AREAS AND VEGETATED SWALES AS SHOWN ON THE POST CONSTRUCTION STORMWATER MANAGEMENT PLANS. INFILTRATION AREAS AND VEGETATED SWALES SHALL BE MAINTAINED AS INDICATED ON THE POST CONSTRUCTION STORMWATER MANAGEMENT PLANS.
- SOIL AMENDMENT AND RESTORATION**
A. RESTRICT VEHICLE ACCESS.
B. INSPECT AND MAINTAIN SOIL AMENDMENT AND RESTORATION AREAS.
- REDUCE PARKING AREA IMPERVIOUSNESS**
GRAVEL AREAS WILL BE MAINTAINED IN GOOD CONDITION AND WILL NOT BE PAVED WITHOUT OBTAINING PRIOR APPROVAL FROM THE DEP OR THE COUNTY CONSERVATION DISTRICT.
- REFER TO THE TABLES BELOW FOR THE OPERATION AND MAINTENANCE OF POST CONSTRUCTION BEST MANAGEMENT PRACTICES.**
- ANNUAL CERTIFICATION OF MAINTENANCE PROCEDURES**
THE FACILITY SHALL MAINTAIN A CHECKLIST WHENEVER THE STORM SYSTEM IS INSPECTED AND CLEANED. AN ANNUAL LIST OF INSPECTIONS AND MAJOR CLEANING OPERATIONS AND REPAIRS (PUMPING, SWEEPING PARKING LOTS, CLEANING CATCH BASIN SUMPS ETC.) SHALL BE MAINTAINED. THE LOCAL CDD OR ENFORCEMENT OFFICIALS SHALL HAVE ACCESS TO THOSE RECORDS.
- ESCGP2 COMPLIANCE WITH ESCGP-2 REQUIREMENTS AND RECORD KEEPING FOR PERMANENT STORMWATER DISCHARGE AND MAINTENANCE AND OTHER APPLICABLE ESCGP-2 AND DEP REQUIREMENTS REGARDING DISCHARGES.**
- LANDSCAPE RESTORATION**
A. AREA OF LANDSCAPE RESTORATION SHALL BE MAINTAINED WITH SEASONAL MOWING AND RESEED AREAS THAT NEED REESTABLISHED
B. FIRST YEAR CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES.
C. THIRD YEAR MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL.

VEGETATED SWALES	
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.	AS NEEDED
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, 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.	ANNUAL - SPRING

RAIN GARDENS	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, 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 OUTLET CONTROL DEVICES AFTER EVERY MAJOR RAINFALL EVENT (>1 IN.) TO ENSURE FREE FLOW.	AS NEEDED
INSPECT SOIL & REPAIR ERODED AREAS, REMOVE LITTER AND DEBRIS	AS NEEDED
INSPECT FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, REMOVE & REPLACE DEAD & DISEASED VEGETATION.	TWICE PER YEAR
GENERAL MAINTENANCE NOTES: 1. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED. 2. DURING PERIODS OF EXTENDED DROUGHT, BIOTRETION AREAS MAY REQUIRE WATERING.	

LANDSCAPE RESTORATION	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
MOW AND RESEED AREAS THAT NEED REESTABLISHED	SEASONAL
CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES	FIRST YEAR
MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL	THIRD YEAR

PARKING AREA IMPERVIOUSNESS	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
INSPECT AND MAINTAIN GRAVEL AREAS	AS NEEDED

SOIL AMENDMENT & RESTORATION NOTES

NOTES:

- AMENDED SOIL MIX SHALL CONSIST OF 33% ORGANIC MATTER (COMPOST) AND 67% SOIL BASE (TOPSOIL) (2:1 SOIL TO COMPOST RATIO). SOIL SHALL HAVE A CLAY CONTENT OF LESS THAN 10% AND BE FREE OF TOXIC SUBSTANCES.
- CONSTRUCT ONLY AFTER UPSTREAM AREAS HAVE BEEN STABILIZED OR DIVERT RUNOFF DURING CONSTRUCTION.
- SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WITHIN THE DRIP LINE OF TREES OR TREE LINES.
- SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE OVER UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE.
- SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WHERE TRENCHING OR DRAINAGE LINES ARE INSTALLED.
- SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WHERE COMPACTION OF THE SOILS BY DESIGN IS REQUIRED.
- THE METHODOLOGY SHOULD BE PERFORMED WHEN THE SOIL CONDITIONS ARE DRY.
- ON-SITE SOILS WITH AN ORGANIC CONTENT OF AT LEAST 5% CAN BE PROPERLY STOCKPILED (TO MAINTAIN ORGANIC CONTENTS) AND REUSED.
- PROCEDURE ROTOTILL, OR RIP THE SUBGRADE, REMOVE ROCKS, DISTRIBUTE THE COMPOST, SPREAD THE NUTRIENTS, ROTOTILL AGAIN.
- ADD 6" COMPOST/AMENDMENT AND TILL UP TO 8" FOR MINOR COMPACTION.
- ADD 10" COMPOST/AMENDMENT AND TILL UP TO 20" FOR MAJOR COMPACTION.
- INSTALL PERMANENT SEED MIXTURE (MEADOW)

AMENDED SOIL PARAMETERS			
SOIL TEXTURE	IDEAL BULK DENSITIES g/cm ³	BULK DENSITIES THAT MAY AFFECT ROOT GROWTH g/cm ³	BULK DENSITIES THAT RESTRICT ROOT GROWTH g/cm ³
SANDS, LOAMY SANDS	< 1.60	1.69	1.80
SANDY LOAMS, LOAMS	< 1.40	1.63	1.80
SANDY CLAY LOAMS, LOAMS, CLAY LOAMS	< 1.40	1.60	1.75
SILT, SILT LOAMS	< 1.30	1.60	1.75
SOIL LOAMS, SILTY CLAY LOAMS	< 1.10	1.55	1.65
SANDY CLAYS, SILTY CLAYS, SOME CLAY LOAMS (35-45% CLAY)	< 1.10	1.49	1.58
CLAYS (> 45% CLAY)	< 1.10	1.39	1.47

