

ATLANTIC SUNRISE PROJECT PROPOSED 30" NATURAL GAS PIPELINE

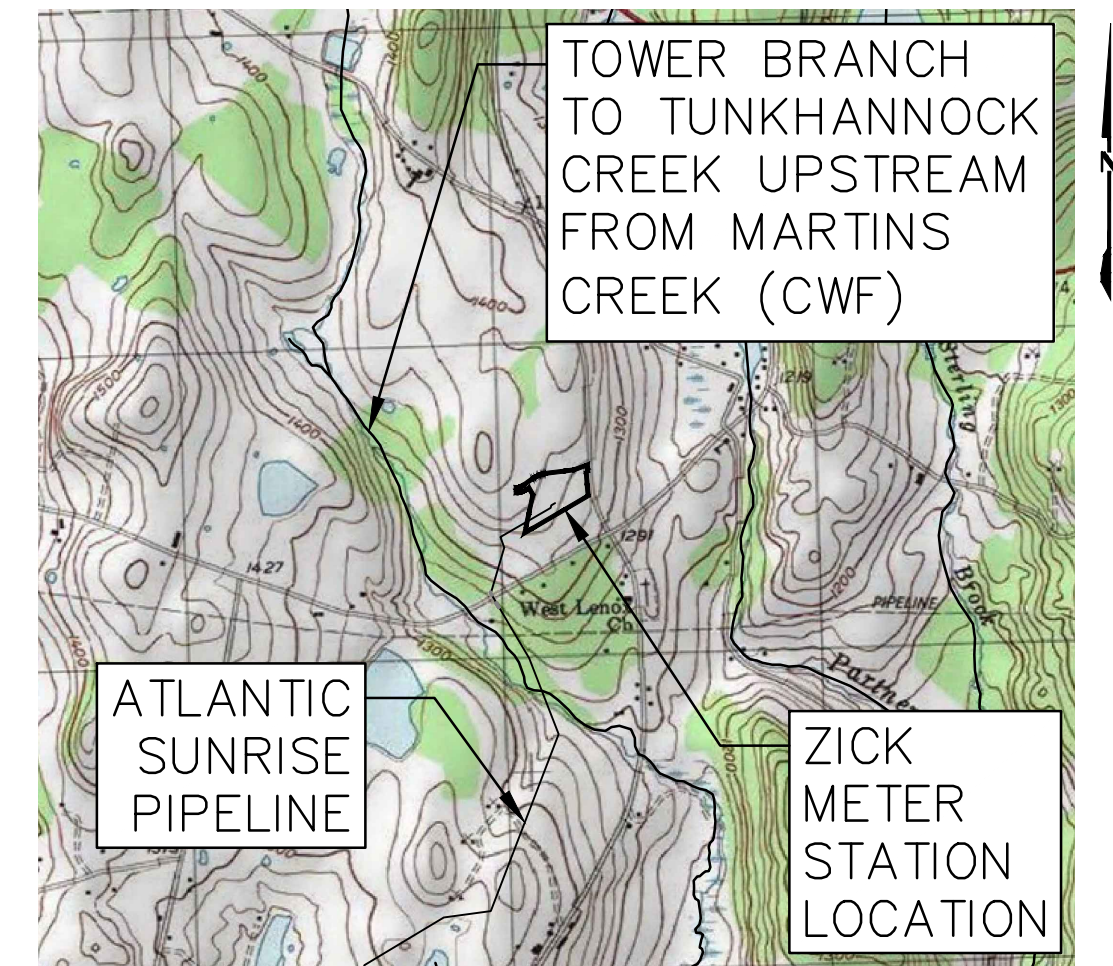
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS
FOR
ZICK METER STATION &
ASSOCIATED PERMANENT ACCESS ROADS

PHASE 2

LENOX TOWNSHIP
SUSQUEHANNA COUNTY

PENNSYLVANIA

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



USGS LENOXVILLE QUADRANGLE

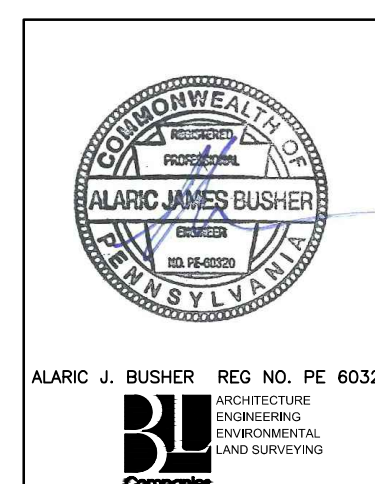
VICINITY MAP

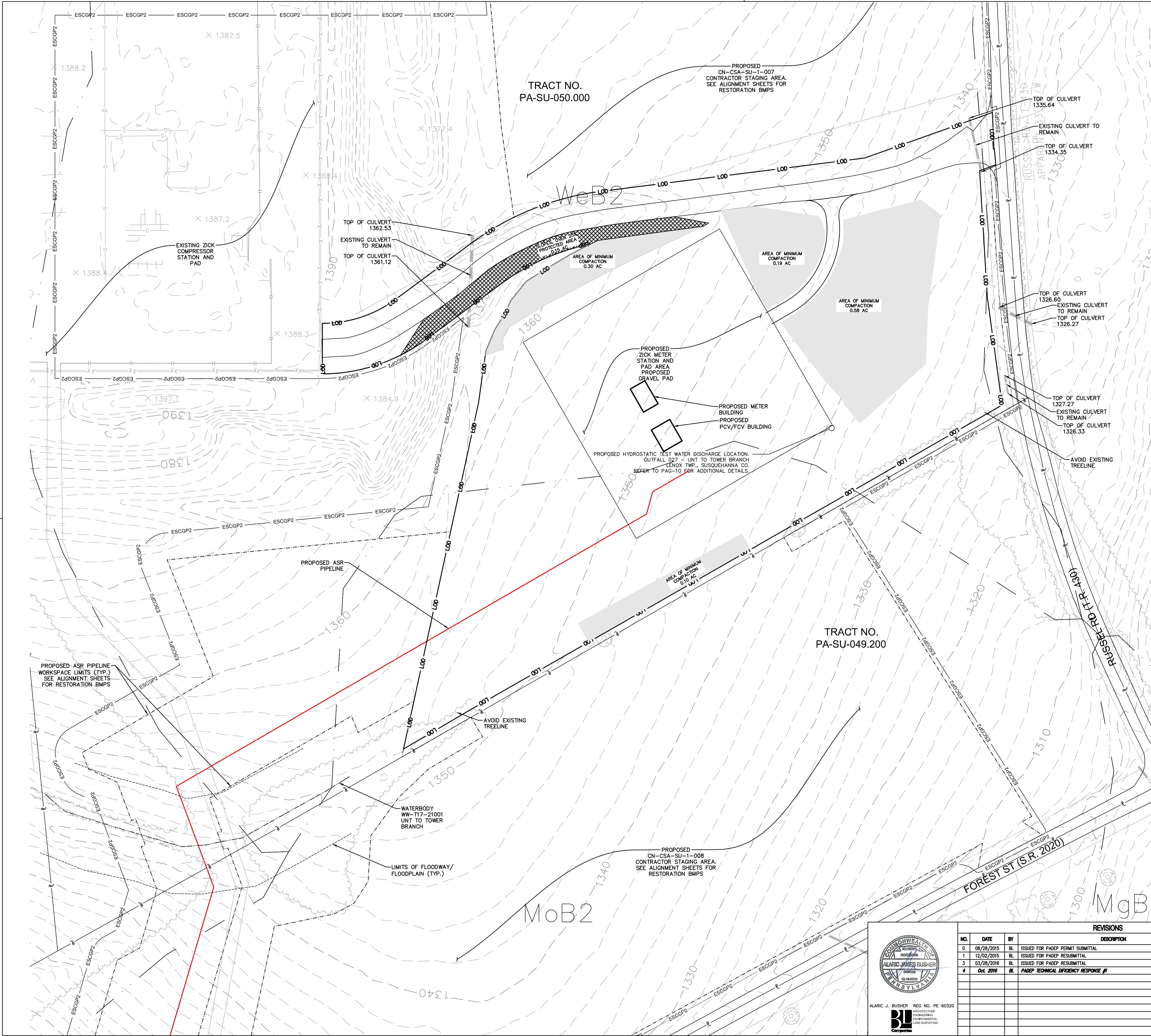
SCALE: 1"=2,000'



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

[illegible]



