

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

MLV-515RA20
MAIN LINE VALVE SITE PLAN

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

APRIL 2021
 REVISED MARCH 2022

PROJECT OWNER/APPLICANT

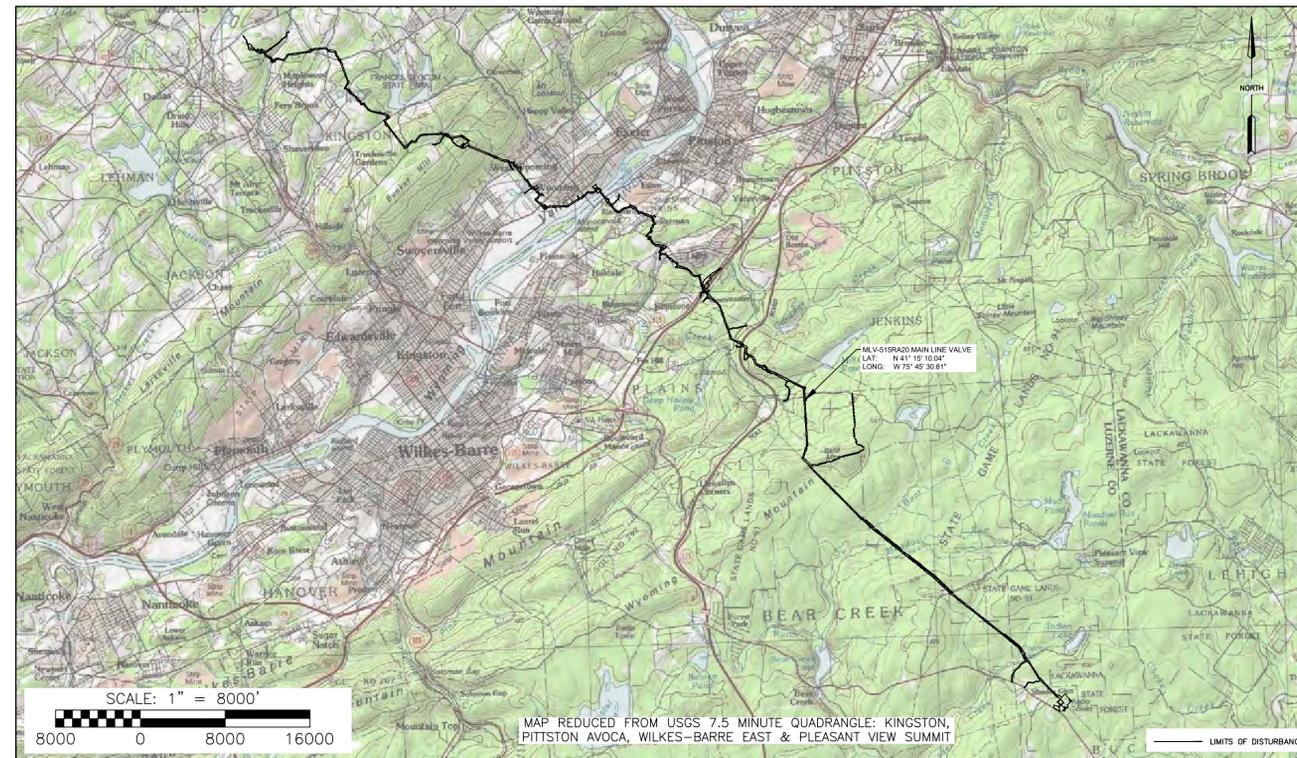
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
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PLAN PREPARER / ENGINEER

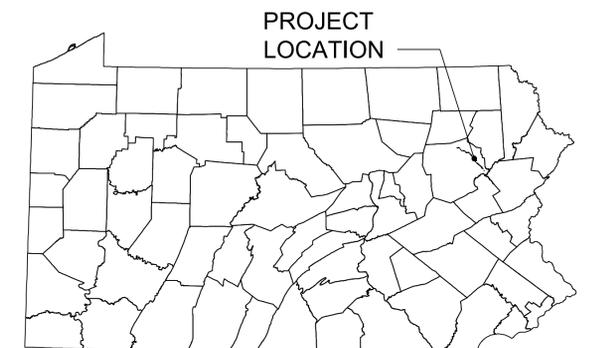
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LOCATION MAP



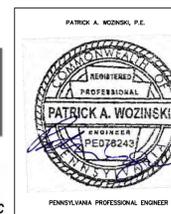
VICINITY MAP
 N.T.S.

SHEET INDEX	
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1 OF 5	COVER SHEET
2 OF 5	EXISTING CONDITIONS PLAN
3 OF 5	PROPOSED CONDITIONS PLAN
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RECEIVING WATERS			
NAME	DESIGNATED USE	EXISTING USE	PFBC CLASSIFICATION
MILL CREEK, TRIBUTARY 63014 & 63015 TO MILL CREEK	CWF	HQ-CWF, MF	CLASS A WILD TROUT

Call before you dig.
 1-800-242-1776 or **811**

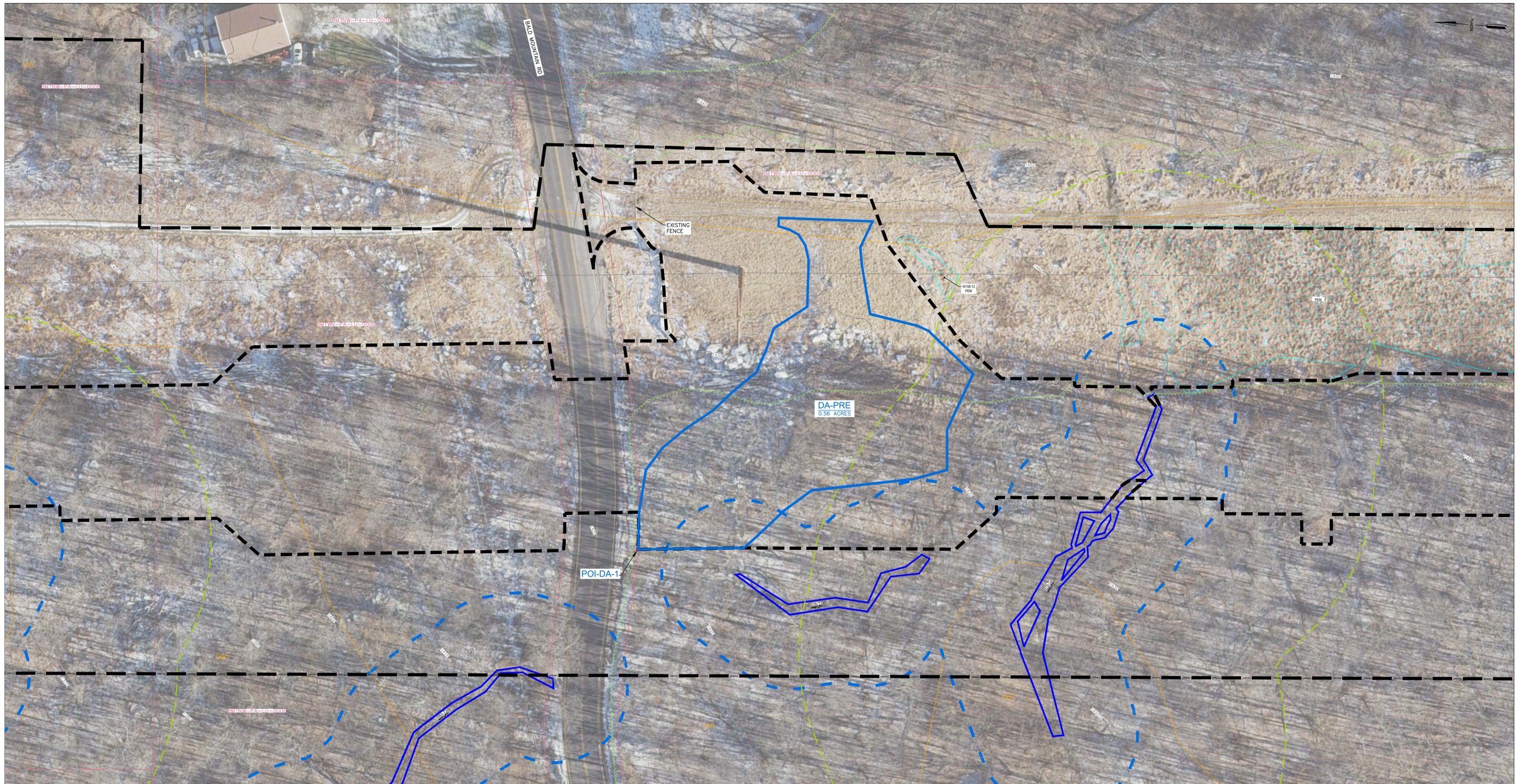
PENNSYLVANIA ACT 287 (1974) AS AMENDED BY PENNSYLVANIA LESS THAN THREE (3) WORKING DAYS AND NO MORE THAN (10) WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	06/29/21	RHM	REVISED PER PADEP COMMENTS.			
2	03/01/22	RHM	RESPONSE TO PADEP TECHNICAL DEFICIENCY LETTER			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 REGIONAL ENERGY ACCESS EXPANSION PROJECT
 MLV-515RA20
 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
COVER SHEET
 BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: RHM	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 5