GENERAL LANDSCAPE NOTES

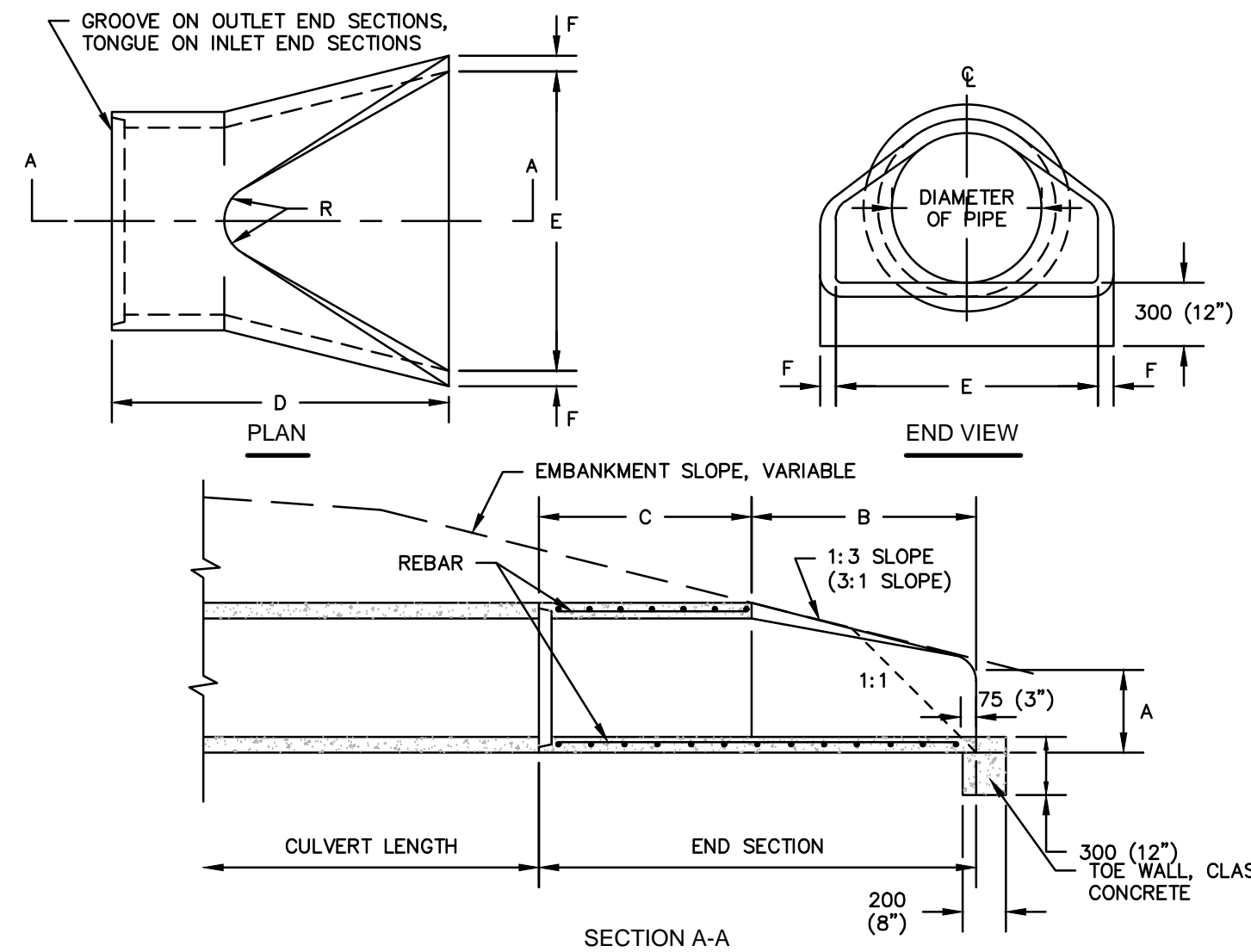
- GUARANTEE:** GUARANTEE ALL PLANTS AND LAWNS FOR A MINIMUM OF 1 YEAR TO BE ALIVE AND IN VIGOROUS GROWING CONDITION AT THE END OF THE GUARANTEE PERIOD. THE GUARANTEE PERIOD FOR ALL PLANTS SHALL BEGIN UPON APPROVAL AS SPECIFIED UNDER SUBSTANTIAL COMPLETION. PLANT MATERIALS AND LAWNS APPROVED IN THE SPRING SHALL BE ALIVE AND IN SATISFACTORY GROWTH ON JUNE 1 OF THE FOLLOWING YEAR; PLANTING DONE IN LATE FALL (AFTER NOVEMBER 1ST) SHALL BE MAINTAINED AND GUARANTEED UNTIL THE SPRING'S LEAFING AFTER THE SECOND YEAR. REPLACEMENTS: ALL PLANTS SHALL BE FREE OF DEAD OR DYING BRANCHES AND BRANCH TIPS, AND SHALL BEAR FOLIAGE OF A NORMAL DENSITY, SIZE AND COLOR. PROMPTLY REMOVE DEAD, UNSIGHTLY, UNHEALTHY, OR EXCESSIVELY PRUNED PLANTS. THESE AND ANY PLANTS MISSING DUE TO THE CONTRACTOR'S NEGLIGENCE, SHALL BE REPLACED OR ADDED WITH THE SAME KIND AND SIZE AS ORIGINALLY SPECIFIED AS SOON AS CONDITIONS PERMIT. METHOD OF REPLACEMENT SHALL BE THE SAME AS SPECIFIED FOR THE ORIGINAL PLANTING WITH REPLACEMENTS MATCHING ADJACENT SPECIMENS OF THE SAME SPECIES. REPLACEMENTS SHALL BE MADE AS MANY TIMES AS NECESSARY TO ENSURE HEALTHY PLANTS AND THEY SHALL BE MAINTAINED AND REPLACED. REPLACEMENTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE AND SHALL BE GUARANTEED FOR TWO FULL YEARS FROM TIME OF REPLACEMENT. PLANTS SHALL BE OTHERWISE PROTECTED AND MAINTAINED, INCLUDING, BUT NOT LIMITED TO, WATER AND SHADE. ANY PLANTS DEEMED NOT IN SATISFACTORY HEALTH OF CONDITION AT THE TIME OF PLANTING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL SUPPLY ALL LABOR AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE.
- UTILITY LOCATIONS SHOWN IN THE DRAWINGS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.
- FOR ALL PLANTING AND LAWN AREAS, CONTRACTOR SHALL EXCAVATE EXISTING SOIL TO PROVIDE A MINIMUM OF 4" OF PLANTING TOPSOIL MIX FROM FINISHED PLANTING ELEVATION. CONTRACTOR SHALL SUBMIT TOPSOIL TO A CERTIFIED TESTING LABORATORY TO DETERMINE pH, FERTILITY, ORGANIC CONTENT AND MECHANICAL COMPOSITION. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS FROM REGIONAL EXTENSION OFFICE OF USDA TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR SHALL INCORPORATE AMENDMENTS FOR GOOD PLANT GROWTH AND PROPER SOIL ACIDITY RECOMMENDED FROM THE TOPSOIL TEST AT NO INCREASE IN CONTRACT PRICE.
- ALL LANDSCAPING SHALL BE PERPETUALLY MAINTAINED BY THE PROPERTY OWNER. ANY LANDSCAPING NEEDED TO MEET AN ORDINANCE REQUIREMENT THAT DIES, IS REMOVED, OR IS SEVERELY DAMAGED SHALL BE REPLACED BY THE CURRENT PROPERTY OWNER AS SOON AS IS PRACTICAL CONSIDERING GROWING SEASONS, WITHIN A MAXIMUM OF 150 DAYS.
- AT ALL TIMES, THE SITE SHALL BE KEPT NEAT AND SHALL BE KEPT FREE OF DEBRIS LEFT FROM THE PLANTING OPERATION.
- ALL DISTURBED LANDSCAPE AREAS ARE TO BE RESEED.
- DURING THE CONSTRUCTION AND GUARANTEE PERIOD, WATER LAWN AT THE MINIMUM RATE OF 1 INCH (25 MM) PER WEEK. MOW LAWNS AS SOON AS THERE IS ENOUGH TOP GROWTH TO CUT WITH MOWER SET AT SPECIFIED HEIGHT FOR PRINCIPAL SPECIES PLANTED. REPEAT MOWING AS REQUIRED TO MAINTAIN SPECIFIED HEIGHT WITHOUT CUTTING MORE THAN 40 PERCENT OF GRASS HEIGHT. REMOVE NO MORE THAN 40 PERCENT OF GRASS-LEAF GROWTH IN INITIAL OR SUBSEQUENT MOWINGS. DO NOT DELAY MOWING UNTIL GRASS BLADES BEND OVER AND BECOME MATTED. DO NOT MOW WHEN GRASS IS WET.
- ALL DISTURBED AREAS WITHIN 50' OF A STREAM CROSSING (WHERE THE STREAM WIDTH IS LESS THAN OR EQUAL 10') SHALL BE STABILIZED WITHIN 24 HOURS OF COMPLETING CONSTRUCTION AT THE CROSSING.
- ALL DISTURBED AREAS WITHIN 50' OF A STREAM CROSSING (WHERE THE STREAM WIDTH > 10') SHALL BE STABILIZED WITHIN 48 HOURS OF COMPLETING CONSTRUCTION AT THE CROSSING.

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.

ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN:

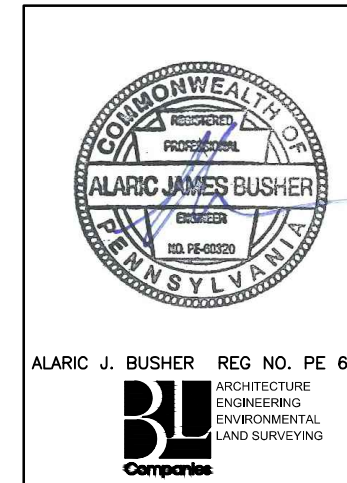
- CONTRACTOR SHALL LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED. LOCATIONS WHERE ACIDIC SOILS ARE ANTICIPATED TO BE PRESENT ON THE SITE.
- CONTRACTOR SHALL SEPARATELY STORE TOPSOIL STRIPPED FROM THE SITE AWAY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS AND BEDROCK.
- 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.
- CONTRACTOR SHALL COVER TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL AND BEDROCK MATERIAL TO BE EXPOSED MORE THAN 30 DAYS WITH PROPERLY ANCHORED, HEAVY-GRADE 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 TOPSOIL CONTAMINATION.
- 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:
 - 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.
 - CONTRACTOR SHALL NOT LOCATE ANY DISPOSAL AREA WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERM, STREAM BANKS, DITCHES, AND OTHER SURFACE WATERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
- 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-PLACED 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.
- FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT-OF-WAY, TRANSOC 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.
- 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.



DIA	A	B	C	D	E	F
12"	4"	2'-0"	4'-1"	6'-1"	2'-0"	2'
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"	2 1/4"
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"
24"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"
30"	12"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3 1/2"
36"	1"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"
48"	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"

CONCRETE FLARED END SECTION (ROUND PIPE)

N.T.S



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/26/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL	W0161483	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	DAK	AJB
3	03/29/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	AJB	AJB
4	04 Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161483	AJB	AJB
5	Apr. 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W0161483	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE			
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS			
FOR ZICK METER STATION & ASSOCIATED PERMANENT ACCESS ROADS			
LENOX TOWNSHIP, SUSQUEHANNA COUNTY, PENNSYLVANIA			
PCSM NOTES AND DETAILS			
DRAWN BY:	JEC	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
ISSUED FOR:	ISSUED FOR CONSTRUCTION	SCALE:	AS NOTED
APPROVED BY:	AJB	DATE:	07/17/15
DRAWING NUMBER:	(30-3680)MF-1A-9	REVISION:	5
W.O.:	1161483	SHEET:	4
		OF:	6



RIP RAP GRADATION, FILTER BLANKET, MAXIMUM VELOCITIES

Riprap Gradation, Filter Blanket Requirements, Maximum Velocities						
Percent Passing (Square Openings)						
Class, Size NO.	R-8	R-7	R-6	R-5	R-4	R-3
Rock Size (Inches)						
42	100					
30		100				
24	15-50					
18		100				
15	0-15			100		
12		0-15		15-50		
9			0-15		100	
6				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 V _{max} (ft/sec)	AASHTO #1	AASHTO #1	AASHTO #1	AASHTO #3	AASHTO #3	AASHTO #57
	17.0	14.5	13.0	11.5	9.0	6.5

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%.

