ATLANTIC SUNRISE PROJECT
PROPOSED 42" NATURAL GAS PIPELINE

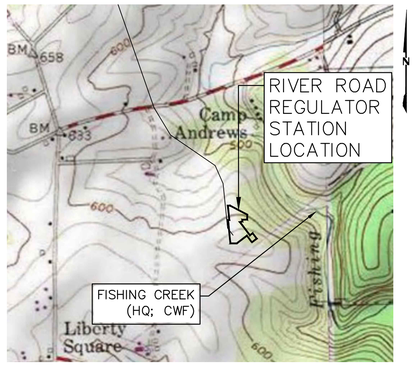
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS
FOR
RIVER ROAD REGULATOR STATION

PHASE 2

FACILITY NAME & TYPE	DRAWING NO.	SHEET NO.	DRAWING NAME
RIVER ROAD REGULATOR STATION	(92-3400)VF-1A-9	1 of 6	COVER SHEET
	(92-3400)VF-1A-9	2 of 6	SENSITIVE RESOURCES MAP
	(92-3400)VF-1A-9	3 of 6	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
	(92-3400)VF-1A-9	4 of 6	PCSM NOTES AND DETAILS
	(92-3400)VF-1A-9	5 of 6	PCSM NOTES AND DETAILS
	(92-3400)VF-1A-9	6 of 6	PCSM NOTES AND DETAILS

DRUMORE TOWNSHIP
LANCASTER COUNTY

PENNSYLVANIA



USGS HOLTWOOD QUADRANGLE

VICINITY MAP
SCALE: 1"=1,000'

811 Know what's below. Call before you dig.

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

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ALARIC JAMES BUSHER
ENGINEER
RES PE-60320

ALARIC J. BUSHER REG NO. PE 60320

BL Companies
ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

REVISIONS

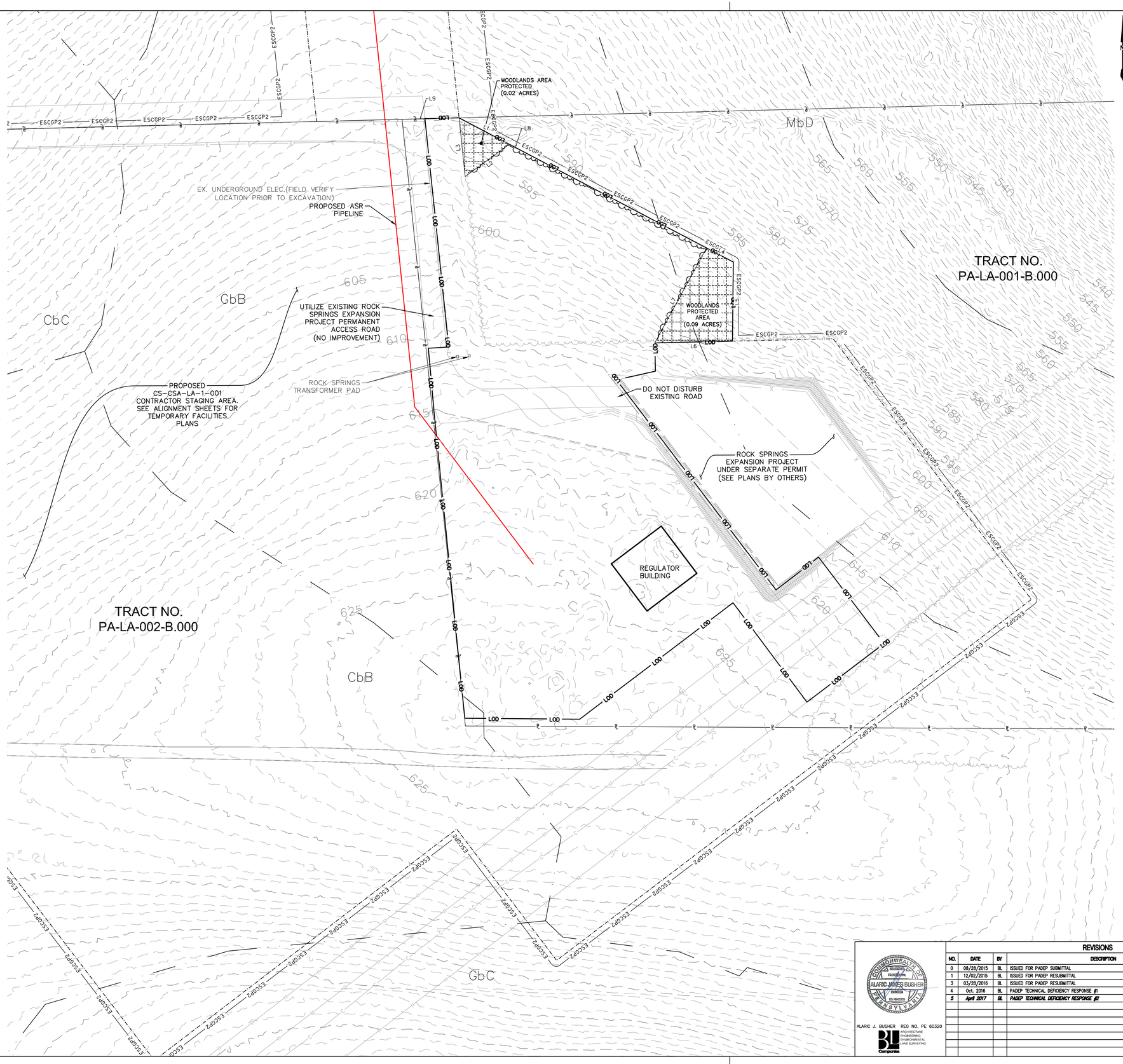
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W01161509	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	DAK	AJB
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	AJB	AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W01161509	AJB	AJB
5	*April 2017*	*BL*	*PADEP TECHNICAL DEFICIENCY RESPONSE #2*	*W01161509*	*AJB*	*AJB*

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
ATLANTIC SUNRISE PROJECT– PROPOSED 42" NATURAL GAS PIPELINE
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS
FOR RIVER ROAD REGULATOR STATION
DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA
COVER SHEET

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: (92-3400)VF-1A-9	SHEET 1 OF 6
W.O:	1161509				

Drawn By & Date/Time: hthomas Apr 24, 2017 - 2:00pm
Drawing Location & Name: G:\JOBS\14\14C\14C4909\DWG\020-CPLS\FRS_CV14C4909(20)_PCSM-RIVER.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
- × 1353.0 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)
- WsB SOIL TYPE DESIGNATION
- ESCGP2 ESCGP-2 PERMIT BOUNDARY
- LOD LIMIT OF DISTURBANCE (RIVER ROAD REGULATOR STATION)
- LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- CENTERLINE GAS PIPELINE
- EXISTING ROAD
- ROW

LEGEND

- WOODLANDS PROTECTED AREA
- WETLANDS PROTECTED AREA
- SLOPES 15% – 25% PROTECTED AREA
- SLOPES OVER 25% PROTECTED AREA
- WETLANDS

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	Y	0.70	0.11
NATURAL DRAINAGE WAYS	N/A	0.00	0.00
STEEP SLOPES, 15%–25%	Y	0.17	0.00
STEEP SLOPES, OVER 25%	Y	0.68	0.00
OTHER:			
OTHER:			
TOTAL EXISTING:		1.55	0.11

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

PCSM PROTECTED AREA		
Line #	Length	Direction
L1	49.98	S62° 15' 56.00"E
L2	48.13	S53° 55' 16.79"W
L3	51.88	N5° 54' 35.31"W
L4	26.64	S62° 15' 56.00"E
L5	69.58	S0° 36' 08.00"W
L6	68.36	S88° 39' 45.24"W
L7	95.15	N28° 33' 56.49"E
L8	195.88	S62° 15' 56.00"E
L9	50.11	N88° 33' 04.00"E

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET
1 inch = 40 ft.

