

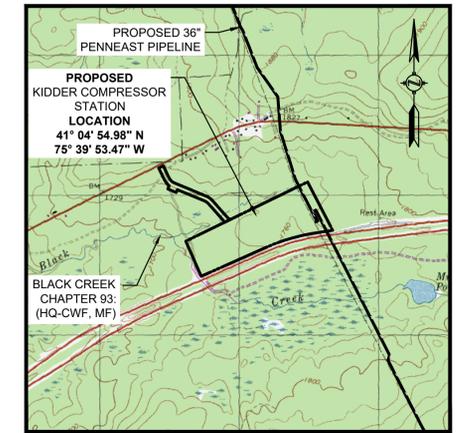
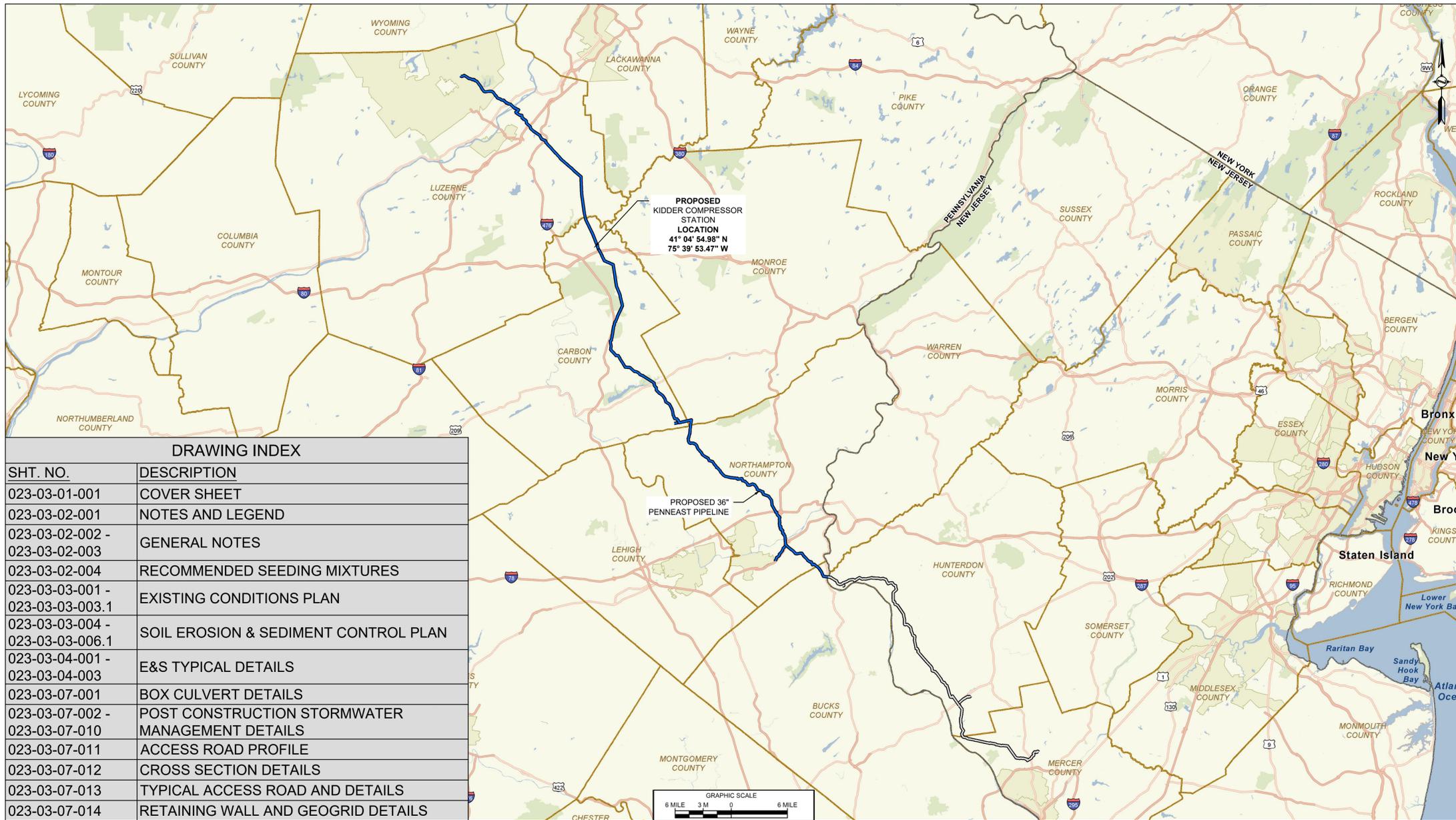
PENNEAST PIPELINE COMPANY, LLC

KIDDER COMPRESSOR STATION

KIDDER TOWNSHIP

CARBON COUNTY, PENNSYLVANIA

PADEP - SOIL EROSION AND SEDIMENT CONTROL PLAN



LOCATION MAP
SCALE: 1" = 200'
USGS QUAD: HICKORY RUN, PA

DRAWING INDEX	
SHT. NO.	DESCRIPTION
023-03-01-001	COVER SHEET
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023-03-02-004	RECOMMENDED SEEDING MIXTURES
023-03-03-001 - 023-03-03-003.1	EXISTING CONDITIONS PLAN
023-03-03-004 - 023-03-03-006.1	SOIL EROSION & SEDIMENT CONTROL PLAN
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023-03-07-001	BOX CULVERT DETAILS
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023-03-07-013	TYPICAL ACCESS ROAD AND DETAILS
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- GENERAL NOTES:**
- THIS PLAN SET CONTAINS INFORMATION FOR THE SOIL EROSION AND SEDIMENT CONTROL PLAN (E&S PLAN) REQUIRED FOR THE PADEP ESCGP. THIS IS A PERMIT DOCUMENT ONLY. ADDITIONAL PLANS AND DOCUMENTATION ARE REQUIRED FOR CONSTRUCTION OF THE PROPOSED DEVELOPMENT.
 - FULL SIZE SHEETS OF THIS PLAN SET MAY BE PRINTED OUT ON 24"x36" SHEETS. REPRODUCTION AT DIFFERENT SIZES SHALL RESULT IN DIFFERENT SCALES.
- REFERENCE (ALL SHEETS):**
- EXISTING CONTOURS SHOWN WERE SURVEYED BY MOTT MACDONALD DURING 2015 THRU 2018. ADDITIONAL EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015 AND SUPPLEMENTED FROM PASDA.
 - SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 THRU 2018.
 - PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
 - WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2018.
 - HORIZONTAL DATUM IS UTM83-18F. VERTICAL DATUM IS NAVD1988.

