

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 JULY 2022

PROJECT OWNER/APPLICANT

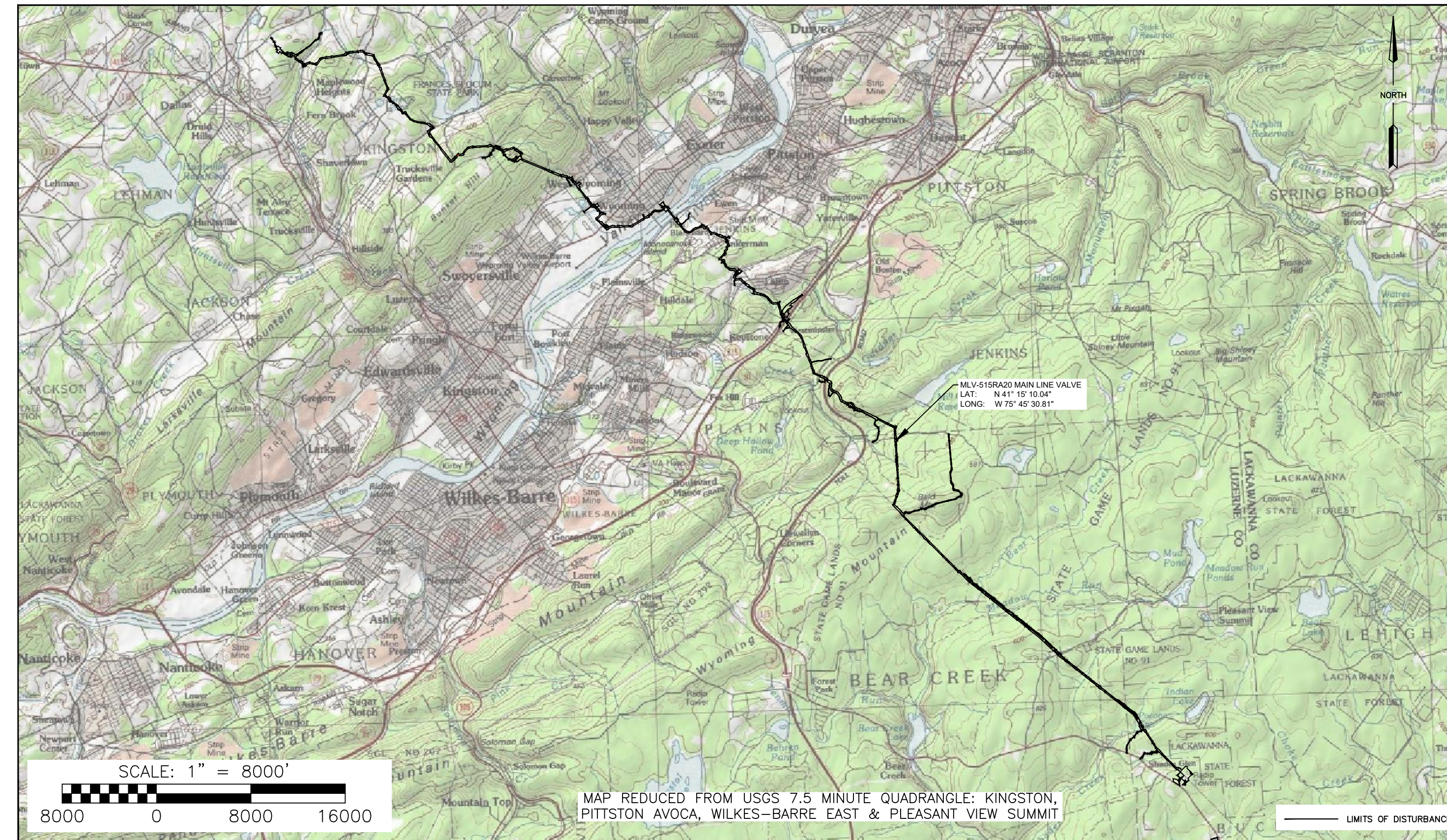
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
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 HOUSTON, TX 77056
 CONTACT: JOSEPH DEAN, MANAGER PERMITTING

PLAN PREPARER / ENGINEER

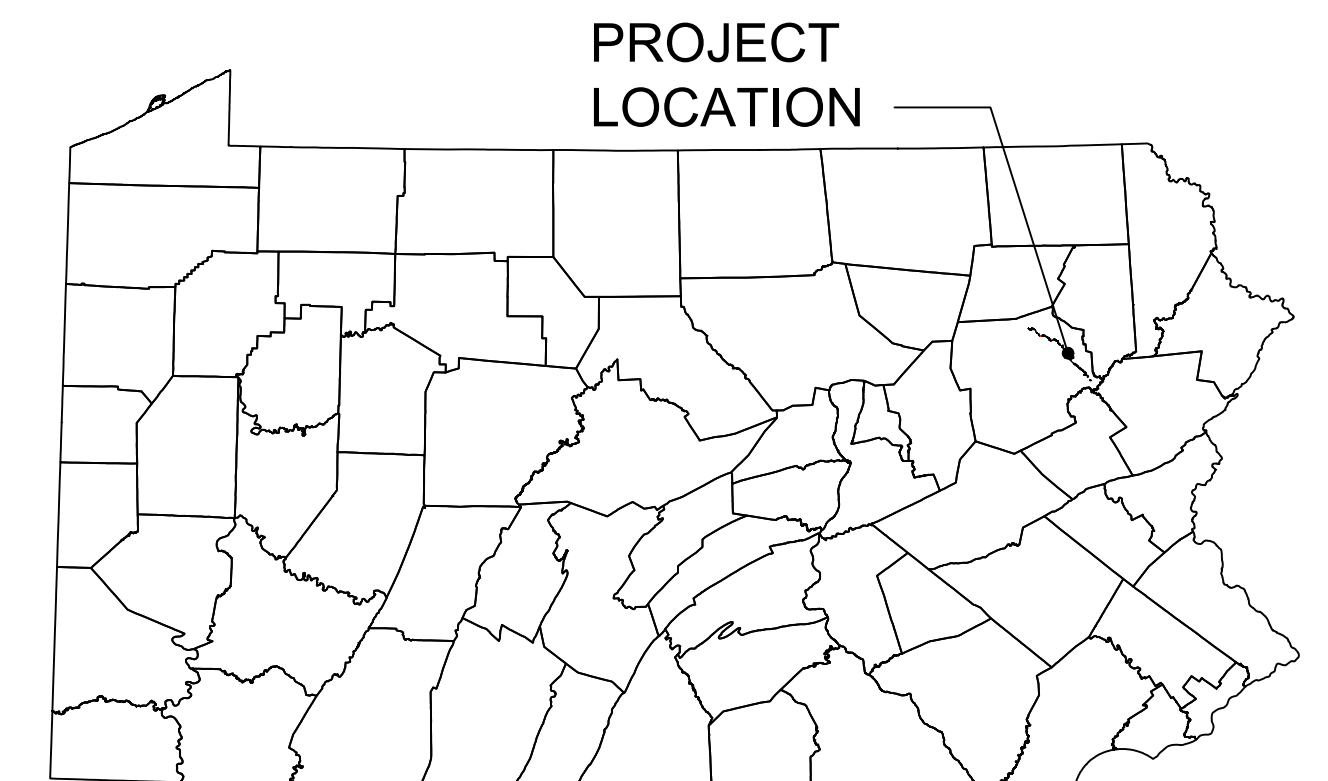
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 PH: (814) 689-1650
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BAI GROUP, LLC

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LOCATION MAP



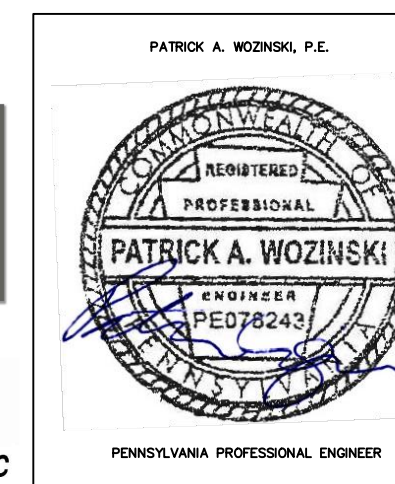
VICINITY MAP
 N.T.S.