ALARIC J. BUSHER REG NO. PE 60320
BL Companies — ARCHITECTURE, ENGINEERING, ENVIRONMENTAL, LAND SURVEYING

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FOR RIVER ROAD REGULATOR STATION
DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA
SENSITIVE RESOURCES MAP

Williams

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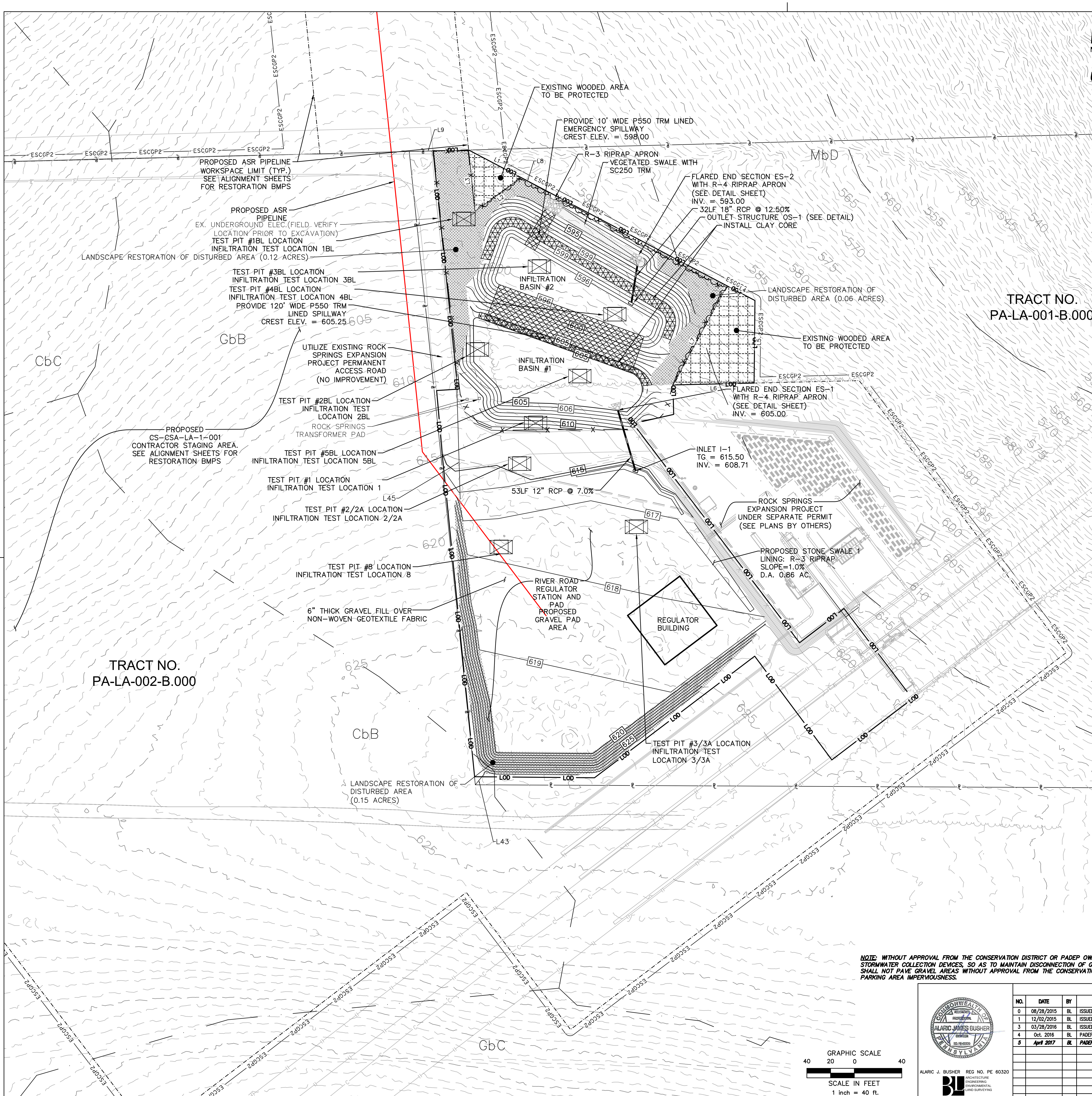
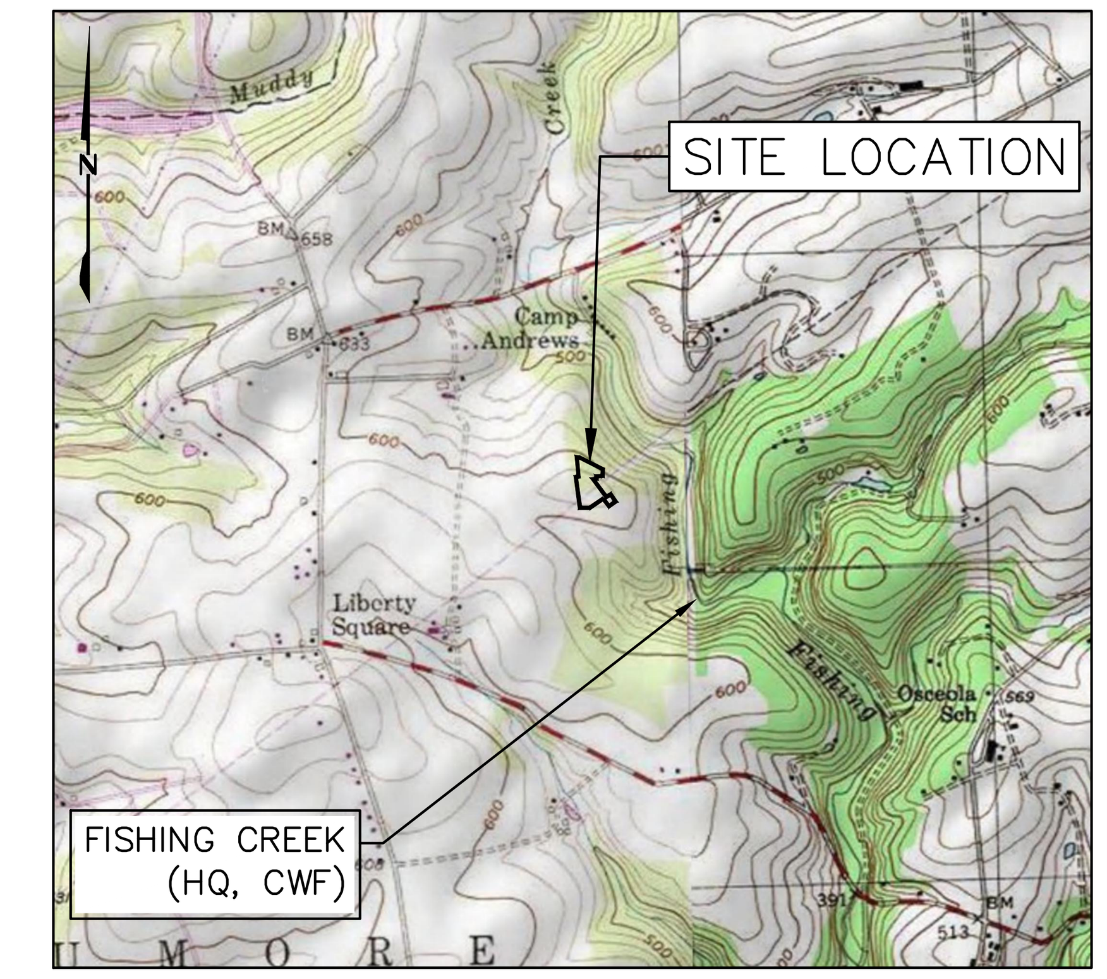
WO:	1161509				