Adapted from PennDOT Pub. 406, Section 703.2(c), Table C

LIMING AND FERTILIZER RATES

Soil Amendment	Permanent Seeding Application Rate			Notes
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	
Agricultural lime	6 tons	240 lb.	2,480 lb.	Or as per soil test; may not be required in agricultural fields
10-10-20 fertilizer	1,000 lb.	25 lb.	210 lb.	Or as per soil test; may not be required in agricultural fields
Temporary Seeding Application Rate				
Agricultural lime	1 ton	40 lb.	410 lb.	Typically not required for topsoil stockpiles
10-10-10 fertilizer	500 lb.	12.5 lb.	100 lb.	Typically not required for topsoil stockpiles

PA DEP TABLE 11.2

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	2.0	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	4.4	7.5	13
Deertongue	Dichanthelium clandestinum	0.7	6.0	10
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	5
White Clover	Trifolium repens	0.2	3.0	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	60.0	100.00

NOTES:

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

ROW SEED MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Red Top	Agrostis gigantea	0.1	12.0	20
Timothy	Phleum pratense	0.4	12.0	20
Tall Fescue	Festuca arundinacea	1.7	9.0	15
Annual Ryegrass	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

NOTES:

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

SOILS LIMITATIONS AND RESOLUTIONS

LIMITATION	RESOLUTION
CUTBANKS CAVE	EXCAVATIONS WILL BE PROPERLY SUPPORTED BY SHEETING AND SHORING TO PREVENT CAVES.
CORROSIVE TO CONCRETE/STEEL	NO CONCRETE OR STEEL PIPING IS PROPOSED WITHOUT APPROPRIATE COATINGS AND PROTECTION
DROUGHTY	EXISTING SUITABLE TOPSOIL AND SOIL AMENDMENTS WILL BE USED DURING CONSTRUCTION.
EASILY ERODIBLE	TEMPORARY AND PERMANENT EROSION CONTROL BMPs WILL BE EMPLOYED THROUGHOUT THE SITE.
FLOODING	ENSURE THAT THE SITE HAS PROPER DRAINAGE.
HIGH WATER TABLE	A GEOTECHNICAL INVESTIGATION WAS CONDUCTED TO MINIMIZE CONFLICTS WITH SATURATED ZONES.
HYDRIC/HYDRIC INCLUSIONS	A WETLAND INVESTIGATION WAS COMPLETED TO DETERMINE IF WETLANDS ARE PRESENT IN THE DEVELOPMENT AREA.
LOW STRENGTH	A MAXIMUM OF 3:1 SLOPES ARE PROPOSED.
SLOW PERCOLATION	FIELD INVESTIGATIONS OF PERCOLATION RATES AT THE INFILTRATION AREAS WERE PERFORMED TO VERIFY THE SOILS PERCOLATION CAPACITY.
PIPING	WATERTIGHT PIPE, ANTISEEP COLLARS, CLAY CORES THROUGH BASIN BERMS, AND CONCRETE ENDWALLS WILL BE USED TO MINIMIZE THE DANGER OF PIPING.
POOR SOURCE OF TOPSOIL	EXISTING TOPSOIL, WHICH HAS PROVEN TO BE SUITABLE, WILL BE REUSED ON THE SITE.
FROST ACTION	PAVEMENT SUBBASE WILL BE PROVIDED TO MINIMIZE FROST AFFECTS.
SHRINK-SWELL	STONE BASE WILL BE PROVIDED TO PREVENT SHRINK-SWELL FROM EFFECTING PAVEMENT.
POTENTIAL SINKHOLE	GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS WILL BE FOLLOWED FOR ANY POTENTIAL SINKHOLES.
PONDING	SURFACE GRADING AND DRAINAGE FACILITIES WILL BE PROVIDED TO MINIMIZE PONDING AFFECTS.
WETNESS	WET WEATHER CONSTRUCTION RECOMMENDATIONS, PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS, WILL BE EMPLOYED TO MINIMIZE THE AFFECTS OF WETNESS DURING CONSTRUCTION, SURFACE GRADING, SURFACE GRADING AND DRAINAGE WILL BE PROVIDED TO MINIMIZE WETNESS AFFECTS AFTER CONSTRUCTION.

MULCH

- MULCHES SHOULD BE APPLIED AT THE RATES SHOWN IN TABLE 11.6
- 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.
- 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 SEEDING 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 GENERALLY MORE EFFECTIVE.
- 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.
- 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.
- 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.
- 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 THEMATICALLY PROCESSED WOOD FIBERS. 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).
- NO MULCH MAY BE APPLIED IN WETLANDS.

TABLE 11.6				
MULCH APPLICATION RATES				
MULCH TYPE	APPLICATION RATE (MIN.)			NOTES
	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YD.	
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 PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDRO-MULCH	1 TON	47 LB.	415 LB.	SEE LIMITATIONS ABOVE
HYDRAULICALLY APPLIED BLANKETS	3,000 LB.	N/A	N/A	SLOPES UP TO 3H:1V
	4,000 LB.	N/A	N/A	SLOPES STEEPER THAN 3H:1V

PERMANENT SEED MIXTURES COOL & WARM SEASON GRASSES

NON-AGRICULTURAL MEADOWS

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Virginia Wildrye	Elymus virginicus	5.3	9.0	15%
Little Bluestem	Schizachyrium scoparium	1.5	9.0	15%
Sideoats Grama	Buteloua 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%

STORM BASIN MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Orchardgrass	Dactylis glomerata	0.8	12.0	20%
Timothy	Phleum pratense	0.4	9.0	15%
Switchgrass	Panicum virgatum	1.0	12.0	20%
Virginia Wildrye	Elymus virginicus	7.1	9.0	15%
Fox Sedge	Carex vulpinoidea	0.3	3.0	5%
Oxeye Sunflower	Heliopsis helianthoides	1.3	3.0	5%
Swamp Milkweed	Asclepias incarnata	1.7	12.0	20%
Total	--	12.6	60.0	100%

CRITICAL STAGES OF CONSTRUCTION

THE FOLLOWING ARE CRITICAL STAGES OF CONSTRUCTION:

- INSTALLATION OF SEDIMENT TRAP.
- INSTALLATION OF VEGETATED SWALE.
- INSTALLATION OF RAIN GARDENS #1 AND #2.
- CONVERSION SEDIMENT TRAP TO RAIN GARDEN #3.
- SOIL AMENDMENT.

SITE SOIL TYPES AND LIMITATIONS

MAP UNIT NAME	MAP UNIT DESIGNATION	SLOPES	SOIL NAME	CUTBANKS CAVE CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	HIGH WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK-SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
LORDSTOWN AND OQUAGA VERY STONY SILT LOAM	LsD	12-30%	LORDSTOWN & OQUAGA	X	C/S	X	X	X	X	X	X	X	X	X	X			X
MARDIN CHANNERY SILT LOAM	MgB	0-8%	MARDIN	X	S	X	X	X	X	X	X	X	X	X				X
MORRIS CHANNERY SILT LOAM	MoB2	3-8%	MORRIS	X	C/S	X	X	X	X	X	X	X	X	X				X
WELLSBORO CHANNERY SILT LOAM	WeB2	3-8%	WELLSBORO	X	C/S	X	X	X	X	X	X	X	X	X				X
WELLSBORO FLAGGY SILT LOAM	WB2	3-8%		X	C/S	X	X	X	X	X	X	X	X	X				X
	WC2	8-15%		X	C/S	X	X	X	X	X	X	X	X	X				X

EARTH DISTURBANCE ACTIVITY - PAST, PRESENT, AND FUTURE LAND USES

THE LAND USES AND AQUATIC FEATURES FOUND WITHIN THE PROJECT AREA OCCUR ON MIXED HARDWOOD UPLAND FOREST, AND SHALLOW FORESTED WETLANDS. ACCORDING TO THE IMAGERY PROVIDED BY THE PENNSYLVANIA GEOLOGICAL SURVEY, THE LAND USES WITHIN THE PROJECT AREA REMAINED SIMILAR BETWEEN 1939 AND 1967. THE LAND USES ON THE 1939 AERIALS WERE PRIMARILY COMPOSED OF MIXED HARDWOOD UPLAND FOREST. FUTURE LAND USE WOULD INVOLVE THE INSTALLATION OF THE METER STATION PAD AND ACCESS ROADS.

THERMAL IMPACT ANALYSIS

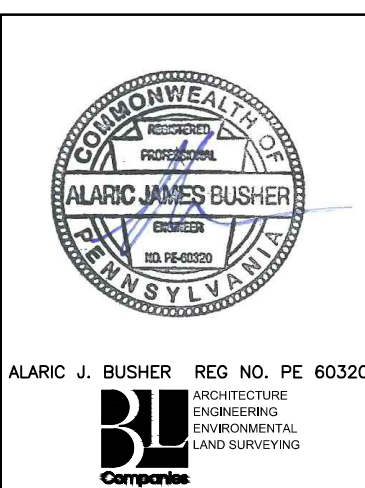
THERMAL IMPACTS ASSOCIATED WITH CPL NORTH, CPL SOUTH, AND ASSOCIATED FACILITIES WILL BE AVOIDED TO THE MAXIMUM EXTENT PRACTICABLE. THE FOLLOWING PROVISIONS RELATED TO THERMAL IMPACTS ARE INCLUDED IN THE E&S PLAN WITHIN SECTION 2 OF THE ESCOP-2 NOI.

- THE MINIMUM PERMANENT CHANGES IN LAND COVER, NECESSARY TO CONSTRUCT THE REQUIRED FACILITIES ARE BEING PROPOSED.
- RUNOFF FROM THE PERMANENT IMPERVIOUS AREAS 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.
- PCSM/SR BMPs INCORPORATE THE USE OF INFILTRATION FACILITIES SUCH AS BASINS AND VEGETATED SWALES WITH EARTHEN CHECK DAMS.
- THE REMOVAL OF VEGETATION, ESPECIALLY TREE COVER, WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION.
- THE RECEIVING WATERS FOR THIS FACILITY ARE APPROXIMATELY 2,000 FEET FROM THE SITE. TRAVEL TIME OF SITE RUNOFF OVER THIS DISTANCE WILL ALLOW RUNOFF TO REACH A TEMPERATURE NOT EXPECTED TO IMPACT THE RECEIVING WATERS.

