TRANSC POST CONS REGIONAL E

PROJECT OWNER/APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC 2800 POST OAK BLVD, LEVEL 11 HOUSTON, TX 77056 PH: (713) 215-3427

PLAN PREPARER / ENGINEER

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BAI GROUP, LLC. 366 WALKER DRIVE SUITE 300 STATE COLLEGE, PA 16801 PH: (814) 238-2060 CONTACT: PATRICK WOZINSKI, P.E. PROJECT ENGINEER

PROJECT INFORMATION

ESCP PERMIT BOUNDARY: 20.28 Ac.

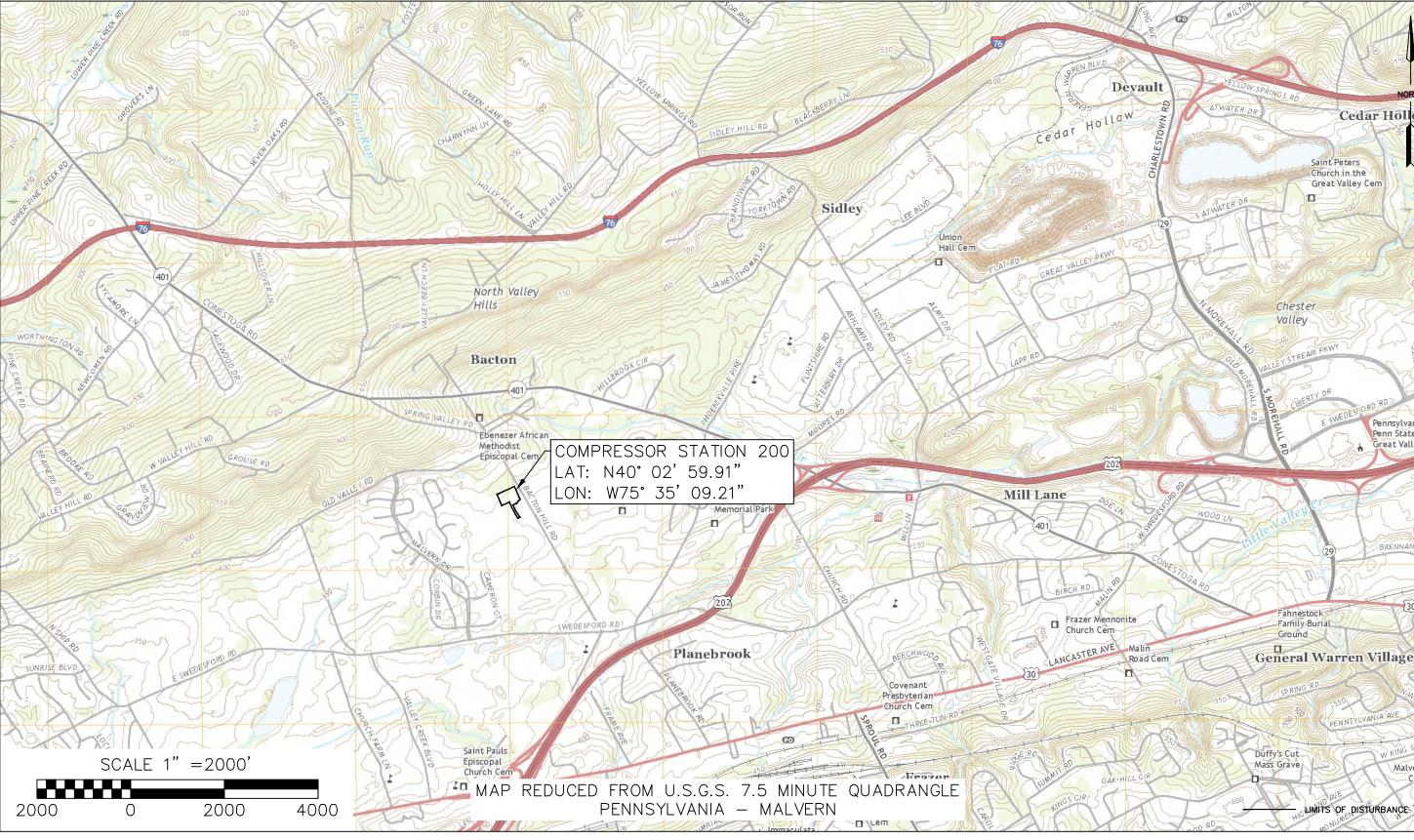
LIMIT OF DISTURBANCE: 3.16 Ac.

PROJECT DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO), INDIRECTLY OWNED BY THE WILLIAMS COMPANIES, INC. (WILLIAMS) IS SEEKING AUTHORIZATION FROM THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) UNDER SECTION 7(C) OF THE NATURAL GAS ACT AND PART 157 OF THE COMMISSIONS REGULATIONS, TO CONSTRUCT, OWN, OPERATE, AND MAINTAIN THE PROPOSED PROJECT FACILITIES ASSOCIATED WITH THE REGIONAL ENERGY ACCESS EXPANSION PROJECT (PROJECT). THE PROJECT IS AN EXPANSION OF TRANSCO'S EXISTING NATURAL GAS TRANSMISSION SYSTEM THAT WILL ENABLE TRANSCO TO PROVIDE AN INCREMENTAL 829,400 DEKATHERMS PER DAY (DTH/D) OF YEAR-ROUND FIRM TRANSPORTATION CAPACITY FROM THE MARCELLUS SHALE PRODUCTION AREA IN NORTHEASTERN PENNSYLVANIA (PA) TO MULTIPLE DELIVERY POINTS ALONG TRANSCO'S LEIDY LINE IN PA, TRANSCO'S MAINLINE AT THE STATION 210 ZONE 6 POOLING POINT IN MERCER COUNTY, NEW JERSEY (NJ) AND MULTIPLE DELIVERY POINTS IN TRANSCO'S ZONE 6 IN NJ, PA, AND MARYLAND (MD).

THE EXISTING COMPRESSOR STATION 200 COMPONENT OF THE PROJECT IS LOCATED IN EAST WHITELAND TOWNSHIP, CHESTER COUNTY. PROPOSED ARE COMPRESSOR STATION MODIFICATIONS TO CONNECT THE EXISTING TRANSCO MAINLINE A INTO SUCTION TO SUPPORT SOUTH FLOW.

THIS POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN HAS BEEN DEVELOPED FOR THE COMPRESSOR STATION 200 SITE. THE PCSM PLAN SHALL BE DESIGNED AND IMPLEMENTED TO BE CONSISTENT WITH THE PCSM PLAN UNDER 25 PA. CODE § 102.8 (RELATING TO PCSM REQUIREMENTS). THE WORK AND DISTURBED AREAS ARE LOCATED WITHIN TRANSCO PROPERTY, EXISTING EASEMENTS OR LEGALLY OBTAINED WORKSPACE. THE LIMIT OF DISTURBANCE (LOD) FOR THE COMPRESSOR STATION 200 SITE WILL BE APPROXIMATELY 3.16 ACRES.



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

REGIONAL ENERGY ACCESS EXPANSION PROJECT COMPRESSOR STATION 200

EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

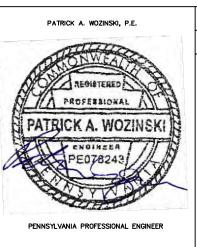
APRIL 2021 REVISED MARCH 2022

LOCATION MAP



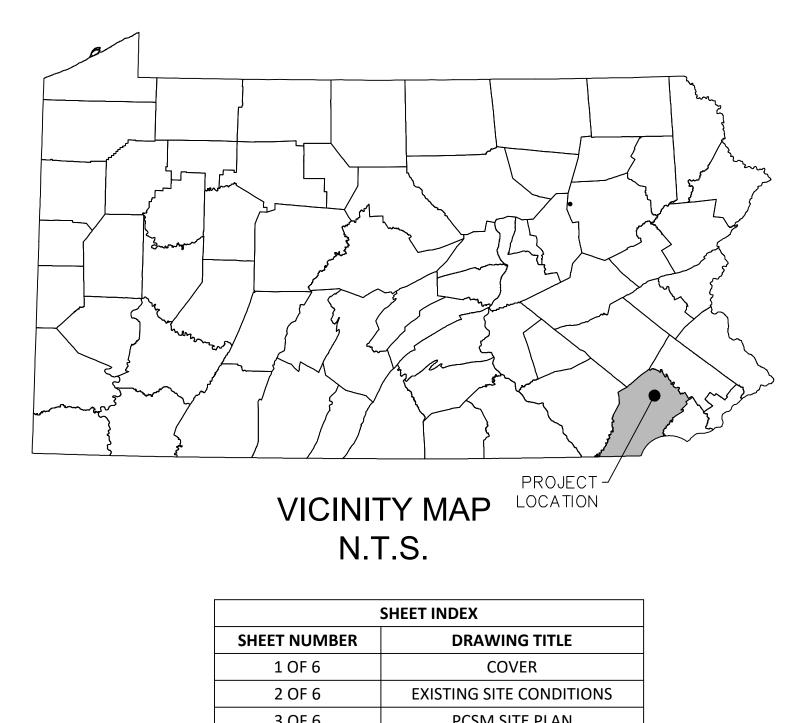
PENNSYLVANIA ACT 287 (1974) AS AMENDED BY PENNSYLVANIA LESS THAN THREE (3) WORKING DAYS AND NO MORE THAN (10) WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.