PENNSYLVANIA ONE-CALL SERIAL NUMBERS
20162661360-000



REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
		A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
		B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



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PENNEAST PIPELINE PROJECT KIDDER COMPRESSOR STATION COVER SHEET CARBON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	
DWG. NO.	023-03-01-001	REV. NO.	B

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GENERAL PERMIT NOTES:

- NO REGULATED EARTH DISTURBANCE ACTIVITIES SHALL COMMENCE UNTIL APPROVAL BY THE TOWNSHIP OF AN EROSION AND SEDIMENT CONTROL PLAN FOR CONSTRUCTION ACTIVITIES. WRITTEN APPROVAL BY DEP OR THE COUNTY CONSERVATION DISTRICT SHALL SATISFY THIS REQUIREMENT.
- ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. DEP MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE DEP PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THE E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND/OR FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BMPs TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE REGIONAL OFFICE OF DEP.
- ALL BUILDING MATERIALS AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE CHAPTER 260, §§260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY DEP FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- UNTIL THE SITE IS STABILIZED, ALL E&S BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL E&S BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
- PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
- E&S BMPs MUST REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY DEP.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE DEP FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPs.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY E&S BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPs MUST BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS SHOULD BE DONE ONLY DURING THE GERMINATING SEASON.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE REGIONAL OFFICE OF DEP TO SCHEDULE A FINAL INSPECTION.
- FAILURE TO CORRECTLY INSTALL E&S BMPs, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPs MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.

THE CONSTRUCTION CONTRACTOR SHALL REMOVE FROM THIS SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ. THE CONSTRUCTION CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THIS SITE.

THE CONSTRUCTION CONTRACTOR WILL IMPLEMENT THE PROPER MEASURES FOR DISPOSAL AND RECYCLING OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE IN ACCORDANCE WITH DEP REGULATIONS. CONSTRUCTION WASTES INCLUDE, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS AND BUILDING MATERIALS THAT COULD ADVERSELY IMPACT WATER QUALITY.

THE CONSTRUCTION CONTRACTOR WILL INSPECT THE PROJECT AREA WEEKLY AND PROPERLY DISPOSE OF ALL CONSTRUCTION WASTES. MEASURES WILL BE PLANNED AND IMPLEMENTED FOR HOUSEKEEPING MATERIALS MANAGEMENT AND LITTER CONTROL. WHEREVER POSSIBLE, RE-USEABLE WASTES WILL BE SEGREGATED FROM OTHER WASTE AND STORED SEPARATELY FOR RECYCLING.

IF AN OFF-SITE LOCATION IS USED FOR BORROW OR DISPOSAL, THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING ADEQUATE E&S CONTROL PLAN(S) AND SUBMITTING THE PLAN(S) TO DEP FOR APPROVAL PRIOR TO COMMENCEMENT OF SAID WORK.

REMEDIAL ACTIONS IF SEED AND MULCH ARE WASHED AWAY OR IF THE SEED MIX IS NOT GROWING:

- THE AFFECTED AREA WILL BE LIMED, FERTILIZED, RE-SEEDED AND MULCHED AS NEEDED.
- EROSION PROTECTION MATTING OR NETTING WILL BE APPLIED AS NEEDED.
- STEPS 1 AND 2 WILL BE REPEATED AS NEEDED UNTIL A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ACHIEVED.

WATERSHED NOTES:

THE PROPOSED SITE IS IN A SPECIAL PROTECTION WATERSHED (UNNAMED TRIBUTARY TO BLACK CREEK [CHAPTER 93 CLASSIFICATION *HQ-CWF, MF]), A NONDISCHARGE ALTERNATIVE INVOLVING POLLUTION PREVENTION HAS BEEN PROPOSED FOR THIS SITE TO SATISFY THE ANTIDEGRADATION REQUIREMENTS.

GENERAL NOTES:

- A HIGHWAY OCCUPANCY PERMIT MINIMUM USE DRIVEWAY PERMIT NO. 05037169, HAS BEEN ISSUED FOR THE ENTRANCE FROM SR 0940. A COPY OF THE HIGHWAY OCCUPANCY PERMIT HAS BEEN PROVIDED TO KIDDER TOWNSHIP. ANY AMENDMENTS OR MODIFICATIONS WILL BE PROVIDED TO KIDDER TOWNSHIP.
- THE TOWNSHIP ASSIGNED ADDRESS FOR THIS SITE IS 134 INDUSTRIAL DRIVE, WHITE HAVEN, PA 18661.
- NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE OR ALTER ANY EXISTING STORMWATER BMP WITHOUT WRITTEN APPROVAL OF KIDDER TOWNSHIP.
- ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR AND SHALL CONFORM TO THOSE SHOWN ON THE MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS.
- LOCATION OF PHYSICAL FEATURES AND UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF FEATURES IN FIELD AND SHALL NOTIFY COMPANY OF DISCREPANCIES AFFECTING CONSTRUCTION.
- CONTRACTOR SHALL ENSURE THAT ALL STRUCTURES, EQUIPMENT, AND OTHER FACILITIES ARE ADEQUATELY SUPPORTED DURING CONSTRUCTION IN ORDER TO PREVENT EXCESSIVE DEFLECTIONS, STRESSES, OR SETTLEMENT.
- COMPANY APPROVAL IS REQUIRED FOR ALL MODIFICATIONS ASSOCIATED WITH THE EXISTING GRADES, EQUIPMENT, STEEL, PIPING, OR OTHER IN-PLACE FACILITIES.
- IN ACCORDANCE WITH PA ACT 187 OF 1996, CONTRACTOR SHALL NOTIFY UTILITIES PRIOR TO CONSTRUCTION USING PA ONE CALL, 1-800-242-1776. CONTRACTOR SHALL BECOME FAMILIAR WITH THE SURVEY AND SUB-SURFACE INVESTIGATION REPORT BEFORE BEGINNING CONSTRUCTION.
- SET PIPING AND FOUNDATIONS AT ELEVATIONS SHOWN, OR ON FIRM UNDISTURBED MATERIAL OF DESIGN BEARING CAPACITY, WHICHEVER IS LOWER. COMPANY SHALL VERIFY THAT EACH FOOTING PLACED IS BEARING ON ADEQUATE MATERIALS.
- PRIOR TO ANY EARTHWORK OR OTHER CONSTRUCTION ACTIVITY, CONTRACTOR SHALL VERIFY THAT EROSION CONTROL MEASURES AND STORMWATER MANAGEMENT FACILITIES ARE IN PLACE. CONTRACTOR SHALL ADVISE COMPANY OF DEFICIENT EROSION CONTROL MEASURES.
- ALL WORK SHALL BE CONDUCTED WITHIN THE BOUNDARIES AUTHORIZED IN THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION PERMIT DOCUMENTS AND AS AGREED WITH LAND OWNER. VERIFY WHICH PUBLIC ROADS MAY BE UTILIZED FOR SITE ACCESS.
- PRIOR TO OPENING TRENCH, ENSURE ALL MATERIAL, INCLUDING SCREENING MATERIAL, IS ON SITE AND AVAILABLE FOR USE.
- THE CONTRACTOR IS ALERTED TO THE FACT THAT THIS SITE CONTAINS ENVIRONMENTALLY SENSITIVE AREAS AND DISTURBANCES SHALL BE LIMITED TO THOSE AREAS SHOWN ON THESE PLANS.
- THE CONTRACTOR SHALL PREVENT DAMAGE TO TREES TO REMAIN TO THE GREATEST EXTENT PRACTICAL.
- THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH THE KIDDER TOWNSHIP POLICE DEPARTMENT WITH REGARDS TO ROAD CLOSURES OR DISRUPTIONS TO TRAFFIC.
- COPIES OF ALL PERMITS SHALL BE RETAINED AND SITE AND BE AVAILABLE TO THE APPROPRIATE REGULATORY AGENCIES.
- CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
- PRIOR TO CONSTRUCTION A DETAILED CONSTRUCTION SCHEDULE SHALL BE PROVIDED.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SITE CONDITIONS.
- EXISTING UTILITIES ARE SHOWN BASED ON AVAILABLE RECORDS. LOCATION AND ELEVATION ACCURACY ARE NOT GUARANTEED. ACTUAL LOCATIONS MUST BE FIELD VERIFIED THROUGH TEST PITS.
- ALL OPEN TRENCHES MUST BE ADEQUATELY SECURED DURING PERIODS WHEN ACTIVE CONSTRUCTION IS NOT TAKING PLACE.
- CONTRACTOR SHALL ADEQUATELY PROTECT EXISTING STRUCTURES AND UTILITIES.
- CONTRACTOR IS FULLY RESPONSIBLE FOR SITE SECURITY AND SAFETY.
- ALL PIPE LENGTHS ARE APPROXIMATE CONTRACTOR SHALL PROVIDE PIPING AS REQUIRED.
- WHEN APPROVED A COPY OF THE SECTION 404 PERMIT FOR THE ROADWAY CROSSING OVER THE UNNAMED TRIBUTARY TO BLACK BROOK SHALL BE PROVIDED TO KIDDER TOWNSHIP.
- COPIES OF ALL APPROVED PA DEP PERMITS SHALL BE PROVIDED TO KIDDER TOWNSHIP.
- ALL FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS APPROVED BY THE KIDDER TOWNSHIP PLANNING BOARD. ANY DEVIATIONS FROM THE PLANS SHALL BE BROUGHT TO THE OWNERS ATTENTION IMMEDIATELY.
- SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO LAND DISTURBANCE ACTIVITIES.

BACKFILLING NOTES:

- FURNISH PLACE AND COMPACT BACKFILL REQUIRED FOR TRENCHES, STRUCTURES, AND TO PROVIDE FINISHED GRADES SHOWN. FILL MAY BE OBTAINED FROM ON-SITE SOURCES OR FROM COMPANY.
- CONTRACTOR SHALL PROTECT OPEN EXCAVATIONS OCCURRING AS PART OF THE WORK, INCLUDING MINIMIZING THE NUMBER AND DURATION OF OPEN EXCAVATIONS AND INSTALLATION OF BARRICADES.
- BACKFILL EXCAVATIONS AS PROMPTLY AS WORK PERMITS, BUT NOT UNTIL COMPLETION OF THE FOLLOWING:
 - SUCCESSFUL COMPLETION OF ALL WORK WITHIN THE EXCAVATION.
 - INSPECTIONS, SUCCESSFUL COMPLETION AND ACCEPTANCE OF TESTING, AND RECORDING OF LOCATIONS OF UNDERGROUND FACILITIES, INCLUDING CONNECTIONS, BRANCHES, VALVES, STRUCTURES, AND OTHER FACILITIES.
 - REMOVAL OF SHORING AND BRACING, AND BACKFILLING OF VOIDS WITH SATISFACTORY MATERIALS.
 - REMOVAL OF TRASH AND DEBRIS.
- PLACE BACKFILL IN TRENCHES BELOW PIPING OR FOUNDATIONS IN HORIZONTAL LAYERS EACH NOT EXCEEDING SIX INCHES DEEP AND COMPACTED AS SPECIFIED BEFORE NEXT LAYER IS PLACED. EVENLY BRING UP BACKFILL AROUND ALL SIDES OF PIPING AND STRUCTURES.
- CONTRACTOR SHALL COMPLY WITH PA CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE REQUIREMENTS WHEN IMPORTING AND EXPORTING ANY FILL MATERIAL FROM THE SITE. CONTRACTOR SHALL EMPLOY GOOD FAITH EFFORTS IN RECYCLING CONSTRUCTION WASTES AND BY-PRODUCTS.

TRENCHING AND EXCAVATION NOTES:

- EXCAVATIONS SHALL INCLUDE EARTH, SAND, CLAY, GRAVEL, HARDPAN, ROCK, DECOMPOSED ROCK, SOIL-CEMENT PAVEMENTS, AND ALL OTHER MATERIALS WITHIN EXCAVATION LIMITS. BLASTING SHALL NOT BE PERMITTED.
- EXCAVATIONS FOR STRUCTURES AND PIPELINES SHALL BE OPEN EXCAVATIONS. PROVIDE EXCAVATION PROTECTION SYSTEMS) REQUIRED BY LAWS AND REGULATIONS TO PREVENT INJURY TO WORKERS AND TO PREVENT DAMAGE TO NEW AND EXISTING STRUCTURES AND FACILITIES.
- EXCAVATED MATERIAL STORAGE: STOCKPILE SATISFACTORY EXCAVATED MATERIALS IN ACCEPTABLE AREAS UNTIL REQUIRED FOR BACKFILLING OR FILLING. PLACE, GRADE, AND SHAPE STOCKPILES FOR PROPER DRAINAGE AWAY FROM EDGE OF EXCAVATIONS.
- AFTER TRENCH IS EXCAVATED AND PRIOR TO PIPE INSTALLATION, REMOVE ALL LARGE ROCKS AND OTHER DEBRIS FROM TRENCH BOTTOM TO PROVIDE A UNIFORM SURFACE. INSTALL AND COMPACT NECESSARY BEDDING BENEATH PIPE, CONDUIT AND SNAP-LOC SPACERS.

