

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

**MLV-515RA30**  
**WYOMING AVENUE MAIN LINE VALVE SITE PLAN**

WYOMING BOROUGH, LUZERNE COUNTY, PENNSYLVANIA

APRIL 2021

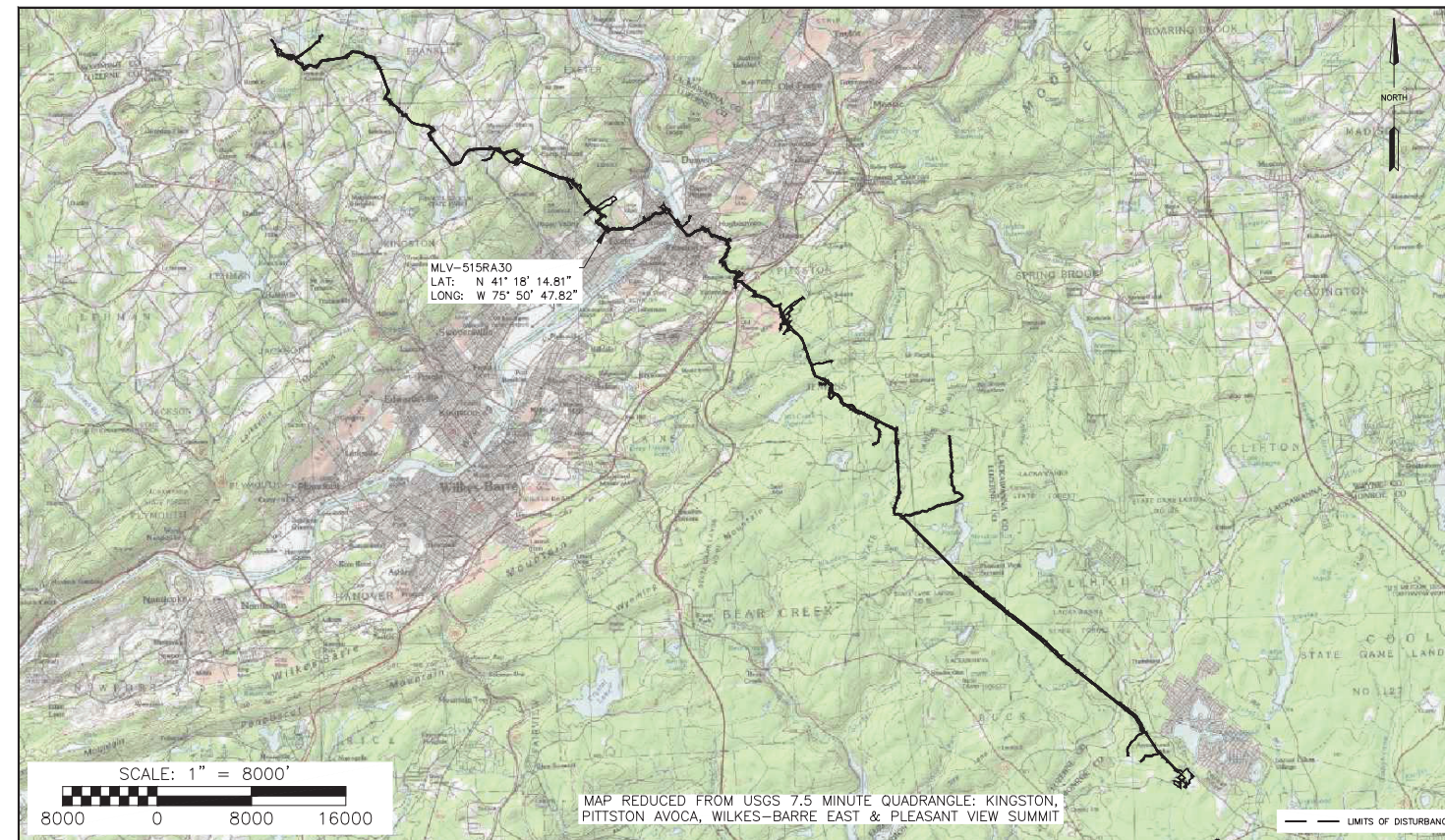
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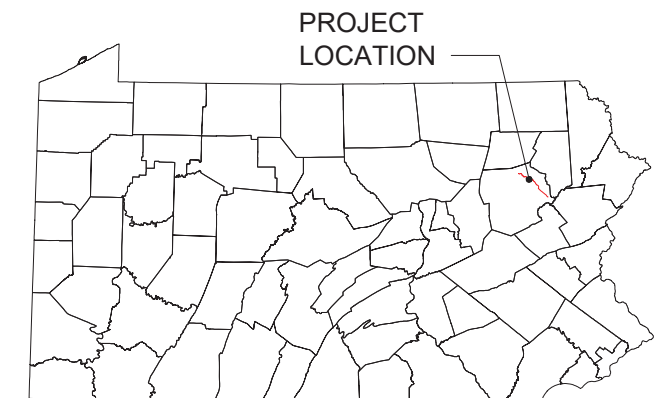
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LOCATION MAP



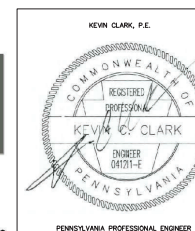
VICINITY MAP  
 N.T.S.