LEGEND

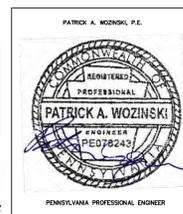
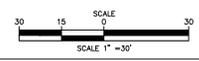
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- ESCP PERMIT BOUNDARY
- LIMITS OF DISTURBANCE
- x- EXISTING FENCE
- EXISTING STONE ROW
- EXISTING STRUCTURE
- EXISTING EDGE OF ROAD
- 1250--- EXISTING GRADE MAJOR CONTOURS (10' C.I.)
- 1244--- EXISTING GRADE MINOR CONTOURS (2' C.I.)
- >->->- EXISTING WATERBAR AND OUTLET STRUCTURE
- >->->- APPROX. ENVIRONMENTAL STUDY LIMITS
- DELINEATED WETLAND
- DELINEATED WATERWAY / STREAM (TOP OF BANK)
- STREAM FLOW DIRECTION
- RIPARIAN BUFFER
- 50' FEMA FLOODWAY
- FEMA 100-YEAR FLOODPLAIN
- M-B2 SOIL BOUNDARY / TYPE
- EXISTING TREELINE / TREE/SHRUB
- EXISTING LEDY / TGPL PIPELINES
- EXISTING FOREIGN PIPELINES
- EXISTING UTILITY POLE / TOWER
- EXISTING VALVE
- EXISTING CULVERT
- EXISTING ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING SANITARY LINE
- EXISTING STORM SEWER
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING UNDERGROUND CABLE LINE
- EXISTING STORM INLET
- EXISTING SANITARY MANHOLE
- EXISTING COMMUNICATION/ELECTRIC MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING POWER POLE
- EXISTING WELL
- PRE-CONSTRUCTION DRAINAGE AREA
- TEST PIT/INFILTRATION TEST LOCATION

SOIL LEGEND

- L-01 LACKAWANNA CHANNERY SILT LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY
- O-02 OQUAGA AND LORDSTOWN EXTREMELY STONY SILT LOAMS, 8 TO 25 PERCENT SLOPES
- V-08 VOLUNTA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
- V-03 VOLUNTA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
- V-01 VOLUNTA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY
- V-02 VOLUNTA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES, EXTREMELY STONY

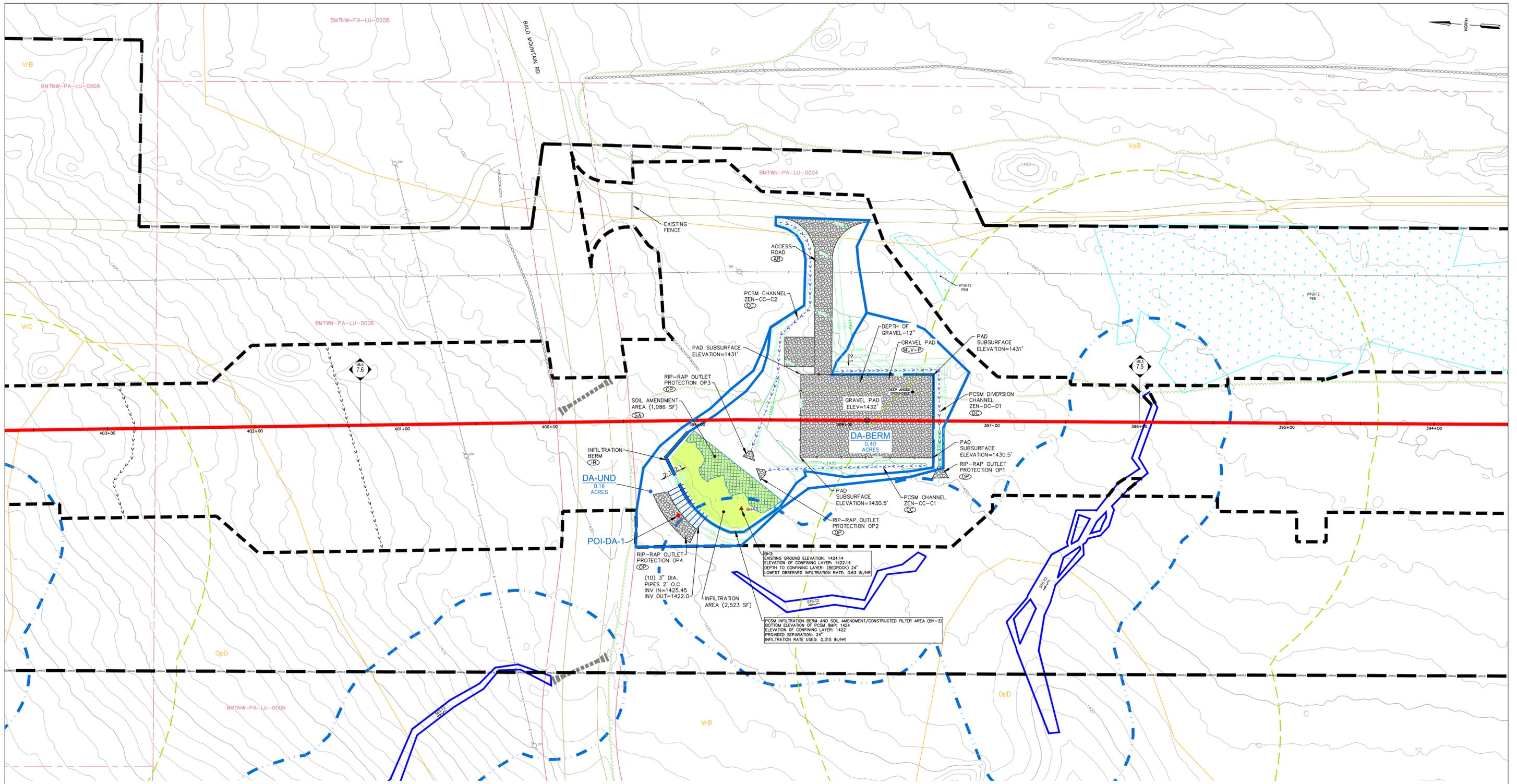
EXISTING CONDITION NOTES/SOURCES

1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN 2010 AND 2020.
2. PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
3. PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
4. STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WWM CONSULTING FROM MARCH 2020 TO OCTOBER 2020.
5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD83 ELEVATION MSL, DERIVED FROM GPS OBSERVATION.