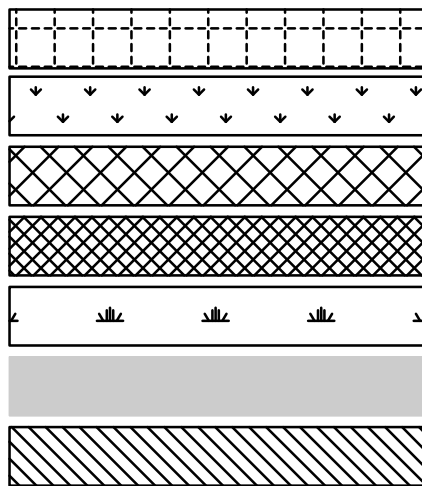
LEGEND

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

LEGEND

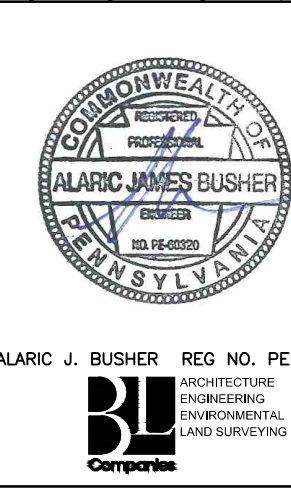
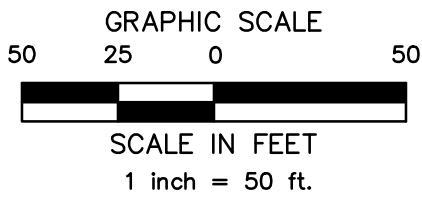
- WOODLANDS PROTECTED AREA
- WETLANDS PROTECTED AREA
- SLOPES 15% - 25% PROTECTED AREA
- SLOPES OVER 25% PROTECTED AREA
- WETLANDS
- MINIMUM COMPACTION AREA
- FLOODPLAINS



SENSITIVE NATURAL RESOURCES TABLE

EXISTING NATURAL SENSITIVE RESOURCE	MAPPED? YES/NO/N/A	TOTAL AREA (AC.)	PROTECTED AREA (AC.)
WATERBODIES	YES	0.00	0.00
FLOODPLAINS	YES	0.00	0.00
RIPARIAN AREAS	N/A	0.00	0.00
WETLANDS	N/A	0.00	0.00
WOODLANDS	YES	0.00	0.00
NATURAL DRAINAGE WAYS	YES	0.00	0.00
STEEP SLOPES, 15%-25%	N/A	0.00	0.00
STEEP SLOPES, OVER 25%	YES	0.15	0.15
OTHER:	N/A	0.00	0.00
OTHER:	N/A	0.00	0.00
TOTAL EXISTING:		0.15	0.15

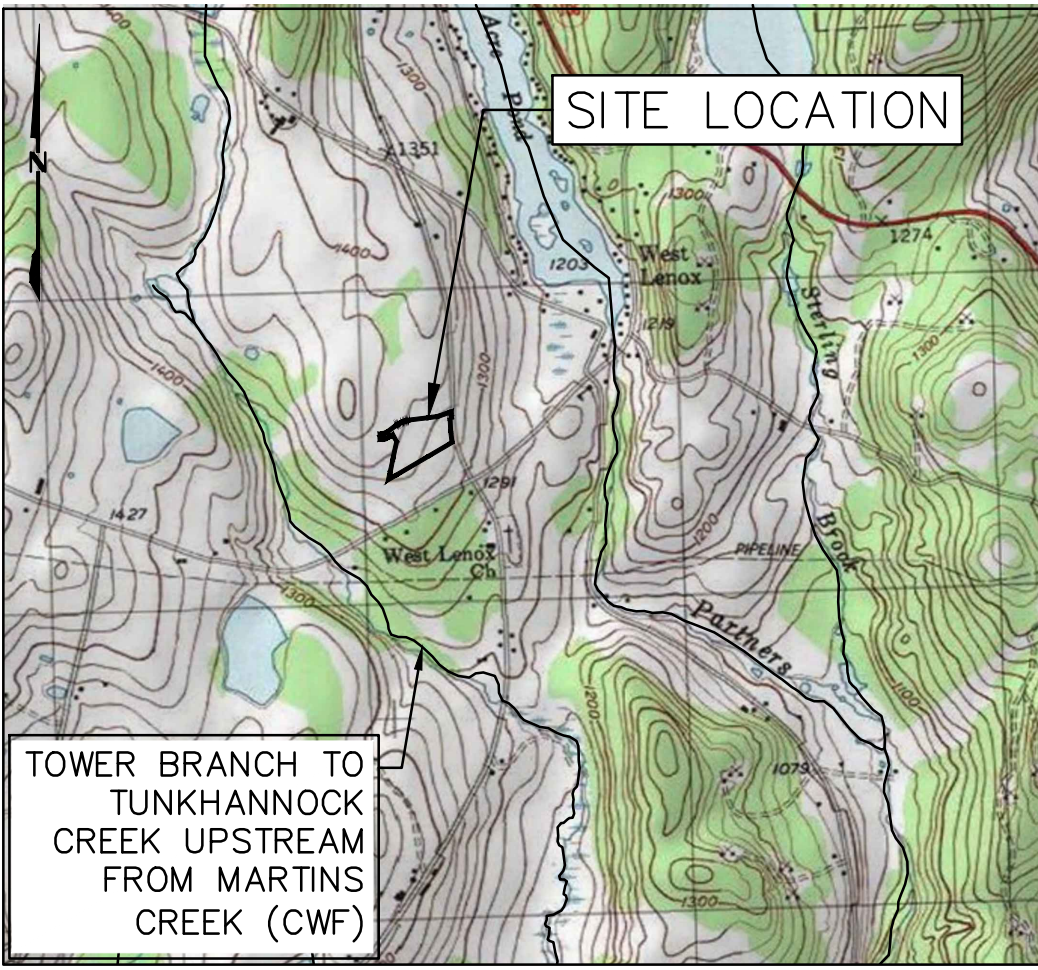
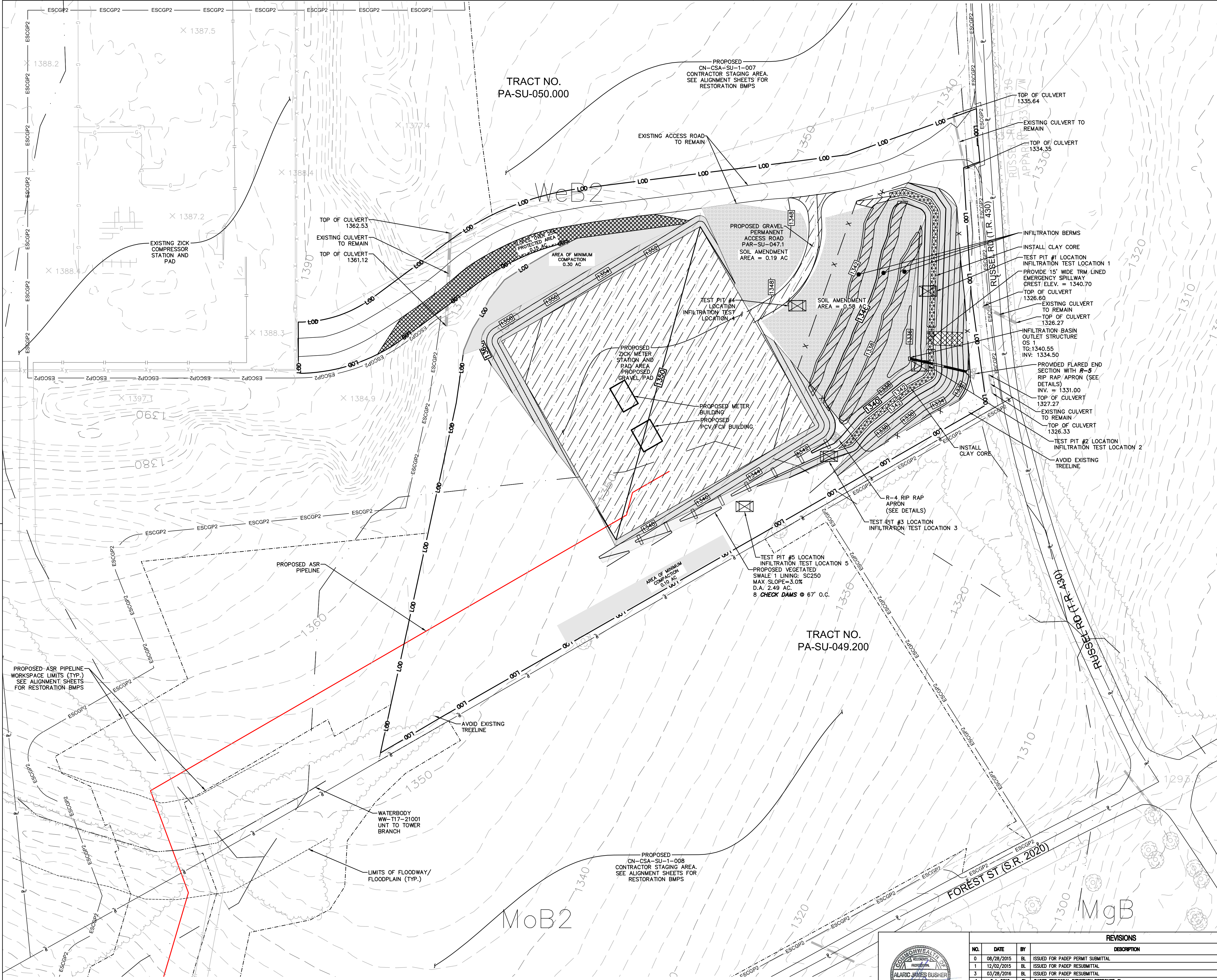
SEE DEP STANDARD WORKSHEET 2 IN THE POST CONSTRUCTION STORMWATER MANAGEMENT COMPUTATIONS.