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
SUSQUEHANNA RIVER	WWF	N/A	N/A

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.

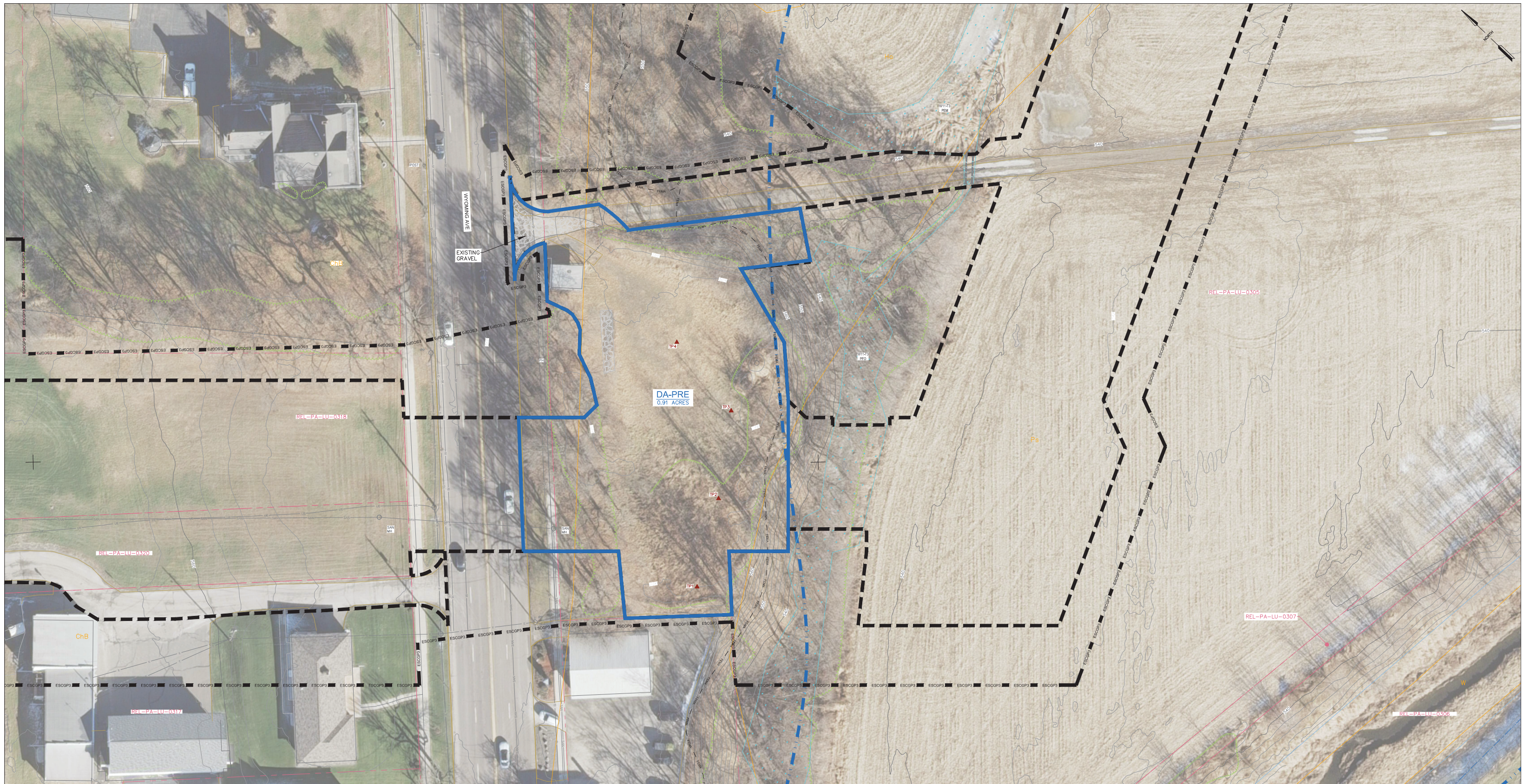


REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
 REGIONAL ENERGY ACCESS EXPANSION PROJECT  
 MLV-515RA30  
 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN  
 COVER SHEET



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: KCC	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 5