		CLIENT APPROVAL			
		DATE			
REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PA DEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PA DEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)
		PENNEAST PIPELINE PROJECT KIDDER COMPRESSOR STATION GENERAL NOTES			
		CARBON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	10/15/2018		
CHECKED BY	KEK	SCALE	AS SHOWN		
APPROVED BY	MJD	APPROVED BY			
DWG. NO.	023-03-02-001	REV. NO.	B		



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PROJECT CONSTRUCTION SEQUENCING/SOIL LIMITATIONS

CONSTRUCTION SEQUENCE:

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OWNER AND/OR OPERATOR SHALL NOTIFY THE PADEP AND CARBON COUNTY CONSERVATION DISTRICT BY EITHER TELEPHONE OR CERTIFIED MAIL OF THE INTENT TO COMMENCE EARTH DISTURBANCE ACTIVITIES. ATTENDANCE AT A PRE-CONSTRUCTION CONFERENCE IS REQUIRED UPON REQUEST OF THE PADEP.
2. AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776 TO DET STAKE OUT CONSTRUCTION WORK LIMITS.
3. INSTALL STABILIZED ROCK CONSTRUCTION ENTRANCE AND EROSION/SEDIMENT CONTROL BARRIERS (ECB) WHERE CONSTRUCTION TRAFFIC WILL EXIT THE PROJECT SITE ONTO PA ROUTE 940.
4. INSTALL TEMPORARY PARKING AREAS AS NEEDED IN STAGING AREA PE-STA-B-09 WITH STABILIZED CRUSHED GRAVEL SURFACE.

TREE CLEARING (15 DAYS)

5. CLEAR TREES AND BRUSH; HAUL MERCHANTABLE TIMBER OFF SITE; CHIP REMAINDER OF VEGETATION AND HAUL OFF SITE.

TREE STUMP REMOVE, TOPSOIL STRIPPING, ACCESS ROAD, SITE GRADING, AND RUNOFF MEASURES (20 DAYS)

6. STAKE OUT REMAINDER OF TEMPORARY ECBS; INSTALL ECBS. EXCAVATE AND ROUGH GRADE STORMWATER DETENTION BASIN (NORTH BASIN); LESS 12 INCHES OF DEPTH. INSTALL OUTLET CONTROL STRUCTURE WITH TEMPORARY RISER AT END OF THE PVC PIPE TO OUTLET CONTROL STRUCTURE. DO NOT DRILL HOLES IN PERMANENT RISER UNTIL FINAL GRADING OF NORTH BASIN IS PERFORMED. ENGINEER SHALL INSPECT INSTALLATION AND STABILIZATION OF TEMPORARY SWALE. STORMWATER DETENTION BASIN (NORTH BASIN) LESS 12 INCHES OF DEPTH, AND TEMPORARY OUTLET CONTROL STRUCTURE.
7. GRUB TREE STUMPS AND ROOTS; HAUL STUMPS OFF SITE OR GRIND STUMPS AND DISPOSE OF CHIPS OFF SITE.
8. STRIP AND STACK TOPSOIL; SCREEN ESTIMATED QUANTITY OF TOPSOIL NEEDED FOR REUSE AND STACK ON SITE; HAUL SURPLUS TOPSOIL OFF SITE.
9. INSTALL PERMANENT TWIN 48-INCH RCPS WITH CONCRETE HEADWALLS AT STA. 13+90; BACKFILL RCPS WITH BORROW GRAVEL.
10. INSTALL TEMPORARY COFFERDAM AND PUMP BYPASS MEASURES. MAINTAIN BASE STREAM FLOW BY PUMPING FROM UPSTREAM TO DOWNSTREAM OF THE COFFERDAMS. DEWATER WORK AREA: WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG. WHERE POSSIBLE, EXCAVATION SHALL BE FROM THE TOP OF THE STREAM BANK, WHERE TECHNICALLY FEASIBLE. INSTALL 22-FOOT W X 8-FOOT H PRECAST CONCRETE BOX CULVERT, HEADWALLS, AND RIP RAP AT STA. 19+40; BACKFILL STRUCTURES WITH BORROW GRAVEL. UPON BACKFILLING OF THE COMPLETED BOX CULVERT AND HEADWALL INSTALLATION, REMOVE TEMPORARY COFFERDAM AND PUMP BYPASS MEASURES. PROVIDE STREAMBANK RESTORATION. ENGINEER SHALL INSPECT CULVERT INSTALLATION.
11. STAKE OUT ACCESS ROAD TO STA. 29+00; EXCAVATE AND FILL ACCESS ROAD TO SUBGRADE; EXCAVATE ROADSIDE SWALES.
12. INSTALL DRAINAGE PIPING, MANHOLES, CATCHBASINS AND INLETS; EXCAVATE PERIMETER DRAINAGE SWALE IN COMPRESSOR PAD AREA; INSTALL ECBS AT CATCHBASINS AND INLETS. ENGINEER SHALL INSPECT DRAINAGE PIPING, MANHOLES, CATCHBASINS AND INLETS, AND SWALES.
13. PROOF ROLL ACCESS ROAD SUBGRADE; INSTALL LAYER OF PENNDOT 2A GRAVEL SUB-BASE OVER APPROVED SUBGRADE; GRADE AND ROLL GRAVEL.
14. STAKE OUT COMPRESSOR PAD AREA; EXCAVATE AND FILL PAD TO SUBGRADE; INSTALL BORROW MATERIAL AS NEEDED TO BRING THE PAD TO SUBGRADE ELEVATIONS.
15. STAKE OUT OFFICE/WAREHOUSE BUILDING PARKING AREA AND PERIMETER ACCESS ROAD IN COMPRESSOR PAD AREA; EXCAVATE AND FILL PARKING AREA AND ROADWAY TO SUBGRADE.
16. PROOF ROLL PERIMETER ROAD SUBGRADE; INSTALL LAYER OF PENNDOT 2A GRAVEL SUB-BASE OVER APPROVED SUBGRADE; GRADE AND ROLL GRAVEL.
17. EXCAVATE STORMWATER DETENTION BASIN (SOUTH BASIN); INSTALL OUTLET CONTROL STRUCTURES AND ASSOCIATED PIPING. INSTALL ECBS AT PERIMETER OF BASIN, INLETS, AND OUTLETS. ENGINEER SHALL INSPECT STORMWATER DETENTION BASIN (SOUTH BASIN), OUTLET CONTROL STRUCTURES, ASSOCIATED PIPING, INLETS AND OUTLETS.
18. EXCAVATE ACCUMULATED SEDIMENT AND DEBRIS IN NORTH BASIN AND PERFORM FINAL GRADING. CUT TEMPORARY RISER FROM END OF THE PVC PIPE TO OUTLET CONTROL STRUCTURE AND INSTALL END CAP. DRILL HOLES FOR PERMANENT RISER PER STORMWATER DETAILS. IMMEDIATELY SEED BASIN AND INSTALL EROSION CONTROL BLANKET ON EMBANKMENT SLOPES. INSTALL ECBS AT PERIMETER OF BASIN, INLETS, AND OUTLETS. ENGINEER SHALL INSPECT STORMWATER DETENTION BASIN (NORTH BASIN) AND PERMANENT OUTLET CONTROL STRUCTURE.