METER STATION SEQUENCE OF CONSTRUCTION

- 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.
- LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE LIMITS OF DISTURBANCE.
- INSTALL ROCK CONSTRUCTION ENTRANCES (RCS).
- REMOVE BRUSH TO EFFECTIVELY INSTALL PERIMETER CONTROLS, LEVEL SIDE CUTS TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS ON THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- THE COMPLIANCE MANAGER SHALL PROVIDE PADEP AND CCD AT LEAST THREE DAYS' NOTICE PRIOR TO BULK EARTH DISTURBANCE AND UPON COMPLETED INSTALLATION OF PERIMETER EROSION CONTROLS.
- UTILIZE EXISTING PERMANENT ACCESS ROAD.
- INSTALL SEDIMENT TRAP WITH CONCRETE RISER, INCLUDING CLAY CORE, ANTISEEP COLLARS, SLOPE LINERS, CLEANOUT STAKE, AND ASSOCIATED IMPROVEMENTS.
- INSTALL VEGETATED SWALE #1 AND TEMPORARY SWALE #2.
- PROCEED WITH MAJOR CLEARING AND GRUBBING.
- BEGIN CONSTRUCTION STAKING FOR GRADING.
- BEGIN GRADING AND STRIP AND STOCKPILE TOPSOIL WITHIN THE METER STATION AREA AND INSTALL SEDIMENT BARRIERS AROUND STOCKPILES.
- 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 EROSION AND SEDIMENTATION 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 EROSION AND SEDIMENTATION, OR AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW. THE ON-SITE ENVIRONMENTAL INSPECTOR WILL LOG DAILY ACTIVITY WITHIN THE LOD AND NOTIFY THE CONTRACTOR OF AREAS REQUIRING TEMPORARY STABILIZATION (I.E., AREAS WHERE WORK HAS CEASED FOR AT LEAST FOUR DAYS).
- ROUGH GRADE SITE.
- GRADE THE METER STATION PAD AS SHOWN ON THE E&S AND PCSM/SR PLANS (SECTIONS 2 AND 3 OF THE ESCOP-2 NOI).
- IMMEDIATELY STABILIZE SIDE SLOPES WITH EROSION CONTROL MATTING WHEN SLOPES ARE 3:1 OR GREATER. SEE PCSM/SR PLANS AND DETAIL SHEETS, AS PROVIDED IN SECTION 3 OF THE ESCOP-2 NOI, (PATTERNS DIFFER BY SLOPE CATEGORY). INSTALL RIP RAP SLOPE STABILIZATION WHERE SHOWN ON THE PCSM/SR PLANS.
- ESTABLISH FINAL GRADE.
- SURFACE STABILIZATION, APPLY PERMANENT STABILIZATION MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS REACHED FINAL GRADE.
- UPON COMPLETION OF ALL EARTHWORK ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR AN INSPECTION PRIOR TO THE REMOVAL/CONVERSION OF THE E&S BMPs.
- INSTALL RAIN GARDENS #1 AND #2 WITH ASSOCIATED UNDERDRAINS AND ENGINEERED SOIL. REMOVE TEMPORARY SWALE #2 CONVERT SEDIMENT TRAP #1 TO RAIN GARDEN #3. REMOVE SEAL FROM ORIFICE IN OUTLET STRUCTURE. OVER EXCAVATE THE BOTTOM OF ALL RAIN GARDENS FOR INSTALLATION OF ENGINEERED SOIL AND UNDERDRAIN AS IDENTIFIED ON THE PCSM PLAN DETAILS.
- AFTER FINISH GRADING AND TOPSOIL PLACEMENT IS COMPLETED, DISTURBED AREAS SHALL BE IMMEDIATELY FERTILIZED, SEEDED, AND MULCHED. SEED MIXTURES, FERTILIZER AND MULCH APPLICATIONS RATES AND DATES SHALL CONFORM TO THE TABLES PROVIDED ON THE PCSM/SR PLANS AND DETAIL SHEETS (SECTION 3 OF THE ESCOP-2 NOI), LAND OWNER AGREEMENTS AND/OR THE ECP (SECTION 4 OF THE ESCOP-2 NOI).
- AFTER SEEDING, FERTILIZING AND MULCHING IS COMPLETE, INSTALL EDGS AS REQUIRED OR ORDERED OR ON SLOPES OF 3:1 OR GREATER.
- AFTER THE SITE IS PERMANENTLY STABILIZED AND UPON PADEP OR LOCAL CCD AND OWNER APPROVAL OF STABILIZATION AND RE-VEGETATION, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND STABILIZE AREAS DISTURBED BY REMOVAL.
- COMPLETE SITE STABILIZATION, INCLUDING SOIL AMENDMENT, SEED APPLICATION, ECB INSTALLING IN BASIN, AND MULCHING (INSTALL COMPOSITE FILTER SOCK AT TOE OF SLOPE IN INTERIOR OF RAIN GARDENS).
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR A FINAL INSPECTION.
- MAINTAIN E&S BMPs UNTIL SITE WORK IS COMPLETE AND UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- REMOVE AND PROPERLY DISPOSE/RECYCLE E&S BMPs. REMOVE ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED DURING E&S BMP REMOVAL UPON ESTABLISHMENT OF UNIFORM 70% VEGETATIVE COVER

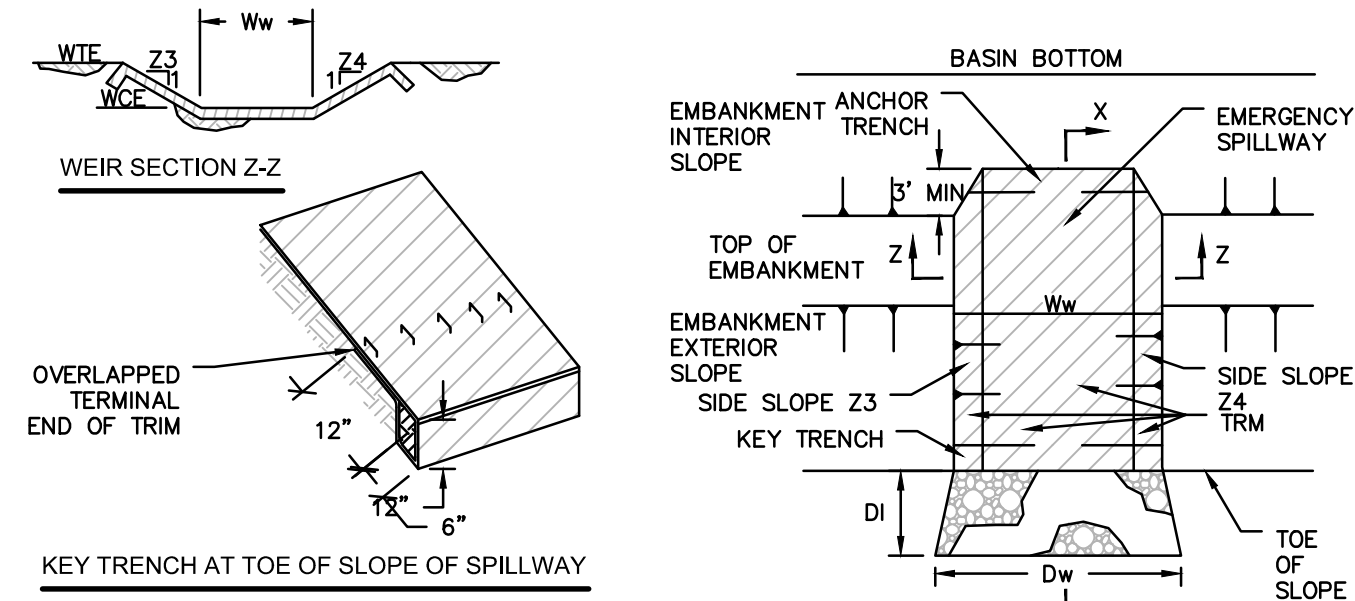
* INDICATES A CRITICAL STAGE OF PCSM INSTALLATION TO BE OBSERVED BY A LICENSED PROFESSIONAL OR DESIGNEE. CONTRACTOR TO PROVIDE 3 BUSINESS DAYS NOTICE TO ENGINEER AND TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.



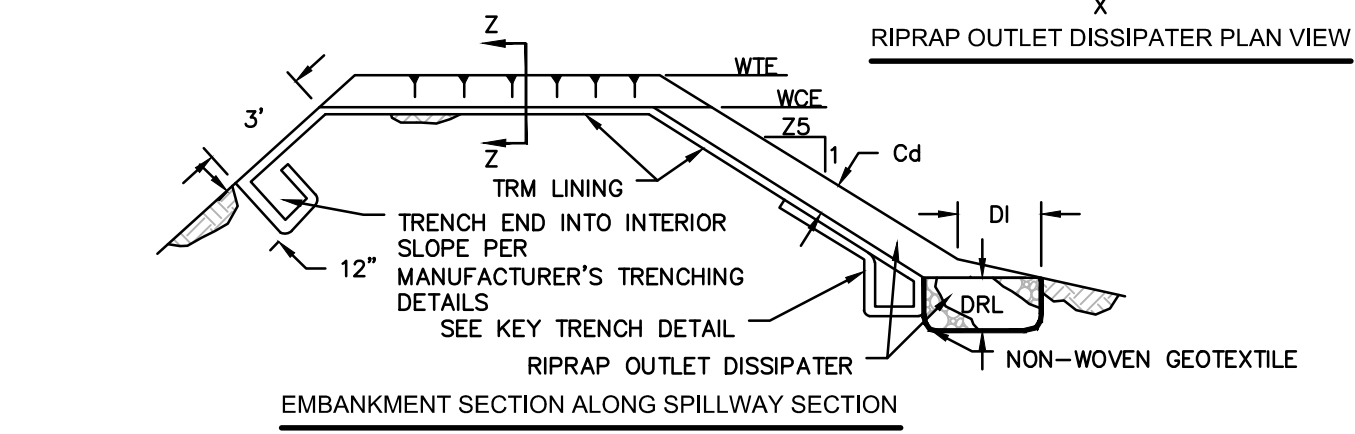
REVISIONS				TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC	
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.
0	08/26/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL	W0161483	DAK AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	DAK AJB
3	03/29/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	DAK AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEPENDENCY RESPONSE #1	W161483	AJB AJB
5	Apr. 2017	BL	PADEP TECHNICAL DEPENDENCY RESPONSE #2	W161483	AJB AJB