**LEGEND**

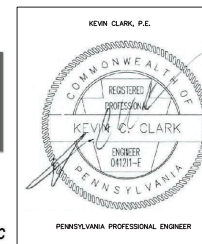
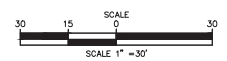
	PROPERTY LINE		TEST PIT/INFILTRATION TEST LOCATION
	EXISTING RIGHT-OF-WAY		
	ESCOP-3 PERMIT BOUNDARY		
	LIMITS OF DISTURBANCE		
	EXISTING FENCE		
	EXISTING STONE ROW		
	EXISTING STRUCTURE		
	EXISTING EDGE OF ROAD		
	EXISTING GRAVEL AREAS		
	EXISTING GRADE MAJOR CONTOURS (10' C.I.)		
	EXISTING GRADE MINOR CONTOURS (2' C.I.)		
	EXISTING WATERBAR AND OUTLET STRUCTURE		
	APPROX. ENVIRONMENTAL STUDY LIMITS		
	DELINEATED WETLAND		
	DELINEATED WATERWAY / STREAM (TOP OF BANK)		
	STREAM FLOW DIRECTION		
	RIPIARIAN BUFFER		
	50'/FEMA FLOODWAY		
	FEMA 100-YEAR FLOODPLAIN		
	SOIL BOUNDARY / TYPE		
	EXISTING TREELINE / TREE / SHRUB		
	EXISTING LEDY / TPPL 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		

**SOIL LEGEND**

ChB CHENANGO GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES  
 ChH HOLLY SILT LOAM  
 Pw POPE SOILS  
 W WATER

**EXISTING CONDITION NOTES/SOURCES**

- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN 2019 AND 2020.
- PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
- PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
- STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING FROM MARCH 2020 TO OCTOBER 2020.
- DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD86, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.



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**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT**  
 MLV-515RA30  
**EXISTING CONDITIONS PLAN**  
 WYOMING BOROUGH, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: RHM	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RUN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
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WO: 1211227	RID: 207		



**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 WITH 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 SMELL, 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.

Soil Mapping Unit	Soil Series
ChB	Chenango gravelly barn, 3 to 8 percent slopes
Ho	Holly silt barn
Ps	Pope soils

Table 3. Limitations of Pennsylvania Soils Pertaining to Earth Disturbance Projects (Erosion and Sediment Control Best Management Practice (BMP) Manual - Technical Guidance Number 263-02-003 (Page 40))

SOIL NAME	SOIL WITH SLOPE CLASS	CLAYBARS CAP	CONDUCTIVE TO CONDUCTIVITY	INDUSTRY	EASILY ERODIBLE	FLOODING	SOILS THAT ARE PRONE TO FLOODING, SLOW PERCOLATION, PONDING WETNESS, HAVE A SEASONAL HIGH WATER TABLE	HYDRIC/ARIDIC INCLUSIONS	LOW STRENGTH	LANDSLIDE PRONE	SLOW PERCOLATION	RIPRAPS	POTENTIAL SOURCE OF TOPSOIL	FROST ACTION	SMELL, SHRINK, OR HEAVE	POTENTIAL SOURCE OF TOPSOIL	POUNDING	WETNESS	
Chenango	C2B	X	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Holly Silt Loam	Ho	X	C/S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pope Soil	Ps	X	C/S	X	X	X	X	X	X	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**

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 SITE WAS A PRIOR PULL OFF/STAGING AREA ALONG STATE ROUTE 11 FOR OVER THE PAST 20 YEARS. BASED ON THE SURROUNDING LAND CHARACTERISTICS, LAND USE WITHIN THE PAST 50 YEARS LIKELY WOULD HAVE BEEN URBAN. 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-515RA30 – WYOMING VALVE YARD IS PROPOSED ALONG THE REL PIPELINE IN WYOMING BOROUGH, LUZERNE COUNTY AT MILEPOST 14.84. IT IS PROPOSED AS A MEANS TO ISOLATE GAS FLOWS ALONG SECTIONS OF A PIPELINE. COMMUNICATION EQUIPMENT MAY BE LOCATED AT THE MLV FACILITY. THE FACILITY WILL INCLUDE A 192 FOOT LONG GRAVEL ACCESS ROAD, 62 FT X 96 FT GRAVEL PAD WHICH PROVIDES SUBSURFACE INFILTRATION AS A PCSM BMP, AND A VEGETATED SWALE PCSM BMP.