EXCAVATE, FORM, POUR COMPRESSOR FOUNDATION BLOCKS (9 DAYS)

19. EXCAVATE FOR COMPRESSOR FOUNDATION BLOCKS (3).
20. FORM, INSTALL REINFORCING STEEL, AND POUR BLOCKS.
21. INSTALL GRAVEL BACKFILL AND COMPACT SOIL.

EXCAVATE, FORM, POUR BUILDING FOUNDATIONS (21 DAYS)

22. EXCAVATE FOR OFFICE/WAREHOUSE BUILDING FOUNDATION.
23. FORM, INSTALL REINFORCING STEEL, AND POUR BUILDING FOUNDATION.
24. INSTALL GRAVEL BACKFILL AND COMPACT SOIL.
25. UNDER-SLAB UTILITY INSTALLATION.
26. POUR CONCRETE FLOOR SLAB.

EXCAVATE, FORM, POUR REMAINING FOUNDATIONS (21 DAYS)

27. EXCAVATE FOR GAS COOLER, FILTER SEPARATORS, LAUNCHER/RECEIVER, BLOWDOWN SILENCERS, LIQUID TANKS, MISCELLANEOUS FOUNDATIONS.
28. FORM, INSTALL REINFORCING STEEL, AND POUR FOUNDATIONS.
29. INSTALL GRAVEL BACKFILL AND COMPACT SOIL.

EXCAVATE, INSTALL PLANT BURIED CONDUIT (9 DAYS)

30. TRENCH EXCAVATION FOR BURIED CONDUIT.
31. CONDUIT INSTALLATION.
32. ENCASE CONDUIT AND BACKFILL WITH SELECT MATERIAL.

INSTALL PLANT POWER FEED, PHONE, CABLE, LIGHTING ALONG ACCESS ROAD (4 DAYS)

33. UTILITY POLES INSTALLATION.
34. STRING OVERHEAD CABLES.
35. STREET LIGHTS INSTALLATION.

ERECT, SET WAREHOUSE/OFFICE/CONTROL BUILDING (24 DAYS)

36. BUILDING ERECTION.

SET COMPRESSORS (3 DAYS)

37. INSTALLATION OF COMPRESSOR AND ENGINES.
38. START COMPRESSOR BUILDING ERECTION ONCE UNITS ARE SET

SET MAIN GAS EQUIPMENT (27 DAYS)

39. INSTALL BELOW GRADE AND ABOVE GRADE GAS PIPING IN COMPRESSOR PAD AREA.
40. INSTALL CRUSHED STONE SURFACE IN COMPRESSOR PAD AREA.
41. EXCAVATE LARGE BORE PIPE TRENCHES.
42. FABRICATE, INSTALL LARGE BORE AND SMALL BORE PIPING AND SKIDS - RUNS TO SEPTEMBER.

FINAL GRADING AND PAVING

43. RESTORE DISTURBED AREAS; SPREAD TOPSOIL; SEED AND MULCH.
44. INSTALL PERMANENT SECURITY GATE AND FENCING.
45. INSTALL HOT MIXED ASPHALT BASE COURSE AND BINDER COURSE.
46. GRADE ROADSIDE SWALES; INSTALL TOPSOIL; SEED AND MULCH.
47. INSTALL PENNDOT 2A GRAVEL ROADWAY SHOULDERS.
48. INSTALL HOT MIXED ASPHALT WEARING COURSE (TOP COURSE).

ERECT COMPRESSOR BUILDING FRAMING AND INTERIOR LINER (30 DAYS)

49. BUILDING ERECTION OF FRAMING AND INTERIOR LINER STARTS IMMEDIATELY AFTER COMPRESSORS ARE SET
50. INSTALL SMALLER MECHANICAL AND ELECTRICAL EQUIPMENT
51. SET ELECTRICAL BUILDINGS
52. PULL AND TERMINATE WIRES

FINAL CLEANUP, DEMOBILIZATION, AND MAINTENANCE (38 DAYS)

53. MAINTAIN ECBS AND REPAIR ANY ERODED AREAS; REPAIR ANY AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES.
54. FINAL CLEANUP; REMOVE SURPLUS AND TRASH FROM SITE.
55. DEMOBILIZE CONTRACTOR EQUIPMENT.
56. MONITOR AND MAINTAIN SEEDED AREAS.

REMOVE ECBS UPON ESTABLISHMENT OF VEGETATION.

LIMITING SOIL CHARACTERISTICS LEGEND																			
MAP SYMBOL	SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK-SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS	MIN DEPTH TO BEDROCK	pH
AeB	ALBRIGHTS VERY STONY LOAM, 0 TO 8 PERCENT SLOPES	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
MB	MORRIS VERY STONY SILT LOAM, 0 TO 8 PERCENT SLOPES	X	C/S	X	X		X	X	X	X		X	X				X	X	

SOURCE: AS TAKEN FROM TABLE E.1 OF THE THE PADEP E&SPCP MANUAL, MARCH 2012. HTTP://WWW.ELIBRARY.DEP.STATE.PA.US/DSWEB/GET/DOCUMENT-88925/363-2134-008.PDF

THE SOIL LIMITATIONS SHALL BE ADDRESSED AS FOLLOWS:

LIMITATIONS AND RESOLUTIONS:

LIMITATION: CUTBANKS CAVE, LOW STRENGTH - CUTBANKS HAVE POTENTIAL TO CAVE AND MANY SOILS ARE LOW STRENGTH.

RESOLUTION: CONTRACTOR SHALL BE AWARE OF POTENTIAL ISSUES AND FOLLOW OSHA GUIDELINES FOR OPEN TRENCHING. LOW SOIL STRENGTH IS NOT A CONCERN DUE TO THE NATURE OF THE PROPOSED PROJECT. UTILITY TRENCHING WILL NOT BE ADVERSELY EFFECTED BY POOR SOIL STRENGTH.