Drawn By & Date/Time: hthomas Apr 24, 2017 – 2:02pm
Drawing Location & Name: G:\JOBS\14\14C\14C4909\DWG\020-CPLS\FRS_PCSM14C4909(20S)_RIVER.dwg





LOCATION MAP

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

SITE SOIL TYPES

CbB	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES
GbB	GLENELG SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	GLENELG SILT LOAM, 8 TO 15 PERCENT SLOPES
MbD	MANOR VERY STONY SILT LOAM, 8 TO 25 PERCENT SLOPES

RECEIVING WATERS

TO FISHING CREEK HQ, CWF
APPROXIMATE DISTANCE FROM SITE TO FISHING CREEK:
±550 FT (EAST)

ESCGP-2 PERMIT TABLE

LIMIT OF PERMIT BOUNDARY/STUDY AREA	2.59
LIMIT OF DISTURBANCE	2.59
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 & PAD)	1.07
DISTURBED AREA CONTROLLED BY BMPS	2.40

PCSM PROTECTED AREA		
Line #	Length	Direction
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L8	195.88	S62° 15' 56.00"E
L9	50.11	N88° 33' 04.00"E

PROPOSED FEATURES

- PROPOSED MAJOR CONTOUR (5' INTERVAL)
- PROPOSED MINOR CONTOUR (1' INTERVAL)
- LIMIT OF DISTURBANCE (RIVER ROAD REGULATOR STATION)
- LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- ESCGP-2 PERMIT BOUNDARY
- ORANGE CONSTRUCTION FENCE
- CENTERLINE GAS PIPELINE
- UNDERGROUND DETENTION FACILITY LIMITS
- ROCK OUTLET/RIPRAP APRON
- LANDSCAPE RESTORATION AREA
- WOODLANDS PROTECTED AREA
- TEST PIT LOCATION
- INFILTRATION TEST LOCATION
- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' INTERVAL)
- CLAY CORE LIMITS
- TRM LINING
- PROPOSED TREELINE
- SWALE LINING

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/OPERATIOR SHALL NOT PAVE GRAVEL AREAS WITHOUT APPROVAL FROM THE CONSERVATION DISTRICT OR PADEP, SO AS TO MAINTAIN REDUCED PARKING AREA IMPERVIOUSNESS.*

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET
1 inch = 40 ft.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
ALARIC JAMES BUSHER
NO. PE-60320

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

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DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

Williams

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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 DESIGNEE SHALL BE PRESENT ONSITE 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 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 FOR 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 SUBSEQUENT GRANTEES, 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 MILLED 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)(XI). 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.

SOIL, TRASH, DEBRIS OR OTHER MATERIALS REMOVED FROM PCSM BMPS SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ. NO WASTES, UNUSED BUILDING MATERIALS OR OTHER MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

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 ONTO, 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 ELIBRARY AT WWW.DEPWEB.STATE.PA.US.

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 THE TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (PERMITTEE).

OPERATIONS AND MAINTENANCE PROGRAM PERMANENT STORMWATER FACILITIES

THE PERMITTEE 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.

ANNUAL RECORDS OF MAINTENANCE PROCEDURES: THE FACILITY SHALL MAINTAIN A CHECKLIST WHENEVER THE BMPs ARE INSPECTED AND CLEANED. AN ANNUAL LIST OF INSPECTIONS AND MAJOR CLEANING OPERATIONS AND REPAIRS (PUMPING, SWEEPING PARKING LOTS, CLEANING CATCH BASIN, ETC.) SHALL BE MAINTAINED. THE LOCAL CCD OR ENFORCEMENT OFFICIALS SHALL HAVE ACCESS TO THOSE RECORDS.

ESCGP–2: THE FACILITY OWNER AND OPERATOR SHALL ENSURE COMPLIANCE WITH ESCGP–2 REQUIREMENTS BY MEETING ALL ONGOING RECORD, KEEPING MAINTENANCE, AND OTHER APPLICABLE ESCGP–2 AND PADEP PERMIT CONDITIONS.

REFER TO THE TABLES BELOW FOR THE OPERATION AND MAINTENANCE OF POST CONSTRUCTION BEST MANAGEMENT PRACTICES:

INFILTRATION BASIN

OPERATION & MAINTENANCE PROCEDURES

ACTIVITY	SCHEDULE
INSPECT AND CORRECT PROBLEMS, DAMAGE TO VEGETATION, AND INSPECT FOR SEDIMENT AND DEBRIS ACCUMULATION, IF FOUND, REMOVE DEBRIS AND RESTORE TO DESIGN GRADES. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES, & CORRECT IF OBSERVED. MOW AND TRIM VEGETATION TO ENSURE SAFETY OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; IF FOUND DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS–SECTION & LONGITUDINAL SLOPE, CORRECT AS NEEDED.	ANNUAL
MONITOR DRAWDOWN. IF DRAWDOWN EXCEEDS 72 HOURS, CONTACT DESIGN ENGINEER TO INITIATE CORRECTIVE ACTIONS.	ANNUAL, AFTER A RAINFALL EVENT OF 1" OR MORE
INSPECT OUTLET CONTROL DEVICES AFTER EVERY MAJOR RAINFALL EVENT (>1 IN.) TO ENSURE FREE FLOW. IF OUTFALL IS BLOCKED, REMOVE DEBRIS	AS NEEDED
INSPECT SOIL & REPAIR SETTLED AREAS TO DESIGN GRADE, REMOVE LITTER AND DEBRIS	ANNUAL

GENERAL MAINTENANCE NOTES:
1. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED.
2. DURING PERIODS OF EXTENDED DROUGHT, BASIN BOTTOM AREAS MAY REQUIRE WATERING.

SENSITIVE/SPECIAL VALUE FEATURES

OPERATION & MAINTENANCE PROCEDURES

ACTIVITY	SCHEDULE
INSPECT AND ENSURE PROTECTED AREAS REMAIN UNDISTURBED AFTER CONSTRUCTION ACTIVITIES CEASE.	BIANNUALLY

VEGETATED SWALE

OPERATION & MAINTENANCE PROCEDURES

ACTIVITY	SCHEDULE
PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT. RESEED BARE AREAS; INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SOIL IS EXPOSED OR EROSION CHANNELS ARE FORMING. WATER DURING DRY PERIODS, FERTILIZE AND APPLY PESTICIDE ONLY WHEN ABSOLUTELY NECESSARY	AS NEEDED
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES, CORRECT AS NEEDED. INSPECT FOR POOLS OF STANDING WATER; DEWATER AND DISCHARGE TO AN APPROVED LOCATION AND RESTORE TO DESIGN GRADE. MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER SWALE OPERATION OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION; DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY; MOW ONLY WHEN SWALE IS DRY TO AVOID RUTTING. INSPECT FOR LITTER; REMOVE PRIOR TO MOWING. INSPECT FOR UNIFORMITY IN CROSS–SECTION AND LONGITUDINAL SLOPE, CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED.	ANNUAL
INSPECT SWALE IMMEDIATELY AFTER THE SPRING MELT, REMOVE RESIDUALS (E.G. SAND) AND REPLACE DAMAGED VEGETATION WITHOUT DISTURBING REMAINING VEGETATION. IF ROADSIDE OR PARKING LOT RUNOFF IS DIRECTED IN THE SWALE, MULCHING AND/OR SOIL AERATION/MANIPULATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE AND MOISTURE CAPACITY AND TO REDUCE THE IMPACTS OF DEICING AGENTS. USE NONTOXIC, ORGANIC DEICING AGENTS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE–BASED LIQUID PRODUCTS OR AS PRETREATED SALT. USE SALT–TOLERANT VEGETATION IN SWALES	ANNUAL – SPRING