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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT MLV-515RA20 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA			
DRAWN BY: RHM CHECKED BY: RJM APPROVED BY: PW WO: 1222636	DATE: 03/31/21 DATE: 03/31/21 DATE: 03/31/21 RID: 209	ISSUED FOR BID: ISSUED FOR CONSTRUCTION: DRAWING NUMBER: 26-1000-70-28-D	SCALE: AS NOTED REVISION: SHEET 2 OF 5



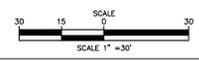
LEGEND	
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---	PROPOSED CONSTRUCTION FENCE
---	PROPOSED PIPELINE
---	PROPOSED PIPELINE GROUNDBED
---	GEHAZARD ALONG PIPELINE
---	PROPOSED WATERBAR AND OUTLET STRUCTURE
---	PROPOSED CHANNEL AND DIVERSION CHANNEL
---	PROPOSED FENCE
---	PROPOSED CHANNEL
---	PROPOSED GRAVEL
---	PROPOSED GRADE MAJOR CONTOURS (10' C.I.)
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RESOLUTION TO SOIL LIMITATIONS

- TRANSCO PROPOSES THE FOLLOWING RESOLUTIONS TO COMPENSATE FOR SOIL LIMITATIONS SUMMARIZED IN TABLE 3 ABOVE:
- TO OFFSET THE CAVING OF CUTBANKS, TRENCHING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE OSHA TECHNICAL MANUAL FOR TRENCHING.
 - PREVENTATIVE COATINGS SHALL BE USED TO PREVENT CORROSION OF CONCRETE AND/ OR STEEL.
 - WHEN BEDROCK IS ENCOUNTERED IT WILL BE REMOVED BY MECHANICAL METHODS OR BLASTING. BLASTING WILL CONFORM WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. THIS IS NOT ANTICIPATED.
 - PRECAUTIONS WILL BE TAKEN TO PREVENT SLOPE FAILURE WHEN WORKING WITHIN LOW STRENGTH SOILS BY FLATTENING CUT / FILL SLOPES, NOT OVERLOADING, MAINTAINING LATERAL SUPPORT, AND PREVENTING SATURATION OF SOILS. USE OF THESE SOILS WILL BE AVOIDED FOR ROADWAY CONSTRUCTION.
 - FOR SOILS PRONE TO FLOODING, SOIL PERCOLATION, PONDING WETNESS, HAVE A SEASONAL HIGH WATER TABLE, OR ARE HYDRIC, EXCAVATIONS IN SOILS THAT HAVE THESE CHARACTERISTICS WILL LIKELY ENCOUNTER WATER, DEWATER WITH APPROPRIATE MEANS SUCH AS PUMP WATER FILTER BAGS, SEDIMENT TRAPS, ETC.
 - SOILS THAT HAVE THE POTENTIAL TO SWELL, SHRINK, OR HEAVE DUE TO FROST ACTION MAY CAUSE DAMAGE TO ROADWAYS OR PADS WHERE FOUNDATIONS ARE CRITICAL. REMOVAL AND REPLACEMENT OF SOILS WITH SUITABLE MATERIAL MAY BE REQUIRED.
 - IN SOILS THAT ARE A POOR SOURCE OF TOPSOIL, DROUGHTY OR PRONE TO WETNESS, SOIL TESTING IS ENCOURAGED TO DETERMINE THE APPROPRIATE APPLICATIONS OF SOIL AMENDMENTS TO PROMOTE GROWTH. SOILS ONSITE THAT ARE FAIR SOURCES OF TOPSOIL, WILL BE IDENTIFIED, STRIPPED AND STOCKPILED FOR USE DURING RESTORATION.
 - FOR THOSE SOILS THAT ARE EASILY ERODIBLE, PROVIDE PROTECTIVE LINING, SEEDING AND MULCHING, EROSION CONTROL BLANKETS (ROLLS OR HYDRAULICALLY APPLIED), TRACKING SLOPES, UPSTREAM DIVERSIONS, WATERBARS, ETC., TO MINIMIZE EROSION OF THE SOILS.

Table 2 – Soils mapping units within the LOD

Soil Mapping Unit	Soil Series
VtB	Volusia channery silt loam, 0 to 8 percent slopes, extremely stony
VoB	Volusia channery silt loam, 0 to 8 percent slopes

Table 3 – Limitations of Pennsylvania Soils Pertaining to Earth Disturbance Projects (Erosion and Sediment Control Best Management Practice (BMP) Manual – Technical Guidance Number 363-3134-008/Page 401)

SOIL NAME	SOIL WITH SLOPE CLASS	CUTBANKS CAVE	CORROSION TO CONCRETE/STEEL	DROUGHTY	EARLY ERODIBLE	FLOODING	DIFF TO STABILIZATE ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC	HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SHRINK/HEAVE	WETNESS
Volusia	VtB, VoB	X	C/S	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SEEDING AND MULCHING:

THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED. ESTABLISHMENT OF TEMPORARY COVER MUST TAKE PLACE WITHIN 4 DAYS OF CESSATION OF WORK. TEMPORARY EROSION AND SEDIMENTATION CONTROL BMPs CAN BE REMOVED WHEN THE SITE MEETS FINAL STABILIZATION. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT A PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT HARD COVER SUCH AS PAVEMENT OR BUILDINGS HAS STABILIZED THE SURFACE. IT SHOULD BE NOTED THAT THE 70% REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT JUST A PERCENT OF THE SITE. NO HAY OR STRAW MULCH SHALL BE PLACED ON WATERBANKS AT A MINIMUM. ALL WATERBANKS SHALL BE COVERED WITH EROSION CONTROL BLANKET. IN ADDITION, ONLY STRAW MULCH SHALL BE USED IN AREAS ADJACENT TO WETLANDS.

TEMPORARY VEGETATION:

AFTER GRADING AND EXCAVATION IS COMPLETED WITHIN AN AREA, VEGETATION WILL BE SOWN PROMPTLY AFTER CEASING EARTHWORK IN THOSE AREAS. HAY, STRAW MULCH, OR OTHER SIMILAR MATERIALS WILL BE APPLIED TO NEWLY SEEDING AREAS TO PROTECT AGAINST EROSION UNTIL THE VEGETATION IS ESTABLISHED. HAY, STRAW MULCH, OR OTHER SIMILAR MATERIAL SHALL BE APPLIED AT A RATE OF AT LEAST 3 TONS PER ACRE. EROSION CONTROL BLANKET SHALL BE USED ON STREAM BANKS. NO HAY OR STRAW, MULCH OR BLANKET SHALL BE UTILIZED IN WETLAND AREAS.

PERMANENT SEEDING AND MULCHING:

TOPSOIL WILL BE REPLACED PRIOR TO STABILIZATION. DISTURBED AREAS SHALL BE SEEDING WITH A MIXTURE AS OUTLINED IN THE DETAILS PAGES OF THE EROSION AND SEDIMENT CONTROL PLAN. SEED, APPLY LIME AND FERTILIZER IN ACCORDANCE WITH SOIL TEST RECOMMENDATIONS OR AS OUTLINED IN THE BELOW TABLE. HAY, STRAW MULCH, OR OTHER SIMILAR MATERIAL SHALL BE APPLIED AT A RATE OF AT LEAST 3 TONS PER ACRE.