LIMITATION: CORROSIVE TO STEEL AND/OR CONCRETE

RESOLUTION: IF STEEL PIPE IS USED RUST PROTECTION BY COATINGS AND/OR USE OF CATHODIC PROTECTION IS RECOMMENDED. IF CONCRETE IS USED SOIL SHALL BE TESTED AND CONCRETE COATED AS RECOMMENDED BY MANUFACTURER.

LIMITATION: DROUGHTY - SOILS EXHIBITING A POOR MOISTURE-HOLDING CAPACITY, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.

RESOLUTION: FOR DROUGHTY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. DROUGHTY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

LIMITATION: EASILY ERODIBLE

RESOLUTION: SPECIAL ATTENTION SHALL BE GIVEN TO MAINTAINING EXISTING VEGETATION IN EASILY ERODIBLE SOILS. TO THE EXTENT POSSIBLE, EASILY ERODIBLE SOILS WITHIN 50 FEET OF A SURFACE WATER SHOULD BE BLANKETED. WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT SUFFICIENT VEGETATIVE FILTER STRIP BETWEEN THE WATERBAR AND A RECEIVING SURFACE WATER, THE WATERBAR SHOULD BE PROVIDED WITH A TEMPORARY PROTECTIVE LINER.

LIMITATION: FLOODING - ANY SOIL SUBJECT TO INUNDATION DURING A 2-YEAR/24HR STORM EVENT.

RESOLUTION: (SEE WET SOILS)

LIMITATION: HIGH WATER TABLE, POTENTIALLY HYDRIC - HIGH WATER TABLE IS TO BE EXPECTED AND MANY OF THE SOILS ARE POTENTIALLY HYDRIC.

RESOLUTION: FOLLOW E&S PLAN WITH REGARD TO PUMPING AND DEWATERING. DISCHARGE OF SEDIMENT LADEN WATER IS PROHIBITED UNLESS WITHOUT FIRST PASSING THRU A "PUMPED WATER FILTER BAG" BMP.

LIMITATION: HYDRIC / HYDRIC INCLUSIONS - A SOIL THAT IS SATURATED, FLOODED, OR PONDED LONG ENOUGH DURING THE GROWING SEASON TO DEVELOP ANAEROBIC-CONDITIONS. WHEN SUCH A SOIL IS LOCATED IN AN AREA THAT HAS HYDROPHYTIC VEGETATION AND WETLAND HYDROLOGY, A WETLAND IS PRESENT.

RESOLUTION: HYDRIC SOILS THAT ARE DELINEATED WETLANDS, SHOULD BE AVOIDED TO THE EXTENT POSSIBLE. STAGING AREAS SHOULD BE LOCATED 50 FEET FROM THE EDGE OF WETLAND. MOVEMENT OF VEHICLES ACROSS WETLAND MUST BE MINIMIZED. WHERE VEHICLES NEED TO CROSS WETLANDS, THE USE OF TEMPORARY TIMBER MATS SHALL BE USED DUE TO THE POTENTIAL FOR RUTTING. TRENCH PLUGS SHALL BE INSTALLED TO PREVENT THE TRENCH FROM DRAINING THE WETLANDS OR CHANGING THE HYDROLOGY.

LIMITATION: LOW STRENGTH / LANDSLIDE PRONE - SOILS WITH LOW STRENGTH HAVE A LESSER ABILITY TO RESIST SLOPE FAILURE, SUCH AS SLUMPING, FLOWING, ETC. MATERIALS WITH LOW SHEAR STRENGTH ARE MORE SUSCEPTIBLE TO LANDSLIDES AND EMBANKMENT FAILURES.

RESOLUTION: PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE "PADEP - EROSION AND SEDIMENT CONTROL PROGRAM MANUAL," UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.

LIMITATION: SLOW PERCOLATION - PERMEABILITY RATE LESS THAN OR EQUAL TO 0.2 INCHES/HR.

RESOLUTION: BMPS TO BE INSPECTED AFTER RUNOFF EVENTS, MAKE SURE THERE IS ADEQUATE AREA FOR PUMPED WATER DISCHARGE. PCSM FACILITIES DESIGN BASED ON SITE SPECIFIC TESTING.

LIMITATION: PIPING

RESOLUTION: PIPING POTENTIAL IN THE SOIL WILL BE MINIMIZED BY THE USE OF TRENCH PLUGS. FURTHERMORE, ANY PLANNED EMBANKMENTS OR PERMANENT IMPOUNDMENTS SUSCEPTIBLE TO PIPING SHALL UTILIZE ANTI-SEEP COLLARS OR FILTER DIAPHRAGMS ON OUTLET BARRELS.

LIMITATION: LIMITED AVAILABLE TOPSOIL

RESOLUTION: ANY EXCAVATED TOPSOIL WILL BE STOCKPILED AND REUSED. IF NECESSARY, ADDITIONAL TOPSOIL WILL BE BROUGHT ON-SITE.

LIMITATION: FROST ACTION - THE LIKELIHOOD OF UPWARD OR LATERAL EXPANSION OF THE SOIL CAUSED BY THE FORMATION OF SEGREGATED ICE LENSES, OR FROST HEAVE, AND THE SUBSEQUENT COLLAPSE OF THE SOIL AND LOSS OF STRENGTH ON THAWING, WHICH CAN DAMAGE ROADS, BUILDINGS, AND OTHER STRUCTURES AS WELL AS PLANT ROOTS.

RESOLUTION: PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE TO ROADWAYS AND STRUCTURES.

LIMITATION: WET SOILS - SOME SOILS MAY EXHIBIT A HIGH WATER TABLE OR PONDING.

RESOLUTION: IF HIGH WATER TABLE IS ENCOUNTERED, TRENCH DEWATERING WILL BE EMPLOYED. LOCATE PCSM FACILITIES AWAY FROM WET SOILS.

LIMITATION: MIN. DEPTH TO BEDROCK - SOME SOILS HAVE A MIN DEPTH OF BEDROCK LESS THAN THE TYPICAL TRENCH DEPTH OF 7 FT (ASSUMES 3 FT OF COVER, PIPE DIAMETER, AND BEDDING DEPTH OF 1 FT).

RESOLUTION: CONTRACTOR TO PLAN FOR ROCK REMOVAL DURING TRENCHING OPERATIONS. FOR SEDIMENT BARRIERS REQUIRING STAKING (E.G. SILT FENCES, ETC.), DEPTH TO BEDROCK LESS THAN 2 FT CAN IMPACT ABILITY TO DRIVE STAKE AND/OR POLE (FOR SUPER SILT FENCE). IN THESE AREAS, COMPOST FILTER SOCK OR OTHER APPLICABLE BMP NOT REQUIRING STAKING MAY BE CONSIDERED.