PCSM NOTES AND DETAILS						
DRAWN BY:	JEC	DATE:	04/03/15	ISSUED FOR BID:	SCALE:	AS NOTED
CHECKED BY:	AJB	DATE:	04/03/15	ISSUED FOR CONSTRUCTION:	REVISION:	5
APPROVED BY:	AJB	DATE:	07/17/15	DRAWING NUMBER:	(30-3680)MF-1A-9	SHEET 5 OF 6

Drawn By & Date/Time: Jrfjones Apr 27, 2017 - 4:22pm
Drawing Location & Name: G:\00851\14C\1404909\DWG\010-QPLN\FMS_PCSM1404909(10)_.ZICK.dwg



RIPRAP OUTLET DISSIPATER PLAN VIEW

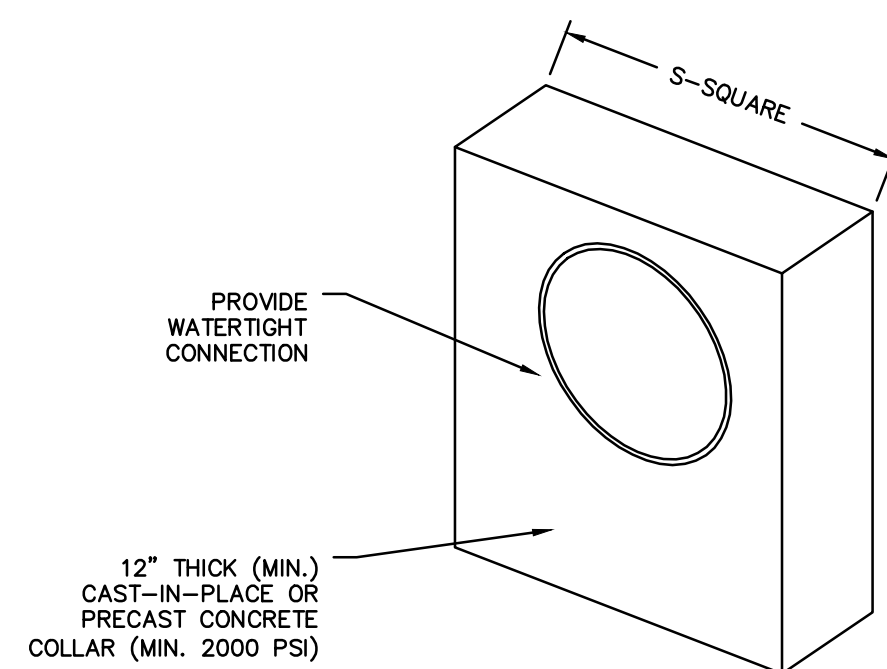


RAIN GARDEN	WEIR			LINING			SWALE			DISSIPATER		
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	TRM TYPE	STAPLE PATTERN	Z5 (FT)	DEPTH Cg (FT)	LENGTH D1 (FT)	WIDTH D2 (FT)	RIPRAP SIZE (R--)	RIPRAP THICK. DRI (IN)	
3	3	3	1342.00	1341.00	15	P550	B	NA	NA	NA	NA	NA
2	3	3	1344.00	1343.00	13	P300	B	NA	NA	NA	NA	NA
1	3	3	1344.00	1343.00	50	P300	B	NA	NA	NA	NA	NA

HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING.
 DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET SWALE SHALL BE REPLACED IMMEDIATELY.
 RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.
 THE USE OF BAFFLES THAN REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS LINERS.

INFILTRATION BASIN EMERGENCY SPILLWAY WITH TRM LINING

N.T.S. PADEP-7-13

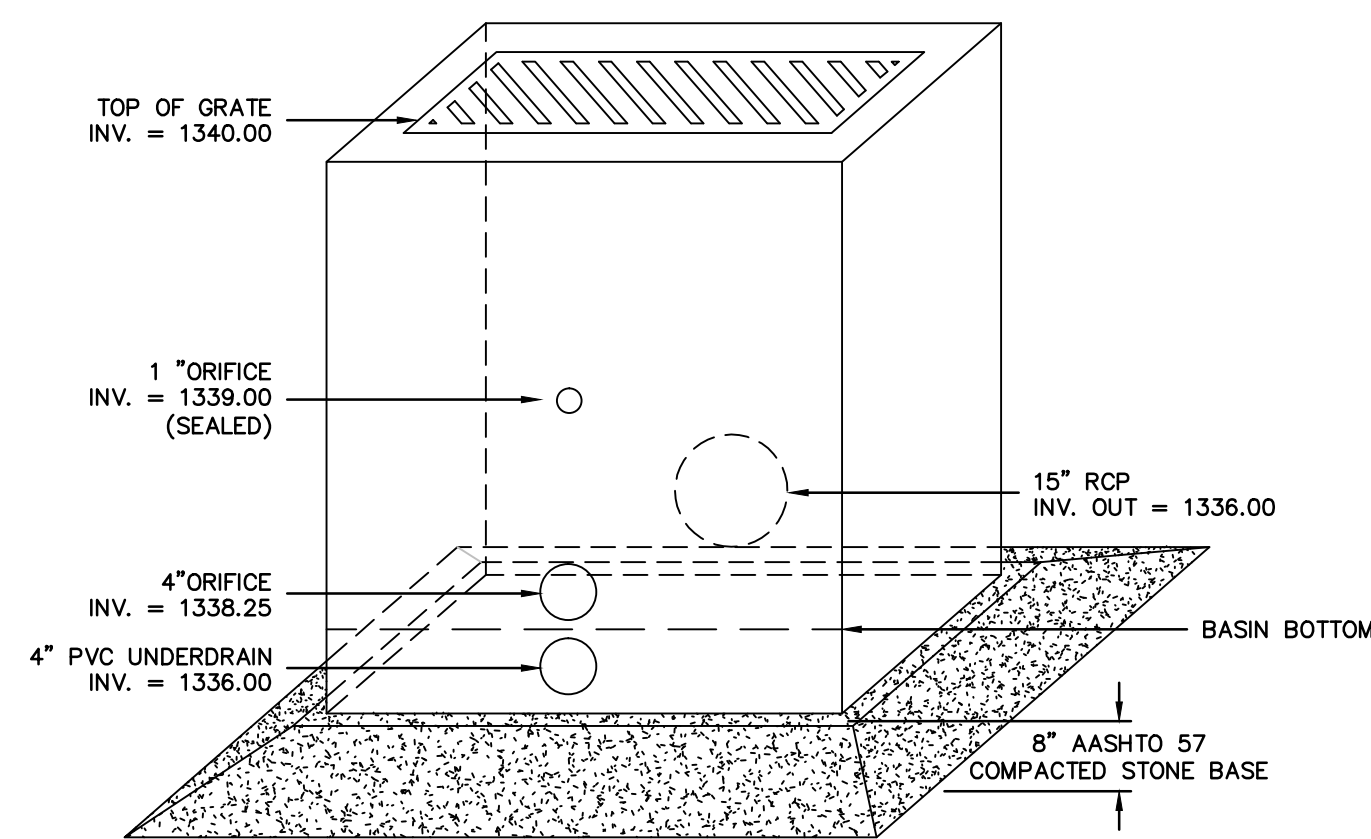


ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATER TIGHT.
 COLLAR SIZE AND SPACING SHALL BE AS INDICATED BELOW.

BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	DISTANCE RISER TO 1ST COLLAR (FT)	COLLAR SPACING (FT)
TRAP #1	15	94	1	20	N/A

CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS DETAIL

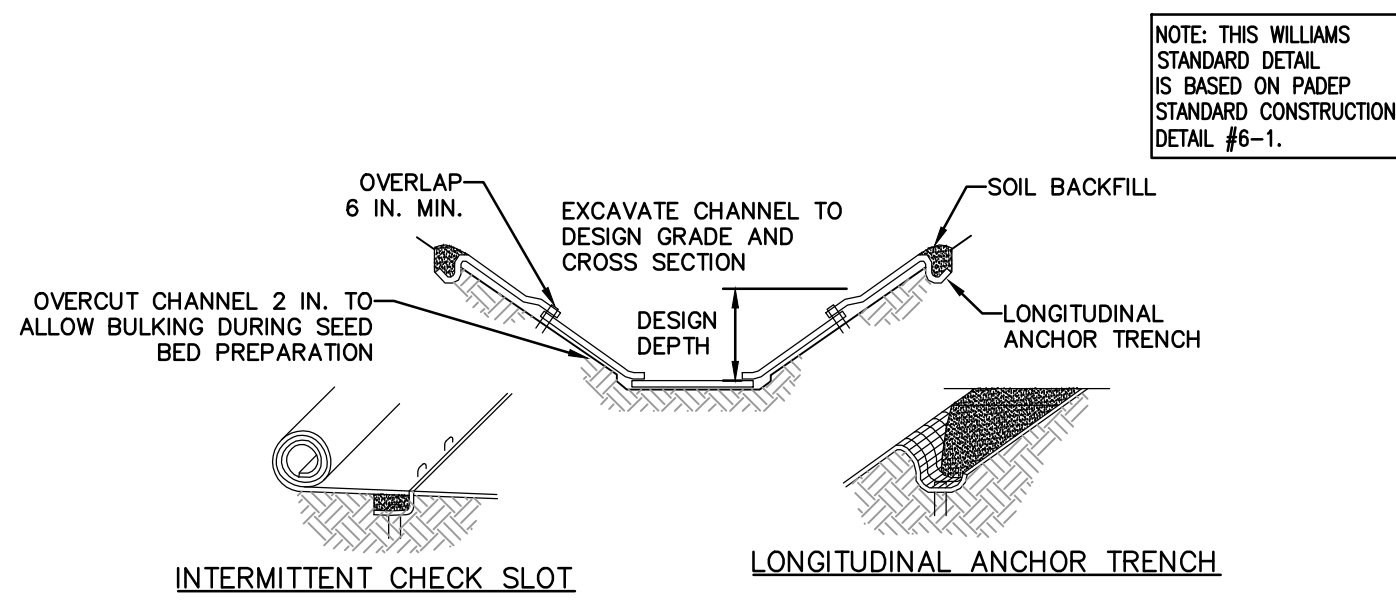
N.T.S. PADEP-7-16



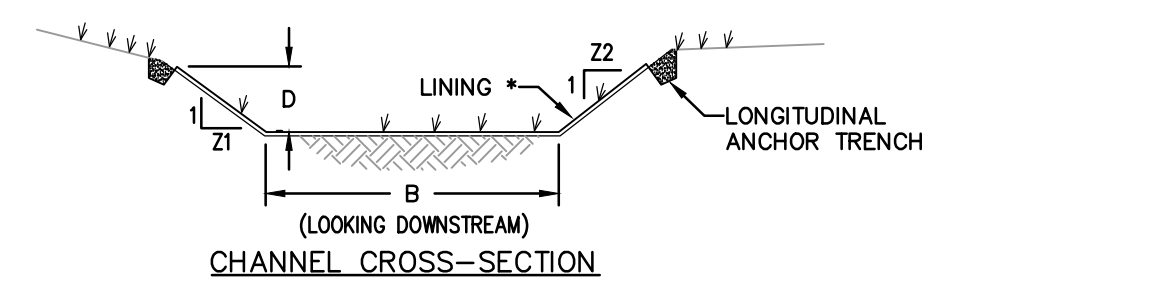
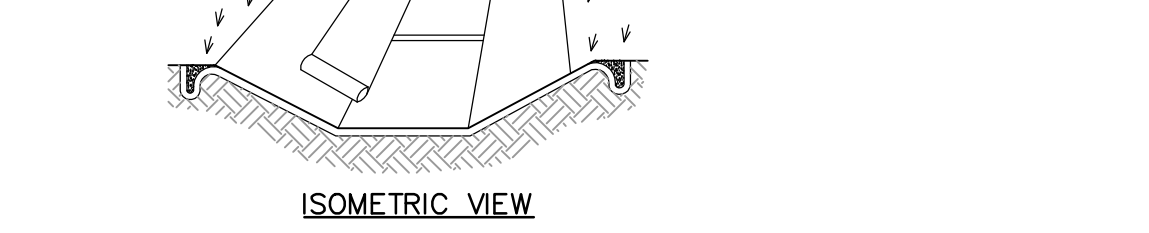
NOTE:
 1. THE PROPOSED OUTLET STRUCTURE SHALL BE A TYPE "M" INLET IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC-34. OUTLET STRUCTURE SHALL CONTAIN A TRASH RACK.

PERMANENT OUTLET STRUCTURE (OS-1)

N.T.S.



PREPARE SOIL AND APPLY SEED BEFORE INSTALLING BLANKETS, MATS, OR OTHER TEMPORARY CHANNEL LINER SYSTEM.



* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

NOTES:
 ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF SWALE IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

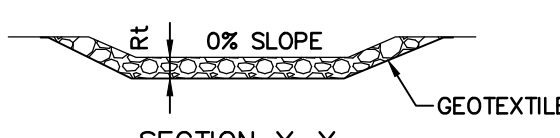
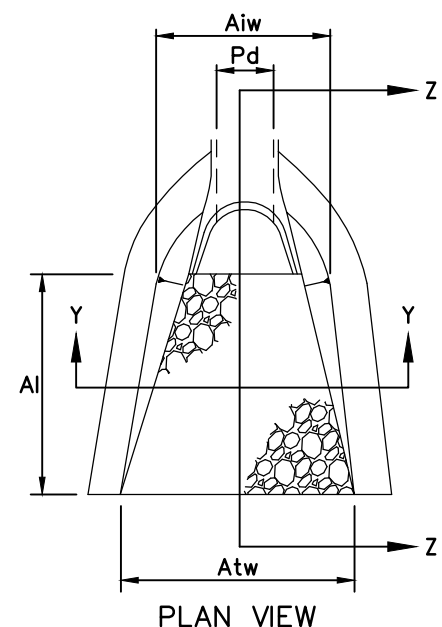
SWALE DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. SWALE SHALL BE CLEANED WHENEVER TOTAL SWALE DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO SWALE WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED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

SWALE SUMMARY TABLE						
SWALE NO.	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	PERMANENT LINING
SWALE 1 SECTION 1	2.0	1.5	11.0	3.0	3.0	SC150 GRASS
SWALE 1 SECTION 2	2.0	1.5	11	3.0	3.0	SC250 GRASS

VEGETATED SWALE

N.T.S.



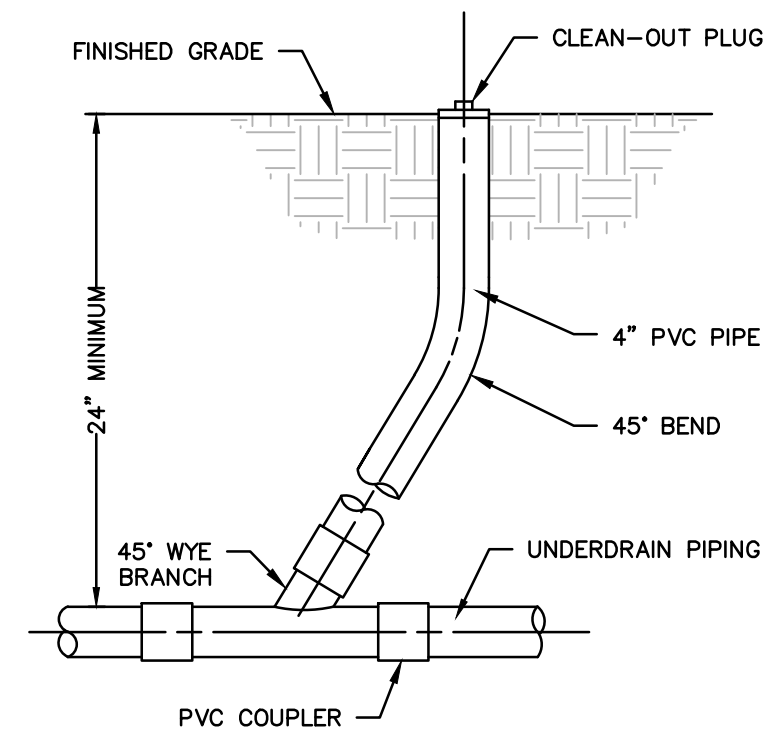
NOTES:

- ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLANS. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.
- ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		
		SIZE (R--)	THICK. Rt (IN)	LENGTH A1 (FT)	INITIAL WIDTH A1w (FT)	TERMINAL WIDTH (A1w) (FT)
VEGETATED SWALE 1	N/A	4	18	10	6	16
TRAP #1/RG #3	15	5	27	8	4.50	12.50
RAIN GARDEN #1	12	5	27	6	3	9

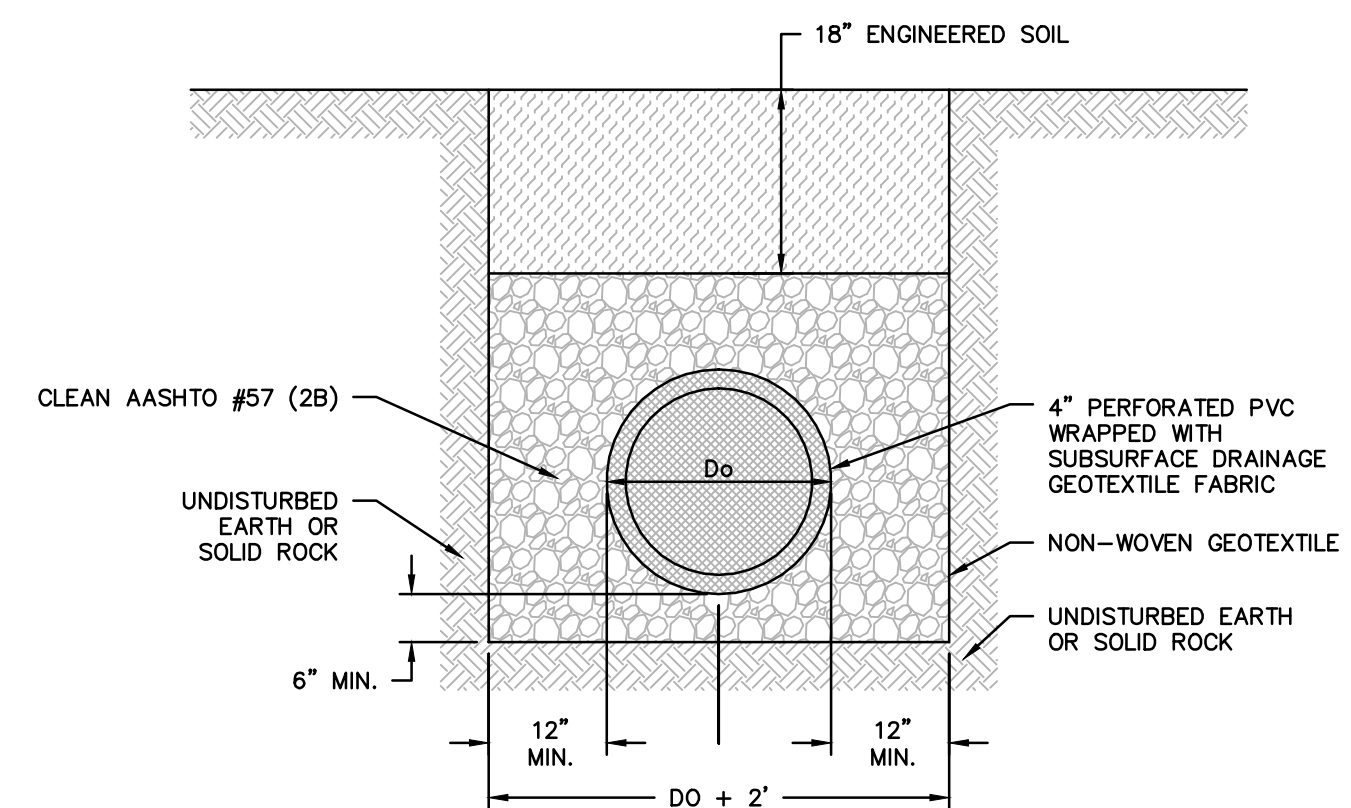
RIP-RAP APRON AT PIPE OUTLET WITH FLARED END SECTION

N.T.S.