TABLE 11.2 Soil Amendment Application Rate Equivalents

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
10-20-20 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

Adapted from Penn State, "Erosion Control and Conservation Plantings on Noncropland"

NOTE: A compost blanket which meets the standards of this chapter may be substituted for the soil amendments shown in Table 11.2.

ERNST RIPARIAN BUFFER MIX - ERNMX 178

PERCENTAGE OF MIX COMPOSITION	SCIENTIFIC NAME	COMMON NAME
30%	PANICUM CLANDESTINUM	DEERTONGUE
20%	ELYMUS VIRGINICUS	VIRGINIA WILD RYE
11%	ANDROPOGON GERARDII	BIG BLUESTEM
10.5%	SORGHASTRUM NUTANS	INDIAN GRASS
5%	PANICUM VIRGATUM	SWITCHGRASS
4%	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
4%	VERBENA HASTATA	BLUE VERVAIN
3%	JUNCUS EFFUSUS	SOFT RUSH
3%	RUDBECKIA HIRTA	BLACK EYED SUSAN
2%	HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
1%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
0.7%	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
0.7%	ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
0.7%	EUPATORIUM PERFOLIATUM	BONASET
0.5%	AGROSTIS PERENNANS	AUTUMN BENTGRASS
0.5%	HELENIUM AUTUMNALE	COMMON SNEEZEWEED
0.5%	MONARDA FISTULOSA	WILD BERGAMOT
0.5%	VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED
0.4%	PHYCANTHEM TENNIFOLIUM	NARROW LEAF MOUNTAIN MIT
0.4%	SOLIDAGO PATULA	ROUGH LEAF GOLDENROD
0.3%	EUPATORIUM FISTULOSUM	JOE PEEVEEWEED
0.3%	LOBELIA SIPHYLITICA	GREAT BLUE LOBELIA
0.2%	ASTER PUNICEUS	PURPLESTEM ASTER

- SEEDING RATE: 20 LBS/ACRE WITH THE FOLLOWING NURSE CROPS: DRY SITES - GRAIN OATS, JAN 1 - AUG 1; OR, GRAIN RYE, AUG 1 - JAN 1; MOIST SITES - GRAIN RYE YEAR ROUND
- THIS SEED MIX IS TO BE USED TO REVEGETATE WORKSPACE WITHIN THE DESIGNATED RIPARIAN BUFFER AREA WHERE SLOPES ARE LESS THAN 10%. IF THE SLOPE EXCEEDS 10%, A STANDARD UPLAND ROW MIX SHOULD BE USED.

STEEP SLOPE MIX OPTION

APPLICATION RATE – 60 LBS/ACRE OR 1.5 LBS/1000SQFT OF ERNMX-181

NATIVE STEEP SLOPE MIX WITH ANNUAL RYEGRASS (ERNMX-181)

PERCENT	SCIENTIFIC NAME	COMMON NAME
31.10	SORGHASTRUM NUTANS	INDIAN GRASS
20.00	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
14.00	ANDROPOGON GERARDII	BIG BLUESTEM
10.00	ELYMUS VIRGINICUS	VIRGINIA WILD RYE
7.00	ELYMUS CANADENSIS	CANADA WILD RYE
4.00	AGROSTIS PERENNANS	AUTUMN BENTGRASS
3.00	PANICUM CLANDESTINUM	DEERTONGUE
1.50	ECHINACEA PURPUREA	PURPLE CONEFLOWER
1.30	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
1.20	HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
1.00	COREOPSIS LANCEOLATA	LANCELEAF COREOPSIS
1.00	RUDBECKIA HIRTA	BLACK EYED SUSAN
0.20	MONARDA FISTULOSA	WILD BERGAMONT
0.30	SOLIDAGO RUGOSA	WRINKLELEAF GOLDENROD
0.10	ASTER LATERIFLORUS	CALICO ASTER
0.10	ASTER PILOSUS	HEATH ASTER

* OR EQUIVALENT MIXTURE
 ** SIMILAR MIXES WITH COVER CROP OF OATS (ERNST 181-1) OR GRAIN RYE (ERNST 181-2) OR EQUIVALENT COULD BE SUBSTITUTED.

LAWN AND TURFGRASS MIX OPTION

APPLICATION RATE – 75-150 LBS/ACRE OR 3-5 LBS/1000SQFT OF ERNMX-113

COMMERCIAL CONSERVATION MIX (ERNMX-181)

PERCENT	SCIENTIFIC NAME	COMMON NAME
25.00	FESTUCA RUBRA	CREeping RED FESCUE
25.00	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
25.00	LOLIUM PERENNE	'BLACKSTONE' PERENNIAL RYEGRASS
25.00	LOLIUM PERENNE	'CONFETTI III' PERENNIAL RYEGRASS

* OR EQUIVALENT MIXTURE. FOR USE IN HIGH-TRAFFIC AREAS IN LAWN/TURFGRASS SETTINGS

TABLE 11.4 Recommended Seed Mixtures

Mixture Number	Species	Seeding Rate-Pure Live Seed*	
		Moist Sites	Adverse Sites
1 [†]	Spring oats (spring), or Annual ryegrass (spring or fall), or Winter wheat (fall), or Winter rye (fall)	64 90 120 56	96 135 122
	Fine fescue, or Kentucky bluegrass, plus Redtop*, or Perennial ryegrass	35 3 3	40 30 3
	Birdsfoot trefoil, plus Tall fescue	15 30	20 35
11	Deertongue, plus Birdsfoot trefoil	15 6	20 10
	Switchgrass, or big bluestem, plus Birdsfoot trefoil	15 15 20	20 20 30
13	Orchardgrass, plus Smooth bromegrass, plus Birdsfoot trefoil	20 25 6	30 35 10

PENN STATE, "EROSION CONTROL AND CONSERVATION PLANTINGS ON NONCROPLAND"

- PLS IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35%, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
- IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF 2 BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT 1 BUSHEL PER ACRE. IF GERMINATION IS BELOW 90%, INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
- THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN 4 INCHES.
- KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
- DO NOT MOW SHORTER THAN 9 TO 10 INCHES.

TABLE 11.5 Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Condition	Nurse Crop	Seed Mixture (Select one mixture)
Slopes and Banks (not mowed) Well drained	1 plus	12 ¹
Slopes and Banks (mowed) Well-drained	1 plus	2
Slopes and Banks (grazed/hay) Well-drained	1 plus	2, 13
Gullies and Eroded Areas Erosion Control Facilities (BMPs)	1 plus	or 12 ¹
Sod waterways, spillways, frequent water flow areas Crainage ditches	1 plus	2
Shallow, less than 3 feet deep	1 plus	2
Deep, not mowed	1 plus	2
Ford banks, dikes, levees, dams, diversion channels, and occasional water flow areas	1 plus	2
Mowed areas	1 plus	2
Non-mowed areas	1 plus	2
For hay or silage on diversion channels and occasional water flow areas	1 plus	13
Highways Non-mowed areas	1 plus	2
Areas mowed several times per year	1 plus	2, 13
Utility Right-of-Way Well-drained	1 plus	12 ¹
Well-drained areas for grazing/hay	1 plus	2, 13
Sanitary Landfills Surface mines	1 plus	11 ¹ , or 12 ¹
Spills, mine wastes, fly ash, sludge, settling basin Residues and other severely disturbed areas (lime to soil test)	1 plus	11 ¹ , or 12 ¹
Severely disturbed areas for grazing/hay	1 plus	13

Penn State, "Erosion Control and Conservation Plantings on Noncropland"

- For seed mixtures 11 and 12 only use spring oats or weeping lovegrass (included in mix) as nurse crop.
- Contact the Pennsylvania Department of Transportation district outside specialist for specific suggestions on treatment techniques and management practices.