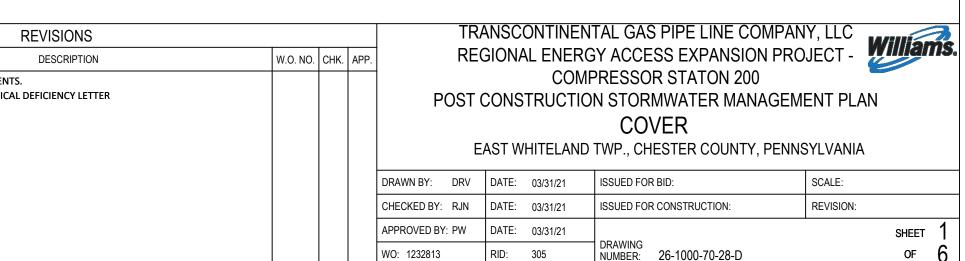
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LLC T PLAN PROJECT



NA	ME	DESIGNATED USE	EXISTING US					
RECEIVING WATERS								
	5-6 OF 6	DETAILS						
	4 OF 6	NOTES						
	3 OF 6	PCSMI SITE PLA	N					

NAME	DESIGNATED USE	EXISTING USE
VALLEY CREEK (EAST)*	EV, MF	N/A
VALLEY CREEK (WEST)	CWF, MF	N/A
*DISTURBANCE LOCATED IN THIS WATERSHED ONLY		

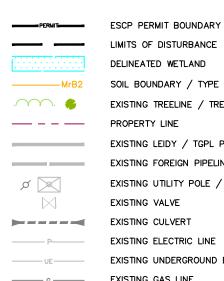




- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO IN 2020.
 PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
 PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
 STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING IN 2020.
 DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL. DERIVED FROM CPS OBSERVATION

- ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

LEGEND



DELINEATED WETLAND SOIL BOUNDARY / TYPE EXISTING TREELINE / TREE/SHRUB EXISTING LEIDY / TGPL PIPELINES EXISTING FOREIGN PIPELINES EXISTING UTILITY POLE / TOWER EXISTING VALVE EXISTING ELECTRIC LINE EXISTING UNDERGROUND ELECTRIC LINE _____ G _____ EXISTING GAS LINE

0 0 ø

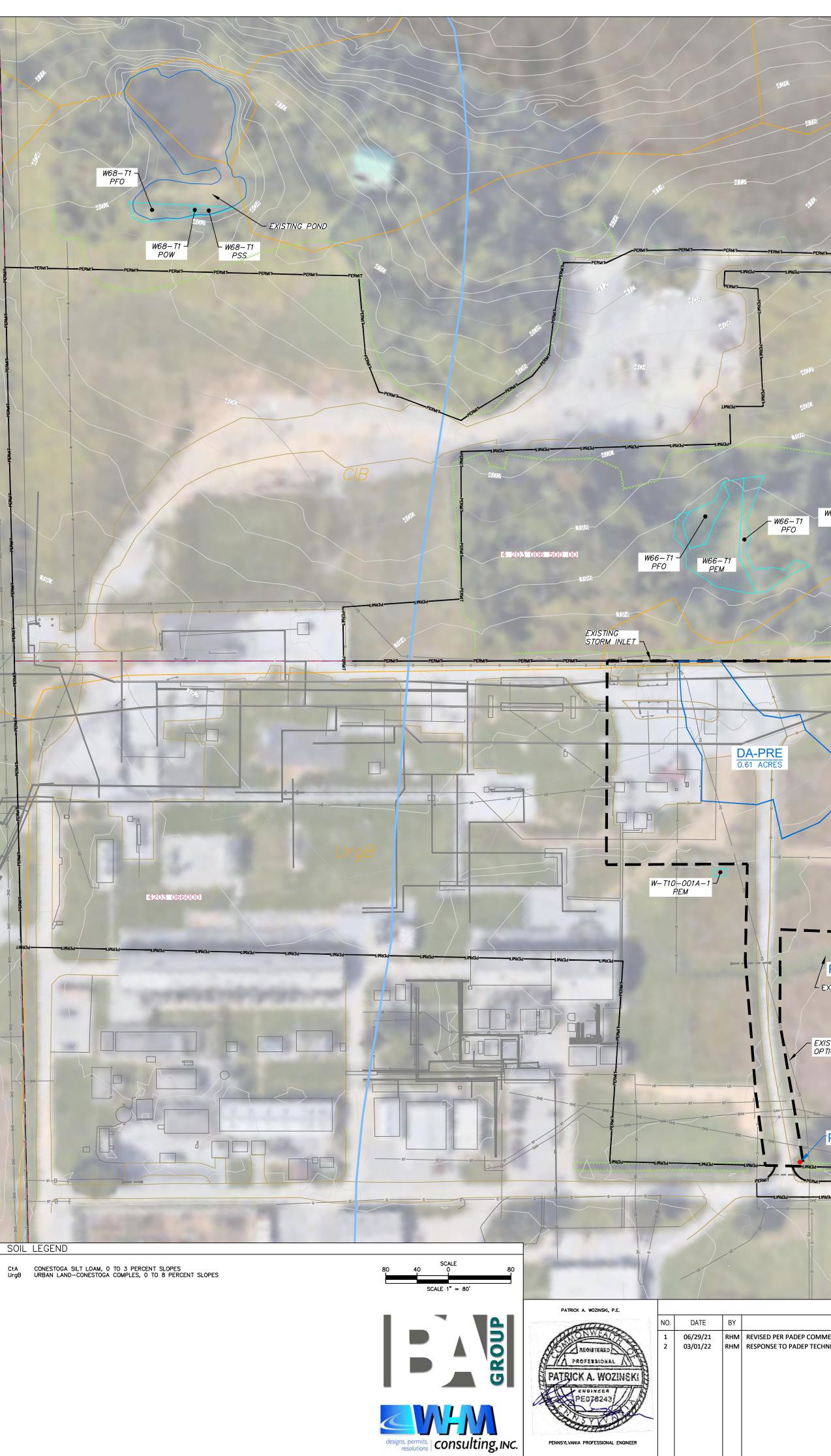
------ EXISTING TELEPHONE LINE ------ EXISTING FIBER OPTIC LINE EXISTING STORM INLET EXISTING SANITARY MANHOLE EXISTING COMMUNICATION/ELECTRIC MANHOLE 🚟 EXISTING FIRE HYDRANT EXISTING POWER POLE ------ EXISTING EASEMENT ---- EXISTING RIGHT-OF-WAY EXISTING WETLAND