LANDSCAPE RESTORATION

OPERATION & MAINTENANCE PROCEDURES

ACTIVITY	SCHEDULE
RESTRICT VEHICLE ACCESS. ASSIGN RESPONSIBILITIES FOR WATERING, WEEDING, MOWING AND MAINTENANCE.	AT ALL TIMES
INSPECT AREA FOR GROWTH AND POTENTIAL PROBLEMS. MOW, WEED AND RESEED AS NEEDED FOR MEADOW ESTABLISHMENT.	ANNUALLY

ENGINEERED SOIL NOTES

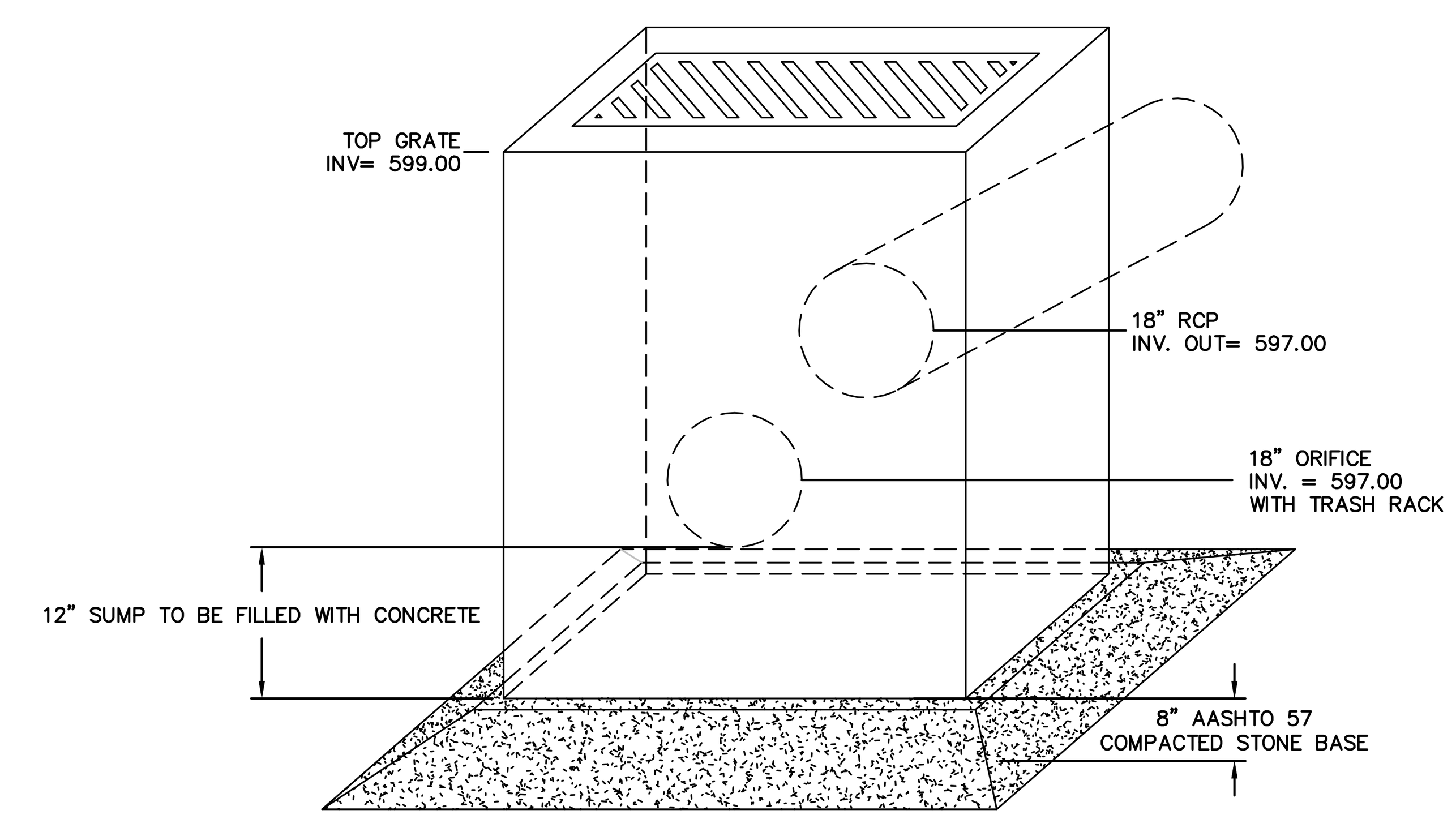
NOTES:
1. CONTRACTOR SHALL VERIFY THAT THE AMENDED SOIL PROVIDES AN INFILTRATION RATE BETWEEN 0.50 IN/HR AND 3.33 IN/HR. CONTRACTOR TO CONDUCT IN–SITU TESTING OF INFILTRATION RATES AS PER THE SEQUENCE OF CONSTRUCTION.
2. ENGINEERED SOIL MIX SHALL CONSIST OF A 2:1 SOIL TO COMPOST RATIO. THE COMPOST SHALL HAVE A MINIMUM 80% ORGANIC MATTER CONTENT. SOIL SHALL HAVE A CLAY CONTENT OF LESS THAN 10% AND BE FREE OF TOXIC SUBSTANCES.
3. EXCAVATE TO PROPOSED INVERT ELEVATION AND SCARIFY EXISTING SOILS, DO NOT COMPACT IN–SITU SOILS.
4. BACKFILL WITH AMENDED SOIL, LIGHT HAND TAMPING IS ACCEPTABLE. OVERFILL AS REQUIRED TO ACCOUNT FOR SETTLEMENT.
5. UPON COMPLETION, SEED AND MULCH THE BASIN USING THE STORM BASIN SEED MIXTURE.

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

1. 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. ANY PLANTS DEEMED NOT IN SATISFACTORY HEALTH OF CONDITION AT THE TIME OF PLANTING SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
2. THE CONTRACTOR SHALL SUPPLY ALL LABOR AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.
3. 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.
4. 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.
5. AT ALL TIMES, THE SITE SHALL BE KEPT NEAT AND SHALL BE KEPT FREE OF DEBRIS LEFT FROM THE PLANTING OPERATION.
6. ALL DISTURBED LANDSCAPE AREAS ARE TO BE RESEEDED.
7. DURING THE CONSTRUCTION AND GURANTEE 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.



NOTES:

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.