PCSM CRITICAL STAGES

CRITICAL POINTS REQUIRING VISITS BY THE LICENSED PROFESSIONAL OR DELEGATE ARE AS FOLLOWS:

- UPON COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO ASCERTAIN THE INFILTRATION BERM AREA HAS BEEN FLAGGED AND FENCE ERECTED TO PREVENT ACCESS TO THE AREA.
- AT COMPLETION OF PCSM DIVERSION CHANNEL TO ENSURE THEY HAVE BEEN CONSTRUCTED TO THE PROPOSED LINES AND GRADES, THE SPECIFIED LINING MATERIALS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AND IF APPLICABLE, VEGETATION HAS BEEN ESTABLISHED.
- AT THE BEGINNING OF CONSTRUCTION OF THE INFILTRATION BERM TO ENSURE THE INFILTRATION AREA HAS NOT BEEN COMPACTED BY CONSTRUCTION ACTIVITIES.
- DURING CONSTRUCTION OF THE INFILTRATION BERM AND SOIL AMENDMENT AREA/CONSTRUCTED FILTER, THE LICENSED PROFESSIONAL WILL OBSERVE THAT THE BMP IS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- AT COMPLETION OF PCSM CHANNELS CC-01 AND CC-02 TO ENSURE IT HAS BEEN CONSTRUCTED TO THE PROPOSED LINE AND GRADE, THE SPECIFIED LINING MATERIAL HAS BEEN INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AND IF APPLICABLE, VEGETATION HAS BEEN ESTABLISHED.
- FOLLOWING INSTALLATION OF THE VALVE YARD PAD SUBGRADE TO ENSURE STORMWATER FLOW IS DIRECTED TO PCSM CHANNELS CC-01 AND CC-02.
- FOR FINAL INSPECTION OF CONSTRUCTED BMPs AT THE ESTABLISHMENT OF HARD SURFACE STABILIZATION OR 70% VEGETATION COVERS TO ALLOW REMOVAL OF E&S CONTROLS.

LONG TERM OPERATION AND MAINTENANCE SCHEDULE

ALL BMPs SHOULD BE PROPERLY MAINTAINED TO ENSURE THEIR EFFECTIVENESS. SHEET FLOW CONDITIONS AND INFILTRATION MUST BE SUSTAINED THROUGHOUT THE LIFE OF THE BMP. INSPECT BMPs FOR CLOGGING FROM SEDIMENT OR DEBRIS. DAMAGE BY FOOT OR VEHICULAR TRAFFIC, AND FLOW CHANNELIZATION. INSPECTIONS SHOULD BE MADE ON A QUARTERLY BASIS FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION AND THEN TWICE PER YEAR THEREAFTER. INSPECTIONS SHOULD ALSO BE MADE AFTER EVERY STORM EVENT GREATER THAN 1 INCH DURING THE ESTABLISHMENT PERIOD.

OPERATION AND MAINTENANCE GUIDELINES SHOULD BE PROVIDED TO ALL FACILITY OWNERS AND TENANTS. SEDIMENT AND DEBRIS SHOULD BE ROUTINELY REMOVED UPON OBSERVATION. EROSION IS OBSERVED, MEASURES SHOULD BE TAKEN TO IMPROVE DISPERSION METHOD TO ADDRESS THE SOURCE OF EROSION.

THE FOLLOWING FACILITIES WILL BE INSPECTED:

- PCSM DIVERSION CHANNEL AND PCSM CHANNELS
- INFILTRATION BERM, AN SOIL AMENDMENT/CONSTRUCTION FILTER
- RIPRAP OUTLET PROTECTION.

PCSM DIVERSION CHANNEL D1, AND PCSM CHANNELS C1 AND C2 WILL BE INSPECTED FOR SEDIMENT ACCUMULATION. DAMAGE CAUSED BY EROSION, AND LACK OF GROUND COVER. REPAIRS WILL BE MADE IMMEDIATELY. DURING THE GROWING SEASON, THE PCSM CHANNELS WILL BE ANNUALLY MOWED (TO PREVENT CLOGGING WITH WEEDS AND HIGH GRASS) TO ENSURE PROPER FUNCTIONING.

GRASS COVER SHOULD BE MOWED WITH LOW GROUND PRESSURE EQUIPMENT ANNUALLY TO CONTROL NOXIOUS WEEDS. MOWING SHOULD BE DONE ONLY WHEN THE SOIL IS DRY IN ORDER TO PREVENT TRACKING DAMAGE TO VEGETATION, SOIL COMPACTION, AND FLOW CONCENTRATIONS. IF VEGETATIVE COVER IS NOT FULLY ESTABLISHED WITHIN THE DESIGNATED TIME, IT SHOULD BE REPLACED WITH AN ALTERNATIVE SPECIES THAT IS APPROPRIATE FOR THE SITE AND SHOULD BE RESEEDING ON AN ANNUAL BASIS.

VEGETATED AREAS WILL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS UNTIL PERMANENT VEGETATION IS ACHIEVED. ONCE THE VEGETATION IS ESTABLISHED, INSPECTIONS OF HEALTH, DIVERSITY, AND DENSITY SHOULD BE PERFORMED AT LEAST TWICE PER YEAR, DURING BOTH THE GROWING AND NON-GROWING SEASON. VEGETATIVE COVER SHOULD BE SUSTAINED AT 85% AND REESTABLISHED IF DAMAGE GREATER THAN 50% IS OBSERVED.

THE INFILTRATION BERM WILL BE INSPECTED FOR SEDIMENT ACCUMULATION. SEDIMENT BUILDUP IN THE BERM WILL BE REMOVED AND BE PROPERLY DISPOSED. ALL DAMAGE CAUSED BY EROSION WILL BE REPAIRED IMMEDIATELY. SIDE SLOPE AREAS (BOTH INTERIOR AND EXTERIOR) WILL BE CHECKED FOR LACK OF GROUND COVER AND GULLY EROSION. THESE AREAS WILL BE REGRADED, AS NECESSARY, THEN FERTILIZED, SEEDED AND MULCHED. THE DISCHARGE STRUCTURE (OUTLET PIPE) WILL BE INSPECTED FOR DAMAGE. REPAIRS WILL BE MADE IMMEDIATELY. DEBRIS THAT HAS ACCUMULATED ON AND INSIDE THE BERMS WILL BE IMMEDIATELY REMOVED. IF PROBLEMS ARE FOUND WITH THE OUTLET PIPES, REPAIRS WILL BE MADE IMMEDIATELY.

THE RIPRAP OUTLET PROTECTION, OP1, OP2, OP3 AND OP4, SHALL BE INSPECTED QUARTERLY, AND AFTER EVERY MAJOR STORM (I.E., 10-YEAR, 24-HOUR EVENT) TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. DISPLACED RIPRAP WITHIN THE RIPRAP OUTLET PROTECTION SHALL BE REPLACED IMMEDIATELY. ALL OTHER NEEDED REPAIRS WILL ALSO BE MADE IMMEDIATELY TO PREVENT FURTHER DAMAGE.

TRANSCONTINENTAL GAS PIPELINE COMPANY, LLC. WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE POST-CONSTRUCTION STORMWATER MANAGEMENT FACILITIES PROPOSED AT THE SITE.

MATERIAL RECYCLING AND DISPOSAL

IF THE SITE WILL NEED TO HAVE FILL IMPORTED FROM AN OFF-SITE LOCATION, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND THE DETERMINATION OF CLEAN FILL WILL IN MOST CASES RESIDE WITH THE OPERATOR.