SHEET INDEX	
SHEET NUMBER	DRAWING TITLE
1 OF 5	COVER SHEET
2 OF 5	EXISTING CONDITIONS PLAN
3 OF 5	PROPOSED CONDITIONS PLAN
4 OF 5	NOTES
5 OF 5	DETAILS

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. 811
 1-800-242-1776 or

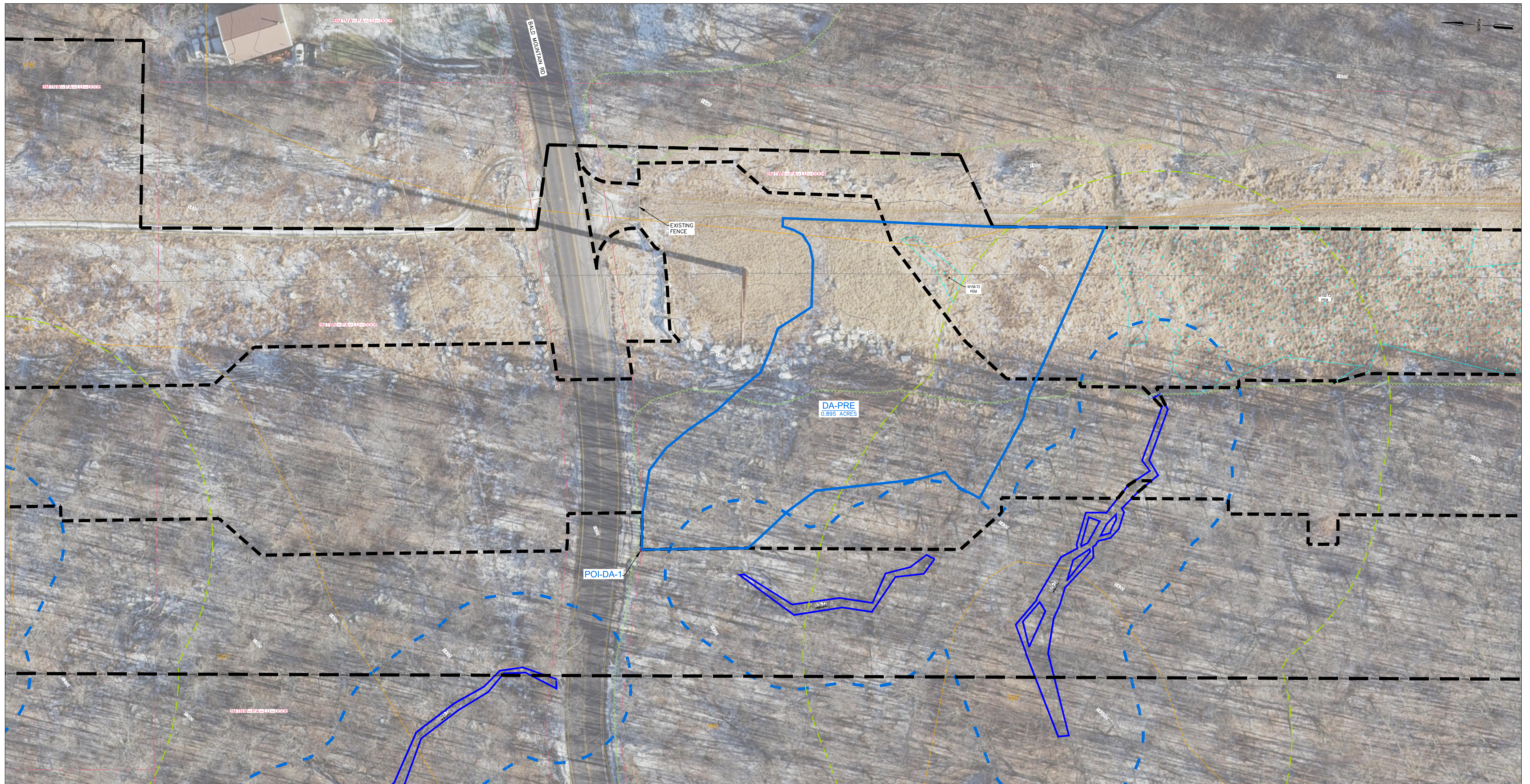
PENNSYLVANIA ACT 287 (1974) AS AMENDED BY PENNSYLVANIA LESS THAN THREE (3) WORKING DAYS AND NO MORE THAN (10) WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.



REVISIONS					
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 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

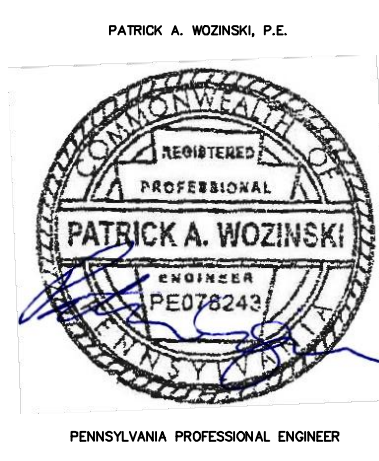
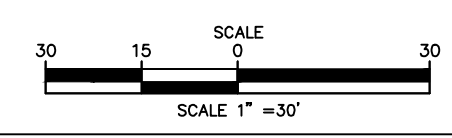
- PROPERTY LINE
- - - EXISTING RIGHT-OF-WAY
- ▬ ESCP PERMIT BOUNDARY
- ▬ LIMITS OF DISTURBANCE
- ▬ EXISTING FENCE
- ▬ EXISTING STONE ROW
- ▬ EXISTING STRUCTURE
- ▬ EXISTING EDGE OF ROAD
- 1250— EXISTING GRADE MAJOR CONTOURS (10' C.I.)
- 1244— EXISTING GRADE MINOR CONTOURS (2' C.I.)
- - - EXISTING WATERBAR AND OUTLET STRUCTURE
- - - APPROX. ENVIRONMENTAL STUDY LIMITS
- ▬ DELINEATED WETLAND
- ▬ DELINEATED WATERWAY / STREAM (TOP OF BANK)
- ▬ STREAM FLOW DIRECTION
- ▬ RIPARIAN BUFFER
- ▬ 50' FEMA FLOODPLAIN
- ▬ FEMA 100-YEAR FLOODPLAIN
- ▬ FEMA 500-YEAR FLOODPLAIN
- ▬ EXISTING TREELINE / TREE/SHRUB
- ▬ EXISTING LEIDY / TQPL PIPELINES
- ▬ EXISTING FOREIGN PIPELINES
- ▬ EXISTING UTILITY POLE / TOWER
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- ▬ EXISTING CULVERT
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- ▬ EXISTING FIRE HYDRANT
- ▬ EXISTING POWER POLE
- ▬ EXISTING WELL
- ▬ PRE-CONSTRUCTION DRAINAGE AREA
- ▬ TEST PIT/INFILTRATION TEST LOCATION