THE GRAVEL VALVE PAD WILL FEATURE EARTHEN BERMS TO CONTAIN STORMWATER RUNOFF, 12 INCHES OF AGGREGATE TO ACT AS A DETENTION STRUCTURE FOR STORMWATER, AND AN INFILTRATION SUBGRADE AREA. EXCESS STORMWATER RUNOFF FROM THE VALVE YARD PAD WILL BE CONVEYED VIA CHANNEL C1 TO VEGETATED SWALE #1. THE VEGETATED SWALE WILL PROVIDE ADDITIONAL INFILTRATION CAPACITY PRIOR TO DISCHARGE OF EXCESS STORMWATER RUNOFF. THE VALVE YARD PAD AND VEGETATED SWALE WILL MITIGATE THE NET INCREASE IN STORMWATER RUNOFF VOLUME FOR THE 2-YEAR, 24-HOUR PRE-POST STORM EVENT BY INFILTRATION AND EVAPOTRANSPIRATION. FURTHER, THE PCSM BMP'S 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.
  - VEGETATED SWALE
    - CONSTRUCT AND STABILIZE THE SWALE EARLY IN THE CONSTRUCTION SCHEDULE, PREFERABLY BEFORE MASS EARTHWORK AND PAVING INCREASE THE RATE AND VOLUME OF RUNOFF.
    - ROUGH GRADE THE VEGETATED SWALE. AVOID EXCESSIVE COMPACTION AND/OR LAND DISTURBANCE.
    - AS NEEDED, REMOVE UNSUITABLE SOIL (CLAYEY, ROCKY, COARSE SANDS, ETC.) TO SUPPORT DENSE VEGETATION, REPLACING WITH APPROXIMATELY 12 INCHES OF LOAMY OR SANDY SOILS. ALKALINE SOILS ARE RECOMMENDED TO FURTHER REDUCE AND RETAIN METALS.
    - INSTALL OUTLET CONTROL STRUCTURE.
    - FINAL GRADE THE SWALE TO ENSURE ACCURACY.
    - SEED AND STABILIZE AS SOON AS POSSIBLE.
      - SELECT DENSE AND DIVERSE CLOSE-GROWING, WATER-RESISTANT PLANTS WHOSE GROWING SEASON CORRESPONDS TO THE WET SEASON.
      - VEGETATION SHOULD BE SELECTED AT AN EARLY STAGE IN THE DESIGN PROCESS, WITH WELL-DEFINED POLLUTION CONTROL GOALS IN MIND.
      - SELECTED VEGETATION MUST BE ABLE TO THRIVE AT THE SPECIFIC SITE AND THE USE OF NATIVE PLANT SPECIES IS STRONGLY ADVISED, AS IS THE AVOIDANCE OF INVASIVE PLANT SPECIES.
      - SWALE VEGETATION MUST ALSO BE SALT TOLERANT, AS THE PAVED ROADWAY WILL UNDERGO WINTER ROAD MAINTENANCE ACTIVITIES THAT WILL CONTRIBUTE TO SALT/CHLORIDES.
      - THE SWALE IS PARTICULARLY VULNERABLE TO SCOUR AND EROSION PRIOR TO THE ESTABLISHMENT OF VEGETATION. PROTECT THE SEED BED WITH TEMPORARY EROSION CONTROL, SUCH AS STRAW MATTING, COMPOST BLANKETS, OR CURLED WOOD BLANKETS.
  - COLLECTION CHANNEL C1
    - CONSTRUCT COLLECTION CHANNEL AS SHOWN IN THE PLAN.
    - STABILIZE THE CHANNEL WITH SPECIFIED CHANNEL LININGS.
  - VALVE YARD PAD
    - AS THE VALVE YARD PAD REACHES FINAL GRADE, ENSURE THE SUBGRADE ELEVATIONS DIRECT STORMWATER RUNOFF TO COLLECTION CHANNEL C1.
    - COMPACT THE SUBGRADE FILL TO LIMIT INFILTRATION IN THE PAD AREA. PROPER COMPACTION IS NECESSARY AS THE ENTIRE VALVE YARD PAD IS A FILL CONSTRUCTION.
    - PLACE AGGREGATE FINAL COVER TO ACHIEVE FINAL GRADE ON VALVE YARD PAD.
  - 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.

**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 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 WATERBODY BANKS. AT A MINIMUM, ALL WATERBODY BANKS SHALL BE COVERED WITH EROSION CONTROL BLANKET. IN ADDITION, ONLY STRAW MULCH SHALL BE USED IN AREAS ADJACENT TO WETLANDS.

**TEMPORARY REVEGETATION**

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 NEWLY SEEDD 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 SEEDDED WITH A MIXTURE AS OUTLINED IN THE DETAILS PAGES OF THE EROSION AND SEDIMENT CONTROL PLAN SET. 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.	
<b>Agricultural lime</b>	6 tons	240 lb.	2,480 lb.	Or as per soil test; may not be required in agricultural fields
<b>10-20-20 fertilizer</b>	1,000 lb.	25 lb.	210 lb.	Or as per soil test; may not be required in agricultural fields
Temporary Seeding Application Rate				
<b>Agricultural lime</b>	1 ton	40 lb.	410 lb.	Typically not required for topsoil stockpiles
<b>10-10-10 fertilizer</b>	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.**