INFILTRATION BASIN 2 PERMANENT OUTLET STRUCTURE OS-1

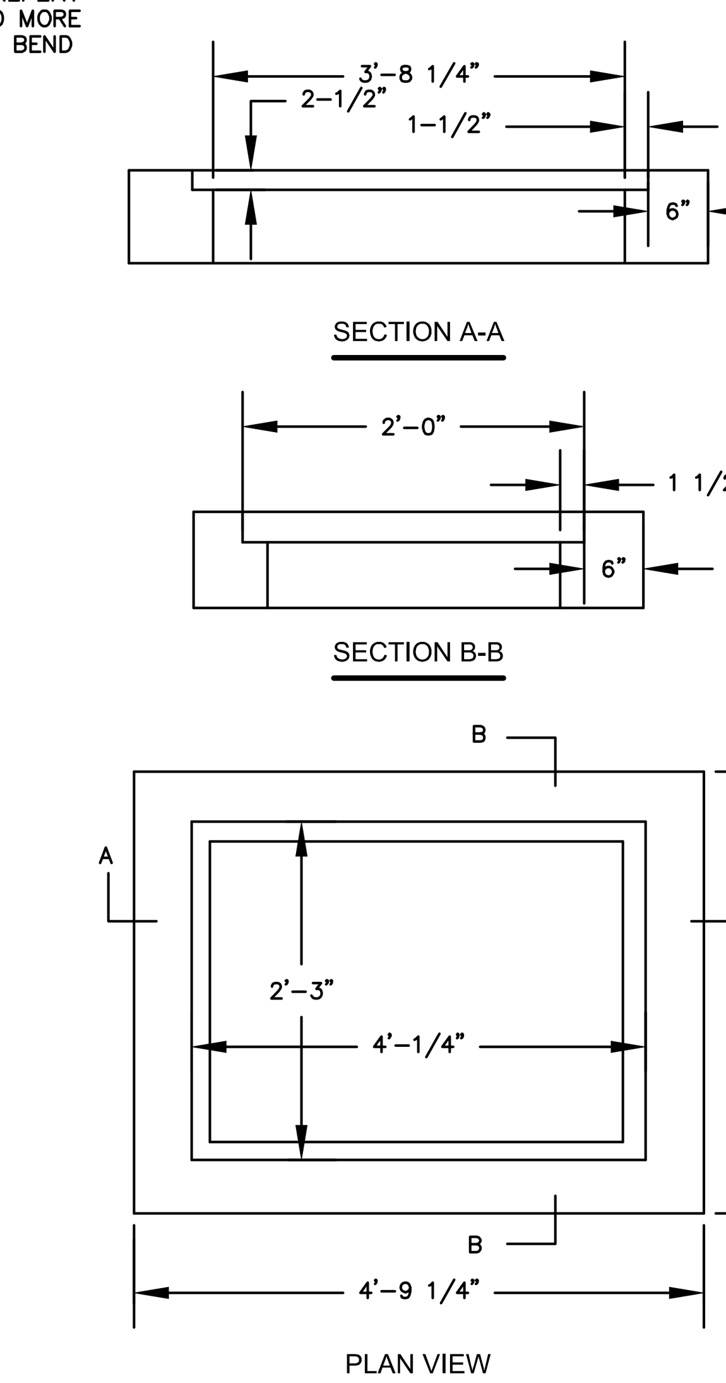
N.T.S

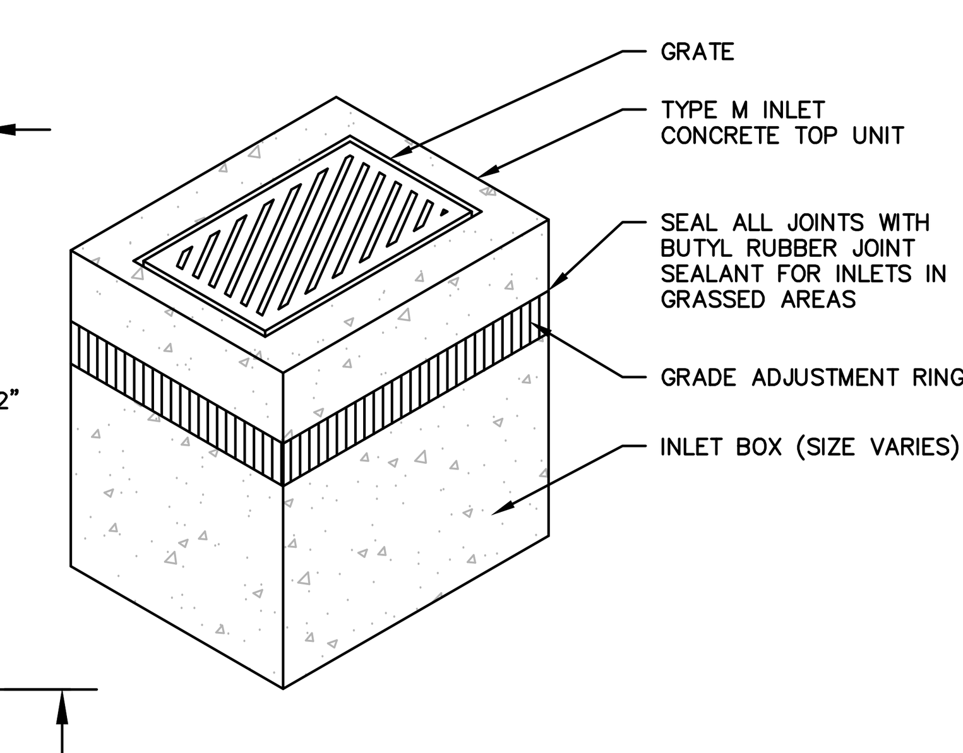
ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN

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:

1. CONTRACTOR SHALL LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID–PRODUCING SOILS ARE ENCOUNTERED.
2. CONTRACTOR SHALL SEPARATELY STORE TOPSOIL STRIPPED FROM THE SITE AWAY FROM TEMPORARILY STOCKPILED HIGH ACID–PRODUCING SOILS AND BEDROCK S.
3. CONTRACTOR SHALL STOCKPILE HIGH ACID–PRODUCING SOILS AND BEDROCK MATERIAL ON LEVEL GROUND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THESE MATERIALS HAVE A HIGH CLAY CONTENT.
4. CONTRACTOR SHALL COVER TEMPORARILY STOCKPILED HIGH ACID–PRODUCING SOIL AND BEDROCK MATERIAL TO BE EXPOSED MORE THAN 30 DAYS WITH PROPERLY ANCHORED, HEAVY–GRATE SHEETS OF POLYETHYLENE, WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF THREE TO SIX INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. IN ADDITION, THE CONTRACTOR SHALL INSTALL SILT FENCE AT THE TOE OF THE STOCKPILE SLOPE TO CONTAIN MOVEMENT OF MATERIAL. CONTRACTOR SHALL NOT APPLY TOPSOIL TO THE HIGH ACID–PRODUCING SOIL OR BEDROCK STOCKPILES TO PREVENT TOPSOIL CONTAMINATION.
5. CONTRACTOR SHALL ULTIMATELY DISPOSE OF HIGH ACID–PRODUCING SOILS OR BEDROCK WITH A PH OF FOUR OR LESS, OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS) BY PLACING THE MATERIAL COMBINED WITH LIMESTONE AT THE RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERING THE MIXTURE WITH A MINIMUM OF 12 INCHES OF SETTLED SOILS WITH A PH OF FIVE OR MORE EXCEPT AS FOLLOWS:
   A. IN THE AREAS WHERE TREES OF SHRUBS ARE TO BE PLANTED, THE CONTRACTOR SHALL COVER THE LIMESTONE/SOIL MIXTURE WITH A MINIMUM OF 24 INCHES OF SOILS WITH A PH OF FIVE OR MORE.
   B. CONTRACTOR SHALL NOT LOCATE ANY DISPOSAL AREA WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHER SURFACE WATERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. AT THE END OF EACH DAY, CONTRACTOR SHALL CLEAN ALL EQUIPMENT USED TO HANDLE HIGH ACID–PRODUCING SOILS OR BEDROCK TO PREVENT SPREADING OF HIGH–ACID MATERIALS TO OTHER PARTS OF THE PROPOSED RIGHT–OF–WAY, INTO STREAMS, OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED CORROSION.
7. CONTRACTOR SHALL PROVIDE AND INSTALL NON–VEGETATIVE EROSION CONTROLS (STONE TRACKING PADS, STRATEGICALLY–PLACE LIMESTONE CHECK DAMS, SILT FENCES, WOOD CHIPS) TO LIMIT THE MOVEMENT OF HIGH ACID–PRODUCING SOILS FROM, AROUND, OR OFF OF THE PROPOSED RIGHT–OF–WAY.
8. FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID–PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT–OF–WAY, TRANSCO SHALL MONITOR THE SITE FOR APPROXIMATELY SIX TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH–ACID SOIL OR BEDROCK PROBLEMS EMERGE. CONTRACTOR SHALL CORRECT ANY PROBLEMS THAT ARE DISCOVERED WITHIN THIS TIME PERIOD.
9. IF PROBLEMS OCCUR WHERE HIGH ACID–PRODUCING SOILS OR BEDROCK HAVE BEEN PLACED OR BURIED, THE APPLICANT SHALL MONITOR THESE AREAS FOR AT LEAST TWO YEARS TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE.





NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENN DOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC–34. CONTRACTOR SHALL VERIFY INLET BOX SIZING BASED ON PIPE SIZES AND ALIGNMENT PRIOR TO ORDERING PRECAST STRUCTURES.
2. ALL DRAINAGE STRUCTURES SHALL HAVE POURED–IN–PLACE CONCRETE SWALE BOTTOMS.
3. ALL PENNDOT INLETS ARE TO BE PROVIDED WITH EITHER A PAINTED STENCILED LOGO ON THE ROADWAY OR ANOTHER ACCEPTABLE MARKING APPROVED BY THE GOVERNING AGENCY.

NOTES:

1. INLET TO BE IN CONFORMANCE WITH PA DOT ROADWAY CONSTRUCTION STANDARDS (RC–34) AND CERTIFIED FOR H20 LOADING
2. PROVIDE BICYCLE SAFE GRATE

TYPE "M" INLET

N.T.S

COMMONWEALTH OF PENNSYLVANIA · REGISTERED PROFESSIONAL · ALARIC JAMES BUSHER · ENGINEER · NO. PE-60320

ALARIC J. BUSHER REG NO. PE 60320

BL Companies · ARCHITECTURE · ENGINEERING · ENVIRONMENTAL · LAND SURVEYING

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W01161509	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	DAK	AJB
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	AJB	AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W01161509	AJB	AJB
5	***April 2017***	***BL***	***PADEP TECHNICAL DEFICIENCY RESPONSE #2***	***W01161509***	***AJB***	***AJB***

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
ATLANTIC SUNRISE PROJECT– PROPOSED 42" NATURAL GAS PIPELINE
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS
FOR RIVER ROAD REGULATOR STATION
DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA
PCSM NOTES AND DETAILS

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:	(92–3400)VF–1A–9	SHEET 4	
WO:	1161509					OF 6	

Drawn By & Date/Time: hthomas Apr 24, 2017 – 2:03pm
Drawing Location & Name: G:\JOBS14\14C\14C4909\DWG\020–CPLS\FRS_PCSM14C4909(20S)_RIVER.dwg

RIP RAP GRADATION, FILTER BLANKET, MAXIMUM VELOCITIES

Riprap Gradation, Filter Blanket Requirements, Maximum Velocities

Class, Size NO.	Percent Passing (Square Openings)					
Rock Size (Inches)	R-8	R-7	R-6	R-5	R-4	R-3
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15					
12		0-15	15-50		100	
9				15-50		
6			0-15		15-50	100
4				0-15		
3					0-15	15-50
2						0-15
Nominal Placement Thickness (inches)	63	45	36	27	18	9
Filter Stone[1]	AASHTO #1	AASHTO #1	AASHTO #1	AASHTO #3	AASHTO #3	AASHTO #57
V_{max} (ft/sec)	17.0	14.5	13.0	11.5	9.0	6.5

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

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

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

LIMING AND FERTILIZER RATES

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.

PERMANENT SEED MIXTURES COOL & WARM SEASON GRASSES

NON-AGRICULTURAL MEADOWS (USE IN ALL AREAS EXCEPT INFILTRATION BASINS)

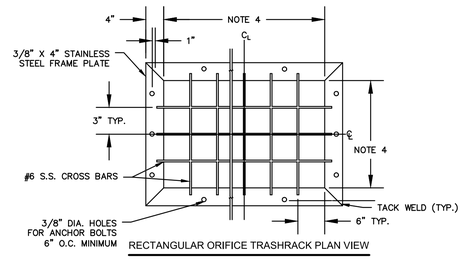
Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Virginia Wildrye	*Elymus virginicus*	5.3	9.0	15%
Little Bluestem	*Schizachyrium scoparium*	1.5	9.0	15%
Sideoats Grama	*Bouteloua curtipendula*	2.1	9.0	15%
Deertongue	*Dichanthelium clandestinum*	1.0	9.0	15%
Partridge Pea	*Chamaecrista fasciculata*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

STORM BASIN MIX (USE IN INFILTRATION BASINS, SEE ENGINEERED SOIL NOTES FOR PLACEMENT)

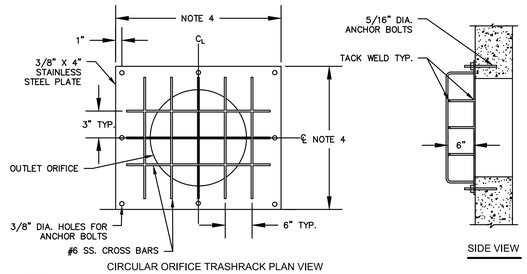
Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Orchardgrass	*Dactylis glomerata*	0.8	12.0	20%
Timothy	*Phleum pratense*	0.4	12.0	20%
Switchgrass	*Panicum virgatum*	1.0	9.0	15%
Virginia Wildrye	*Elymus virginicus*	7.1	12.0	20%
Fox Sedge	*Carex vulpinoidea*	0.3	9.0	15%
Oxeye Sunflower	*Heliopsis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

TEMPORARY SEED MIX

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



RECTANGULAR ORIFICE TRASHRACK PLAN VIEW



CIRCULAR ORIFICE TRASHRACK PLAN VIEW

SIDE VIEW

NOTES:

1. TRASH RACK MATERIAL TO BE STAINLESS STEEL.
2. SECURE THE TRASHRACK PLATE TO THE SIDE OF THE INLET BOX USING 5/16"ø x 2" STAINLESS STEEL BOLTS AND APPROPRIATE ANCHORS.
3. 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 WATERTIGHT SEAM.
4. SEE PERMANENT OUTLET STRUCTURE DETAIL FOR ORIFICE PLATE DIMENSIONS.

PERMANENT OUTLET STRUCTURE TRASH RACK

N.T.S

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
CHESTER SILT LOAM	CbB	3-8%	CHESTER	X	C		X				X		X		X				
GLENELG SILT LOAM	GbB	3-8%	GLENELG	X	C		X			X	X	X	X	X	X				X
	GbC	8-15%		X	C		X			X	X	X	X	X	X				X
MANOR VERY STONY SILT LOAM	MbD	8-25%	MANOR	X	C		X				X	X	X	X	X				

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 PROTECTIVE TREATMENT.
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 PROVED TO MINIMIZE FROST AFFECTS.
SHRINK-SWELL	STONE BASE WILL BE PROVED TO PREVENT SHRINK-SWELL FROM EFFECTING PAVEMENT.
POTENTIAL SINKHOLE	GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS WILL BE FOLLOWED FOR ANY POTENTIAL OCCURRENCES.
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

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

TABLE 11.6

MULCH APPLICATION RATES

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

ALARIC J. BUSHER REG NO. PE 60320

BL Companies — ARCHITECTURE, ENGINEERING, ENVIRONMENTAL, LAND SURVEYING

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W01161509	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	DAK	AJB
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	AJB	AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W01161509	AJB	AJB
5	*April 2017*	*BL*	*PADEP TECHNICAL DEFICIENCY RESPONSE #2*	*W01161509*	*AJB*	*AJB*

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

ATLANTIC SUNRISE PROJECT- PROPOSED 42" NATURAL GAS PIPELINE

POST CONSTRUCTION STORMWATER MANAGEMENT PLANS

FOR RIVER ROAD REGULATOR STATION

DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA

PCSM NOTES AND DETAILS

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: (92-3400)VF-1A-9	SHEET 5 OF 6
W.O:	1161509				

Drawn By & Date/Time: hthomas Apr 27, 2017 - 7:33am
Drawing Location & Name: G:\JOBS\14\14C\14C4909\DWG\020-CPLS\FRS_PCSM14C4909(20S)_RIVER.dwg

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 REGULATOR PAD.