SOIL LEGEND

- LCL LACKAWANNA CHANNERY SILT LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY
- OpD COZIACA AND LORDSTOWN EXTREMELY STONY SILT LOAMS, 8 TO 25 PERCENT SLOPES
- VbB VOLUISA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
- VbC VOLUISA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
- VbD VOLUISA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY
- VbE VOLUISA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES, EXTREMELY STONY

EXISTING CONDITION NOTES/SOURCES

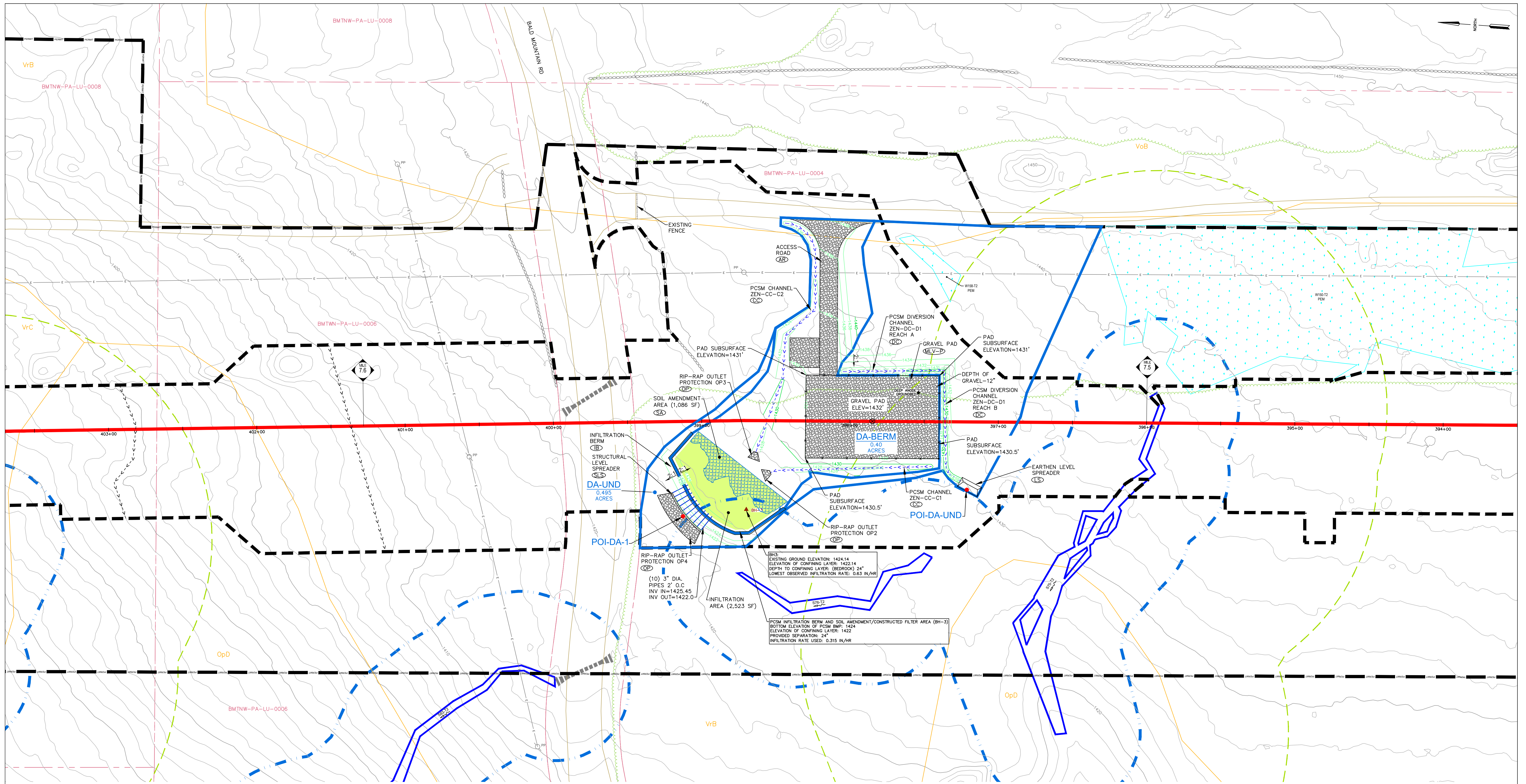
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3. PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
4. STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY W/M CONSULTING FROM MARCH 2020 TO OCTOBER 2020.
5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD83, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.



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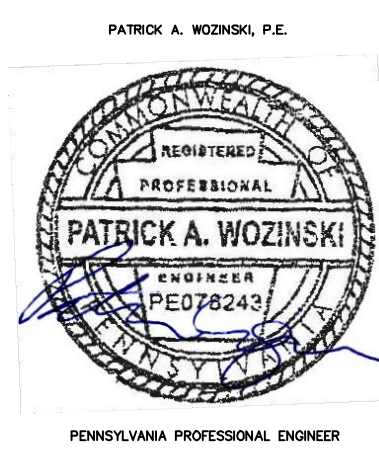
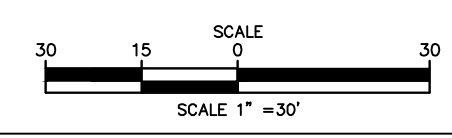
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WO: 1222636	RID: 209		



LEGEND	
	PROPERTY LINE
	EXISTING RIGHT-OF-WAY
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	EXISTING WELL
	PROPOSED CONSTRUCTION FENCE
	PROPOSED PIPELINE
	PROPOSED PIPELINE GROUNDBED
	GEHAZARD ALONG PIPELINE
	PROPOSED WATERBAR AND OUTLET STRUCTURE
	PROPOSED CHANNEL AND DIVERSION CHANNEL
	PROPOSED FENCE
	PROPOSED GRAVEL
	PROPOSED GRADE MAJOR CONTOURS (10' C.L.)
	PROPOSED GRADE MINOR CONTOURS (2' C.L.)
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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 ANTI-PATED.
 - 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, SLOW 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. SUCH SOILS ONSTE 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
VrB	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 CLAS	CUTBANK CAVE	ADHESIVE TO CONCRETE/STEEL	DROUGHTY	EARLY ERODIBLE	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	PONDING	WETNESS
Volusia	VrB, VoB	X	C/S	X	X	X	X	X	X	X	X	X	X		

CHARACTERISTICS OF EARTH DISTURBANCE ACTIVITY, INCLUDING PAST, PRESENT AND PROPOSED LAND USE PROPOSED ALTERATIONS TO THE AREA

THE LIMIT OF DISTURBANCE WILL BE APPROXIMATELY 0.46 ACRES. TRANSCO WILL BE INSTALLING VARIOUS TIE-IN AND MAINLINE VALVE (MLV) FACILITIES ALONG THE REL PIPELINE AS A MEANS OF CONTROLLING GAS FLOWS. WORK AND DISTURBED AREAS ARE LOCATED WITHIN TRANSCO PROPERTY. EXISTING EASEMENTS, OR LEGALLY OBTAINED TEMPORARY WORKSPACE USING DATA TAKEN FROM GOOGLE EARTH AND MULTI-RESOLUTION LAND CHARACTERISTICS (MRLC) CONSORTIUM WEBSITE (HTTPS://WWW.MRLC.GOV/VIEWER/), IT APPEARS THAT THE REGIONAL ENERGY LATERAL PIPELINE SITE HAS BEEN A WOODLAND FOR OVER THE PAST 20 YEARS. WITHIN APPROXIMATELY THE PAST 7 YEARS, A POWERLINE CORRIDOR WAS CONSTRUCTED ADJACENT TO THE SITE BASED ON THE SURROUNDING LAND CHARACTERISTICS. LAND USE PRIOR TO RENO CONSTRUCTION WITHIN THE PAST 50 YEARS LIKELY WOULD HAVE BEEN WOODLAND. EARTH DISTURBANCE ACTIVITIES AT EACH FACILITY WILL INCLUDE GRADING TO CREATE LEVEL GRAVEL PAD AREAS, INSTALLATION OF PCSM BMP'S, AND CONSTRUCTION OF GRAVEL ACCESS ROADS. DISTURBED AREAS WITHIN THE TEMPORARY WORKSPACES WILL BE RESTORED TO THE ORIGINAL CONTOURS. THE CONTRACTOR WILL CONSTRUCT STORMWATER BMP'S TO MITIGATE THE INCREASE IN VOLUME AND PEAK RATES ASSOCIATED WITH CONSTRUCTION. THE PROPOSED BMP'S ARE DESIGNED TO EVAPORATE AND/OR INFILTRATE THE NET INCREASE IN VOLUME BETWEEN THE PRE- AND POST-DEVELOPMENT 2-YEAR RAIN EVENTS.