Mixture Number	Species	Seeding Rate—Pure Live Seed <sup>1</sup>	
		Most Sites	Adverse Sites
1 <sup>2</sup>	Spring oats (spring), or Annual ryegrass (spring or fall), or Winter Wheat (fall), or Winter rye (fall)	64 100 120 56	96 100 120 112
	Tall fescue, or Fine fescue, or Kentucky bluegrass, plus Redtop <sup>3</sup> , or Perennial ryegrass	60 35 25 3	75 40 30 3
	Birdfoot trefoil, plus Tall fescue	6 30	10 35
4	Birdfoot trefoil, plus Reed canarygrass	6 10	10 15
8	Flatpea, plus Tall fescue, plus Perennial ryegrass	20 20 20	30 30 25
	Sericea lespedeza, plus Tall fescue, plus Redtop <sup>4</sup>	10 20 3	20 25 3
10	Tall fescue, plus Fine fescue	40 10	60 15
11	Dewberrygrass, plus Birdfoot trefoil	15 6	20 10
12 <sup>7</sup>	Switchgrass, or big Bluestem, plus Birdfoot trefoil	15 15 6	20 20 10
	Orchardgrass, plus Smooth bromegrass, plus Birdfoot 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 OUND 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.
- USE FOR HIGHWAY SLOPES AND SIMILAR SITES WHERE THE DESIRED SPECIES AFTER ESTABLISHMENT IS CROWN VETCH.
- USE ONLY IN EXTREME SOUTHEASTERN OR EXTREME SOUTHWESTERN PENNSYLVANIA. SERICEA LESPEDEZA IS NOT WELL ADAPTED TO MOST OF PA.
- DO NOT MOW SHORTER THAN 9 TO 10 INCHES.
- SEE MIXTURES CONTAINING CROWN VETCH SHOULD NOT BE USED IN AREAS ADJACENT TO WETLANDS OR STREAM CHANNELS DUE TO THE NATURE OF THIS SPECIES.

**TABLE 11.5 Recommended Seed Mixtures for Stabilizing Disturbed Areas**

Site Condition	Nurse Crop	Seed Mixture (Select one mixture)
<b>Slopes and Banks (not mowed)</b> Well-drained Variable drainage	1 plus 1 plus	3, 5, 8, or 12 <sup>1</sup> 3 or 7
<b>Slopes and Banks (mowed)</b> Well-drained Slopes and Banks (grazed/hay)	1 plus 1 plus	2 or 10 2, 3, or 13
<b>Gullies and Eroded Areas</b> Well-drained	1 plus	3, 5, 7, or 12 <sup>1</sup>
<b>Erosion Control Facilities (BMPs)</b> Sod waterways, spillways, frequent water flow areas Drainage ditches	1 plus 1 plus	2, 3, or 4 2, 3, or 4 3 or 7
Shallow, less than 3 feet deep Deep (not mowed)	1 plus 1 plus	2, 3, or 4 3 or 7
Pond banks, dikes, levees, dams, diversion channels, and occasional water flow areas Mowed areas Non-mowed areas	1 plus 1 plus 1 plus	2 or 3 3 or 7 3 or 13
For hay or silage on diversion channels and occasional water flow areas	1 plus	3 or 13
<b>Highways<sup>2</sup></b> Non-mowed areas Pure crown vetch <sup>2</sup> Well-drained Variable drainage Poorly drained Areas mowed several times per year	1 plus 1 plus 1 plus 1 plus 1 plus	5 or 6 5, 7, 8, 9, or 10 3 or 7 3 or 4 2, 3, or 10
<b>Utility Right-of-way</b> Well-drained Variable drainage Well-drained areas for grazing/hay	1 plus 1 plus 1 plus	5, 8, or 12 <sup>1</sup> 3 or 7 2, 3, or 13
<b>Effluent Disposal Areas</b> <b>Sanitary Landfills</b>	1 plus 1 plus	3 or 4 3, 5, 7, 11 <sup>1</sup> , or 12 <sup>1</sup>
<b>Surface mines</b> Spills, mine wastes, fly ash, slag, settling basin Residues and other severely disturbed areas (lime to soil test) Severely disturbed areas for grazing/hay	1 plus 1 plus	3, 4, 5, 7, 8, 9, 11 <sup>1</sup> , or 12 <sup>1</sup> 3 or 13

- 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.
- Seed mixtures containing crown vetch should not be used in areas adjacent to wetlands or stream channels due to the invasive nature of this species.

**PCSM CRITICAL STAGES**

- UPON COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO ASCERTAIN THE VEGETATED SWALE AREA HAS BEEN FLAGGED AND FENCE ERECTED TO PREVENT ACCESS TO THE AREA.
- AT THE BEGINNING OF CONSTRUCTION OF THE VEGETATED SWALE TO ENSURE THE INFILTRATION AREA HAS NOT BEEN COMPACTED BY CONSTRUCTION ACTIVITIES.
- DURING CONSTRUCTION OF THE VEGETATED SWALE THE LICENSED PROFESSIONAL WILL OBSERVE THAT THE BMP IS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- AT COMPLETION OF COLLECTION CHANNEL C1 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 THE INFILTRATION BERM.
- 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.

**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. IF EROSION IS OBSERVED, MEASURES SHOULD BE TAKEN TO IMPROVE DISPERSION METHOD TO ADDRESS THE SOURCE OF EROSION.

SWALE AND CHANNEL LINING WILL BE INSPECTED FOR SEDIMENT AND DEBRIS ACCUMULATION, DAMAGE CAUSED BY EROSION, LACK OF GROUND COVER, AND OVERGROWN VEGETATION.

GRASS COVER SHOULD BE MOWED WITH LOW GROUND PRESSURE EQUIPMENT AS NEEDED 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. UNWANTED OR INVASIVE GROWTH SHOULD BE REMOVED ON AN ANNUAL BASIS.