REVISIONS			
NO.	DATE	BY	DESCRIPTION
0	08/28/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1

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			
DRAWN BY:	JEC	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
APPROVED BY:	AJB	DATE:	07/17/15
W.D. NO.	1161483	APP.	AJB
SCALE:	AS SHOWN	REVISION:	4
DRAWING NUMBER:	(30-3680)MF-1A-9	SHEET	2
		OF	6

Drawn By & Date/Time: hthomas Nov 11, 2016 - 3:41pm
Drawing Location & Name: G:\JOBS\14\14C\14C4909\DWG\010-CPLN\FMS_PCSM14C4909(10).ZICK.dwg



LOCATION MAP

SITE SOIL TYPES		USGS LENOXVILLE QUADRANGLE SCALE: 1"=2,000'
WB2	WELLSBORO FLAGGY SILT LOAM, 3 TO 8 PERCENT SLOPES	
WeB2	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES	
WIC2	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	
LsD	LORDSTOWN AND OQUAGA VERY STONY SILT LOAMS, 12 TO 30 PERCENT SLOPES	

ESCGP-2 PERMIT TABLE	
LIMIT OF PERMIT BOUNDARY/SITE AREA	6.10
LIMIT OF DISTURBANCE	6.10
AREA OF PROTECTED/ SENSITIVE VALUE FEATURES	0.15
AREA OF RIPARIAN FOREST BUFFER PROTECTION	0.00
AREA OF MINIMUM DISTURBANCE/REDUCED GRADING	0.00
IMPERVIOUS AREA (ACCESS ROADS, BLDG. & PAD)	1.53
IMPERVIOUS AREA CONTROLLED BY BMPs	1.53

PROPOSED FEATURES

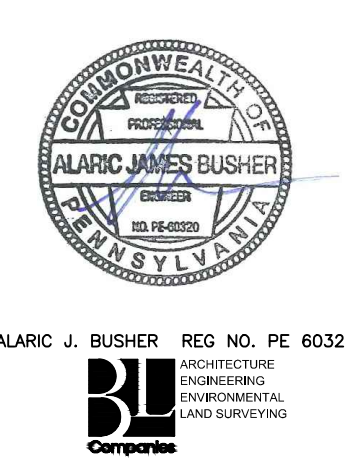
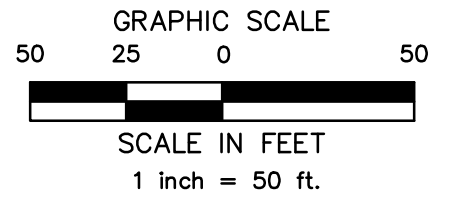
- 1460: PROPOSED MAJOR CONTOUR (10' INTERVAL)
- LOD: PROPOSED MINOR CONTOUR (2' INTERVAL)
- ESCGP2: LIMIT OF DISTURBANCE (ZICK METER STATION)
- ESCGP2: LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- ESCGP2: ESCGP-2 PERMIT BOUNDARY
- X: ORANGE CONSTRUCTION FENCE
- X: CENTERLINE GAS PIPELINE
- INFILTRATION BERMS
- SWALE LINING
- EROSION CONTROL BLANKET (NAG SC150 OR APPROVED EQUAL)
- ROCK OUTLET/RIPRAP APRON
- MINIMUM SOIL COMPACTION AREA
- SOIL AMENDMENT AREA
- TRM LINING
- CLAY CORE LIMITS
- TEST PIT LOCATION
- INFILTRATION TEST LOCATION
- SLOPES OVER 25% PROTECTED AREA
- 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.

1460: EXISTING MAJOR CONTOUR (10' INTERVAL)
LOD: EXISTING MINOR CONTOUR (2' INTERVAL)
ESCGP2: LIMITS OF FLOODWAY/FLOODPLAIN

RECEIVING WATERS

TOWER BRANCH TO TUNKHANNOCK CREEK UPSTREAM FROM MARTINS CREEK, CWF
APPROXIMATE DISTANCE FROM SITE TO TOWER BRANCH TO TUNKHANNOCK CREEK:
±2,000 FT (SOUTH)



REVISIONS			
NO.	DATE	BY	DESCRIPTION
0	08/26/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL
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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
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

DRAWN BY: JEC DATE: 04/03/15 ISSUED FOR BID: SCALE: AS NOTED
CHECKED BY: AJB DATE: 04/03/15 ISSUED FOR CONSTRUCTION: REVISION: 4
APPROVED BY: AJB DATE: 07/17/15 DRAWING NUMBER: (30-3680)MF-1A-9 SHEET 3 OF 6
WG: 1161483

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 DESIGNEE 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 CERTIFY PURSUANT TO THE PENALTIES OF 18 P.A.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 OF THE PERMIT. THE DEPARTMENT OF ENVIRONMENTAL PROTECTION 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 OF 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 SUBSEQUENT GRANTEEES, 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, DREGGED 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 § 102.4(B)(5)(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 #4000-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENT'S EMBRARY AT WWW.DEFWEB.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 SITES AND SCHEDULE ARE LISTED BELOW:

- VEGETATED SWALES WITH EARTHEN CHECK DAMS**
VEGETATED SWALES WITH EARTHEN CHECK DAMS 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.
- DETENTION/INFILTRATION BASIN**
INSPECT DETENTION/INFILTRATION FACILITY ANNUALLY AND INSPECT SOIL, REPAIR ERODED AREAS AND REMOVE LITTER AND DEBRIS AS NEEDED. INSPECT DETENTION/INFILTRATION BASIN FOR 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. COMPACTION OF THE BASIN BOTTOM SHALL BE PREVENTED.
- INFILTRATION BERMS**
ALL BERMS MUST BE KEPT FREE OF OBSTRUCTIONS SUCH AS FILL, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIAL/WASTES. ANY DISTURBANCE TO THE BERM SHALL BE IMMEDIATELY REPAIRED AND STABILIZED. COMPACTION OF THE BERM BOTTOM SHALL BE PREVENTED.
- PROTECT SENSITIVE/SPECIAL VALUE FEATURES**
PROTECTED AREAS SHALL REMAIN UNDISTURBED AFTER CONSTRUCTION ACTIVITIES CEASE. ORANGE CONSTRUCTION FENCE WILL BE USED TO PROTECT SPECIAL VALUE/SENSITIVE AREAS DURING CONSTRUCTION.
- MINIMIZE SOIL COMPACTION/DISTURBED AREAS**
PROTECT SENSITIVE AREAS FROM RESTRICT VEHICLE ACCESS. DO NOT CLEAR VEGETATION. AVOID EARTH DISTURBANCE.
• MINIMUM DISTURBANCE AREAS – RESTRICT VEHICLE ACCESS.
- 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**
RESTRICT VEHICLE ACCESS. MONITOR WATER DRAIN DOWN TIME IN INFILTRATION AREAS AND SCARIFY SUBSOILS TO A DEPTH OF 1' AND REPLACE AMENDED SOILS IF DEWATERING TIME EXCEEDS 72 HOURS. MAINTAIN INFILTRATION AREAS AS INDICATED ON THE POST CONSTRUCTION STORMWATER MANAGEMENT PLANS.
- 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.**

VEGETATED SWALES WITH CHECK DAMS	
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 DRAIN DOWN WITHIN 48 HOURS. WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDES WHEN NECESSARY. REMOVE SEDIMENT BUILD-UP FROM 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, DAMAGE TO CHECK DAMS, 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 ON 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 NONTXIC, ORGANIC DEICING AGENTS. PLANT SALT TOLERANT VEGETATION IN SWALES.	ANNUAL – SPRING

INFILTRATION BASIN	
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") 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, BIORETENTION AREAS MAY REQUIRE WATERING.	

INFILTRATION BERMS/ RETENTIVE GRADING	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
REGULARLY INSPECT TO ENSURE THEY ARE INFILTRATING. MONITOR DRAINDOWN TIME AFTER MAJOR STORM EVENTS. IF DRAINDOWN TIMES EXCEED 72 HOURS, INITIATE CORRECTIVE ACTIONS.	AS NEEDED
INSPECT STRUCTURAL COMPONENTS, SUCH AS INLET STRUCTURES TO ENSURE PROPER FUNCTIONALITY	AS NEEDED
IF PLANTED IN MEADOW, MOW AND REMOVE CLIPPINGS.	ANNUAL
AVOID RUNNING HEAVY EQUIPMENT OVER THE INFILTRATION AREA AT THE BASE OF THE BERMS. THE CREST OF THE BERM MAY BE USED AS ACCESS FOR HEAVY EQUIPMENT WHEN NECESSARY TO LIMIT DISTURBANCE.	AS NEEDED
REMOVE ACCUMULATED TRASH AND DEBRIS	MONTHLY
REMOVE INVASIVE PLANTS	ANNUALLY
INSPECT FOR SIGNS OF FLOW SWALEIZATION; RESTORE LEVEL GRADIENT IMMEDIATELY AFTER DEFICIENCIES ARE OBSERVED.	AS NEEDED

SENSITIVE/SPECIAL VALUE FEATURES	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
REPLANT SUITABLE SPECIES IN THE EVENT OF DEAD OR DAMAGED VEGETATION. RESEED BARE AREAS AND INSTALL APPROPRIATE EROSION CONTROLS WHEN SOIL IS EXPOSED.	AS NEEDED
INSPECT AND ENSURE PROTECTED AREAS REMAIN UNDISTURBED AFTER CONSTRUCTION ACTIVITIES CEASE.	BIANNUALLY
MINIMIZE SOIL COMPACTION	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
RESTRICT VEHICLE ACCESS. AVOID EARTH DISTURBANCES. DO NOT CLEAR VEGETATION	AT ALL TIMES