BMP DESCRIPTION NARRATIVE

MAINLINE VALVE MLV-515RA20-ZENKER VALVE YARD IS PROPOSED ALONG THE REL PIPELINE IN BEAR CREEK TOWNSHIP, LUZERNE COUNTY AT MILEPOST 7.54. IT IS PROPOSED AS A MEANS TO ISOLATE GAS FLOWS ALONG SECTIONS OF A PIPELINE. PIG LAUNCHERS/RECEIVERS AND COMMUNICATION EQUIPMENT MAY BE FACILITATED AT THE VALVE FACILITY WHICH WILL INCLUDE A 104 FOOT LONG GRAVEL ACCESS ROAD, 55 FT X 90 FT GRAVEL PAD, VARIOUS PCSM DIVERSION AND PCSM CHANNELS, SOIL AMENDMENT AREA AND AN INFILTRATION BERM PCSM BMP.

PCSM DIVERSION CHANNEL WILL COLLECT AND CONVEY UPSLOPE STORMWATER RUNOFF AWAY FROM THE SITE. PCSM CHANNELS WILL COLLECT STORMWATER RUNOFF FROM THE VALVE PAD AND CONVEY IT TO A SOIL AMENDMENT AREA AND AN INFILTRATION BERM. THE INFILTRATION BERM WILL MITIGATE THE NET INCREASE IN STORMWATER RUNOFF VOLUME FOR THE 2-YEAR, 24-HOUR PRE- AND POST STORM EVENT BY INFILTRATION. FURTHER, THE INFILTRATION BERM WILL MITIGATE PEAK RATE INCREASES FOR THE 2-, 10-, 50-, AND 100-YEAR, 24-HOUR STORM EVENTS.

BMP INSTALLATION SEQUENCE

- THE PCSM BMP'S SHOULD BE INSTALLED IN A MANNER DESIGNED TO:
- PROTECT BMP AREAS ASSOCIATED WITH INFILTRATION FROM COMPACTION PRIOR TO AND DURING INSTALLATION.
 - MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
 - VALVE YARD PAD:**
 - AS THE VALVE YARD PAD REACHES FINAL GRADE, ENSURE THE SUBGRADE ELEVATIONS DIRECT STORMWATER RUNOFF TO PCSM CHANNELS AND C2.
 - COMPACT THE SUBGRADE FILL TO LIMIT INFILTRATION IN THE PAD AREA. PROPER COMPACTION IS NECESSARY AS THE ENTIRE VALVE YARD PAD IS A SOIL RESTORATION.
 - PLACE AGGREGATE FINAL COVER TO ACHIEVE FINAL GRADE ON VALVE YARD PAD.
 - PCSM DIVERSION CHANNELS:**
 - CONSTRUCT PCSM DIVERSION CHANNELS AS SHOWN IN THE PLAN. INSTALL LEVEL SPREADER AS REQUIRED.
 - STABILIZE THE PCSM CHANNELS WITH SPECIFIED CHANNEL LININGS.
 - 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 PLACEMENT OF FILL FOR BERM. DECOMPACT SUBGRADE AS NECESSARY TO A DEPTH OF 2" IF SUBGRADE HAS BEEN OVERCOMPACTED.
 - UTILIZE SUITABLE 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 PLOW 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. IF 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 SOIL.
 - TILL ADDED SOIL INTO EXISTING SOIL WITH A SOLE-SHANK RIPPER THAT IS SET TO A DEPTH OF 24 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.
 - MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.
6. **PCSM CHANNELS CC-C1 AND CC-C2:**
- CONSTRUCT CHANNELS AS SHOWN IN THE PLAN.
 - STABILIZE THE CHANNELS WITH SPECIFIED CHANNEL LININGS.
- ALL TEMPORARY E&S BMP'S WILL BE REMOVED FOLLOWING SITE STABILIZATION. OTHER EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL THE SITE IS FULLY STABILIZED.
 - ALL INSTALLED BMP'S WILL BE MONITORED UNTIL FINAL SITE STABILIZATION IS ACHIEVED.*
 - LONG TERM OPERATION AND MAINTENANCE GUIDELINES DISCUSSED ON THIS SHEET SHALL BE FOLLOWED.

PORTIONS OF THE BMP INSTALLATION SEQUENCE DENOTED WITH AN ASTERISK () ABOVE ARE CRITICAL STAGES AS DISCUSSED ON THIS SHEET.

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 BMP'S CAN BE REMOVED WHEN THE SITE MEETS FINAL STABILIZATION. FINAL STABILIZATION MEANS THAT ALL 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 WATERBOD BANKS AT A MINIMUM. ALL WATERBOD BANKS SHALL BE COVERED WITH EROSION CONTROL BLANKET. IN ADDITION, 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 MATERIAL WILL BE APPLIED TO NEARLY 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
30.0%	PANICUM CLANDESTINUM	DEERTONGUE
20.0%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
11.8%	ANDROPOGON GERARDII	BIG BLUESTEM
10.5%	SORGHASTRUM NUTANS	INDIANAGRASS
5.0%	PANICUM VIRGATUM	SMITHGRASS
4.0%	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
4.0%	VERBENA HASTATA	BLD VERVAIN
3.0%	JUNCUS EFFUSUS	SOFT RUSH
3.0%	RUDBECKIA HIRTA	BLACKEYED SUSAN
2.0%	HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
1.0%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
0.7%	ASTER NOVAE-ANGLIAE	NEWENGLAND ASTER
0.7%	ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
0.7%	EUPATORIUM PERFOOLIATUM	BONESET
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%	PYCNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT
0.4%	SOLIDAGO PATULA	ROUGHLEAF GOLDENROD
0.3%	EUPATORIUM FISTULOSUM	JOE PEEVEEED
0.3%	LOBELIA SIPHILITICA	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 – 60LBS/ACRE OR 1.5LBS/1000SQFT OF ERNMX-181		
NATIVE STEEP SLOPE MIX WITH ANNUAL RYEGRASS (ERNMX-181)		
PERCENT	SCIENTIFIC NAME	COMMON NAME
31.10	SORGHASTRUM NUTANS	INDIANAGRASS
20.00	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
14.00	ANDROPOGON GERADII	BIG BLUESTEM
10.00	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
7.00	ELYMUS CANADENSIS	CANADA WILDRYE
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	BLACKEYED SUSAN
0.30	MONARDA FISTULOSA	WILD BERGAMONT
0.20	ASCLEPIAS SYRIACA	COMMON MILKWEED
0.20	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 COVER TO BE SUBSTITUTED.