EXISTING EDGE OF GRAVEL ROAD

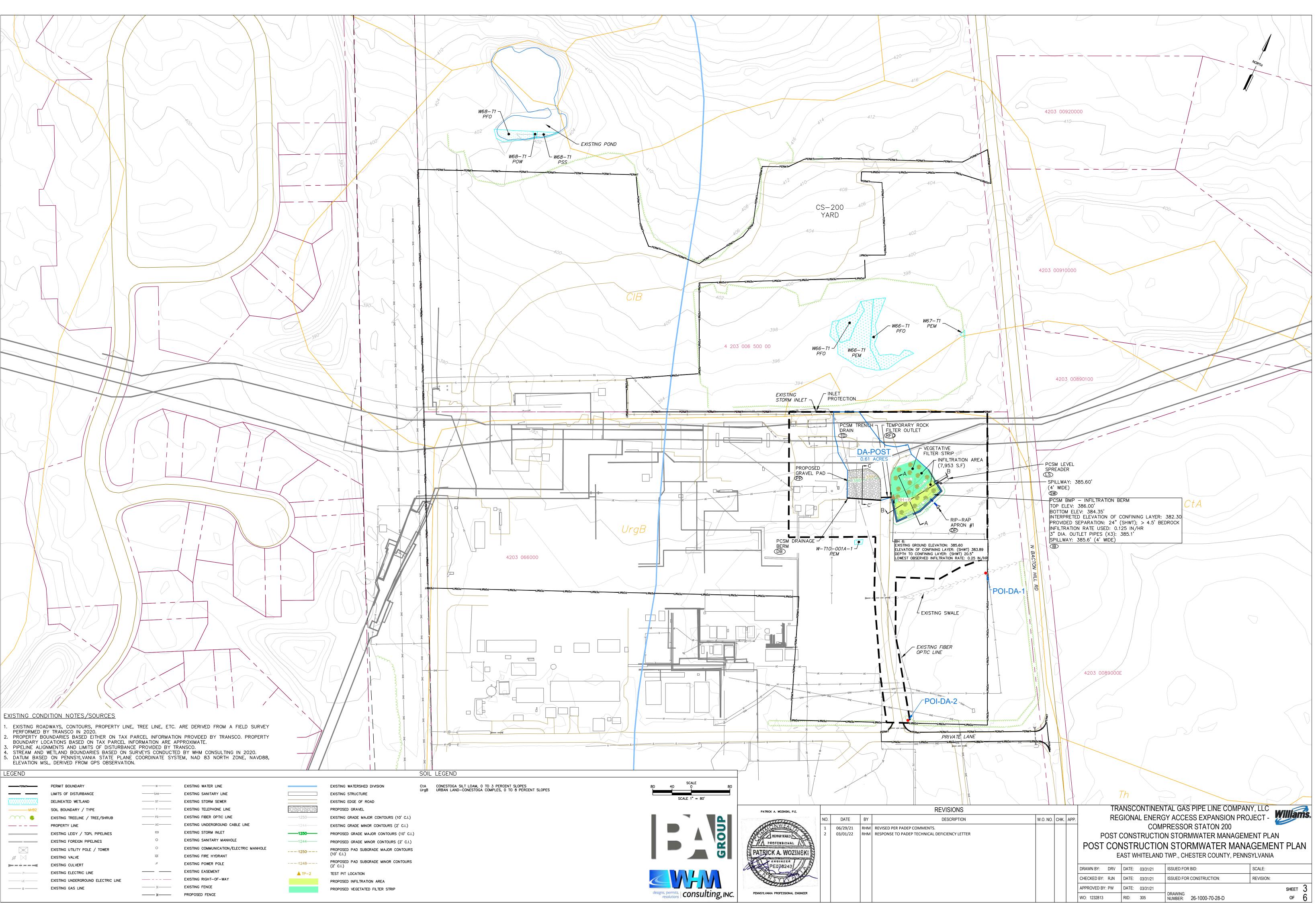
EXISTING GRADE MINOR CONTOURS (2' C.I.)

EXISTING STRUCTURE

- ▲ TP-2 TEST PIT LOCATION



PENI TRGA TRGA TRGA TRGA TRGA TRGA TRGA TRGA	4203 009200							
PERMIT PERMIT								
POI-DA-PRE-1 XISTING SWALE		4203_008900	10E					
POI-DA-PRE-2	FRAM							
REVISIONS DESCRIPTION MENTS. NICAL DEFICIENCY LETTER	W.O. NO. CHK. APP.	RI POST	EGIONAL E CONSTR EX EAST WHIT DATE: 03/3 DATE: 03/3	ENERG COMP UCTION ISTIN ELAND 31/21 31/21	Y ACCESS RESSOR S N STORMW G CONDI TWP., CHEST ISSUED FOR BID: ISSUED FOR CONS	PE LINE COMPA EXPANSION PRO TATON 200 ATER MANAGEN TIONS PLAN ER COUNTY, PENN STRUCTION:	OJECT - 🖉	SHEET 2 OF 6



5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVE ELEVATION MSL, DERIVED FROM GPS OBSERVATION.	50,
LEGEND	

RESOLUTION TO SOIL LIMITATIONS TRANSCO PROPOSES THE FOLLOWING RESOLUTIONS TO COMPENSATE FOR SOIL LIMITATIONS SUMMARIZED IN TABLE 3 ABOVE: 1. TO OFFSET THE CAVING OF CUTBANKS, TRENCHING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE OSHA TECHNICAL MANUAL FOR TRENCHING.

- 2. PREVENTATIVE COATINGS SHALL BE USED TO PREVENT CORROSION OF CONCRETE AND/ OR STEEL.
- 3. 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.
- 4. 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.
- 5. 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.
- 6. 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.
- 7. 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.
- 8. 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 LIMITS OF DISTURBANCE
SOIL MAPPING UNIT	SOIL SERIES
CtA	CONESTOGA SILT LOAM, 0 TO 3 PERCENT SLOPES
UrgB	URBAN LAND-CONESTOGA COMPLEX, 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	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	H YDRIC/H YDRIC INCLUSIONS	LOW STRENGTH/ LANDSLIDE PRONE	SLOW PERCOLATION	DIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK – SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
CONESTOGA	CtA, UrgB	х	c/s						x	Х	х		x		х		

CHARACTERIZATIONS OF EARTH DISTURBANCE ACTIVITIES, INCLUDING PAST, PRESENT AND PROPOSED LAND USES

THE LIMIT OF DISTURBANCE (LOD) FOR COMPRESSOR STATION 200 WILL BE APPROXIMATELY 3.16 ACRES. THE COMPRESSOR STATION 200 WILL INVOLVE THÉ INSTALLATION A GRAVEL PAD, PROPOSED BMPS AND OTHER COMPRESSOR STATION MODIFICATIONS. TRANSCO WILL USE AND IMPLEMENT THE PRACTICES, MEASURES, AND DETAILS TO CONTROL SOIL EROSION AND OFF-SITE SEDIMENTATION DURING CONSTRUCTION. USING DATA TAKEN FROM GOOGLE EARTH AND MULTI-RESOLUTION LAND CHARACTERISTICS (MRLC) CONSORTIUM WEBSITE (<u>HTTPS://WWW.MRLC.GOV/VIEWER/</u>), IT APPEARS THAT LAND USE FOR THE PAST FEW DECADES HAS BEEN UTILIZED AS A COMPRESSOR STATION SITE. THE CONTRACTOR WILL CONSTRUCT STORMWATER BMPS TO MITIGATE THE INCREASE IN VOLUME AND PEAK RATES ASSOCIATED WITH CONSTRUCTION. THE PROPOSED BMPS ARE DESIGNED TO STORE THE NET INCREASE IN VOLUME BETWEEN THE PRE- AND POST-DEVELOPMENT 2-YEAR RAIN EVENTS.

BMP DESCRIPTION NARRATIVE

A DRAINAGE BERM, TRENCH DRAIN, VEGETATED FILTER STRIP AND AN INFILTRATION BERM WILL BE INSTALLED ACROSS THE DEVELOPED AREA TO CONVEY THE NET INCREASE IN VOLUME BETWEEN THE PRE- AND POST-DEVELOPMENT 2-YEAR STORM EVENTS AND MITIGATE THE INCREASE (PRE-POST DEVELOPMENT) IN PEAK RUNOFF FOR THE 1-, 2-, 10-, 25-, 50-, AND 100-YEAR STORM EVENTS. A DRAINAGE BERM AND TRENCH DRAIN WILL BE CONSTRUCTED TO DIRECT THE MAJORITY OF RUNOFF FROM THE DEVELOPED AREA TO THE INFILTRATION BERM. ALL BMP DESIGN CALCULATIONS AND DRAWINGS ARE PROVIDED IN ATTACHMENT 4 AND PCSM PLAN SET. AS OUTLINED IN THE LETTER FROM CIVIL & ENVIRONMENTAL CONSULTANTS, INC., ATTACHED TO THE APPLICATION, THE SITE IS SUITABLE FOR THE PROPOSED METHOD OF INFILTRATION.

COMPRESSOR STATION 200 SEQUENCE OF PCSM BMP INSTALLATION

THE PCSM BMPS SHOULD BE INSTALLED IN A MANNER DESIGNED TO:

- 1. PROTECT BMP AREAS ASSOCIATED WITH INFILTRATION FROM COMPACTION PRIOR TO AND DURING INSTALLATION. DECOMPACT SOILS AS NECESSARY.
- 2. MAINTAIN PROPER PERIMETER AND EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- 3. VALVE YARD PAD*
- a. AS THE VALVE YARD PAD REACHES FINAL GRADE, ENSURE THE SUBGRADE ELEVATIONS DIRECT STORMWATER RUNOFF TO DRAINAGE BERM
- b. COMPACT THE SUBGRADE FILL TO LIMIT INFILTRATION IN THE PAD AREA.
- c. PLACE AGGREGATE FINAL COVER TO ACHIEVE FINAL GRADE ON VALVE YARD PAD.