VEGETATED AREAS WILL BE INSPECTED WEEKLY AND AFTER RUNOFF 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 RIPRAP OUTLET PROTECTION (OP) 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 DISLOADED. DISPLACED RIPRAP WITHIN THE RIPRAP OUTLET PROTECTION SHALL BE REPLACED IMMEDIATELY. ALL OTHER NEEDED REPAIRS WILL ALSO BE MADE IMMEDIATELY TO PREVENT FURTHER DAMAGE.

DAMAGED BMP'S WILL BE REPAIRED AS SOON AS POSSIBLE UPON DISCOVERY. REPAIRS WILL BE MADE TO RESTORE TO BMP'S TO THE ORIGINAL DESIGN CONDITION.

**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.DEPTWE.STATE.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 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.)

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 SUBJECT 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.

**THERMAL IMPACTS**

STORMWATER RUNOFF ASSOCIATED WITH THE INSTALLATION OF MLV-515RA03 – WYOMING VALVE YARD 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 BMP'S ARE DESIGNED TO CAPTURE AND INFILTRATE THIS WARMEST SURGE OF STORMWATER. BASED ON ROUTING CALCULATIONS, STORMWATER IS NOT DISCHARGED FROM THE BMP'S 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**

WATERSHED IS NOT HIGH QUALITY. ANTIDEGRADATION REQUIREMENTS ARE NOT REQUIRED.

**RIPARIAN BUFFERS**



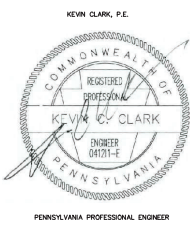

THE CONSTRUCTION OF THE MLV-515RA03 – WYOMING VALVE YARD DOES NOT IMPACT ANY RIPARIAN AREAS AND IS NOT A CONCERN.

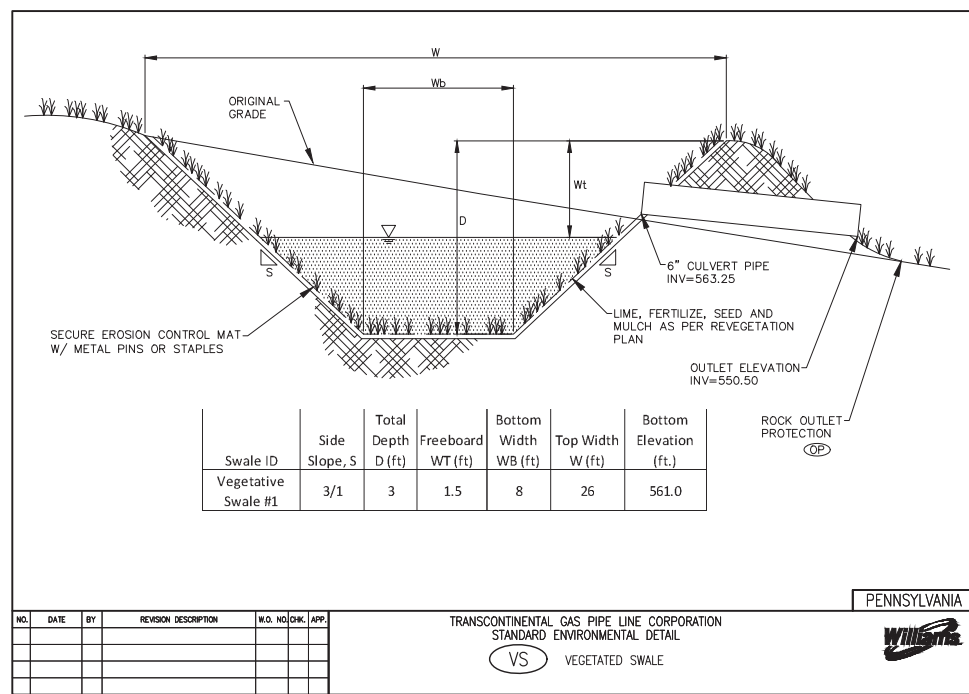
**NON-STRUCTURAL AND STRUCTURAL WATER QUALITY BMP DESCRIPTION**

- 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 SOILS. ANY PROTECTED AREAS THAT HAVE BEEN DISTURBED/COMPACTED DURING CONSTRUCTION WILL BE RESTORED USING SOIL AMENDMENT AND RESTORATION.
- DISTURBED AREAS THAT ARE NOT PROPOSED TO BE IMPERVIOUS WILL BE REVEGETATED AS PER THE SEEDING AND MULCHING NOTES PROVIDED IN PCSM PLAN NOTES.

**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 KEVIN C. CLARK, 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).