LAWN AND TURFGRASS MIX OPTION		
APPLICATION RATE – 75-150LBS/ACRE OR 3-5LBS/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*		
		Most Sites	Adverse Sites	
1 [†]	Spring oats (spring), or Annual ryegrass (spring or fall), or Winter Wheat (fall), or Winter rye (fall)	64	96	
		10	100	
		90	120	
		56	112	
2 [‡]	Fine fescue, or Kentucky bluegrass, plus Redtop [†] , or Perennial ryegrass	35	40	
		3	30	
		15	20	
3	Birdsfoot trefoil, plus Tall fescue	6	10	
		30	35	
11	Deertongue, plus Birdsfoot trefoil	15	20	
		6	10	
12 [‡]	Switchgrass, or big bluestem, plus Birdsfoot trefoil	15	20	
		15	20	
		6	10	
13	Orchardgrass, plus Smooth bromegrass, plus Birdsfoot trefoil	20	30	
		25	35	
		6	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 [†]
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	2 or 12 [†]
Sod waterways, spillways, frequent water flow areas Drainage ditches	1 plus	2
Shallow, less than 3 feet deep	1 plus	2
Deep, not mowed	1 plus	2
Pond 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	13
Areas mowed several times per year	1 plus	2
Utility Right-of-Way Well-drained	1 plus	12 [†]
Well-drained areas for grazing/hay	1 plus	2, 13
Sanitary Landfills Surface mines	1 plus	11 [†] , or 12 [†]
Spoils, mine wastes, fly ash, slag, settling basin Residues and other severely disturbed areas (lime to soil test)	1 plus	11 [†] , or 12 [†]
Severely disturbed areas for grazing/hay	1 plus	13

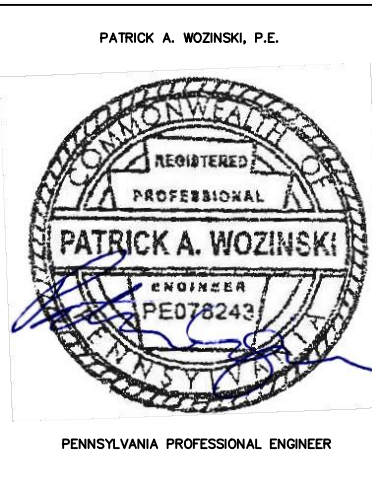
Penn State, "Erosion Control and Conservation Plantings on Noncropland"

- 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 roadside 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-C1 AND CC-C2 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-C1 AND CC-C2.
- FOR FINAL INSPECTION OF CONSTRUCTED BMP'S AT THE ESTABLISHMENT OF HARD SURFACE STABILIZATION OR 70% VEGETATION COVERS TO ALLOW REMOVAL OF E&S CONTROLS.



REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	06/29/21	RHM	REVISED PER PADEP COMMENTS.
2	03/01/22	RHM	RESPONSE TO PADEP TECHNICAL DEFICIENCY LETTER
3	07/08/22	RHM	RESPONSE TO PADEP JUNE 2022 TECHNICAL DEFICIENCY LETTER

LONG TERM OPERATION AND MAINTENANCE SCHEDULE

ALL BMP'S SHOULD BE PROPERLY MAINTAINED TO ENSURE THEIR EFFECTIVENESS. SHEET FLOW CONDITIONS AND INFILTRATION MUST BE SUSTAINED THROUGHOUT THE LIFE OF THE BMP. INSPECT BMP'S 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.

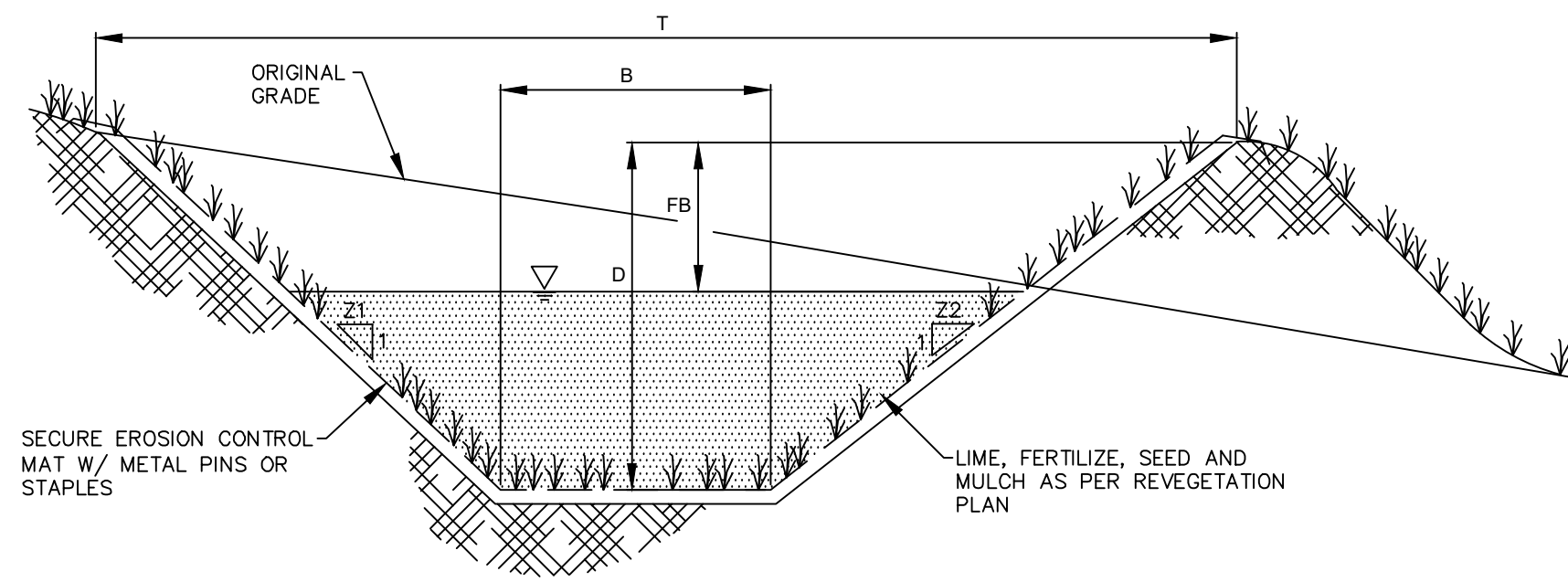
THE FOLLOWING FACILITIES WILL BE INSPECTED:

- PCSM DIVERSION CHANNEL AND PCSM CHANNELS
- INFILTRATION BERM AND SOIL AMENDMENT/CONSTRUCTION FILTER
- RRIPAP 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 GRASSES) 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 WEEDING IS NOT FULLY ESTABLISHED WITHIN THE DESIGNATED TIME, IT SHOULD BE REPLACED WITH AN ALTERNATIVE SPECIES THAT IS APPROPRIATE FOR THE SITE. WEEDS SHOULD BE REMOVED ON AN AS-NEEDED 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 65% AND REESTABLISHED IF DAMAGE GREATER THAN 50% IS OBSERVED.