4. INSTALL INFILTRATION BERM AND VEGETATED FILTER STRIP*

- a. 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.
- b. LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE. IF SOILS HAVE BECOME COMPACTED, DECOMPACT INFILTRATION AREA AS NECESSARY.
- C. 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.
- d. PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM AND IN THE FILTER STRIP AREA FROM COMPACTION. IF COMPACTION OF THIS AREA DOES OCCUR, SCARIFY THE SOIL TO A DEPTH OF AT LEAST 8 INCHES.
- e. COMPLETE FINAL GRADING OF THE BERM AND FILTER STRIP AFTER THE TOP LAYER OF SOIL IS ADDED. TAMP SOIL DOWN LIGHTLY AND SMOOTH SIDES OF THE BERM. THE CREST AND BASE OF THE BERM SHOULD BE AT LEVEL GRADE.
- f. PLANT BERM AND FILTER STRIP WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
- g. MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.
- 5. DRAINAGE BERM WITH TRENCH DRAIN*
- a. CONSTRUCT DRAINAGE BERM AND TRENCH DRAIN SHOWN IN THE PLAN. INSTALL OUTLET PROTECTION AS REQUIRED.
- 6. ALL TEMPORARY E&S BMPS WILL BE REMOVED FOLLOWING SITE STABILIZATION. DO NOT REMOVE OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.
- 7. ALL INSTALLED BMPS WILL BE MONITORED UNTIL FINAL SITE STABILIZATION IS ACHIEVED.*
- 8. LONG TERM OPERATION AND MAINTENANCE GUIDELINES DISCUSSED BELOW SHALL BE FOLLOWED.
- 9. SUBMIT NOTICE OF TERMINATION ONCE THE PROJECT IS COMPLETE AND PERMANENTLY STABILIZED.

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

SEEDING AND MULCHING:

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 SEEDED 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

BE APPLIED AT A RATE OF AT LEAST 3 TONS PER ACRE.

TABLE 11.2 SOIL AMENDMENT APPLICATION RATE EQUIVALENTS									
	PERMANEI	NT SEEDING APPL	ICATION RATE						
SOIL AMENDMENT	PER ACRE	PER 1,000 SF	PER 1,000 SY	NOTES					
AGRICULTURAL LIME	6 TONS	20 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQ. IN AGRICULTURAL FIELDS					
10-20-20 FERTILIZER 1,000 LBS.		25 LBS. 210 LBS.		OR AS PER SOIL TEST; MAY NOT BE REQ. IN AGRICULTURAL FIELDS					
	TEMPORA	RY SEEDING APPL	ICATION RATE						
AGRICULTURAL LIME	1 TON	4 LBS.	410 LBS.	TYP. NOT REQ. FOR TOPSOIL STOCKPILES					
10-10-10 FERTILIZER	500 LBS.	12.5 LBS.	100 LBS.	TYP. NOT REQ. FOR TOPSOIL STOCKPILES					

NOTE: A COMPOST BLANKET WHICH MEETS THE STANDARDS OF THIS CHAPTER MAY BE SUBSTITUTED FOR THE SOIL AMENDMENTS SHOWN IN TABLE 11.2

TABLE 11.3										
			Plant	Tolerances	of Soil Limitati	ion Factors				
			Tol	erates			Minim	um Seed Sp	ecifications3	
Species	Growth Habit1	Wet Soil	Dry Site	Low Fertility	Acid Soil (Ph 5-5.5)2	Purity (%)	Ready Germ (%)	Hard Seed (%)	Total Germ (%)	Seeds/lb (1,000s)
Deertongue Weeping lovegrass	bunch bunch	yes no	yes yes	yes yes	yes yes	95 97	75 75		75 75	250 1,500
Switchgrass4 Big bluestem	bunch bunch	yes no	yes yes	yes yes	yes yes		•	PLS) PLS)		390 150
Cool-Season Grasses										
Redtop	sod	yes	yes	yes	yes	92	80		80	5,000
Fine fescues Perennial ryegrass	sod bunch	no yes	no no	yes no	no no	95 95	80 85		80 85	400 227
Annual ryegrass Kentucky bluegrass	bunch sod	yes no	no no	yes no	no no	95 85	85 75		85 75	227 2,200
Reed canarygrass Orchardgrass	sod bunch	yes yes	yes yes	yes yes	no yes	95 95	70 80		70 80	520 654
Timothy Smooth bromegrass	bunch sod	yes no	no yes	yes yes	yes no	95 95	80 80		80 80	1,230 136
Legumes5										
Birdsfoot trefoil ⁶	bunch	yes	no	yes	yes	98	60	20	80	400
Flatpea Serecia lespedeza	sod bunch	no no	no yes	yes yes	yes yes	98 98	55 60	20 20	75 80	10 335
Cereals			•	•			•			
Winter wheat Winter rye	bunch bunch	no no	no no	no yes	no yes	98 98	85 85		85 85	15 18
Spring oats Sundangrass	bunch bunch	no no	no yes	no no	no no	98 98	85 85		85 85	13 55
Japanese millet	bunch	yes	no	yes	yes	98	80		80	155

¹ GROWTH HABIT REFERS TO THE ABILITY OF THE SPECIES TO EITHER FORM A DENSE SOD BY VEGETATIVE MEANS (STOLONS, RHIZOMES, OR ROOTS) OR REMAIN IN A BUNCH OR SINGLE PLANT FORM. IF SEEDED HEAVILY ENOUGH, EVEN BUNCH FORMERS CAN PRODUCE A VERY DENSE STAND. THIS IS SOMETIMES CALLED A SOD, BUT NOT IN THE SENSE OF A SOD FORMED BY VEGETATIVE MEANS. ² ONCE ESTABLISHED, PLANS MAY GROW AT A SOMEWHAT LOWER pH, BUT COVER GENERALLY IS ONLY ADEQUATE AT pH

- 6.0 OR ABOVE.
- ⁴ SWITCHGRASS SEED IS SOLD ONLY IN THE BASIS OF PLS.
- SATISFACTORY FOR FLATPEA.
- ROOT ROTS MAY INJURE STANDS.

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 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

TOPSOIL WILL BE REPLACED PRIOR TO STABILIZATION. DISTURBED AREAS SHALL BE SEEDED 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

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

³ MINIMUM SEED LOTS ARE TRULY MINIMUM, AND SEED LOTS TO BE USED FOR REVEGETATION PURPOSES SHOULD EQUAL OR EXCEED THESE STANDARDS. THUS, DEERTONGUE GRASS SHOULD GERMINATE 75% OR BETTER. COMMONLY, SEED LOTS ARE AVAILABLE THAT EQUAL OR EXCEED MINIMUM SPECIFICATIONS. REMEMBER THAT DISTURBED SITES ARE ADVERSE FOR PLAN ESTABLISHMENT. READY GERMINATION REFERS TO SEED THAT GERMINATES DURING THE PERIOD OF THE GERMINATION TEST AND THAT WOULD BE EXPECTED, IF CONDITIONS ARE FAVORABLE, TO GERMINATE RAPIDLY WHEN PLANTED. THE OPPOSITE OF READY GERMINATION IS DORMANT SEED, OF WHICH HARD SEED IS ONE TYPE.

⁵ NEED SPECIFIC LEGUME INOCULANT. INOCULANT SUITABLE FOR GARDEN PEAS AND SWEETPEAS USUALLY IS

⁶ BIRDSFOOT TREFOIL IS ADAPTED OVER THE ENTIRE STATE, EXCEPT IN THE EXTREME SOUTHEAST WHERE CROWN AND

	TABLE 11.4		
	Recommended Seed N	Aixtures	
Mixture		Seeding Rate	-Pure Live Seed ¹
Number	Species	Most Sites	Adverse Sites
1 ²	Spring oats (spring), or	64	96
	Annual ryegrass (spring or fall), or	10	15
	Winter Wheat (fall), or	90	120
	Winter rye (fall)	56	112
2 ³	Fine fescue, or	35	40
	Kentucky bluegrass, plus	25	30
	Redtop ⁴ , or	3	3
	Perennial ryegrass	15	20
11	Deertongue, plus	15	20
	Birdsfoot trefoil	6	10
12 ⁵	Switchgrass, or	15	20
	big Bluestem, plus	15	20
	Birdsfoot trefoil	6	10
13	Orchardgrass, plus	20	30
	Smooth bromegrass, plus	25	35
	Birdsfoot trefoil	6	10

PENN STATE, "EROSION CONTROL AND CONSERVATION PLANTINGS ON NONCROPLAND" 1. 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.
- 2. 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.
- 3. THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN 4 INCHES. 4. 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.
- 5. DO NOT MOW SHORTER THAN 9 TO 10 INCHES.