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

SOIL AMENDMENT NOTES

- NOTES:
- CONTRACTOR SHALL VERIFY THAT THE AMENDED SOIL PROVIDES AN INFILTRATION RATE OF 2.0 IN/HR OR GREATER. CONTRACTOR TO CONDUCT IN-SITU TESTING OF INFILTRATION RATES
 - WHERE LAYERS OF FILL THAT VARY IN GRADATION ARE ADJACENT TO EACH OTHER, A FILTER FABRIC BARRIER SHOULD BE USED TO PREVENT MIGRATION OF FILL. (E.G. WHERE A FINER GRAINED SELECT FILL IS PLACED ON TOP OF, OR BELOW, AN OPEN-GRADED STONE FILL.)
 - AMENDED SOIL MIX SHALL CONSIST OF 33% ORGANIC MATTER (COMPOST) AND 67% SOIL BASE (TOPSOIL). 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. EXCAVATE TO PROPOSED INVERT ELEVATION AND SCARIFY EXISTING SOILS. DO NOT COMPACT IN-SITU SOILS.
 - BACKFILL WITH AMENDED SOIL, LIGHT HAND TAMPING IS ACCEPTABLE. OVERFILL AS REQUIRED TO ACCOUNT FOR SETTLEMENT.
 - UPON COMPLETION, SEED AND MULCH THE INVERT USING THE DETENTION BASIN FLOOD SEED MIXTURE: ERNMX-122 (FACW WETLAND MEADOW MIX) AT 1/2 POUND PER 1,000 SQUARE FEET ERNMX-131 (OBL WETLAND MIX) AT 1/2 POUND PER 1,000 SQUARE FEET.

SOIL TEXTURE	AMENDED SOIL PARAMETERS		
	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 GUARANTEED. 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. 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.

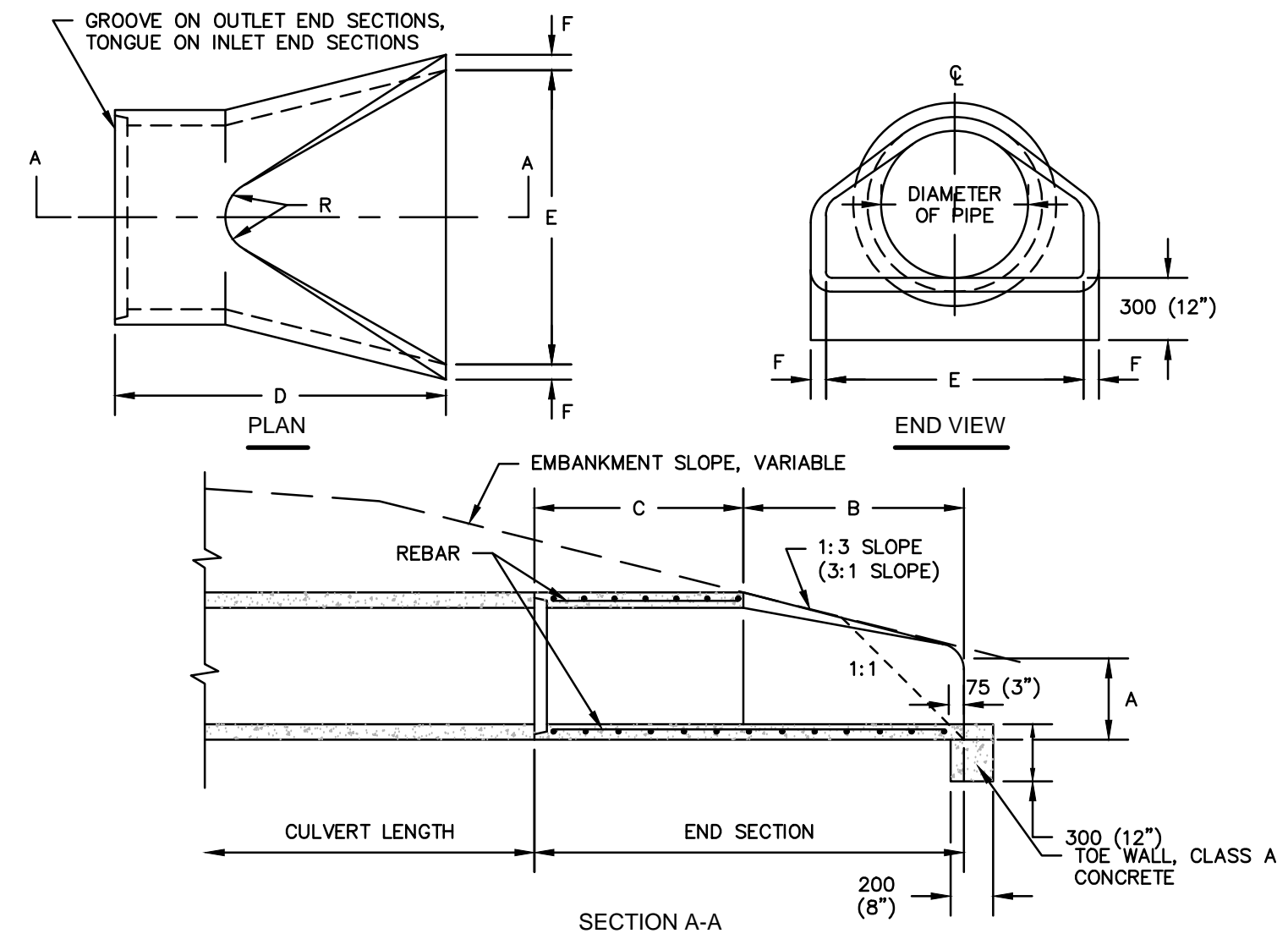
SOIL AMENDMENT & RESTORATION	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
RESTRICT VEHICLE ACCESS	AT ALL TIMES
ENSURE THAT INFILTRATION AREAS DEWATER BETWEEN STORMS. SCARIFY SUBSOILS TO A DEPTH OF 1' AND REPLACE AMENDED SOILS IF DEWATERING TIME INCREASES TO MORE THAN THREE DAYS.	ANNUAL
INSPECT AND MAINTAIN INFILTRATION AREAS	AS NEEDED
GENERAL MAINTENANCE NOTES: THE SOIL RESTORATION PROCESS MAY NEED TO BE REPEATED OVER TIME, DUE TO COMPACTION BY USE AND/OR SETTLING.	
DISCONNECTION FROM STORM SEWERS	
OPERATION & MAINTENANCE PROCEDURES	
ACTIVITY	SCHEDULE
INSPECT AND MAINTAIN GRADE TO ENSURE DISCONNECTED IMPERVIOUS AREAS CONTINUE TO BE DIRECTED TO INFILTRATION AREAS AND VEGETATED SWALES	AS NEEDED

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:
 - 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.
- 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.
- FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT-OF-WAY, TRANSOCO 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

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		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%.

SLOPE SEED MIX	SPECIES TYPE AND SEASON OF PLANTING
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Common Name	Scientific Name	acre ¹	1.25-34%	% 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

POLLINATOR MIX (TO BE ADDED TO ANY MIX UPON LANDOWNER REQUEST)				
Common Name	Scientific Name	PLS/acre	PLS/sq ft	% of Mix
Butterfly Milkweed	<i>Asclepias tuberosa</i>	2.6	3.0	15%
Purple Coneflower	<i>Echinacea purpurea</i>	1.1	3.0	15%
Dense Blazing Star	<i>Liatris spicata</i>	0.7	2.0	10%
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>	0.4	2.0	10%
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.1	3.0	15%
Oxeye Sunflower	<i>Helopsis</i>	1.3	3.0	15%
Wild Bergamot	<i>Monarda fistulosa</i>	0.1	2.0	10%
Hoary Mountainmint	<i>Pycnanthemum</i>	0.0	2.0	10%
Total	--	6.3	20.0	100%

BRASSICA MIX				
--------------	--	--	--	--

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Bonar (Rape)	<i>Brassica napus</i>	2.7	6.6	33%
Turnip	<i>Brassica rapa</i>	12.9	6.6	33%
Nitro Radish	<i>Raphanus</i>	11.8	6.8	34%
Total	--	27.4	20.0	100%

<div style="text-align:center;">TABLE 11.6</div>						
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. 4,000 LB.	N/A N/A	N/A N/A	SLOPES UP TO 3H:1V SLOPES STEEPER THAN 3H:1V	