IF THE SITE WILL HAVE EXCESS FILL THAT WILL NEED TO BE EXPORTED TO AN OFF-SITE LOCATION, THE RESPONSIBILITY OF CLEAN FILL DETERMINATION AND ENVIRONMENTAL DUE DILIGENCE RESTS ON THE APPLICANT.

IF ALL CUT AND FILL MATERIALS WILL BE USED ON THE SITE, A CLEAN FILL DETERMINATION IS NOT REQUIRED BY THE OPERATOR UNLESS THERE IS A BELIEF THAT A SPILL OR RELEASE OF A REGULATED SUBSTANCE OCCURRED ON SITE.

APPLICANTS AND/OR OPERATORS MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT THE FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. DEFINITIONS OF CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE ARE PROVIDED BELOW. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL", DOCUMENT NUMBER 258 2182 773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEP.WEBSITE.PA.US.

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. CLEAN FILL DOES NOT INCLUDE: FILL THAT IS NOT 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.)

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 HAS BEEN ADJECED 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.

THERMAL IMPACTS

DUE TO THE OVERALL NATURE OF THE PROJECT, THERMAL IMPACTS TO SURFACE WATERS ARE NOT ANTICIPATED. THE PRIMARY MEANS TO ADDRESS THERMAL IMPACTS ON THIS PROJECT IS TO LIMIT THE SIZE AND DURATION OF EXPOSED EARTH.

STORMWATER RUNOFF ASSOCIATED WITH THE INSTALLATION OF THE COMPRESSOR UNITS WILL BE ROUTED THROUGH THE STORMWATER BMP'S DESIGNED TO RETAIN AND INFILTRATE THE FIRST SURGE OF WATER FROM THE SITE. THE FIRST SURGE OF WATER WILL BE THE WARMEST WATER FOR THE DURATION OF THE STORM EVENT AND WILL QUICKLY COOL AS THE STORM EVENT PROGRESSES. THE BMPs ARE DESIGNED TO CAPTURE AND INFILTRATE THE WARMER WATER FROM THE STORMWATER. ON ROUTING CALCULATIONS, STORMWATER IS NOT DISCHARGED FROM THE BMPs FOR THE FIRST 12 HOURS DURING A 100-YEAR/24-HOUR STORM EVENT. THE RETENTION PERIOD IS LONGER FOR LESS INTENSE STORMS. THEREFORE, THROUGH THESE MEASURES, THERE IS NO SIGNIFICANT THERMAL IMPACT TO THE RECEIVING WATERS ANTICIPATED.

ANTIDEGRADATION REQUIREMENTS

THE SITE IS LOCATED IN HIGH QUALITY WATERSHED AND CONSTRUCTION ACTIVITIES AT THE SITE WILL RESULT IN INCREASED DISCHARGE OF STORMWATER TO SURFACE WATERS. THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THE SITE OUTLINES A MORE STRINGENT DESIGN AND E&S BMPs THAT MEET ABCT STANDARDS, WITH REGARD TO WATERS IDENTIFIED AS SPECIAL PROTECTION UNDER CHAPTER 93 (49-CW AND 49-E) OF THE FOLLOWING IS A WRITTEN DEMONSTRATION OUTLINING HOW THE PROJECT IS MEETING THE ANTIDEGRADATION REQUIREMENTS FOUND WITHIN CHAPTER 93 AND 102.

TRANSCO EVALUATED THE FEASIBILITY ON NON-DISCHARGE ALTERNATIVES SUCH AS ALTERNATIVE SITE LOCATION, LIMITING DISTURBED AREA AND PROTECTING RIPARIAN BUFFERS. THE LOCATION WAS CHOSEN SUCH THAT DISTURBANCE TO SURROUNDING AREAS AND SENSITIVE FEATURES SUCH AS RIPARIAN BUFFERS WAS MINIMIZED. THE EXISTING / DESIGNED USE OF THE STREAMS WITHIN THE PROJECT AREA ARE TO BE PROTECTED AND ENHANCED BY TRANSCO. PROPOSED INFILTRATION BMPs ARE DESIGNED WITH STORMWATER VOLUME REDUCTION AND WATER QUALITY TREATMENT MAXIMIZED TO THE EXTENT PRACTICABLE WITHIN THE CONSTRUCTION AND EXISTING WATER QUALITY AND EXISTING AND ANTICIPATED AND DESIGNATED USES. STORMWATER BMPs WILL BE DESIGNED TO MEET THE ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT) STANDARDS AS OUTLINED BY THE PA DEP E&S MANUAL GUIDANCE (MARCH 2012). COMPOST FILTER SOIL WHICH IS AN ABACT BMP, WILL BE USED ACROSS THE SITE TO PREVENT SEDIMENTS FROM REACHING ADJACENT SURFACE WATERS. EARTH DISTURBANCE WILL BE MINIMIZED TO THE EXTENT PRACTICAL AND WILL BE PHASED OR SEQUENCED TO ONLY DISTURBED PORTIONS THAT ARE NECESSARY FOR THE SPECIFIC SCOPE OF WORK. ALSO, IMMEDIATE STABILIZATION WILL TAKE PLACE WHEN EARTHWORK COMMENCES WITHIN A SPECIFIC AREA. WHEREVER POSSIBLE, THE LOD WAS DECREASED TO AVOID DISTURBING ADDITIONAL GROUND AND WILL BE KEPT TO THE MINIMUM WIDTH AND DEPTH NECESSARY TO SAFELY COMPLETE CONSTRUCTION ACTIVITIES.

RIPARIAN BUFFERS

MLV-515RA20 VALVE YARD IS LOCATED WITHIN THE FORESTED RIPARIAN BUFFER OF STREAM, 575-12. AFTER COMPLETING THE CONSTRUCTION ACTIVITIES, THE IMPACTED RIPARIAN AREA WILL BE RESTORED BACK TO PRE-EXISTING CONTOURS AND RE-SEEDED WITH A RIPARIAN SEED MIX, OUTSIDE OF THOSE AREAS WHERE THE VALVE IS PLACED.

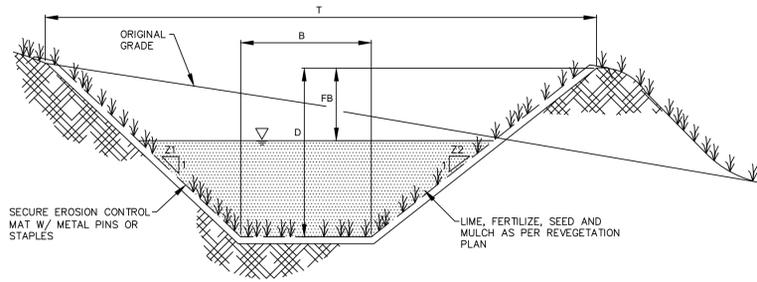
NON-STRUCTURAL AND STRUCTURAL WATER QUALITY BMP DESCRIPTION

- LIMIT OF DISTURBANCE WILL BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE BY DISTURBING ONLY THOSE AREAS NECESSARY TO COMPLETE THE PROPOSED EARTHWORK AND BMP INSTALLATIONS.
- SENSITIVE FEATURES SUCH AS WETLANDS AND RIPARIAN BUFFERS WILL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE. THESE AREAS WILL BE CLEARLY DELINEATED IN THE FIELD AND PROTECTED PRIOR TO ANY CONSTRUCTION ACTIVITIES TAKING PLACE. EXISTING VEGETATION IS NOT TO BE REMOVED FROM THE PROTECTED AREA AND THE AREAS SHALL NOT BE SUBJECT TO GRADING OR MOVEMENT OF EXISTING SOIL. ANY PROTECTED AREAS THAT HAVE BEEN DISTURBED/COMPACTED DURING CONSTRUCTION WILL BE RESTORED USING SOIL AMENDMENT AND RESTORATION.
- TEMPORARILY IMPACTED RIPARIAN BUFFER WILL BE FULLY RESTORED TO ITS PREEXISTING CONDITIONS
- DISTURBED AREAS THAT ARE NOT PROPOSED TO BE IMPERVIOUS WILL BE REVEGETATED AS PER THE SEEDING AND MULCHING NOTES PROVIDED IN PCSM PLAN NOTES.
- INFILTRATION BERM WILL ACT AS A WATER QUALITY BARRIER. RELATIVELY STEEPER SLOPES ARE UTILIZED FOR THE INFILTRATION BERM EMBANKMENTS TO MINIMIZE DISTURBED AREA.
- WHEREVER POSSIBLE, EXISTING NATURAL DRAINAGE PATTERNS WILL BE UTILIZED TO DIVERT FLOW TO THE PROPOSED INFILTRATION BERM.