PCSM CRITICAL STAGES

CRITICAL POINTS REQUIRING VISITS BY THE LICENSED PROFESSIONAL OR DELEGATE ARE AS FOLLOWS: THE PCSM BMPS SHOULD BE INSTALLED IN A MANNER DESIGNED TO:

- 1. UPON COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO ASCERTAIN THE INFILTRATION BERM AND VEGETATED FILTER STRIP AREA HAS BEEN FLAGGED AND FENCE ERECTED TO PREVENT ACCESS TO THE AREA.
- 2. AT COMPLETION OF DRAINAGE BERM TO ENSURE IT HAS 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.
- 3. AT THE BEGINNING OF CONSTRUCTION OF THE INFILTRATION BERM AND VEGETATED FILTER STRIP TO ENSURE THE INFILTRATION AREA HAS NOT BEEN COMPACTED BY CONSTRUCTION ACTIVITIES.
- 4. DURING CONSTRUCTION OF THE INFILTRATION BERM THE LICENSED PROFESSIONAL WILL OBSERVE THAT THE BMP IS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- 5. FOLLOWING INSTALLATION OF THE VALVE YARD PAD SUBGRADE TO ENSURE STORMWATER FLOW IS DIRECTED TO THE DIVERSION BERM.
- 6. FOR FINAL INSPECTION OF CONSTRUCTED BMPS TO VERIFY ALL INSTALLED BMPS ARE INSTALLED AND NOT IMPACTED BY CONSTRUCTION ACTIVITIES/RUNOFF.
- 7. 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. BMPS SHOULD BE INSPECTED FOR CLOGGING FROM SEDIMENT OF 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 INSPECTIONS SHOULD ALSO BE MADE AFTER EVERY STORM EVENT GREATER THAN 1 INCH DURING THE ESTABLISHMENT PERIOD. EROSION CAUSED BY DISCHARGES OF BMP'S WITHIN THE SITE WILL BE REPAIRED AND STABILIZED.

TRENCH DRAINS SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS AND CLEANED AS NEEDED. VEGETATION ALONG THE SURFACE OF THE INFILTRATION BERM AND VEGETATED FILTER STRIP SHOULD BE MAINTAINED IN GOOD CONDITIONS, VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON AN INFILTRATION BERM AND VEGETATED FILTER STRIP AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. INSPECT THE BERM AFTER RUNOFF EVENTS AND MAKE SURE THAT RUNOFF DRAINS WITHIN 72 HOURS.

LEVEL SPREADER SHALL BE MONITORED FOR 2 YEARS ON A QUARTERLY BASIS AND SEMI-ANNUALLY THEREAFTER. REMOVE DEBRIS, OVERGROWN VEGETATION, AND OTHER BLOCKAGES AS NEEDED. 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.

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 THE DISPERSION METHOD TO ADDRESS THE SOURCE OF EROSION. SEDIMENT SHOULD BE REMOVED WHEN THE BMP IS THOROUGHLY DRY. TRASH AND DEBRIS REMOVED FROM THE SITE SHOULD BE DEPOSITED ONLY AT SUITABLE DISPOSAL/RECYCLING SITES AND MUST COMPLY WITH APPLICABLE LOCAL, STATE, AND FEDERAL WASTE REGULATIONS. 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. 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. DAMAGED BMPS WILL BE REPAIRED AS SOON AS POSSIBLE UPON DISCOVERY. REPAIRS WILL BE MADE TO RESTORE DAMAGED BMPS TO THE ORIGINAL DESIGN CONDITION. MOWING WILL BE PERFORMED ANNUALLY.

THE VEGETATED FILTER STRIPS SHOULD BE PROPERLY MAINTAINED TO ENSURE THEIR EFFECTIVENESS. SEDIMENT AND DEBRIS SHOULD BE ROUTINELY REMOVED (BIANNUALLY AT MINIMUM), OR UPON OBSERVATION, WHEN BUILDUP EXCEEDS 2 INCHES IN DEPTH OVER THE FILTER STRIP. IF EROSION IS OBSERVED, MEASURES SHOULD BE TAKEN TO MAINTAIN SHEET FLOW OVER THE FILTER STRIP. RE-GRADING MAY ALSO BE REQUIRED WHEN POOLS OF STANDING WATER ARE OBSERVED ALONG THE SLOPE. GRASS COVER SHOULD BE MOWED, WITH LOW GROUND PRESSURE EQUIPMENT, AS NEEDED TO MAINTAIN A HEIGHT OF 4-6 INCHES. MOWING WILL BE PERFORMED ANNUALLY. UNWANTED OR INVASIVE GROWTH SHOULD BE REMOVED ON AN ANNUAL BASIS. ALL MAINTENANCE/MOWING SHALL BE PERFORMED WHEN THE SOIL IS DRY, TO PREVENT TRACKING DAMAGE, SOIL COMPACTION, AND FLOW CONCENTRATIONS.

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.



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MATERIAL RECYCLING AND DISPOSAL

FOR RE-USE.).

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.DEPWEB.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

ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.

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 FARTH.

STORMWATER RUNOFF ASSOCIATED WITH THE INSTALLATION OF THE PAD 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 THIS WARMEST SURGE OF STORMWATER. BASED 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

> EXISTING COMPRESSOR STATION 200 IS LOCATED WITHIN A EV WATERSHED, THEREFORE IMPACTS TO A EV WATERSHED ARE UNAVOIDABLE. TRANSCO DETERMINED THERE ARE NO COST-EFFECTIVE AND ENVIRONMENTALLY SOUND VIABLE NON-DISCHARGE ALTERNATIVES FOR THE PROJECT.

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. WHERE POSSIBLE, THE LOD WAS DECREASED TO AVOID ADDITIONAL DISTURBANCE TO THE EXTENT PRACTICAL.

ANTI-DEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT) STANDARDS HAVE BEEN PROPOSED FOR COMPRESSOR STATION 200 BECAUSE THERE ARE NO VIABLE NON-DISCHARGE ALTERNATIVES. THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THE PROJECT OUTLINES A MORE STRINGENT DESIGN AND E&S BMPS THAT MEET ABACT STANDARDS.

THE COMPRESSOR STATION 200 IS LOCATED IN EV WATERSHEDS AND CONSTRUCTION ACTIVITIES IN THESE AREAS WILL RESULT IN INCREASED DISCHARGE OF STORMWATER TO SURFACE WATERS WHICH WILL BE MITIGATED BY THE IMPLEMENTATION OF POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) BMP'S, PROPOSED PCSM BMPS ARE DESIGNED WITH STORMWATER VOLUME REDUCTION AND WATER QUALITY TREATMENT MAXIMIZED TO THE EXTENT PRACTICABLE WITHIN THE SITE CONSTRAINTS TO MAINTAIN AND PROTECT EXISTING WATER QUALITY AND EXISTING AND DESIGNATED USES.

<u>RIPARIAN BUFFERS</u>

COMPRESSOR STATION 200 IS NOT LOCATED WITHIN A RIPARIAN BUFFER.

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 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).