REVISIONS																																	
BY	DESCRIPTION	W.O. NO.	CHK.	APP.																													
B.L.	ISSUED FOR PADEP PERMIT SUBMITTAL	W01161483	D.A.K.	A.J.B.	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																												
B.L.	ISSUED FOR PADEP RESUBMITTAL	W01161483	D.A.K.	A.J.B.																													
B.L.	ISSUED FOR PADEP RESUBMITTAL	W01161483	A.J.B.	A.J.B.																													
B.L.	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W1161483	A.J.B.	A.J.B.																													
					<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DRAWN BY:</td> <td>JEC</td> <td style="width: 33%;">DATE:</td> <td>04/03/15</td> <td style="width: 33%;">ISSUED FOR BID:</td> <td>SCALE:</td> <td>AS NOTED</td> </tr> <tr> <td>CHECKED BY:</td> <td>AJB</td> <td>DATE:</td> <td>04/03/15</td> <td>ISSUED FOR CONSTRUCTION:</td> <td>REVISION:</td> <td>4</td> </tr> <tr> <td>APPROVED BY:</td> <td>AJB</td> <td>DATE:</td> <td>07/17/15</td> <td>DRAWING NUMBER:</td> <td colspan="2">(30-3680)MF-1A-9</td> </tr> <tr> <td>WO:</td> <td colspan="6">1161483</td> </tr> </table>	DRAWN BY:	JEC	DATE:	04/03/15	ISSUED FOR BID:	SCALE:	AS NOTED	CHECKED BY:	AJB	DATE:	04/03/15	ISSUED FOR CONSTRUCTION:	REVISION:	4	APPROVED BY:	AJB	DATE:	07/17/15	DRAWING NUMBER:	(30-3680)MF-1A-9		WO:	1161483					
DRAWN BY:	JEC	DATE:	04/03/15	ISSUED FOR BID:		SCALE:	AS NOTED																										
CHECKED BY:	AJB	DATE:	04/03/15	ISSUED FOR CONSTRUCTION:		REVISION:	4																										
APPROVED BY:	AJB	DATE:	07/17/15	DRAWING NUMBER:		(30-3680)MF-1A-9																											
WO:	1161483																																

SHEET
OF

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&SC PLAN WITHIN SECTION 2 OF THE ESCGP-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

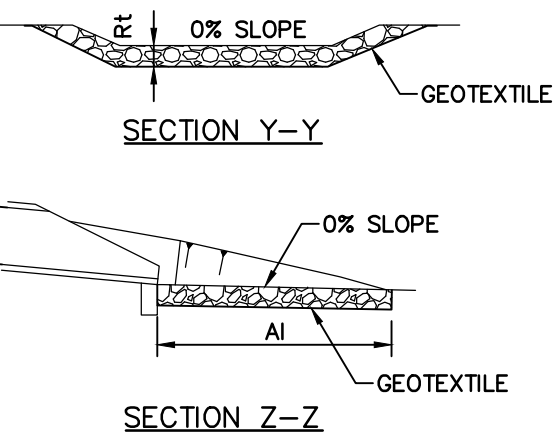
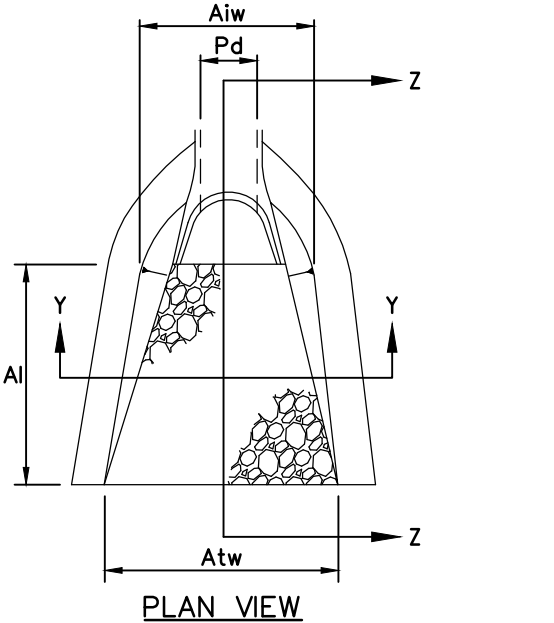
- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL 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.
- INSTALL ORANGE CONSTRUCTION FENCE AROUND AREAS TO BE PROTECTED.
- LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE LIMITS OF DISTURBANCE.
- INSTALL ROCK CONSTRUCTION ENTRANCES (RCEs).
- 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 TEMPORARY RISER, INCLUDING CLAY CORE, ANTISEEP COLLARS, SLOPE LINERS, CLEANOUT STAKE, AND ASSOCIATED IMPROVEMENTS. INSTALL ORANGE CONSTRUCTION FENCE AT PERIMETER OF TRAP TO PREVENT COMPACTION OF SOILS.
- INSTALL EARTHEN CHECK DAMS AND DRAINAGE CHANNEL APRONS AS SOON AS SWALE GRADING IS COMPLETE.
- INSTALL FILTER SOCK DIVERSION 1.
- 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&SC AND PCSM/SR PLANS (SECTIONS 2 AND 3 OF THE ESCGP-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 ESCGP-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&SC BMPS.
- REPLACE TEMPORARY RISER WITH PERMANENT OUTLET STRUCTURE. INSTALL EMERGENCY SPILLWAY AND CONVERT SEDIMENT TRAP TO PERMANENT BASIN CONFIGURATION. IF, AFTER EXCAVATING BASIN TO BOTTOM ELEVATION OF AMENDED SOIL, BASIN BOTTOM WILL BE EXPOSED, INSTALL COMPOSITE FILTER SOCK AT TOE OF SLOPE ON INTERIOR OF BASIN.
- 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 ESCGP-2 NOI). LAND OWNER AGREEMENTS AND/OR THE ECP (SECTION 4 OF THE ESCGP-2 NOI).
- AFTER SEEDING, FERTILIZING AND MULCHING IS COMPLETE, INSTALL ECBs AS REQUIRED OR ORDERED 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 BASIN).
- 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&SC BMPS UNTIL SITE WORK IS COMPLETE AND UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

* 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 WILLIAMS.

CRITICAL STAGES OF CONSTRUCTION

THE FOLLOWING ARE CRITICAL STAGES OF CONSTRUCTION:

- INSTALLATION OF SEDIMENT TRAP.
- INSTALLATION OF VEGETATED SWALE AND CHECK DAMS.
- INSTALLATION OF INFILTRATION BERMS.
- CONVERSION SEDIMENT TRAP TO STORMWATER BASIN.
- SOIL AMENDMENT.



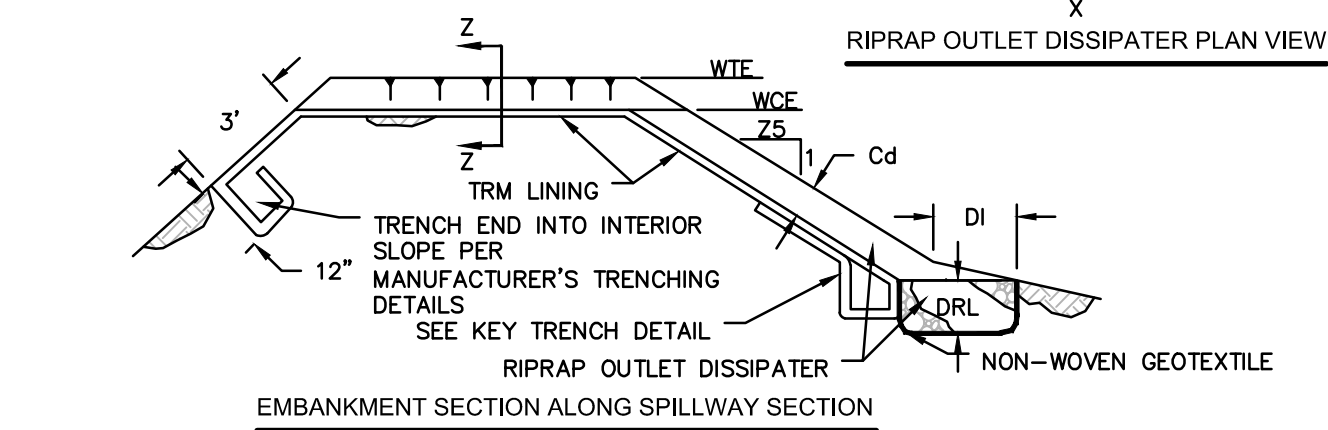
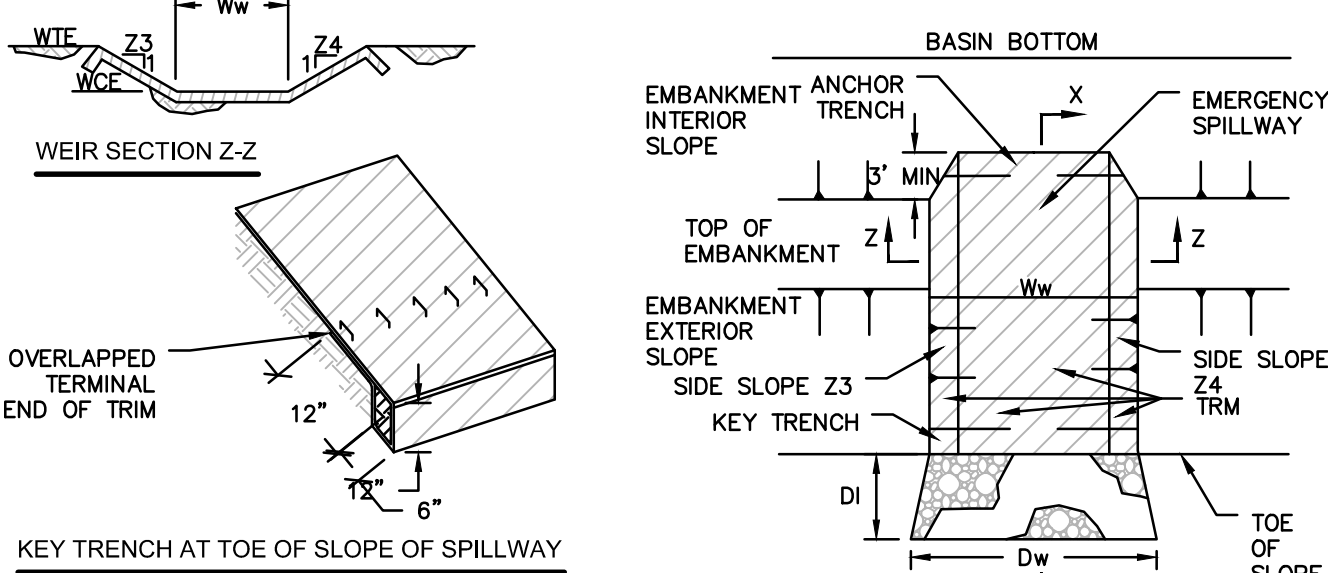
NOTES:

- 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 Ai (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH (Atw) (FT)
VEGETATED SWALE 1	N/A	4	18	10	6	16
SED TRAP/ BASIN	18	5	27	9	4.50	12.50

RIP-RAP APRON AT PIPE OUTLET WITH FLARED END SECTION

N.T.S



BASIN NO.	WEIR					LINING		SWALE		DISSIPATER			
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	TRM TYPE	STAPLE PATTERN	Z5 (FT)	DEPTH Cd (FT)	LENGTH DI (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R--)	RIPRAP THICK DRT (IN)
1	3	3	1342.00	1340.70	15	P550	B	NA	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.

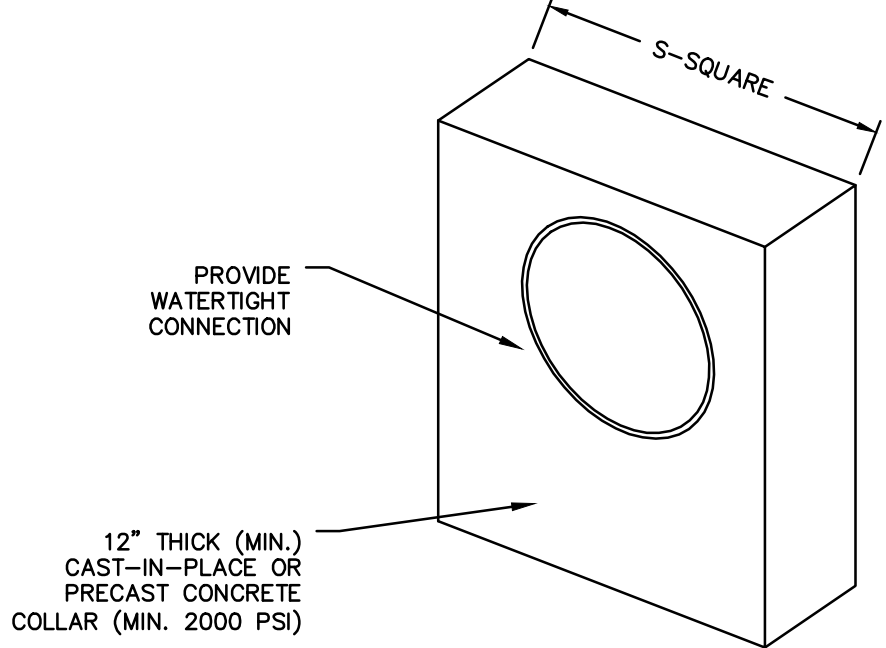
RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.

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 WATERTIGHT.

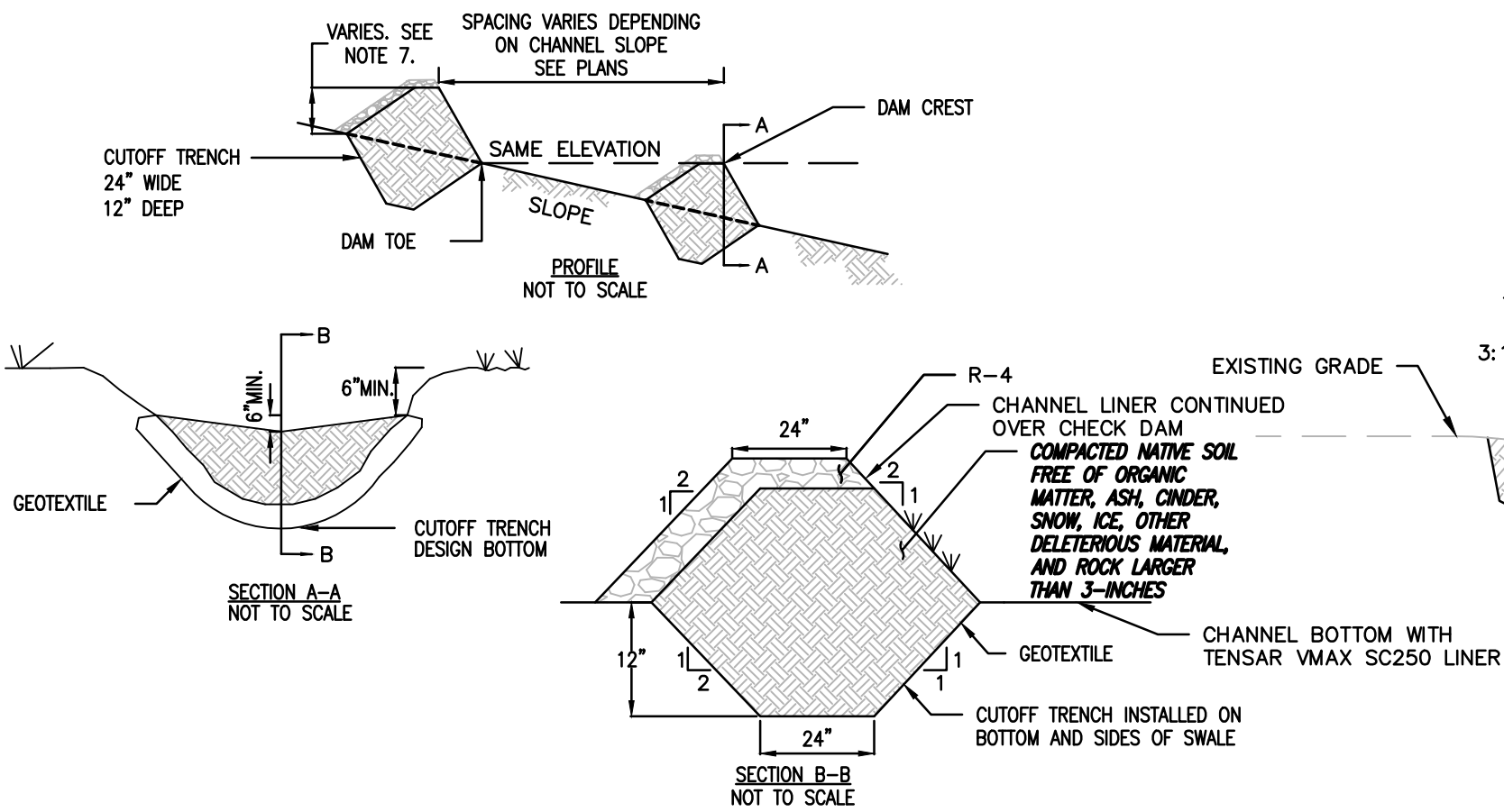
COLLAR SIZE AND SPACING SHALL BE AS INDICATED BELOW.

BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	DISTANCE RISER TO 1ST COLLAR (FT)	COLLAR SPACING (FT)
SWM BASIN	18	60	2	21	6

CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS DETAIL

N.T.S

PADEP-7-16

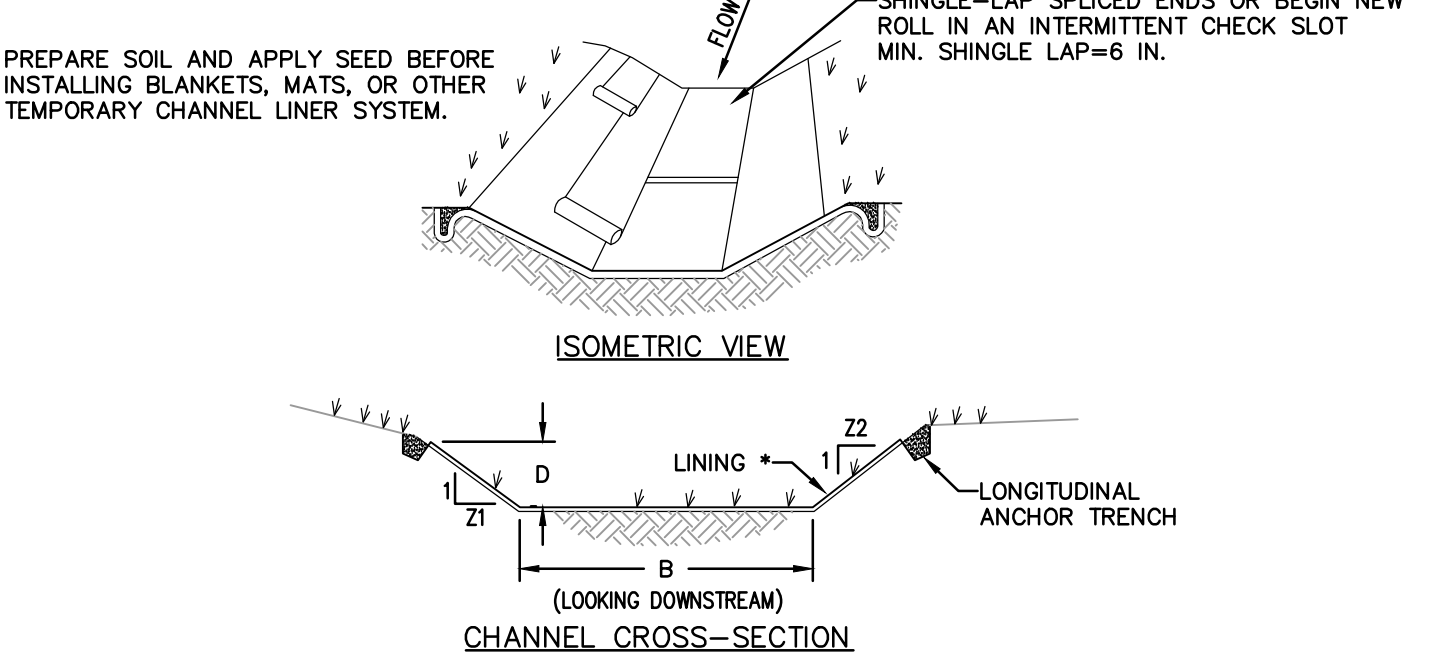
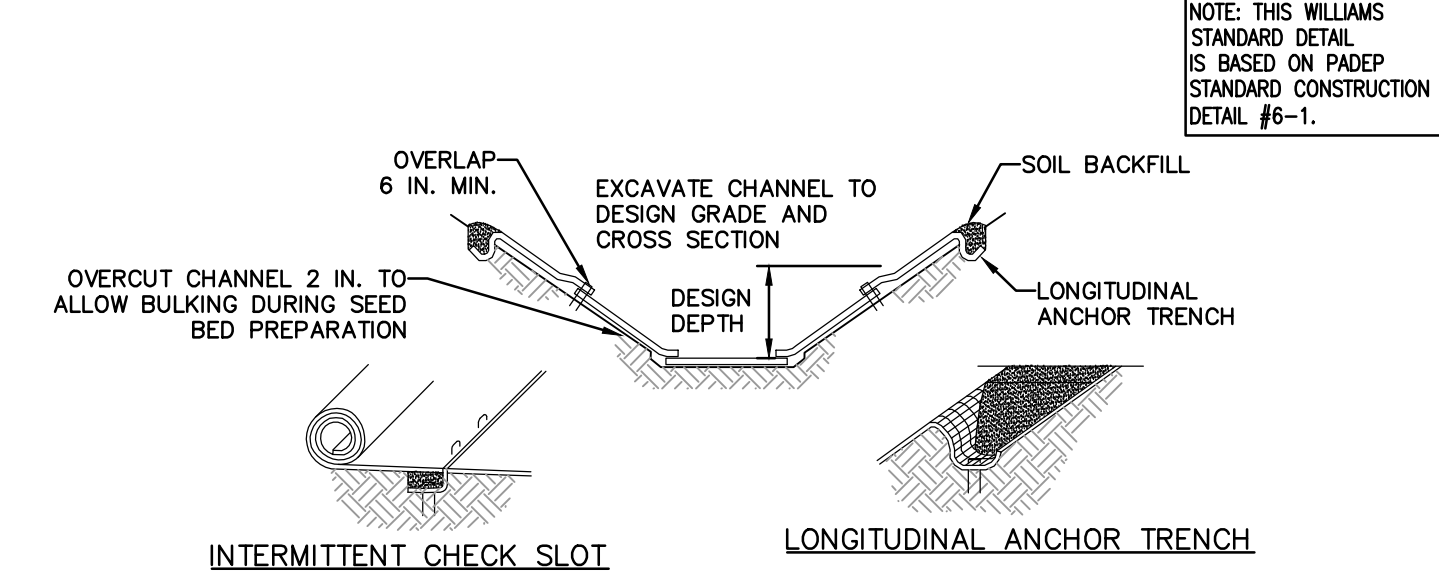


NOTES:

- CHECK DAMS ARE APPLICABLE FOR SMALL DITCHES AND SWALES AND ARE NOT TO BE USED IN LIVE FLOWING STREAMS.
- CHECK DAMS SHALL BE INSTALLED SUCH THAT COMPLETE COVERAGE OF THE ENTIRE WIDTH OF THE DITCH OR SWALE IS ACHIEVED.
- SEDIMENT SHALL BE REMOVED WHEN IT ACCUMULATES TO A DEPTH OF ONE-HALF THE ORIGINAL DAM HEIGHT.
- SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM OR LOWER.
- INSTALL A CUTOFF TRENCH A MINIMUM OF 12 INCHES INTO THE SWALE BOTTOM AND SIDES TO PREVENT CUTTING AROUND THE DAM.
- ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

EARTHEN CHECK DAM

N.T.S



* 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.

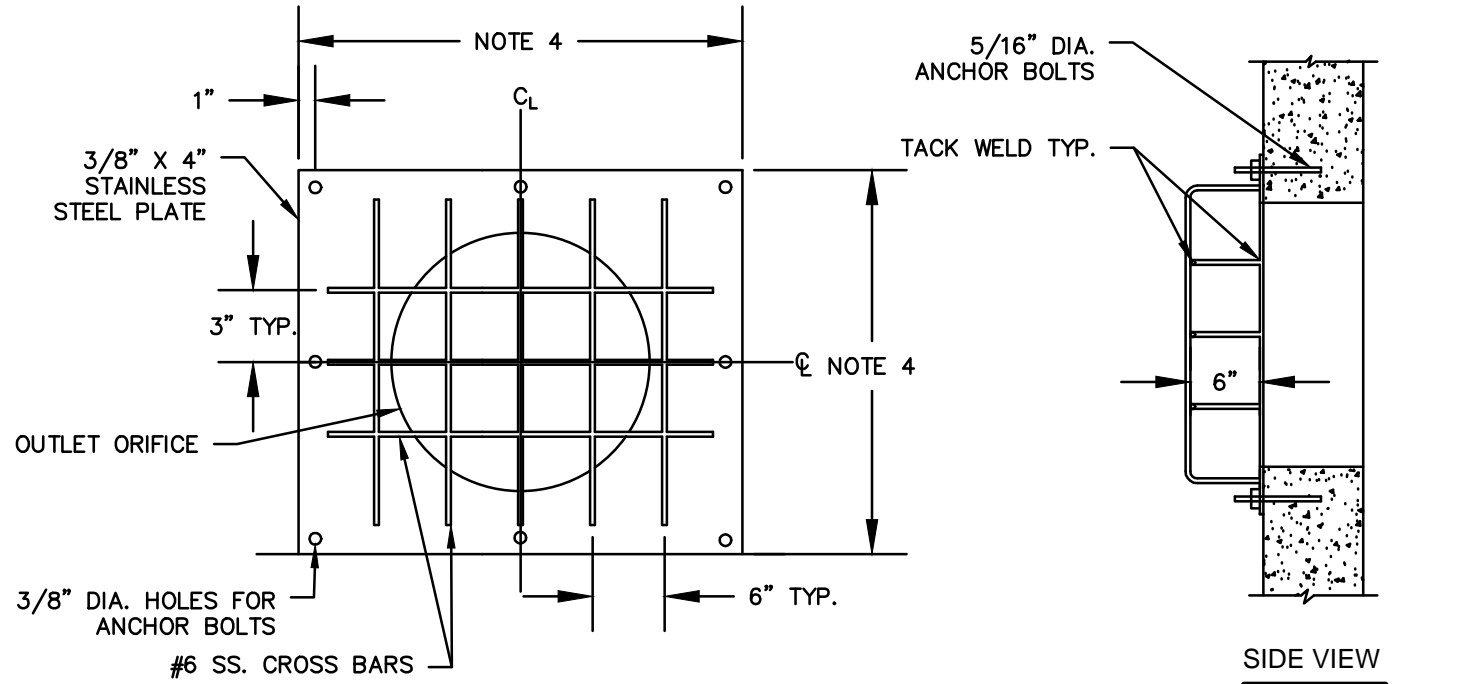
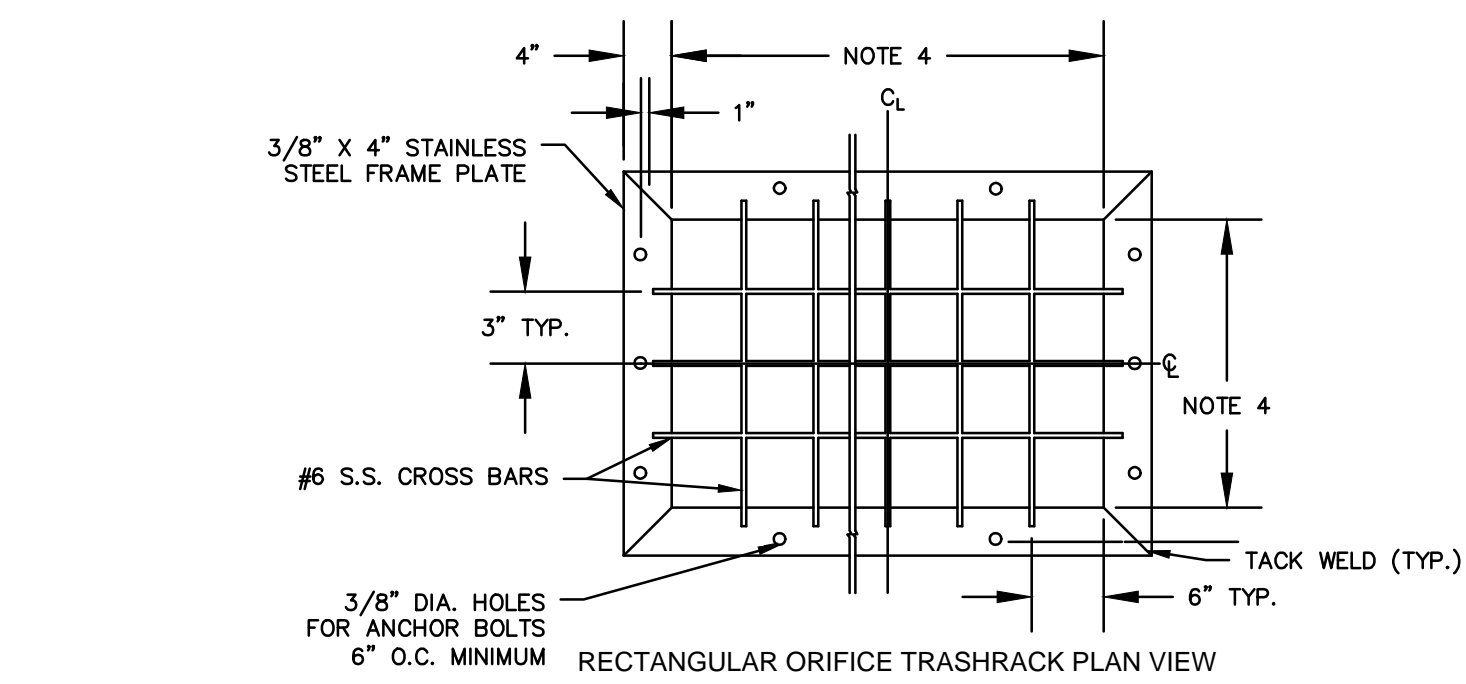
SWALE DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. SWALE SHALL BE CLEANED WHENEVER TOTAL SWALE DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO SWALE WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED 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)	TEMPORARY LINING*	PERMANENT LINING
VEGETATED SWALE 1	2.0	1.5	11.0	3.0	3.0	SC250	SC250/GRASS