 		REVISIONS			W.O. NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT MLV-515RA30 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN <b>NOTES</b> WYOMING BOROUGH, LUZERNE COUNTY, PENNSYLVANIA	
		NO.	DATE	BY					
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: KCC    DATE: 03/31/21 WO: 1211227    RID: 207    DRAWING NUMBER: 26-1000-70-28-D								SHEET 4 OF 5	

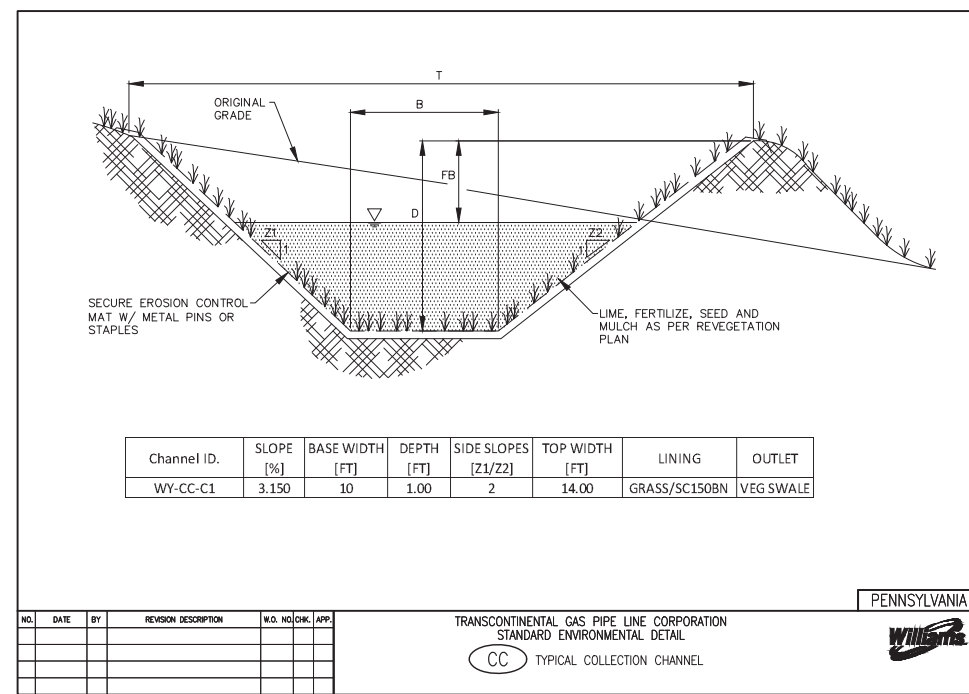


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TRANSCONTINENTAL GAS PIPE LINE CORPORATION  
STANDARD ENVIRONMENTAL DETAIL

(VS) VEGETATED SWALE

PENNSYLVANIA

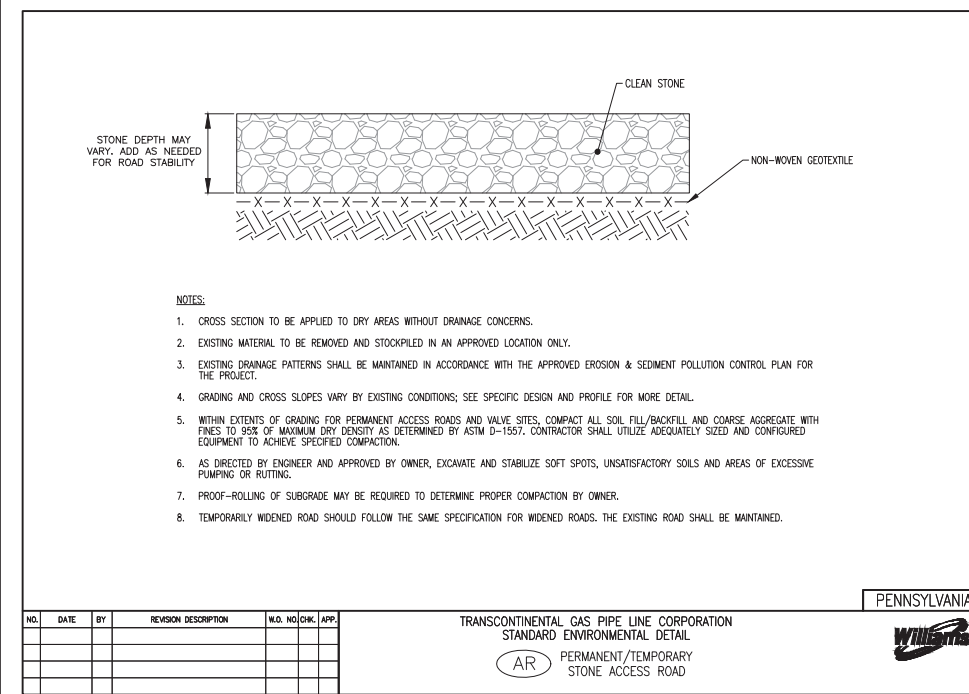


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TRANSCONTINENTAL GAS PIPE LINE CORPORATION  
STANDARD ENVIRONMENTAL DETAIL