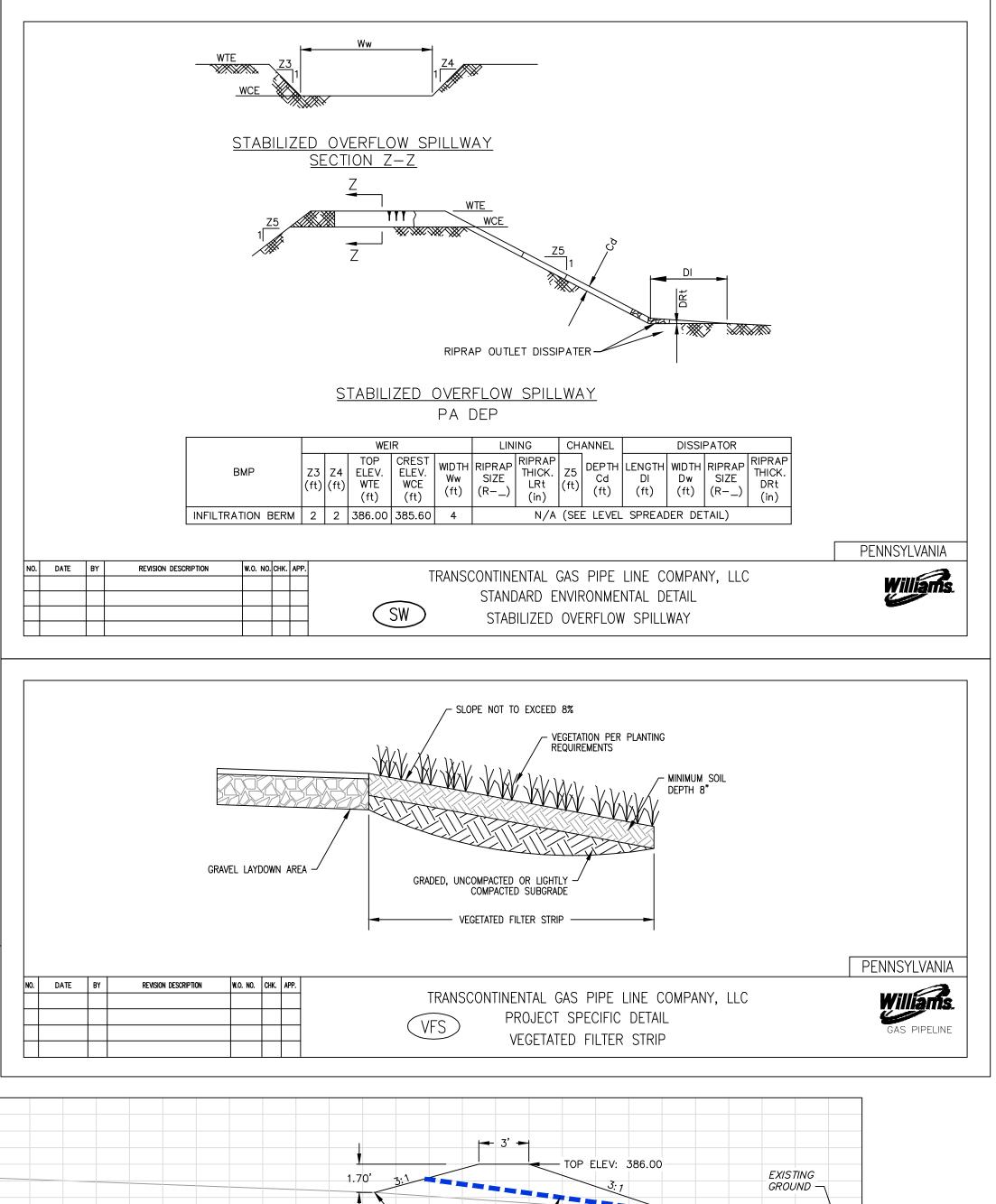
NON-STRUCTURAL AND STRUCTURAL WATER QUALITY BMP DESCRIPTION

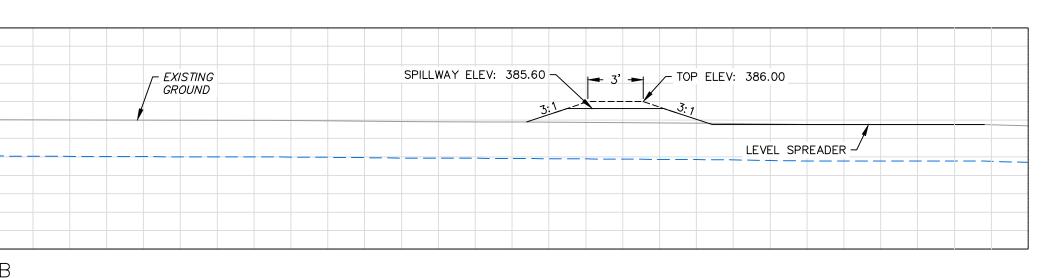
LIMIT OF DISTURBANCE WILL BE REDUCED TO THE MAXIMUM EXTENT POSSIBLE BY DISTURBING ONLY THOSE AREAS NECESSARY TO COMPLETE THE PROPOSED EARTHWORK AND BMP INSTALLATIONS.

SENSITIVE FEATURES SUCH AS WETLANDS AND RIPARIAN BUFFERS WILL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBIF. 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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REVISIONS **REGIONAL ENERGY ACCESS EXPANSION PROJECT -**W.O. NO. CHK. APP DESCRIPTION **COMPRESSOR STATON 200** OMMENTS. TECHNICAL DEFICIENCY LETTER POST CONSTRUCTION STORMWATER MANAGEMENT PLAN NOTES EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA DRAWN BY: DRV DATE: 03/31/21 ISSUED FOR BID: SCALE: CHECKED BY: RJN DATE: 03/31/21 ISSUED FOR CONSTRUCTION: REVISION: APPROVED BY: PW DATE: 03/31/21 SHEET WO: 1232813 RID: 305 NUMBER: 26-1000-70-28-D OF

	- CLAY	Ww
INFILTRATION AREA	(OPTIONAL) STABILIZED (OVERFL
FLOW	SEC	CTION Z
FILL J IDEAL SUBSTRATE LAYERS FOR A	BERM	
INFILTRATION BERM NOTES: AN INFILTRATION BERM IS A MOUND OF COMPACTED EARTH WITH SLOPING SIDES THAT IS U		Z
GENTLY SLOPING SITES. MAINTAIN A MINIMUM 2-FOOT SEPARATION TO BEDROCK AND SEASONALLY HIGH WATER TAI	E, PROVIDE DISTRIBUTED INFILTRATION AREA (5:1	
IMPERVIOUS AREA TO INFILTRATION AREA – MAXIMUM), SITE ON NATURAL, UNCOMPACTED S THE BACK OF THE BERM SHALL BE LINED WITH SC150BN LINING WITH A STAPLE D PATTERI OF THE BERM.		
BERMS SHALL HAVE SIDE SLOPES OF 3:1. THE CREST OF THE BERM SHOULD BE LOCATED NEAR ON EDGE OF THE BERM, RATHER TH	IN THE MIDDLE, TO ALLOW FOR A MORE NATURAL,	<u>STABIL</u>
ASYMMETRICALSHAPE. BERMS SHOULD BE VEGETATED USING SEED MIXTURE 1 PLUS 3 FROM TABLE 11.5.		WI TOP
INFILTRATION BERM No.LENGTH OF BERM (ft) (L)HEIGHT OF BERM (ft)BOTTOM ELEV. OF BERM (ft) (B.E.)TOP OF BERM BEL OF BERM (ft)INFILTRATION BERM 1215.61.70384.35386.002	V BEDROCK BELOW SPILLWAY SPILLWAY CROUND ELEV. WIDTH	Z4 ELEV. (ft) WTE (ft) 2 386.00
GEOHAZARD NOTES	NO. DATE BY REVISION DESCRIPTION W.O. NO. CHK. APP.	
 IF SOLUBLE LIMESTONE OR OTHER CARBONATE ROCKS IS ENCOUNTERED, SURFACE WATE ACCORDING TO THE EROSION AND SEDIMENTATION CONTROL PLANS TO PROVIDE POSITIVI EXCAVATIONS, AND EXPOSED ROCK AT ALL TIMES BEFORE, DURING, AND AFTER CONSTRUCTION 	BEST MANAGEMENT PRACTICES SHOULD BE IMPLEMENTED SURFACE WATER DRAINAGE AWAY FROM BUILDING AREAS,	\langle
2. STORMWATER MANAGEMENT PLANS SHOULD ALSO INCORPORATE USE OF WATERTIGHT JOINTS IN OF INFILTRATION, IF USED.	PIPING AND CONSIDERATION OF POTENTIAL ADVERSE IMPACTS	
 IF BEDROCK IS ENCOUNTERED, EXCAVATION OTHER THAN BLASTING SHOULD BE IMPLEMENTED. EXCAVATIONS SHOULD BE CLOSED AS SOON AS POSSIBLE AFTER EXPOSURE. 		
 5. ANY PROPOSED WATER UTILITY TRENCHES SHOULD BE LINED TO PREVENT INFILTRATION A UTILIZED GASKETED JOINTS. 6. SHOULD SINKHOLES OR OTHER SUBSIDENCE CONDITIONS OCCUR, A GEOTECHNICAL ENGINEER 		, J
PROVIDE REMEDIAL RECOMMENDATIONS. 7. GEOTECHNICAL PERSONNEL ARE RECOMMENDED TO BE ON-SITE DURING CONSTRUCTION RECOMMENDED.	AREAS WHERE GEOHAZARD MITIGATION MEASURES ARE	
8. PERIODIC MONITORING OF FIELD CONDITIONS IS RECOMMENDED IN AREAS WHERE DRAINAGE CAN	PENNSYLVANIA	
BY REVISION DESCRIPTION W.O. NO. CHK. APP. TRANSCONTINENTAL GAS STANDARD ENVIR		
IB INFILTRAT	N BERM	-
	NO. DATE BY REVISION DESCRIPTION W.O. NO. CHK. APP. Image: Comparison of the second secon	
PLACE TOPSOIL WITHIN INFILTRATION AREA TO ACHIEVE INDICATED GRAD		
		1.70'
Image: state of the state		
	APPROXIMATE LIMITING ZONE	THI INV. 38
	SECTION A-A NOT TO SCALE	
	PLACE TOPSOIL WITHIN INFILTRATION	
3' TOP ELEV: 386.00	AREA TO ACHIEVE INDICATED GRADES	SPIL
	APPROXIMATE LIMITING ZONE	
	SECTION B-B NOT TO SCALE	
<u>ANTING NOTES:</u> LL PLANTS SHALL BE INSTALLED ACCORDING TO THE ACCEPTABLE STANDARDS OF THE TRADE AND UNDER THE SUPERVISION F A LANDSCAPE PROFESSIONAL WITH SUITABLE PRACTICAL FIELD EXPERIENCE IN PLANT INSTALLATION PROJECTS. ALL PLANT ATERIALS SHALL BE NURSERY GROWN AND SHALL BE GUARANTEED TO BE TRUE TO NAME AND HEALTHY UPON DELIVERY. ANY	STATION 200 PLANTING PLAN Scientific Name Common Name Status Container Spacing Cornus alba redosier dogwood FACW Shrub bare root or 1 gal 20' O.C.	
UBSTITUTIONS BASED UPON AVAILABILITY OR SITE CONDITIONS MUST BE APPROVED BY A PROFESSIONAL WITH EXPERIENCE I TREE AND SHRUB PLANTING DESIGN. HRUBS SHALL BE PLANTED BY DIGGING A HOLE TWICE THE SIZE OF THE WIDTH OF THE ROOTBALL DOWN INTO THE	Cornus amomumsilky dogwoodFACW Shrubbare root or 1 gal20' O.C.Cornus racemosagray dogwoodFAC Shrubbare root or 1 gal20' O.C.Lindera benzoinnorthem spicebushFAC Shrubbare root or 1 gal20' O.C.	
UBSTRATE AT THE POINT OF INSTALLATION. IF THE PLANT IS IN A PLASTIC CONTAINER, THIS SHALL BE CAREFULLY REMOVED O KEEP THE ROOTBALL INTACT. AFTER PLANTING, THE AREA SHOULD BE BACKFILLED AND WATERED. SHRUBS MAY BE ROVIDED WITH SUPPORT STAKES IF THIS IS DEEMED NECESSARY BY THE INSTALLER.	Viburnum dentatumsouthem arrowoodFAC Shrubbare root or 1 gal20' O.C.Viburnum prunifoliumsmooth blackhawFACU Shrubbare root or 1 gal20' O.C.*Select a minimum of three (3) shrub species to be planted in the planting area.	
3' TUBULAR SHRUB SHELTER	SHRUB/CUTTING 20' TYPICAL	
3.5 FOOT WOODEN STAKE		
	SHRUB/CUTTING 20' TYPICAL	
NOTE: SHRUB SHELTERS ARE TO BE MADE	1. TYPICAL SPACING IS APPROXIMATE. ALL PLANTS WILL BE PLANTED IN A GRID TO PROVIDE UNIFORM COVER OF THE MITIGATION AREA BASED ON CENTERS OUTLINED ABOVE. RANDOM ALTERCATION OF THE SHRUBS IN DIFFERENT PLANTING ZONES IS ACCEPTABLE TO PROVIDE	
FROM BIODEGRADABLE PLASTIC TUBING. TYPICAL SHRUB SHELTER DETAIL NOT TO SCALE	GREATER VEGETATIVE DIVERSITY. TYPICAL_SPACING_DETAILTSD	
NOT TO SCALE	NOT TO SCALE	