LIMITATION: pH - SOME SOILS HAVE pH VALUES LESS THAN 5.5, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.

RESOLUTION: AS IS TYPICAL FOR THESE TYPE OF SOILS, LIME WILL BE ADDED AS NEEDED TO PRODUCE VEGETATIVE STABILITY.

LIMITATION: LOW FERTILITY

RESOLUTION: IF NECESSARY TO PRODUCE VEGETATIVE STABILITY OF THE SOIL, FERTILIZER OR NUTRIENT SUPPLEMENTS WILL BE ADDED TO THE SOIL TO PRODUCE VEGETATIVE STABILITY. FOR LOW FERTILITY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. LOW FERTILITY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.



CLIENT APPROVAL
DATE

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
GENERAL NOTES
 CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	

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COMMONWEALTH OF PENNSYLVANIA
 REGISTERED PROFESSIONAL ENGINEER
MICHAEL DENICHILO
 ENGINEER
 PEOB6513
 10/25/2019

Clover/Food Plot with ROW Mix^{1,2,3}

Mix Composition

10% Standard ROW Mix (for soil stabilization)
 30% Medium Red Clover
 33% Ladino Clover
 20% Pinnacle (jumbo) Ladino Clover
 7% White Dutch Clover

Seeding Rate: 40 lb per acre or as recommended by seed vendor

¹ An alternative seed mixture may be requested by the landowner(s).

² Fescue must be endophyte-free.

³ Legumes should be treated with a species specific inoculate prior to seeding. Legume seed and soil should be scarified.

Standard Upland ROW Mix^{1,2,3}

Mix Composition

20% Orchardgrass
 20% Climax Timothy
 15% Perennial Ryegrass
 10% Annual Ryegrass
 10% Red Fescue
 10% Medium Red Clover
 10% Ladino Clover
 5% Birdsfoot Trefoil

Seeding Rate: 40 lb per acre or as recommended by seed vendor

¹ An alternative seed mixture may be requested by the landowner(s).

² Fescue must be endophyte-free.

³ Legumes should be treated with a species specific inoculate prior to seeding. Legume seed and soil should be scarified.

Residential Mix^{1,2}

Mix Composition

33% Penlawn Creeping Red Fescue
 25% 98/85 Kentucky Bluegrass
 14% Fiji Perennial Ryegrass
 14% ASP0112 Perennial Ryegrass
 14% ASP6004 Perennial Ryegrass

Seeding Rate: 40 lb per acre or as recommended by seed vendor

¹ An alternative seed mixture may be requested by the landowner(s).

² Fescue must be endophyte-free.

Wetland Seed Mix (ERNMX-122 FACW Meadow Mix)^{1,2,3}

Available from Ernst Seeds at <http://www.ernstseed.com/catalog/>

Mix Composition

32.7% *Carex vulpinaeoides*, PA Ecotype (Fox Sedge, PA Ecotype)
 20.0% *Elymus riparius*, PA Ecotype (Riverbank Wildrye, PA Ecotype)
 17.0% *Carex lurida*, PA Ecotype (Lurid (Shallow) Sedge, PA Ecotype)
 7.9% *Carex lupulina*, PA Ecotype (Hop Sedge, PA Ecotype)
 4.0% *Verbena hastata*, PA Ecotype (Blue Vervain, PA Ecotype)
 3.0% *Carex scoparia*, PA Ecotype (Blunt Broom Sedge, PA Ecotype)
 2.5% *Juncus effusus* (Soft Rush)
 2.0% *Cinna arundinacea*, PA Ecotype (Wood Reedgrass, PA Ecotype)
 1.0% *Asclepias incarnata*, PA Ecotype (Swamp Milkweed, PA Ecotype)
 1.0% *Aster novae-angliae* (*Symphotrichum n.*), PA Ecotype (New England Aster, PA Ecotype)
 1.0% *Glyceria canadensis*, PA Ecotype (Rattlesnake Grass, PA Ecotype)
 1.0% *Oncoclea sensibilis* (Sensitive Fern)
 1.0% *Scirpus cyperinus*, PA Ecotype (Woolgrass, PA Ecotype)
 0.8% *Helenium autumnale*, PA Ecotype (Common Sneezeweed, PA Ecotype)
 0.5% *Alisma subcordatum* (*A. plantago-aquatica*), PA Ecotype (Mud Plantain (Water Plantain), PA Ecotype)
 0.5% *Aster puniceus* (*Symphotrichum puniceum*), PA Ecotype (Purplestem Aster, PA Ecotype)
 0.5% *Aster umbellatus* (*Doellingeria umbellata*), PA Ecotype (Flat Topped White Aster, PA Ecotype)
 0.5% *Eupatorium fistulosum*, PA Ecotype (Joe Pye Weed, PA Ecotype)
 0.5% *Eupatorium perfoliatum*, PA Ecotype (Boneset, PA Ecotype)
 0.5% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
 0.5% *Ludwigia alternifolia*, PA Ecotype (Seedbox, PA Ecotype)
 0.5% *Mimulus ringens*, PA Ecotype (Square Stemmed Monkeyflower, PA Ecotype)
 0.5% *Sisyrinchium angustifolium* (Narrowleaf Blue Eyed Grass)
 0.4% *Carex intumescens*, PA Ecotype (Bladder (Star) Sedge, PA Ecotype)
 0.2% *Chelone glabra*, PA Ecotype (Turtlehead, PA Ecotype)

Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

¹ This wetland seed mix is to be used to revegetate workspace within wetlands, limits of which are shown on the E&SCP drawings

² An alternative seed mixture may be requested by the landowner(s).

³ An alternative conservation wetland seed mixture that contains similar species is acceptable. If an alternative seed mix is used, follow manufacturer's seed rate recommendations.

CONTRACTOR SHALL INSTALL SEED MIXTURE AS DIRECTED BY PENNEAST. SEED MIXTURE USE WILL VARY ACCORDING TO PROJECT, LANDOWNER REQUEST, AND ENVIRONMENTAL REQUIREMENTS.