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.
- PCSM/SR BMPS INCORPORATE THE USE OF INFILTRATION BASINS.
- THE REMOVAL OF VEGETATION, ESPECIALLY TREE COVER, WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION.
- THE AMOUNT OF IMPERVIOUS SURFACES WILL BE LIMITED TO ONLY THAT NECESSARY TO SUPPORT THE CONSTRUCTION OF CPL NORTH, CPL SOUTH, AND ASSOCIATED FACILITIES AND/OR OPERATION OF THE PIPELINE.
- SITE DISTURBANCE IS APPROXIMATELY 550' FROM THE NEAREST RECEIVING WATER. RUNOFF WILL BE THROUGH AN EXISTING CONVEYANCE CHANNEL OR VIA OVERLAND FLOW THROUGH A WOODED AREA. THE COMBINATION OF TRAVEL LENGTH AND TREE CANOPY IS EXPECTED TO NEGATE ANY THERMAL IMPACTS THE SITE WILL HAVE ON THE RECEIVING WATERS.

CRITICAL STAGES OF CONSTRUCTION

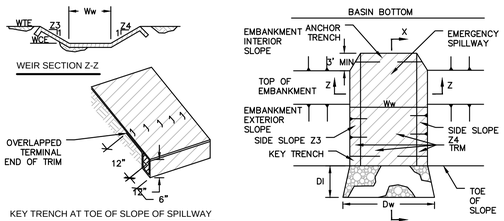
THE FOLLOWING ARE CRITICAL STAGES OF CONSTRUCTION:

1. INSTALLATION OF INFILTRATION BASINS
2. INSTALLATION OF ENGINEERED SOIL.

REGULATOR STATION SEQUENCE OF CONSTRUCTION

1. 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.
2. 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.
3. HOLD PRE-CONSTRUCTION CONFERENCE WITH THE PERMITTEE(S), CO-PERMITTEE(S), OPERATORS, ENVIRONMENTAL INSPECTORS, LOCAL COUNTY CONSERVATION DISTRICT (CCD), PADEP, AND LICENSED PROFESSIONALS OR DESIGNEES RESPONSIBLE FOR THE EARTH DISTURBANCE ACTIVITY, INCLUDING IMPLEMENTATION OF THE E&S AND PCSM PLANS AND CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN.
4. INSTALL ORANGE CONSTRUCTION FENCE AROUND AREAS TO BE PROTECTED. PROTECTED WOODLAND AREAS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. PROTECTED AREAS SHOULD NOT BE DISTURBED DURING CONSTRUCTION EXCEPT FOR TEMPORARY IMPACTS FOR MITIGATION OR RESTORATION EFFORTS.
5. LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE LIMITS OF DISTURBANCE.
6. INSTALL ROCK CONSTRUCTION ENTRANCES (RCES).
7. REMOVE BRUSH TO EFFECTIVELY INSTALL PERIMETER CONTROLS AS SHOWN ON THE CONSTRUCTION DRAWINGS.
8. 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.
9. * INSTALL THE FOLLOWING BMPs:
   - 9.1. INSTALL INFILTRATION BASINS, INCLUDING CLAY CORE, ANTISEEP COLLARS, SLOPE LINERS, INLET AND OUTLET PIPING INCLUDING INLET I-1, EMERGENCY SPILLWAY, VEGETATED SWALE AND ASSOCIATED IMPROVEMENTS. EXCAVATE BASIN BOTTOM TO FINISHED GRADES. DO NOT INSTALL ENGINEERED SOIL AT THIS TIME.
   - 9.2. INSTALL ORANGE CONSTRUCTION FENCE AT PERIMETER OF INFILTRATION BASIN TO PREVENT COMPACTION OF SOILS AND SILTATION OF BASIN BOTTOMS.
10. BEGIN GRADING AND STRIP AND STOCKPILE TOPSOIL WITHIN THE REGULATOR STATION AREA AND INSTALL SEDIMENT BARRIERS AROUND STOCKPILE.
11. 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).
12. ROUGH GRADE SITE.
13. GRADE THE REGULATOR STATION PAD AND PORTION OF ACCESS ROAD TO BE RECONSTRUCTED, INCLUDING STONE SWALE 1 AS SHOWN ON THE E&SC AND PCSM/SR PLANS (SECTIONS 2 AND 3 OF THE ESCGP-2 NOI). INSTALL INLET PROTECTION ON INLET I-1 TO PREVENT SILTATION OF BASIN.
14. 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.
15. ESTABLISH FINAL GRADE.
16. SURFACE STABILIZATION, APPLY PERMANENT STABILIZATION MEASURES INCLUDING GRAVEL PAD, FERTILIZER, SEED, MULCH AND EROSION CONTROL BLANKETS IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS REACHED FINAL GRADE. 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 EOP (SECTION 4 OF THE ESCGP-2 NOI). AFTER SEEDING, FERTILIZING AND MULCHING IS COMPLETE, INSTALL EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED OR ON SLOPES OF 3:1 OR GREATER.
17. *UPON STABILIZATION OF GRAVEL PAD, REMOVE 18" OF SOIL FROM BASIN BOTTOM AND INSTALL ENGINEERED SOIL IN INFILTRATION BASIN BOTTOMS. IMMEDIATELY SEED AND MULCH. COMPLETE INFILTRATION TESTING ON MATERIAL AFTER PLACEMENT AND HAND COMPACTION. PERFORM ADDITIONAL TESTING 60 DAYS FOLLOWING PLACEMENT. IF INFILTRATION RATES ARE OUTSIDE SPECIFIED RANGE OF 0.50IN/HR TO 3.33IN/HR, AERATE OR COMPACT MATERIAL AS NEEDED TO ADJUST INFILTRATION RATE. INSTALL SILT SOCK AT INTERIOR TOE OF SLOPE TO MINIMIZE SILTATION OF BASIN BOTTOMS. INSTALL SILT SOCK 5 AND 10 UPSLOPE TO PROTECT INFILTRATION BASINS FROM SILTATION.
18. 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 OF THE E&SC BMPS.
19. AFTER ALL UPSLOPE DISTURBED AREAS ARE STABILIZED, REMOVE TEMPORARY INLET PROTECTION AND ALLOW FLOW TO INLET I-1. REMOVE ROCK CONSTRUCTION ENTRANCE. RESTORE EXISTING GRAVEL ROAD.
20. 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.
21. COMPLETE SITE STABILIZATION IN AREAS OF BMP REMOVAL, INCLUDING FERTILIZING, SEED APPLICATION, EROSION CONTROL BLANKET AND MULCHING.
22. 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.
23. MAINTAIN E&SC BMPS UNTIL SITE WORK IS COMPLETE AND UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
24. REMOVE AND PROPERLY DISPOSE/RECYCLE E&SC BMPS. REMOVE ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED DURING E&SC 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 THREE WORKING DAYS' NOTICE TO ENGINEER.