(CC) TYPICAL COLLECTION CHANNEL

PENNSYLVANIA

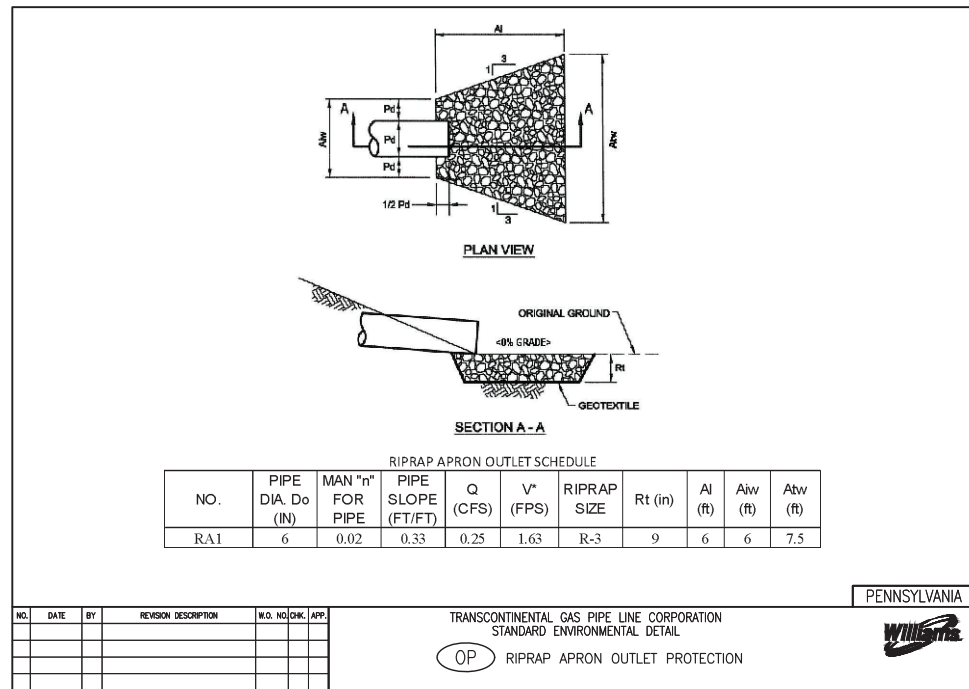


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TRANSCONTINENTAL GAS PIPE LINE CORPORATION  
STANDARD ENVIRONMENTAL DETAIL

(AR) PERMANENT/TEMPORARY STONE ACCESS ROAD

PENNSYLVANIA

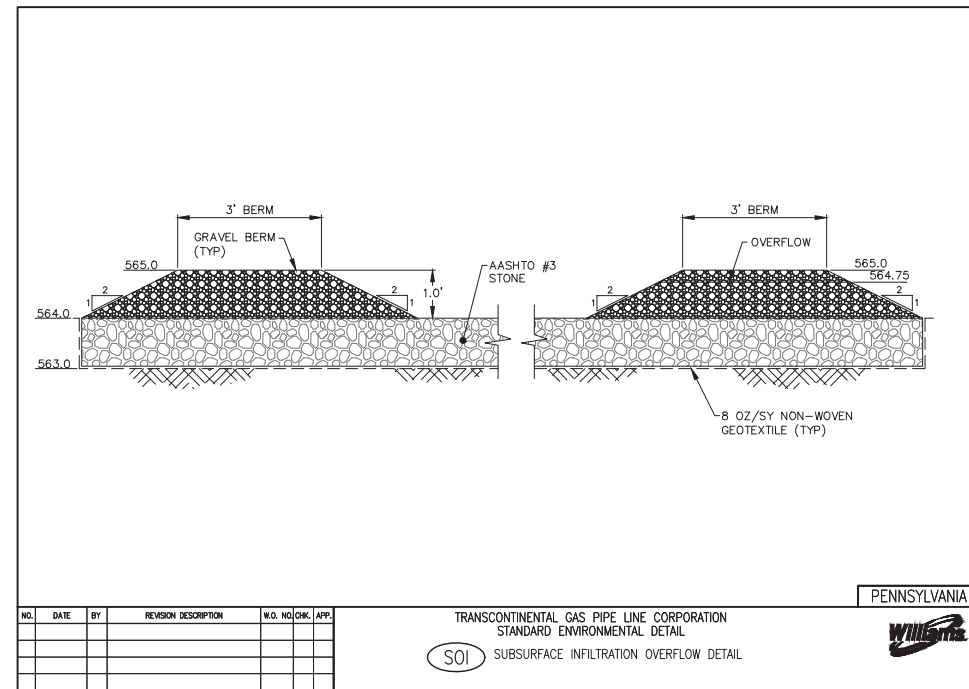


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TRANSCONTINENTAL GAS PIPE LINE CORPORATION  
STANDARD ENVIRONMENTAL DETAIL

(OP) RIPRAP APRON OUTLET PROTECTION

PENNSYLVANIA

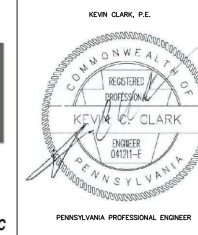


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TRANSCONTINENTAL GAS PIPE LINE CORPORATION  
STANDARD ENVIRONMENTAL DETAIL

(SOI) SUBSURFACE INFILTRATION OVERFLOW DETAIL

PENNSYLVANIA



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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT MLV-515RA30 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS WYOMING BOROUGH, 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: KCC	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 5 OF 5