VEGETATED SWALE

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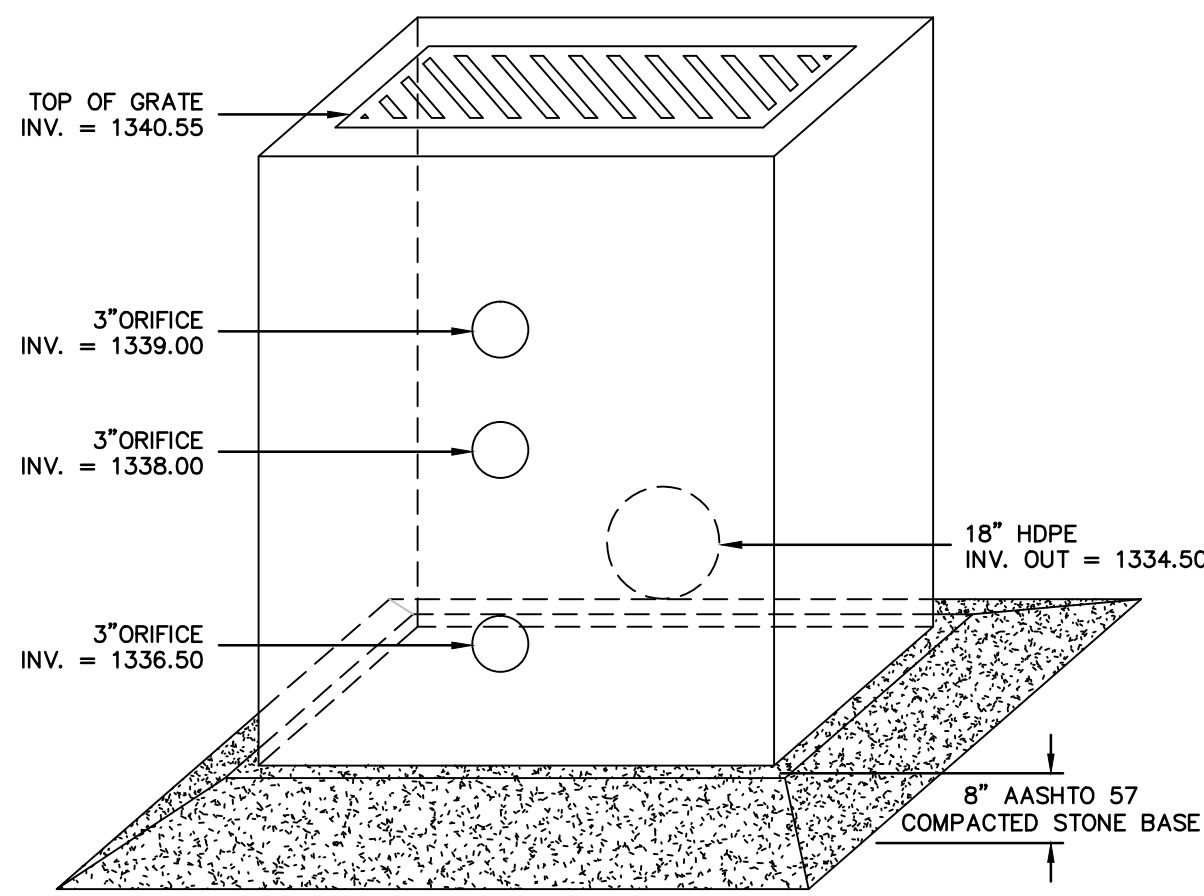


NOTES:

- 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 TRASH RACK

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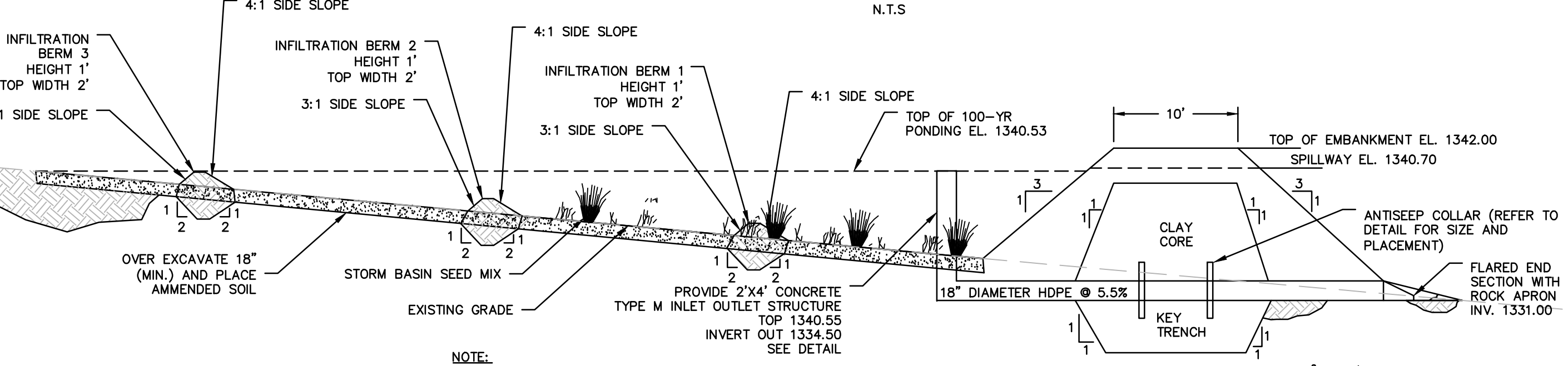


NOTES:

- THE PROPOSED OUTLET STRUCTURE SHALL BE A TYPE "W" 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



NOTE:

- CLAY CORE SHALL BE COMPOSED OF CL, CH, MH OR CL-ML SOILS WITH A PERMEABILITY LESS THAN OR EQUAL TO 1.0x10⁻⁶ CM/S. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM-D 1557; WITHIN ± 3% OPTIMUM MOISTURE CONTENT.

INFILTRATION BASIN CROSS SECTION

N.T.S

REVISIONS				TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	
0	08/28/2015	BL	ISSUED FOR PADEP PERMIT SUBMITTAL	W0161483	DAK	AJB	
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	DAK	AJB	
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0161483	AJB	AJB	
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161483	AJB	AJB	
				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		ISSUED FOR BID:	
				DATE: 04/03/15		REVISION:	
				APPROVED BY: AJB		DRAWING NUMBER:	
				DATE: 07/17/15		(30-3680)MF-1A-9	
				W.O. 1161483		SHEET 6	
						OF 6	