BASIN NO.	WEIR Z3 (FT)	WEIR Z4 (FT)	WEIR TOP ELEV WTE (FT)	WEIR CREST ELEV WCE (FT)	WEIR WDTH Ww (FT)	LINING TRM TYPE	LINING STAPLE PATTERN	SWALE Z5 (FT)	SWALE DEPTH Cd (FT)	DISSIPATER LENGTH DI (FT)	DISSIPATER WIDTH Dw (FT)	DISSIPATER RIPRAP SIZE (R-__)	DISSIPATER RIPRAP THICK. DRt (IN)
1	3	3	599.00	598.00	10	P550	B	N/A	N/A	SEE APRON TABLE			

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.

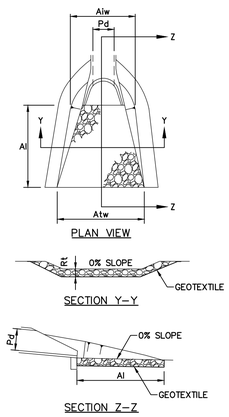
RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.

THE USE OF BAFFLES THAN REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS LINERS.

BASIN EMERGENCY SPIILLWAY WITH TRM LINING

N.T.S PADEP-7-13

NOTE: THIS WILLIAMS STANDARD DETAIL IS BASED ON PADEP STANDARD CONSTRUCTION DETAIL #9-1.



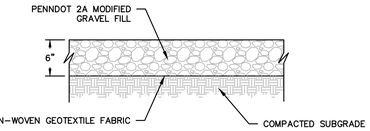
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE (R-__)	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Alw (FT)	APRON TERMINAL WIDTH (Atw) (FT)
ES-1	12	4	18	6	3	9

NOTES:

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

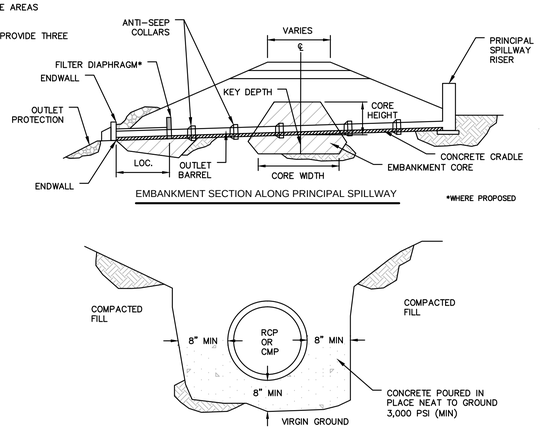
RIP-RAP APRON AT PIPE OUTLET WITH FLARED END SECTION

N.T.S



GRAVEL PAD SECTION DETAIL

N.T.S



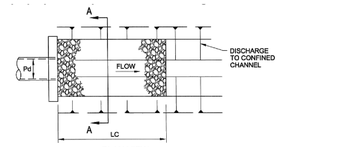
NOTE: A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.

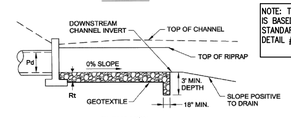
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.

FILTER DIAPHRAGM LOCATION (LOC.) SHALL BE AS SHOWN IN FIGURE 7.8 FOUND IN PENNSYLVANIA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL.

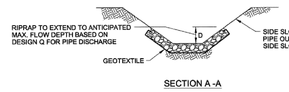
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL DETAIL

N.T.S PADEP-7-17





NOTE: THIS DETAIL IS BASED ON PADEP STANDARD CONSTRUCTION DETAIL #9-3.



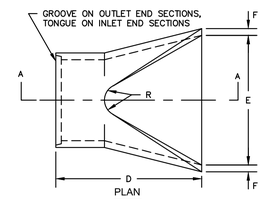
NOTES:

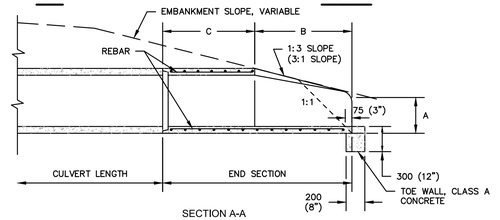
1. ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLANS. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.
2. ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE (R-__)	RIPRAP THICK. Rt (IN)	APRON LENGTH LC (FT)	APRON INITIAL BOTTOM WIDTH (FT)	APRON END WIDTH (FT)	APRON INITIAL TOP WIDTH (FT)	APRON SIDE SLOPES H:V
VEGETATED SWALE	N/A	3	9	6	2	14	8	3:1
ES-2	18	4	18	8	2	8	8	3:1

RIP-RAP APRON AT PIPE OUTLET TO AN EXISTING CHANNEL

N.T.S PADEP-9-3

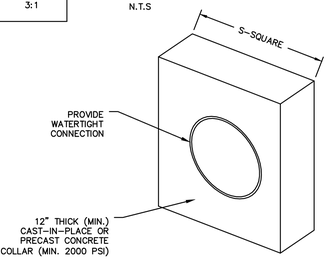




DIA	A	B	C	D	E	F
12"	4"	2'-0"	4'-1"	6'-1"	2'-0"	2"
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"	2 1/4"
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"
24"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"
30"	12"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3 1/2"
36"	1"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"
48"	24"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

CONCRETE FLARED END SECTION (ROUND PIPE)

N.T.S



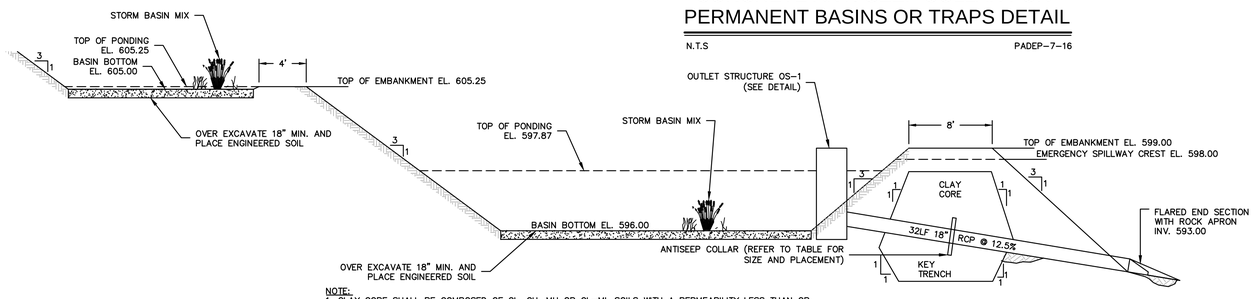
ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.

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)
BASIN	18 (22" OD)	40	1	10.0	N/A

CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS DETAIL

N.T.S PADEP-7-16



NOTE:
1. 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 ± 3% OPTIMUM MOISTURE CONTENT.

INFILTRATION BASIN CROSS SECTION

N.T.S

ALARIC J. BUSHER REG NO. PE 60320

BL Companies — ARCHITECTURE ENGINEERING ENVIRONMENTAL LAND SURVEYING

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W01161509	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	DAK	AJB
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W01161509	AJB	AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W01161509	AJB	AJB
5	April 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W01161509	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

ATLANTIC SUNRISE PROJECT- PROPOSED 42" NATURAL GAS PIPELINE

POST CONSTRUCTION STORMWATER MANAGEMENT PLANS

FOR RIVER ROAD REGULATOR STATION

DRUMORE TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA

PCSM NOTES AND DETAILS

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: (92-3400)VF-1A-9	SHEET 6 OF 6
WO:	1161509				

Drawn By & Date/Time: hthomas Apr 24, 2017 - 2:03pm
Drawing Location & Name: G:\JOBS14\14C4909\DWG\020-CPLS\FRS_PCSM14C4909(20S)_RIVER.dwg