THE PCSM PLAN SHALL BE PREPARED BY A PERSON TRAINED AND EXPERIENCED IN EROSION CONTROL METHODS AND TECHNIQUES

THESE PLANS AND NARRATIVE WERE PREPARED BY PATRICK WOZINSKI, PE (BAI GROUP, LLC) OF STATE COLLEGE, PA IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION STORMWATER BMP MANUAL, DECEMBER, 2006. THE PLAN PREPARER'S RESUME IS PROVIDED IN THE PERMIT APPLICATION.

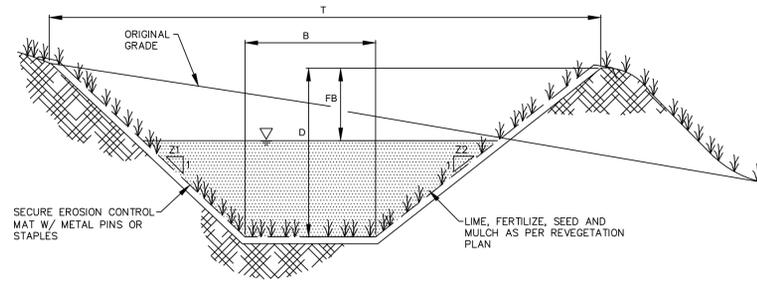
*PORTIONS



Channel ID.	LENGTH [FT]	SLOPE [%]	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	STAPLE PATTERN	OUTLET
ZEN-DC-D1	134	0.9	1.0	1.25	1/1	3.5	SCISSOR	D	OP1

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

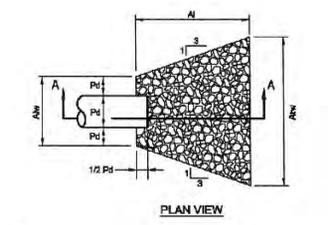
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(DC) TYPICAL PCSM DIVERSION CHANNEL



Channel ID.	LENGTH [FT]	SLOPE [%]	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	STAPLE PATTERN	OUTLET
ZEN-CC-C1	129	2.4	1.0	1.25	1/1	3.5	SCISSOR	D	OP2
ZEN-CC-C2	189	4.0	2.0	1.00	2/2	6.0	SCISSOR	D	OP3

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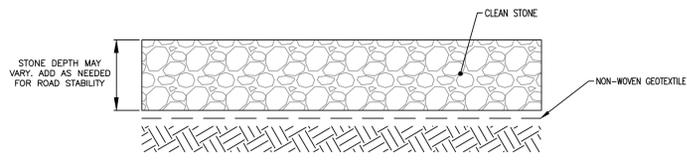
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(CC) TYPICAL PCSM CHANNEL



NO.	PIPE DIA. (IN)	WATER COND. (MAX OR MIN)	MIN. PIPE SLOPE (FT/FT)	MIN. SLOPE (CFS)	V. (FPS)	RIPRAP SIZE (IN)	R1 (IN)	A1 (IN)	A2 (IN)	A3 (IN)	A4 (IN)
OP1	42	MIN	0.05	0.009	0.66	12	R-3	9	15	10.5	25.5
OP2	42	MIN	0.05	0.024	1.43	2.1	R-3	9	15	10.5	25.5
OP3	72	MIN	0.05	0.049	1.41	2.3	R-3	9	15	18	33
OP4	10.5	MIN	0.01	0.25	2.03	2.91	R-3	9	6	33	39

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

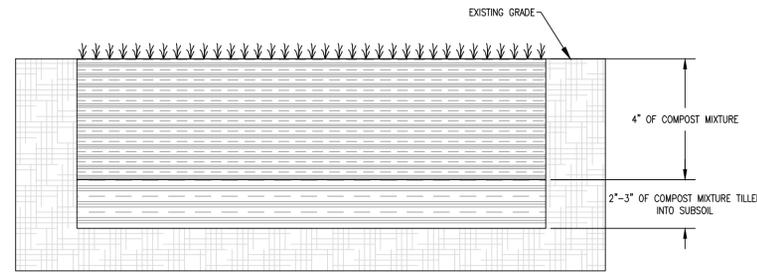
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(OP) RIPRAP APRON OUTLET PROTECTION



- NOTES:
- CROSS SECTION TO BE APPLIED TO DRY AREAS WITHOUT DRAINAGE CONCERNS.
 - EXISTING MATERIAL TO BE REMOVED AND STOCKPILED IN AN APPROVED LOCATION ONLY.
 - EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION & SEDIMENT POLLUTION CONTROL PLAN FOR THE PROJECT.
 - GRADING AND CROSS SLOPES VARY BY EXISTING CONDITIONS; SEE SPECIFIC DESIGN AND PROFILE FOR MORE DETAIL.
 - WITHIN EXTENTS OF GRADING FOR PERMANENT ACCESS ROADS AND VALVE SITES, COMPACT ALL SOIL FILL/BACKFILL AND COARSE AGGREGATE WITH FINES TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. CONTRACTOR SHALL UTILIZE ADEQUATELY SIZED AND CONFIGURED EQUIPMENT TO ACHIEVE SPECIFIED COMPACTION.
 - AS DIRECTED BY ENGINEER AND APPROVED BY OWNER, EXCAVATE AND STABILIZE SOFT SPOTS, UNSATISFACTORY SOILS AND AREAS OF EXCESSIVE PUMPING OR RUTTING.
 - PROOF-ROLLING OF SUBGRADE MAY BE REQUIRED TO DETERMINE PROPER COMPACTION BY OWNER.
 - TEMPORARILY WIDENED ROAD SHOULD FOLLOW THE SAME SPECIFICATION FOR WIDENED ROADS. THE EXISTING ROAD SHALL BE MAINTAINED.
 - ROADS FOR TEMPORARY CONSTRUCTION USE WILL BE MAINTAINED AND RESTORED TO THEIR PREVIOUS CONDITIONS IN ACCORDANCE WITH CHAPTER 102 ROAD MAINTENANCE ACTIVITIES. PLAN VIEW ACCESS ROAD CALLOUTS IDENTIFY THE PROPOSED ROAD MAINTENANCE ACTIVITY FOR THE PROJECT (I.E. MAINTENANCE ONLY, TEMPORARY WIDENING, ETC.).