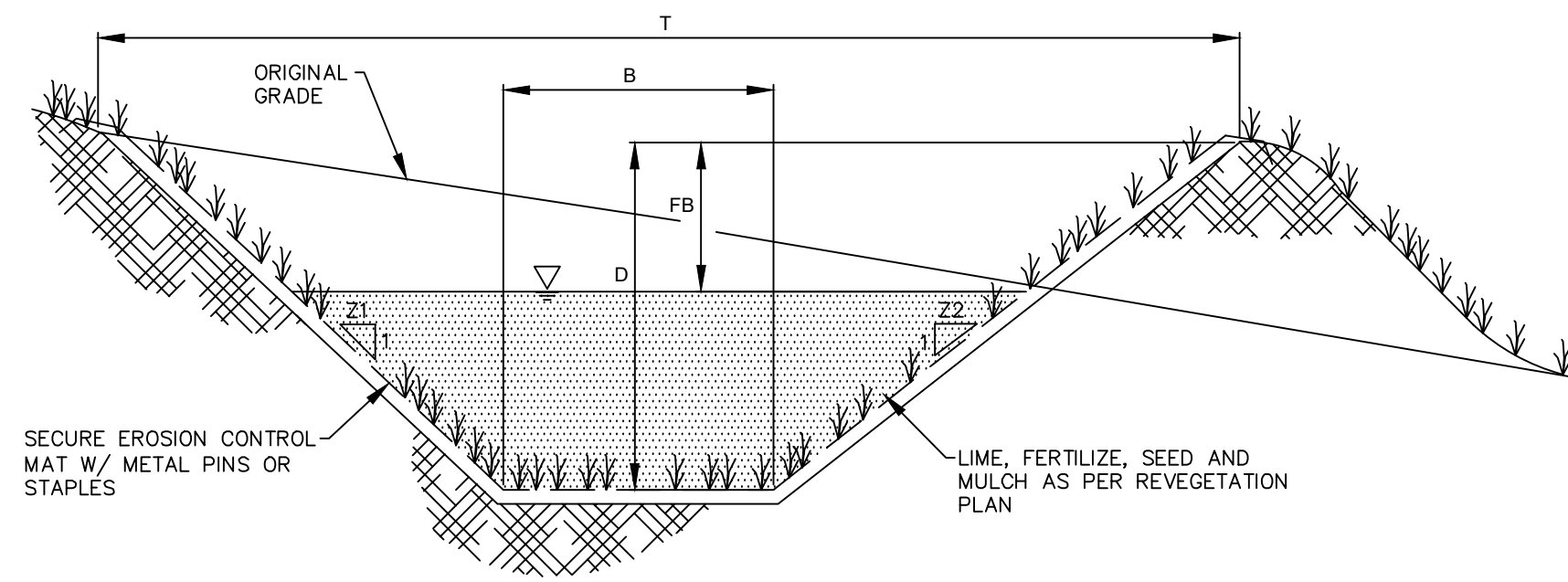
THE INFILTRATION BERM WILL BE INSPECTED FOR SEDIMENT ACCUMULATION. SEDIMENT BUILDUP IN THE BERM WILL BE REMOVED AND BE PROPERLY DISPOSED. ALL



Channel ID	LENGTH [FT]	SLOPE [%]	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	STAPLE PATTERN	OUTLET
ZEN-DC-D1 REACH A	68	0.9	1.0	1.0	1/1	3.0	SC150BN	D	ZEN-DC-D1 REACH B
ZEN-DC-D1 REACH B	57	0.9	1.0	1.75	1/1	4.5	SC150BN	D	EARTHEN LEVEL SPREADER

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

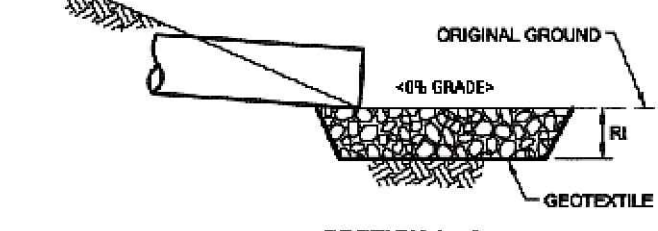
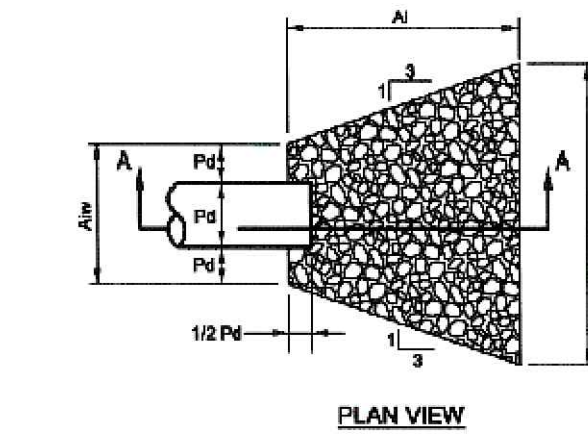
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(DC) TYPICAL PCSM DIVERSION CHANNEL



Channel ID	LENGTH [FT]	SLOPE [%]	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	STAPLE PATTERN	OUTLET
ZEN-CC-C1	109	2.4	1.0	1.25	1/1	3.5	SC150BN	D	OP2
ZEN-CC-C2	189	4.9	2.0	1.00	2/2	6.0	SC150BN	D	OP3

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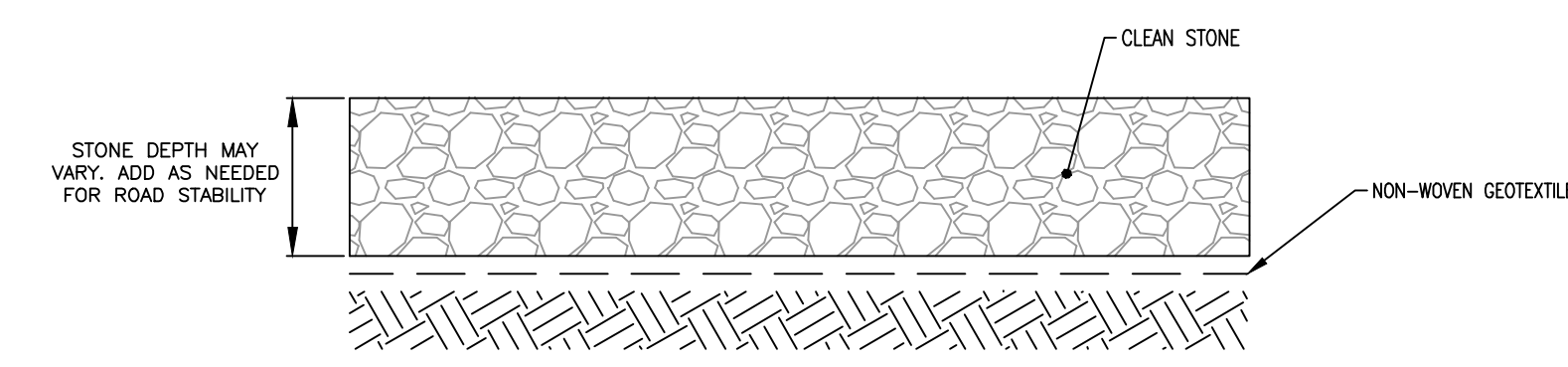
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(CC) TYPICAL PCSM CHANNEL



NO.	PIPE DIA. (IN)	TAIL WATER CONE (MAX OR MIN)	MAN. 1/4" FOR PIPE	PIPE SLOPE (FT/FT)	Q (CFS)	V* (FPS)	R/RAP SIZE	Rt (in)	At (ft)	Aw (ft)	Aw (ft)
OP1	48	MEN	0.05	0.024	1.43	2.1	B-3	9	15	10.5	25.5
OP2	72	MEN	0.05	0.049	1.41	2.3	B-3	9	15	18	33
OP4	10.5	MEN	0.01	0.25	2.03	2.91	B-3	9	6	33	39