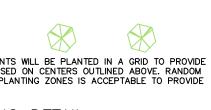




- BOT ELEV: 384.35

THREE 3" DIA. PIPES, INLET

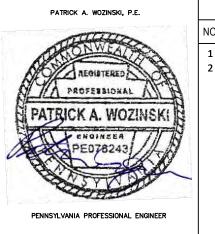
INV. 385.10, OUTLET INV.383.00



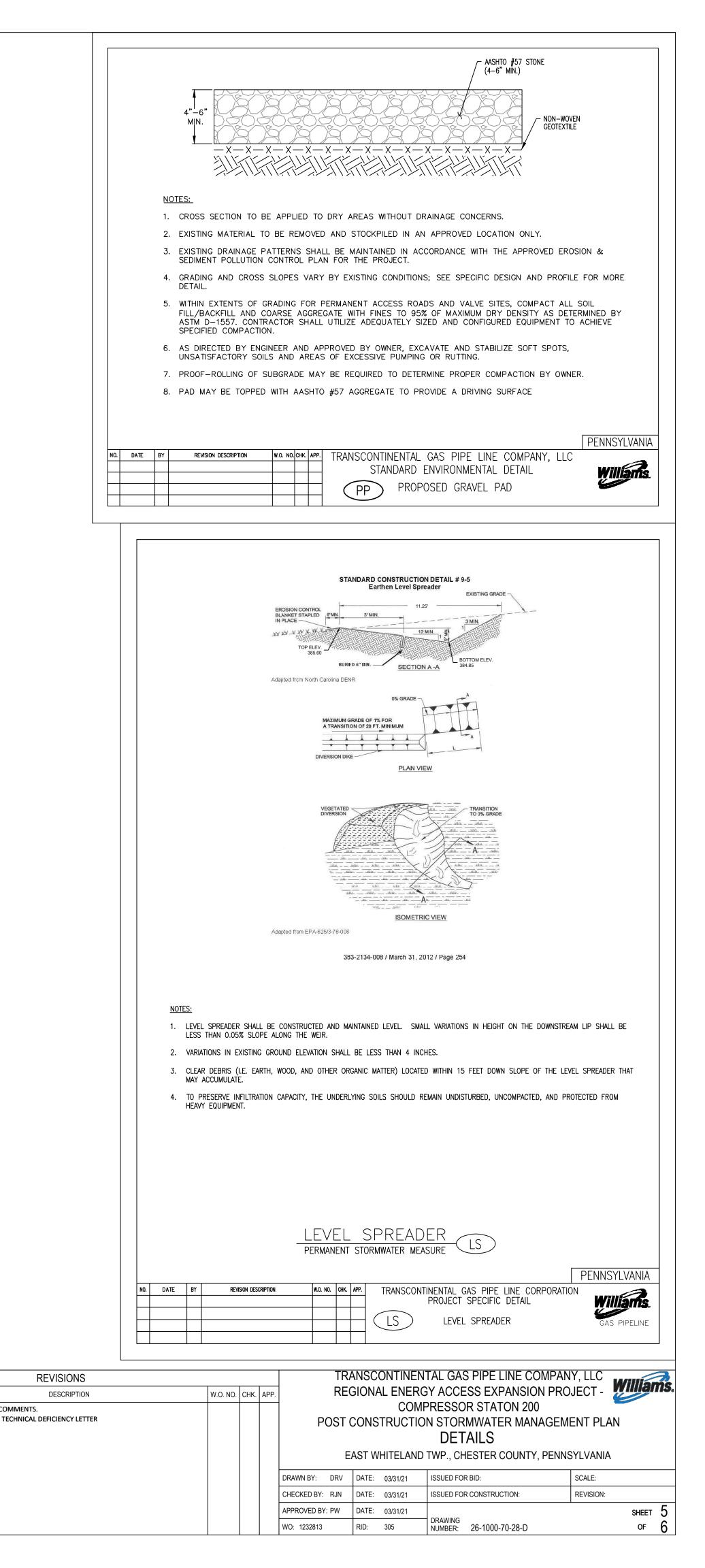


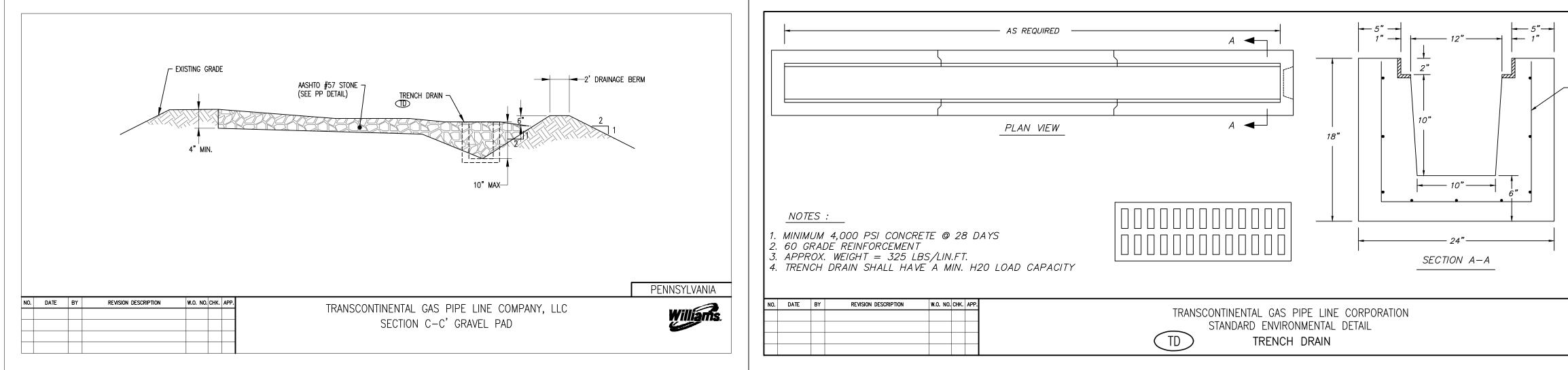


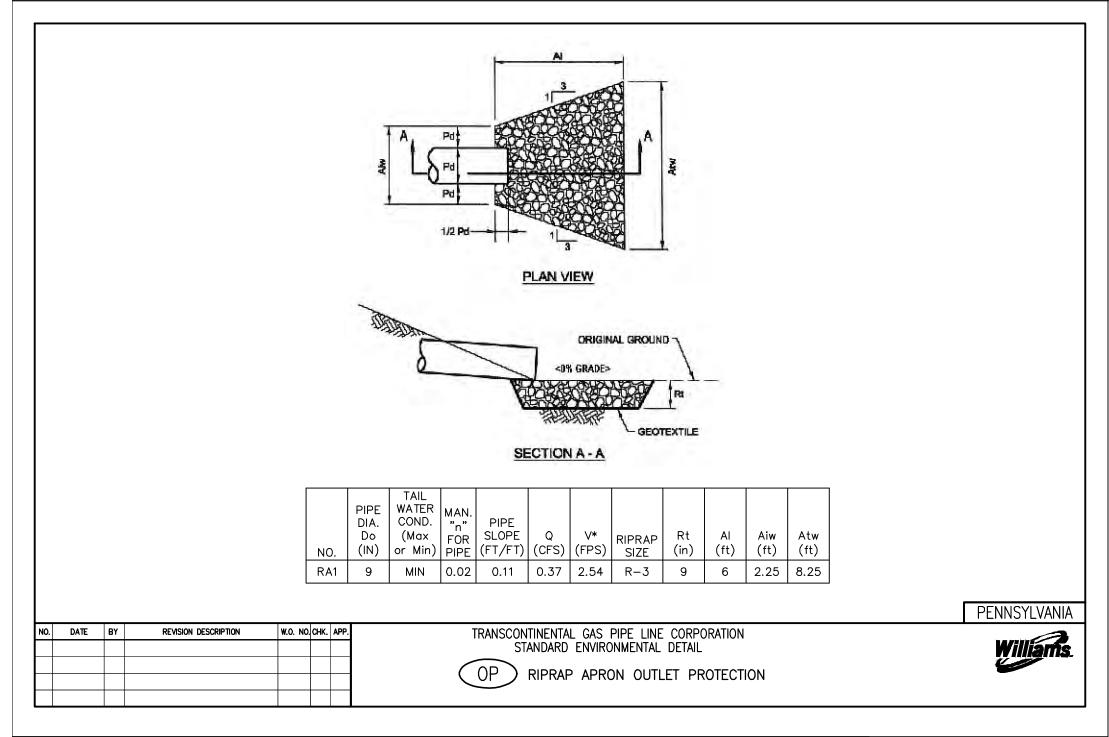
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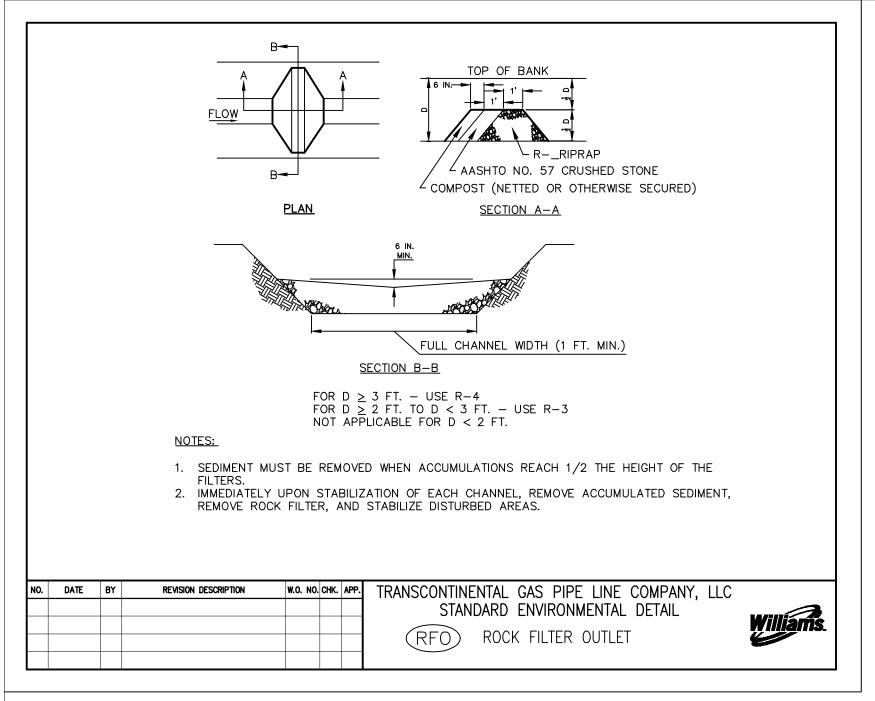


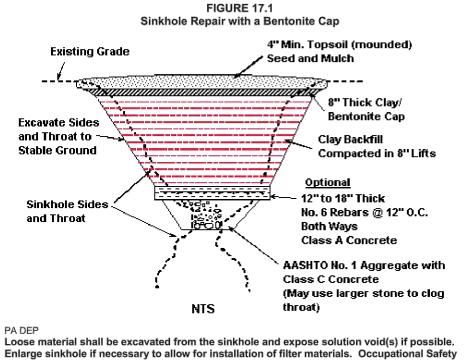
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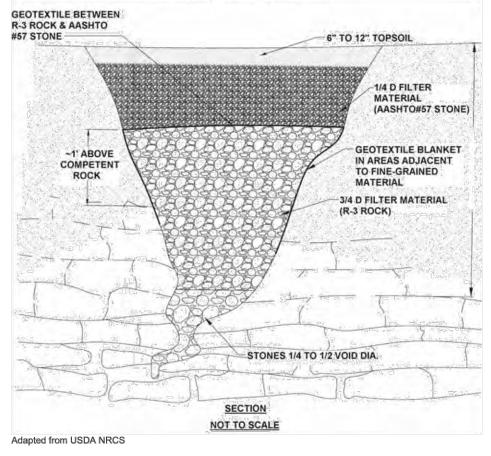






and Health Administration (OSHA) regulations must be followed at all times during excavation. Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.

FIGURE 17.2 Sinkhole Repair with a Pervious Cover



Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.

Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.

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FIGURE 17.4

Sinkhole Repair with Soil Cover -SOIL MATERIAL 9" OF FILTER MATERIAL (TYPE A SAND) -9" OF FILTER MATERIAL (AASHTO #57 STONE) 18" OF FILTER MATERIAL (R-3 ROCK FIELD STONE BRIDGE SECTION NOT TO SCALE Adapted from USDA NRCS

Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.

Select field stone(s) about 1.5 times larger than solution void(s) to form "bridge." Place rock(s) so no large openings exist along the sides. Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.

Minimum thickness of R-3 rock is 18." AASHTO #57 stone thickness shall be a minimum of 9" thick. Minimum thickness of type A sand shall be 9". NOTE: A non-woven geotextile with a burst strength between 100 and 200 psi may be substituted for the AASHTO#57 stone and type A sand.