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

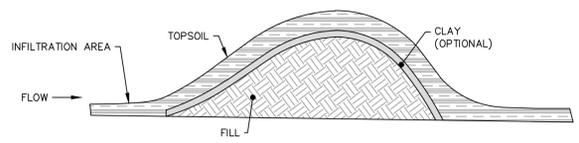
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(AR) PERMANENT/TEMPORARY STONE ACCESS ROAD



- NOTE
- INFILTRATION BERM AND SOIL AMENDMENT/CONSTRUCTED FILTER AREA*
 - COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERM WILL BE CONSTRUCTED; MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF EMPTY SOIL) IN ORDER TO MAXIMIZE INFILTRATION.
 - LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
 - UTILIZE SUITABLE FILL MATERIAL TO MAKE UP THE MAJOR PORTION OF THE BERM. SOIL SHOULD BE ADDED IN 8-INCH LIFTS AND COMPACTED AFTER EACH ADDITION ACCORDING TO DESIGN SPECIFICATIONS. THE SLOPE AND SHAPE OF THE BERM SHOULD BE GRADED OUT AS SOIL IS ADDED. OUTLET PIPE SHALL BE INSTALLED AS SHOWN ON PLANS.
 - PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION. IF COMPACTION OF THIS AREA DOES OCCUR, SCARIFY SOIL TO A DEPTH OF AT LEAST 8 INCHES.
 - BEGIN INSTALLATION OF SOIL AMENDMENT/ CONSTRUCTED FILTER AREA.
 - ALL CONSTRUCTION SHOULD BE COMPLETED AND STABILIZED BEFORE BEGINNING SOIL RESTORATION.
 - SOIL AMENDMENT SHOULD ONLY BE PERFORMED WHEN THE SOIL CONDITIONS ARE DRY AND SHOULD ONLY USE A SOLID SHANK RIPPER, NOT A DISK OR FLOW DUE TO THEIR INEFFECTIVENESS.
 - TILL SOIL BY DIGGING, SCRAPING, AND MIXING OF SOIL TO CIRCULATE AIR INTO THE SOIL MANTLE IN VARIOUS LAYERS. IF COMPACTION OCCURS DOWN TO 20 INCHES BELOW GRADE, RIPPING OF SOIL IS LIKELY NEEDED.
 - COMPOST MIXTURE WILL BE SUITABLE MATERIAL TO INCREASE WATER HOLDING AND RETENTION CAPACITY AT THE RATIO OF 2:1 (SOIL:COMPOST). MIXTURE WILL BE A 1:1:1 COMBINATION OF TOPSOIL, SAND, AND COMPOST. TOPSOIL SHALL HAVE MINIMUM ORGANIC CONTENT OF 5%.
 - SOIL AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WITHIN THE DRIP LINE OF TREES OR TREE LINE TO AVOID DAMAGING ROOT SYSTEM. SOIL AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE OVER UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE OR WHERE TRENCHING OR DRAINAGE LINES ARE INSTALLED. SOIL AMENDMENT SHALL NOT BE COMPLETED WHERE COMPACTION IS REQUIRED.
 - SPREAD 2-3 INCHES OF APPROVED COMPOST MIXTURE ON SUBSOIL.
 - TILL ADDED SOIL INTO EXISTING SOIL WITH A SOLE-SHANK RIPPER THAT IS SET TO A DEPTH OF 6 INCHES.
 - ADD AN ADDITIONAL 4 INCHES OF APPROVED COMPOST MIXTURE TO BRING AREA UP TO GRADE.
 - PLANT BERM AND SOIL AMENDMENT/CONSTRUCTED FILTER WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED. AFTER PLANTING/SEEDING, ADD 2-3 INCHES OF COMPOST BLANKET TO THE SOIL AMENDMENT/CONSTRUCTED FILTER AREA IN AREAS NOT PROTECTED BY GRASS OR OTHER PLANT.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(SA) SOIL AMENDMENT



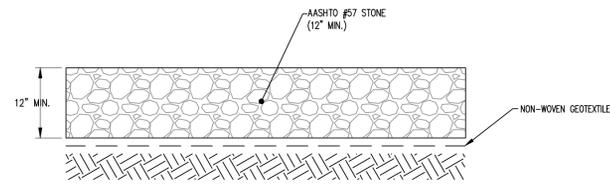
IDEAL SUBSTRATE LAYERS FOR A BERM

INFILTRATION BERM NO.	BOT. ELEV. (FT)	TOP ELEV. (FT)	HEIGHT (FT)	TOP WIDTH (FT)	OVERALL LENGTH (FT)	SHWT (IN BELOW GROUND)	BEDROCK (IN BELOW GROUND)
1	1424	1426	2	2	130	NOT ENCOUNTERED	24

- NOTES:
- AN INFILTRATION BERM IS A MOUND OF COMPACTED EARTH WITH SLOPING SIDES THAT IS USUALLY LOCATED ALONG A CONTOUR ON RELATIVELY GENTLY SLOPING SITES.
 - MAINTAIN A MINIMUM 2-FOOT SEPARATION TO BEDROCK AND SEASONALLY HIGH WATER TABLE. PROVIDE DISTRIBUTED INFILTRATION AREA (5:1 IMPERVIOUS AREA TO INFILTRATION AREA - MAXIMUM). SITE ON NATURAL, UNCOMPACTED SOILS WITH ACCEPTABLE INFILTRATION CAPACITY.
 - THE BACK OF THE BERM SHALL BE LINED WITH SC150BN LINING WITH A STAPLE D PATTERN AND SHALL EXTEND AT LEAST 10 FT BEYOND THE TOE OF THE BERM.
 - BERMS SHALL HAVE SIDE SLOPES OF 2:1 AND ARE NOT TO BE MOWED.
 - THE CREST OF THE BERM SHOULD BE LOCATED NEAR ON EDGE OF THE BERM, RATHER THAN IN THE MIDDLE. TO ALLOW FOR A MORE NATURAL, ASYMMETRICAL SHAPE.
 - BERMS SHOULD BE VEGETATED USING SEED MIXTURE 1 PLUS 3 FROM TABLE 11.5.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

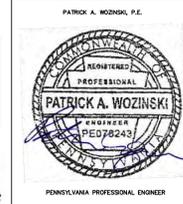
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(IB) INFILTRATION BERM



- NOTES:
- CROSS SECTION TO BE APPLIED TO DRY AREAS WITHOUT DRAINAGE CONCERNS.
 - EXISTING MATERIAL TO BE REMOVED AND STOCKPILED IN AN APPROVED LOCATION ONLY.
 - EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION & SEDIMENT POLLUTION CONTROL PLAN FOR THE PROJECT.
 - GRADING AND CROSS SLOPES VARY BY EXISTING CONDITIONS; SEE SPECIFIC DESIGN AND PROFILE FOR MORE DETAIL.
 - WITHIN EXTENTS OF GRADING FOR PERMANENT ACCESS ROADS AND VALVE SITES, COMPACT ALL SOIL FILL/BACKFILL AND COARSE AGGREGATE WITH FINES TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. CONTRACTOR SHALL UTILIZE ADEQUATELY SIZED AND CONFIGURED EQUIPMENT TO ACHIEVE SPECIFIED COMPACTION.
 - AS DIRECTED BY ENGINEER AND APPROVED BY OWNER, EXCAVATE AND STABILIZE SOFT SPOTS, UNSATISFACTORY SOILS AND AREAS OF EXCESSIVE PUMPING OR RUTTING.
 - PROOF-ROLLING OF SUBGRADE MAY BE REQUIRED TO DETERMINE PROPER COMPACTION BY OWNER.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO./CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(MLV-P) MAIN LINE VALVE PAD



REVISIONS				
NO.	DATE	BY	DESCRIPTION	W.O. NO. CHK. APP.
1	06/29/21	RHM	REVISED PER PADEP COMMENTS.	
2	03/01/22	RHM	RESPONSE TO PADEP TECHNICAL DEFICIENCY LETTER	

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
MLV-515RA20
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
DETAILS

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: RHM	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RJM	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 5 OF 5