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

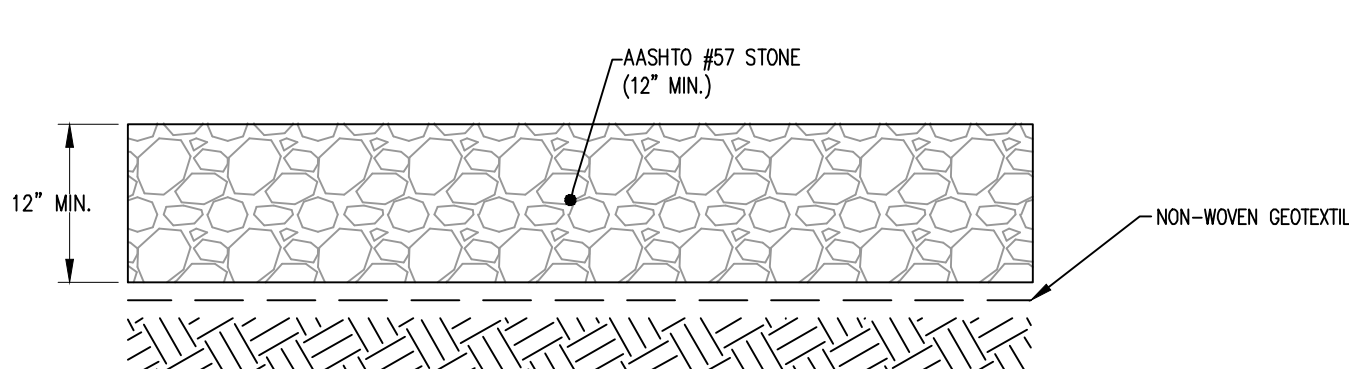
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(OP) RIPRAP APRON OUTLET PROTECTION



- 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.

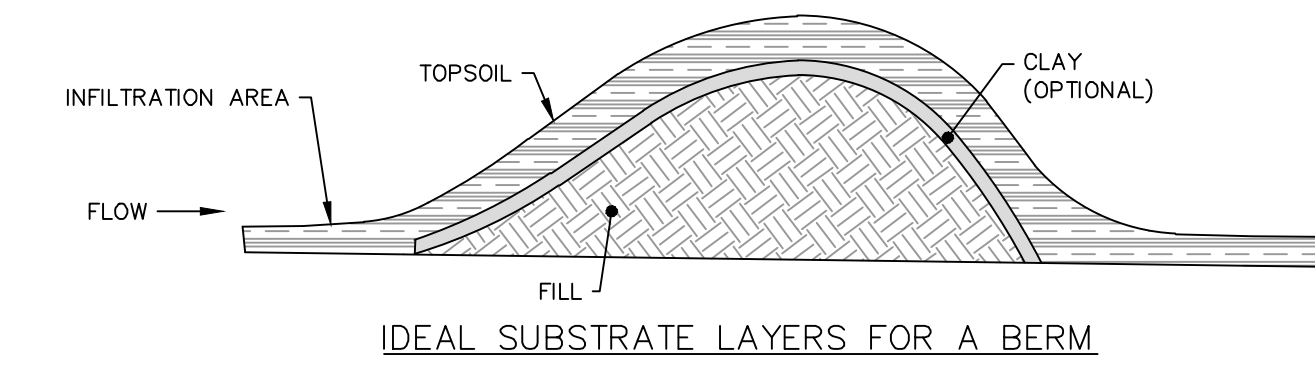
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(AR) PERMANENT/TEMPORARY STONE ACCESS ROAD



- 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

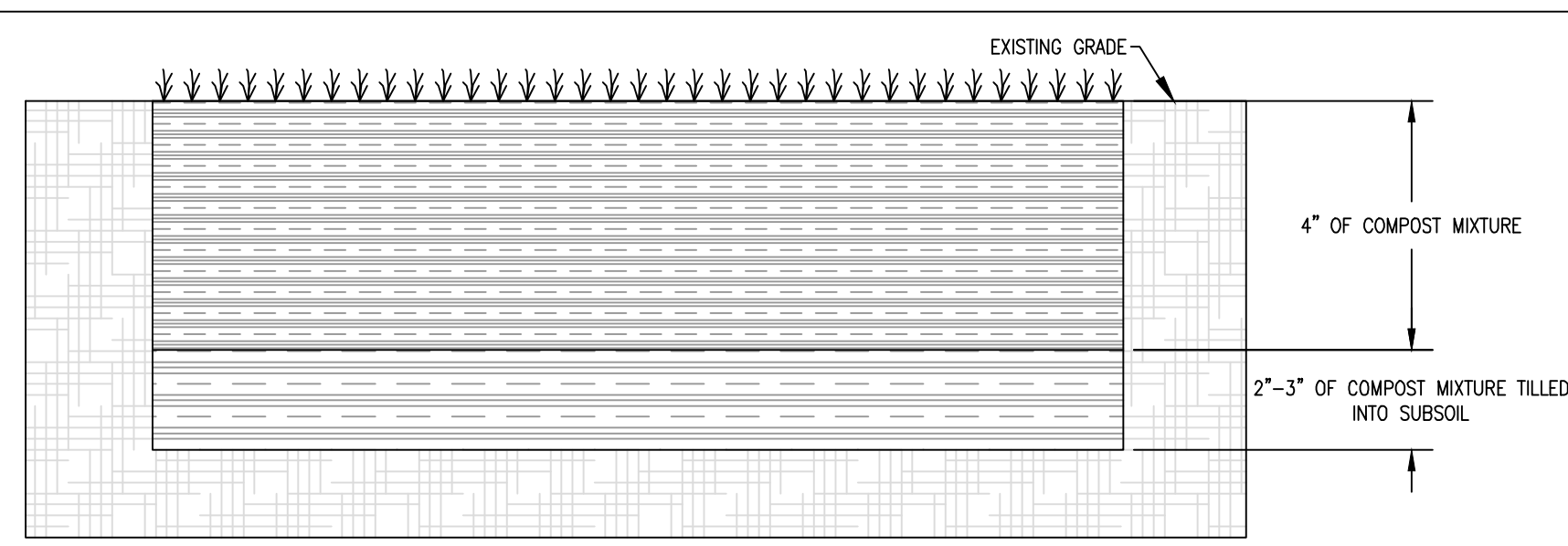


INFILTRATION BERM NO.	BOT. ELEV. (ft)	TOP ELEV. (ft)	HEIGHT (ft)	TOP WIDTH (ft)	OVERALL LENGTH (ft)	SHWT (in BELOW GROUND)	BEDROCK (in BELOW GROUND)
1	1424	1426	2	2	130	NOT ENCOUNTERED	24

- 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.