Soil shall be mineral soil with at least 12 % fines and overfilled by 5% to allow for settlement. Suitable soil from the excavation may be used. Any available topsoil shall be placed on top surface.

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SINKHOLES VARY GREATLY IN SIZE AND NATURE. THEREFORE, SPECIFIC METHODS OF REPAIRING SINKHOLI WILL DEPEND ON SITE CONDITIONS INCLUDING BUT NOT NECESSARILY LIMITED TO:

- SINKHOLE DIAMETER AND DEPTH
- SURFACE SLOPE • PRESENCE OR ABSENCE OF SURFACE RUNOFF
- SOIL TYPE • CONNECTIVITY TO PUBLIC OR PRIVATE WATER SUPPLIES
- PROXIMITY OF SURFACE WATERS
- EASE OF ACCESS BY CONSTRUCTION EQUIPMENT • POTENTIAL DANGER TO THE PUBLIC OR DAMAGE TO STRUCTURES

DUE TO THE VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER. FIGURES 17.1, 17.2 & 17.4 ARE PROVIDED AS GENERAL GUIDELINES FOR THE REPAIR OF SINKHOLES. THEY MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SPECIFIC SITE CONDITIONS. SITE SPECIFIC REPAIR PLANS WILL BE REVIEWED ON A CASE-BY-CASE BASIS.



	PATRICK A. WOZINSKI, P.E.				
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5	PATRICK A. WOZINSKI				
, INC.	PENNSYLVANIA PROFESSIONAL ENGINEER				

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT -REVISIONS W.O. NO. CHK. APP. DESCRIPTION COMPRESSOR STATON 200 COMMENTS. TECHNICAL DEFICIENCY LETTER POST CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA DRAWN BY: DRV DATE: 03/31/21 ISSUED FOR BID: SCALE: ISSUED FOR CONSTRUCTION: REVISION: CHECKED BY: RJN DATE: 03/31/21 APPROVED BY: PW DATE: 03/31/21 SHEET NUMBER: 26-1000-70-28-D ₀ 6 WO: 1232813 RID: 305