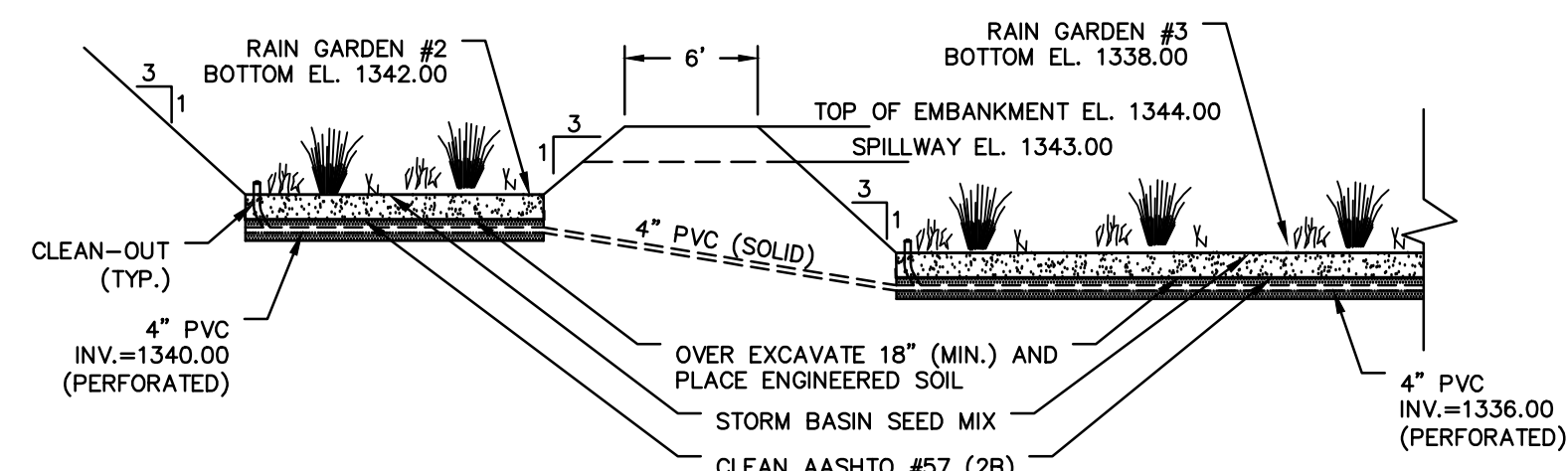
PVC CLEAN-OUT DETAIL

N.T.S.



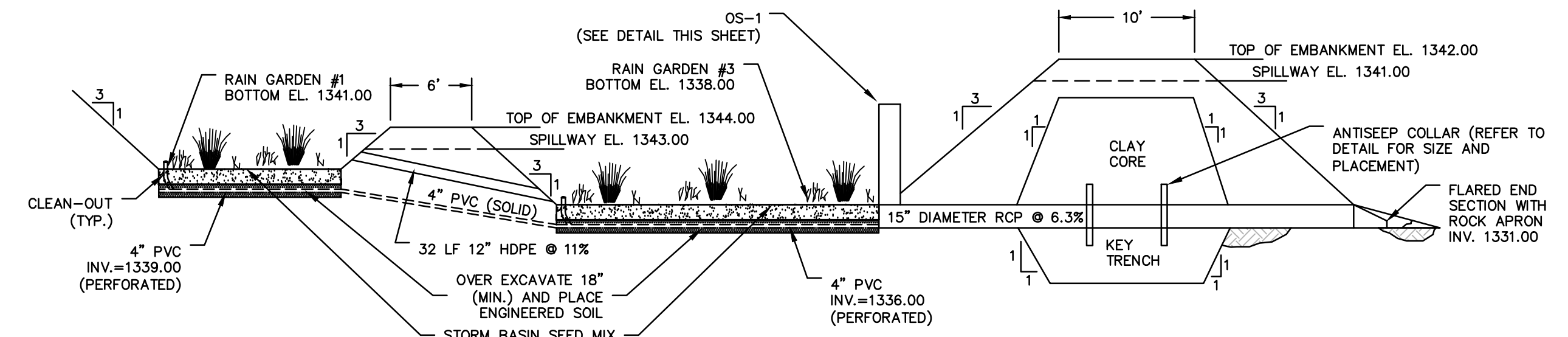
PERFORATED DRAINAGE PIPE TRENCH SECTION

N.T.S.



RAIN GARDEN #2 TO RAIN GARDEN #3 CROSS SECTION

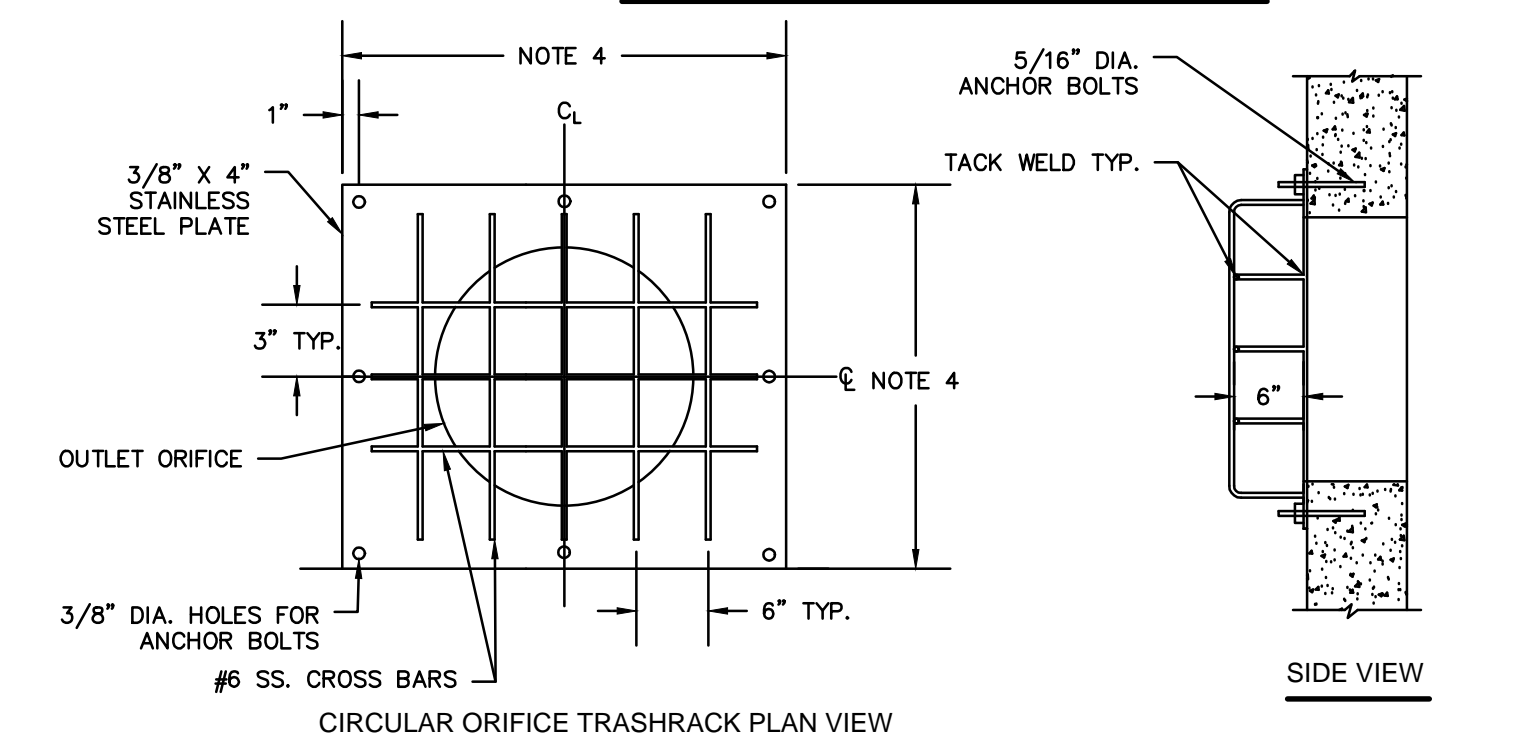
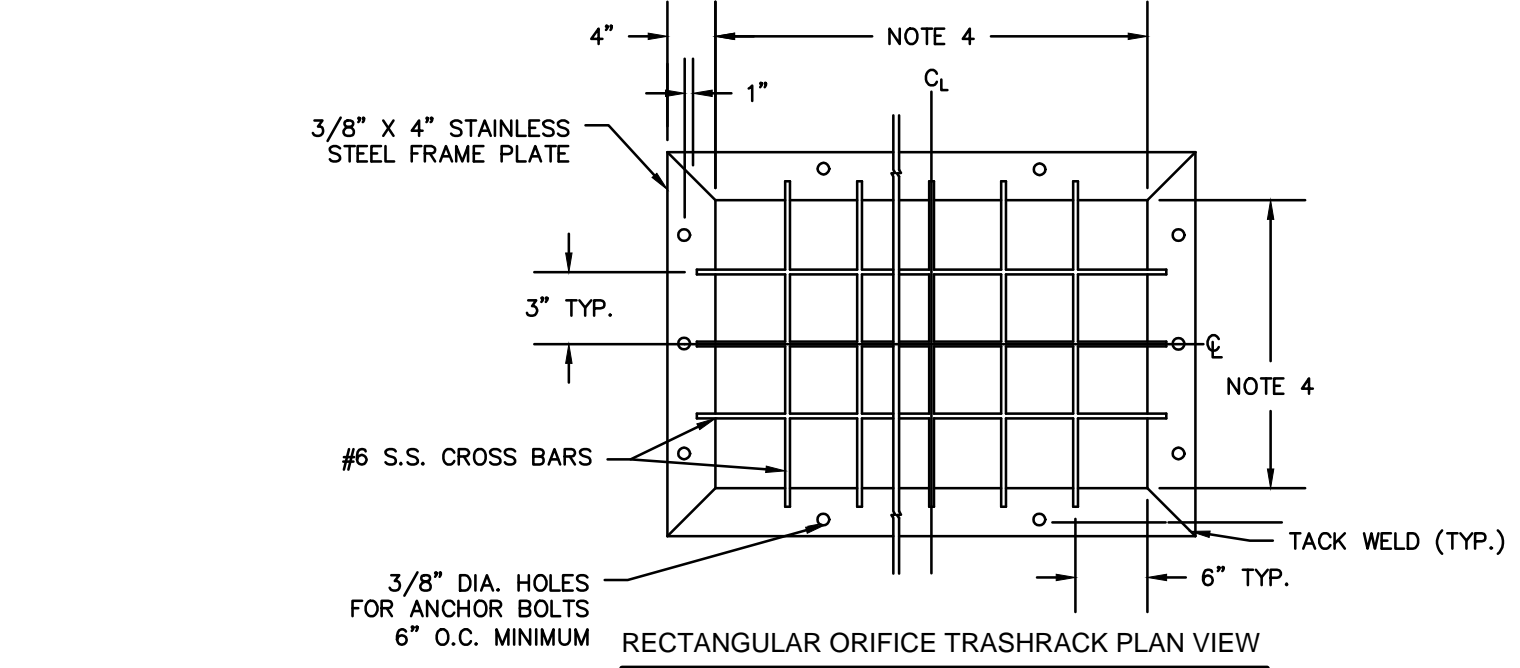
N.T.S.