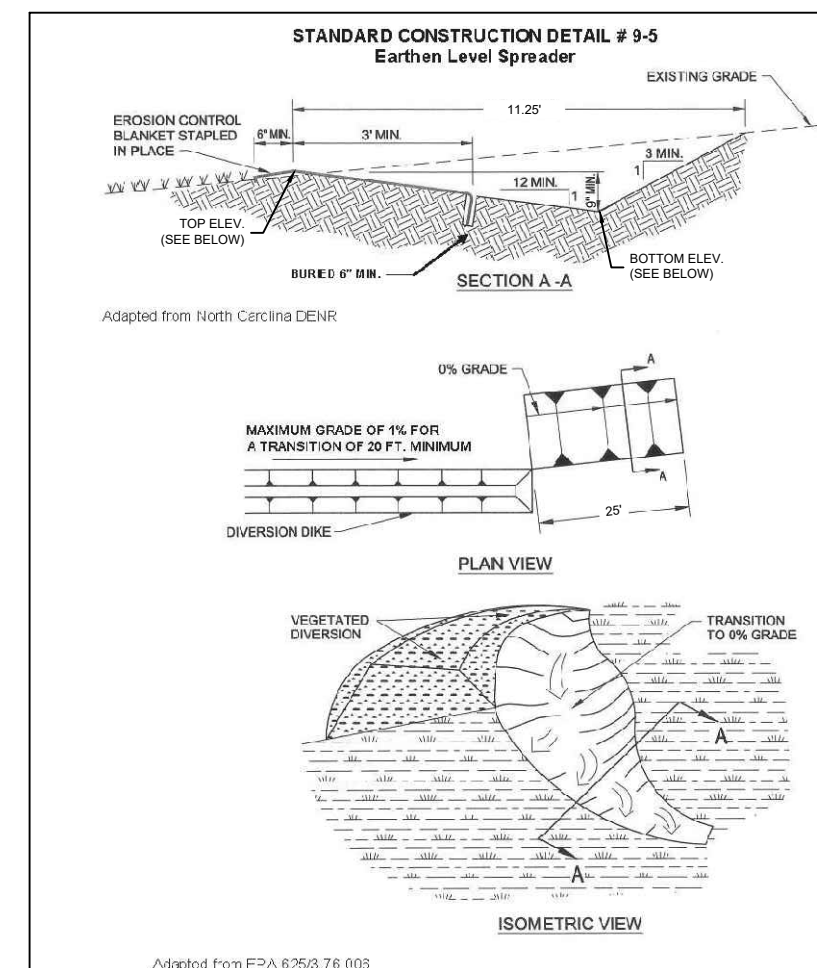
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(IB) INFILTRATION BERM



- 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.
 - BEGAN 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 PLOW 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 SOLID-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

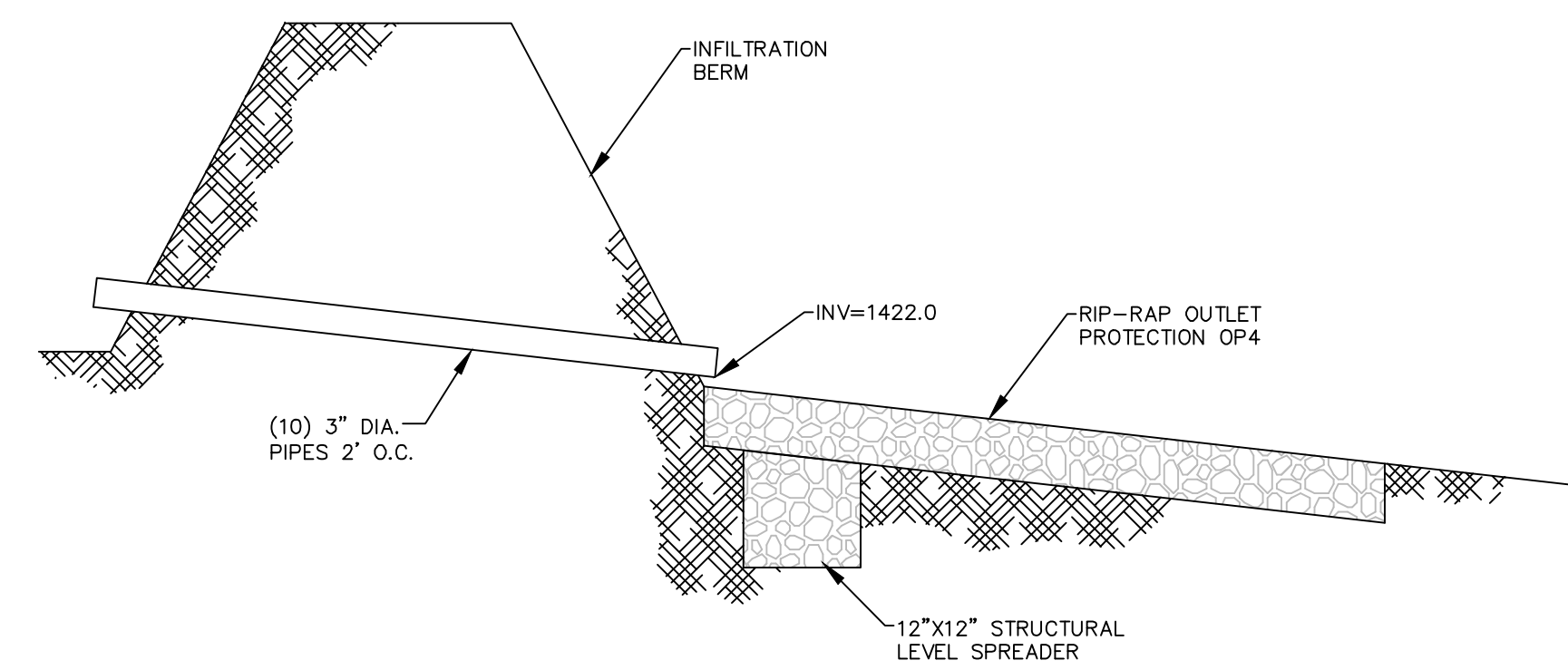
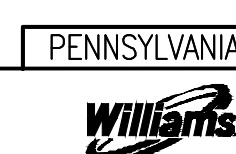


ID	TOP ELEV. (ft)	BOTTOM ELEV. (ft)
LEVEL SPREADER	1929.7500	1929.0000

- NOTES:
- LEVEL SPREADER SHALL BE CONSTRUCTED AND MAINTAINED LEVEL. SMALL VARIATIONS IN HEIGHT ON THE DOWNSTREAM UP SHALL BE LESS THAN 0.005% SLOPE ALONG THE WEIR. VARIATIONS IN EXISTING GROUND ELEVATION SHALL BE LESS THAN 4 INCHES.
 - CLEAR DEBRIS (I.E. EARTH, WOOD, AND OTHER ORGANIC MATTER) LOCATED WITHIN 15 FEET DOWN SLOPE OF THE LEVEL SPREADER THAT MAY ACCUMULATE.
 - TO PRESERVE INFILTRATION CAPACITY, THE UNDERLYING SOILS SHOULD REMAIN UNDISTURBED, UNCOMPACTED, AND PROTECTED FROM HEAVY EQUIPMENT.
- OPERATION & MAINTENANCE:
- LEVEL SPREADER SHALL BE MONITORED FOR 2 YEARS ON A QUARTERLY BASIS AND SEMI-ANNUALLY THEREAFTER.
 - INSPECTIONS SHALL BE MADE FOLLOWING RAINFALL EVENTS EXCEEDING 1 INCH.
 - MONITORING INCLUDES BOTH THE LEVEL SPREADER AND THE DOWN SLOPE AREA UP TO AND INCLUDING THE RECEIVING STREAM.

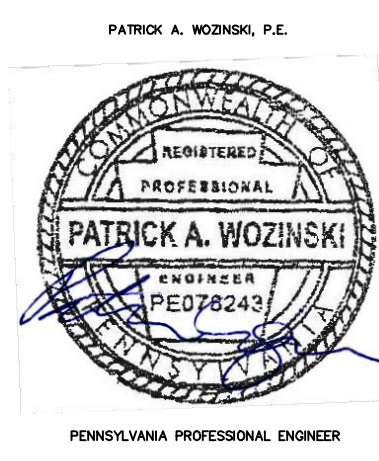
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(LS) EARTHEN LEVEL SPREADER



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

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
(SLS) STRUCTURAL LEVEL SPREADER



NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	06/29/21	RHM	REVISED PER PAEP COMMENTS.			
2	03/01/22	RHM	RESPONSE TO PAEP TECHNICAL DEFICIENCY LETTER			
3	07/08/22	RHM	RESPONSE TO PAEP JUNE 2022 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: RHM	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: PW	DATE: 03/31/21		

WO: 1222636 RID: 209 DRAWING NUMBER: 26-1000-70-28-D SHEET 5 OF 5