RAIN GARDEN #1 TO RAIN GARDEN #3 CROSS SECTION

N.T.S.

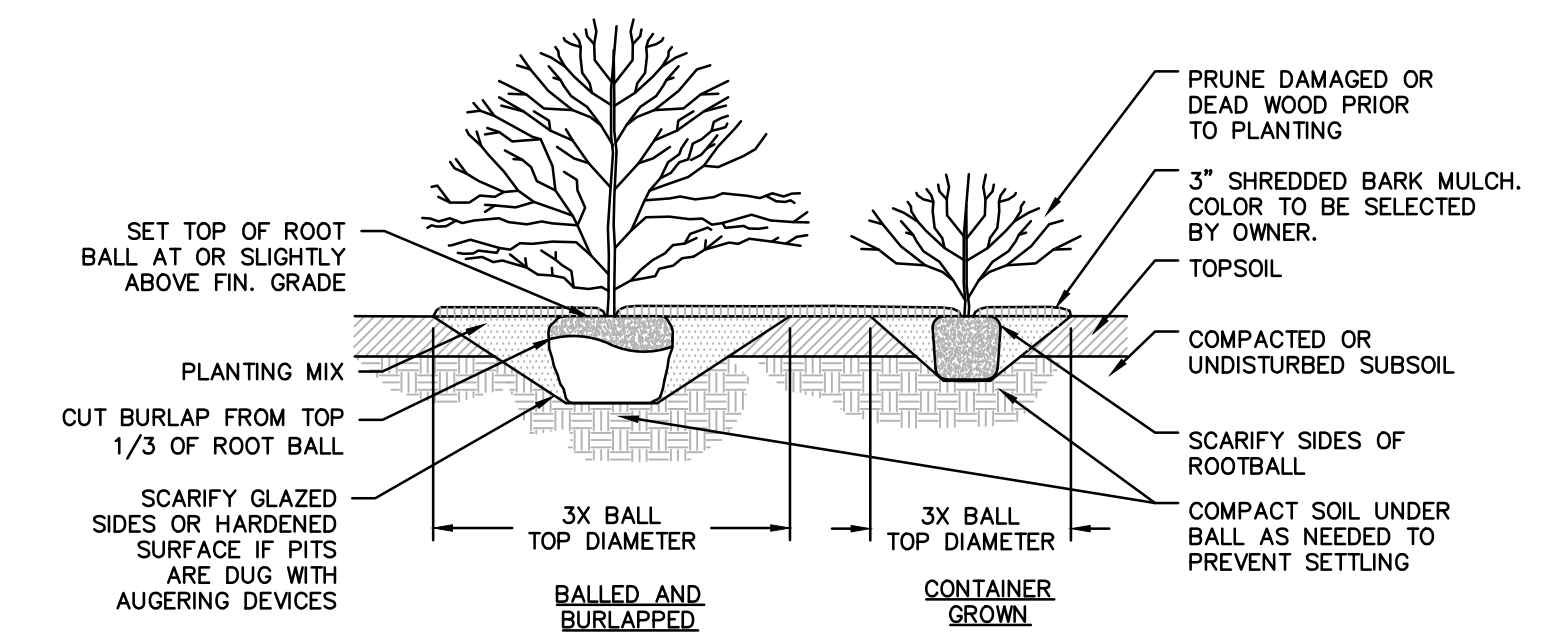
- NOTES:
- CLAY CORE SHALL BE COMPOSED OF CL, CH, MH OR CL-ML SOILS WITH A PERMEABILITY LESS THAN OR EQUAL TO 1.0×10^{-6} CM/S. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM-D 1557; WITHIN $\pm 3\%$ OPTIMUM MOISTURE CONTENT.
 - ENGINEERED SOIL SHALL CONTAIN 30% TOP SOIL, 30% SAND, 20% ORGANIC COMPOST, 20% FINE SHREDDED WOOD CHIPS. SOIL MIX SHALL CONTAIN NO MORE THAN 10% CLAY AND BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES.



- NOTES:
- TRASH RACK MATERIAL TO BE STAINLESS STEEL.
 - SECURE THE TRASHRACK PLATE TO THE SIDE OF THE INLET BOX USING 5/16" x 2" STAINLESS STEEL BOLTS AND APPROPRIATE ANCHORS.
 - DURING INSTALLATION OF THE TRASH RACK PLATE, PLACE THIN LAYER OF BLACK MASTIC MATERIAL BETWEEN THE TRASHRACK PLATE AND THE INLET BOX WALL AS A GASKET TO CREATE A WATER TIGHT SEAM.
 - SEE PERMANENT OUTLET STRUCTURE DETAIL FOR ORIFICE PLATE DIMENSIONS.

PERMANENT OUTLET STRUCTURE DETAIL TRASH RACK

N.T.S.

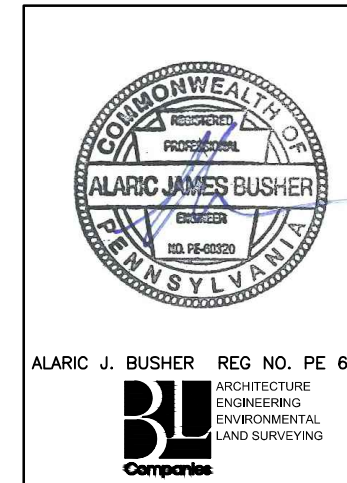


- NOTES:
- IN AREAS OF MASS PLANTING, CONTINUOUSLY EXCAVATE AND MULCH ENTIRE BED.
 - BROKEN ROOT BALLS WILL BE REJECTED.
 - THOROUGHLY WATER ALL PLANTING BEDS TWICE IN THE FIRST 48 HOURS.

SHRUB PLANTING

N.T.S.

Drawn By & Date/Time: Jrfjones Apr 27, 2017 4:23pm
 Drawing Location & Name: G:\OBS1\14C\14C4909\DWG\010-CPLN\FMS_PCSM14C4909(10)_ZICK.dwg



REVISIONS				
NO.	DATE	BY	DESCRIPTION	W.O. NO. CHK. APP.
0	08/26/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL	W0161483 DAK AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483 DAK AJB
3	03/26/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483 DAK AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161483 AJB AJB
5	Apr. 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W0161483 AJB AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE			
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS			
FOR ZICK METER STATION & ASSOCIATED PERMANENT ACCESS ROADS			
LENOX TOWNSHIP, SUSQUEHANNA COUNTY, PENNSYLVANIA			
PCSM NOTES AND DETAILS			
DRAWN BY:	JEC	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
APPROVED BY:	AJB	DATE:	07/17/15
W.O.:	1161483	SCALE:	AS NOTED
		REVISION:	5
		DRAWING NUMBER:	(30-3680)MF-1A-9
		SHEET:	6
		OF:	6