Riparian Buffer Mix (ERNMX-178)^{1,2,3}

Available from Ernst Seeds at <http://www.ernstseed.com/catalog/>

Mix Composition

30.0% *Panicum clandestinum* (*Dichantherium c.*), 'Tioga' (Deertongue, 'Tioga')
 16.0% *Sorghastrum nutans*, PA Ecotype (Indiangrass, PA Ecotype)
 15.0% *Elymus riparius*, PA Ecotype (Riverbank Wildrye, PA Ecotype)
 11.0% *Andropogon gerardii*, 'Niagara' (Big Bluestem, 'Niagara')
 8.0% *Panicum virgatum*, 'Carthage', NC Ecotype (Switchgrass, 'Carthage', NC Ecotype)
 3.0% *Chamaecrista fasciculata* (*Cassia f.*), PA Ecotype (Partridge Pea, PA Ecotype)
 3.0% *Rudbeckia hirta*, Coastal Plain NC Ecotype (Blackeyed Susan, Coastal Plain NC Ecotype)
 3.0% *Verbena hastata*, PA Ecotype (Blue Vervain, PA Ecotype)
 2.0% *Aster novae-angliae* (*Symphotrichum n.*), PA Ecotype (New England Aster, PA Ecotype)
 2.0% *Juncus effusus* (Soft Rush)
 2.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
 1.2% *Asclepias incarnata*, PA Ecotype (Swamp Milkweed, PA Ecotype)
 0.8% *Eupatorium fistulosum*, PA Ecotype (Joe Pye Weed, PA Ecotype)
 0.8% *Eupatorium perfoliatum*, PA Ecotype (Boneset, PA Ecotype)
 0.8% *Vernonia noveboracensis*, PA Ecotype (New York Ironweed, PA Ecotype)
 0.7% *Helenium autumnale*, Northern VA Ecotype (Common Sneezeweed, Northern VA Ecotype)
 0.5% *Manarda fistulosa*, Fort Indiantown Gap-PA Ecotype (Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
 0.2% *Salidago patula*, PA Ecotype (Roughleaf Goldenrod, PA Ecotype)

Seeding Rate: 20 lb per acre with a cover crop at 30 lb per acre (dry sites - grain oats, Jan 1-Aug 1; or, grain rye, Aug 1-Jan 1; moist sites - grain rye year-round)

¹ This riparian buffer seed mix is to be used to revegetate workspace within 150-feet of perennial and intermittent streams.

² An alternative seed mixture may be requested by the landowner(s).

³ An alternative conservation riparian seed mixture that contains similar species is acceptable. If an alternative seed mix is used, follow manufacturer's seed rate recommendations.

**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 Chapter 11 may be substituted for the soil amendments shown in Table 11.2.

**TABLE 11.6
Mulch Application Rates**

Mulch Type	Application Rate (Min.)			Notes
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	
Straw	3 tons	140 lb.	1,240 lb.	Either wheat or oat straw, free of weeds, not chopped or finely broken
Hay	3 tons	140 lb.	1,240 lb.	Timothy, mixed clover and timothy or other native forage grasses
Wood Chips	4 - 6 tons	185 - 275 lb.	1,650 - 2,500 lb.	May prevent germination of grasses and legumes
Hydromulch	1 ton	47 lb.	415	See limitations above

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



CLIENT APPROVAL

DATE

REVISIONS

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



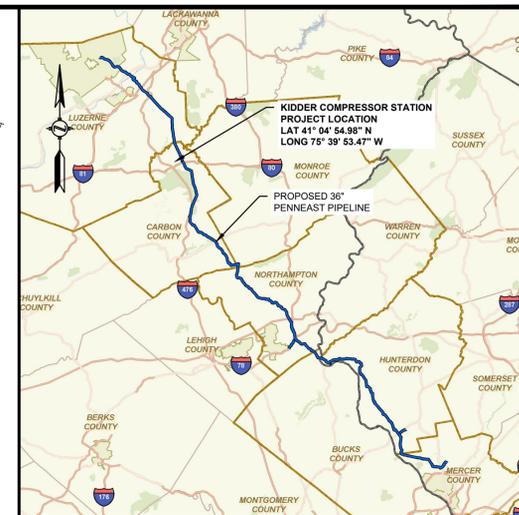
PENNEAST PIPELINE PROJECT
 KIDDER COMPRESSOR STATION
 RECOMMENDED SEEDING MIXTURES
 CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	

THIS DRAWING IS THE PROPERTY OF PENNEAST PIPELINE COMPANY, LLC (P.E.C.). IT MAY CONTAIN INFORMATION DESCRIBING TECHNOLOGY OWNED BY P.E.C. AND DESIGNED TO BE CONFIDENTIAL. SENSITIVE. IT IS TO BE USED ONLY IN CONNECTION WITH WORK PERFORMED FOR P.E.C. REPRODUCTION, WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN WORK FOR P.E.C. IS EXPRESSLY FORBIDDEN EXCEPT BY EXPRESS WRITTEN PERMISSION OF P.E.C. IT IS TO BE RE-RELEASED TO THE CLIENT ONLY BY PENNEAST PIPELINE COMPANY, LLC (P.E.C.).

DWG. NO. 023-03-02-004 REV. NO. 8

CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA

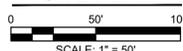


LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCGP BOUNDARY
- EXISTING**
- PROPERTY LINE
 - 660' EXISTING MAJOR CONTOUR
 - 658' EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
- BhD** SOIL TYPE ABBREVIATION
- EXISTING UTILITY POLE
 - LINE LIST NUMBER
 - WETLAND (DELINEATED)
 - WATERBODY (DELINEATED)
 - APPROXIMATE 100 YEAR FLOODWAY
 - APPROXIMATE 150' RIPARIAN BUFFER
 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE

SITE PLAN



- REFERENCE:**
1. EXISTING CONTOURS SHOWN WERE SURVEYED BY MOTT MACDONALD DURING 2015 THRU 2019. ADDITIONAL EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015 AND SUPPLEMENTED FROM USGS.
 2. SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 THRU 2019.
 3. PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
 4. WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
 5. HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP			10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP			10/2019	MWF(MM)	DOW(MM)	MJD(MM)



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
EXISTING CONDITIONS PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	023-03-03-001	REV. NO.	B

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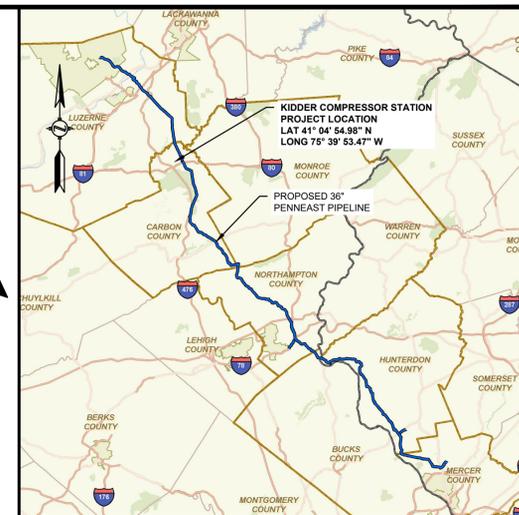
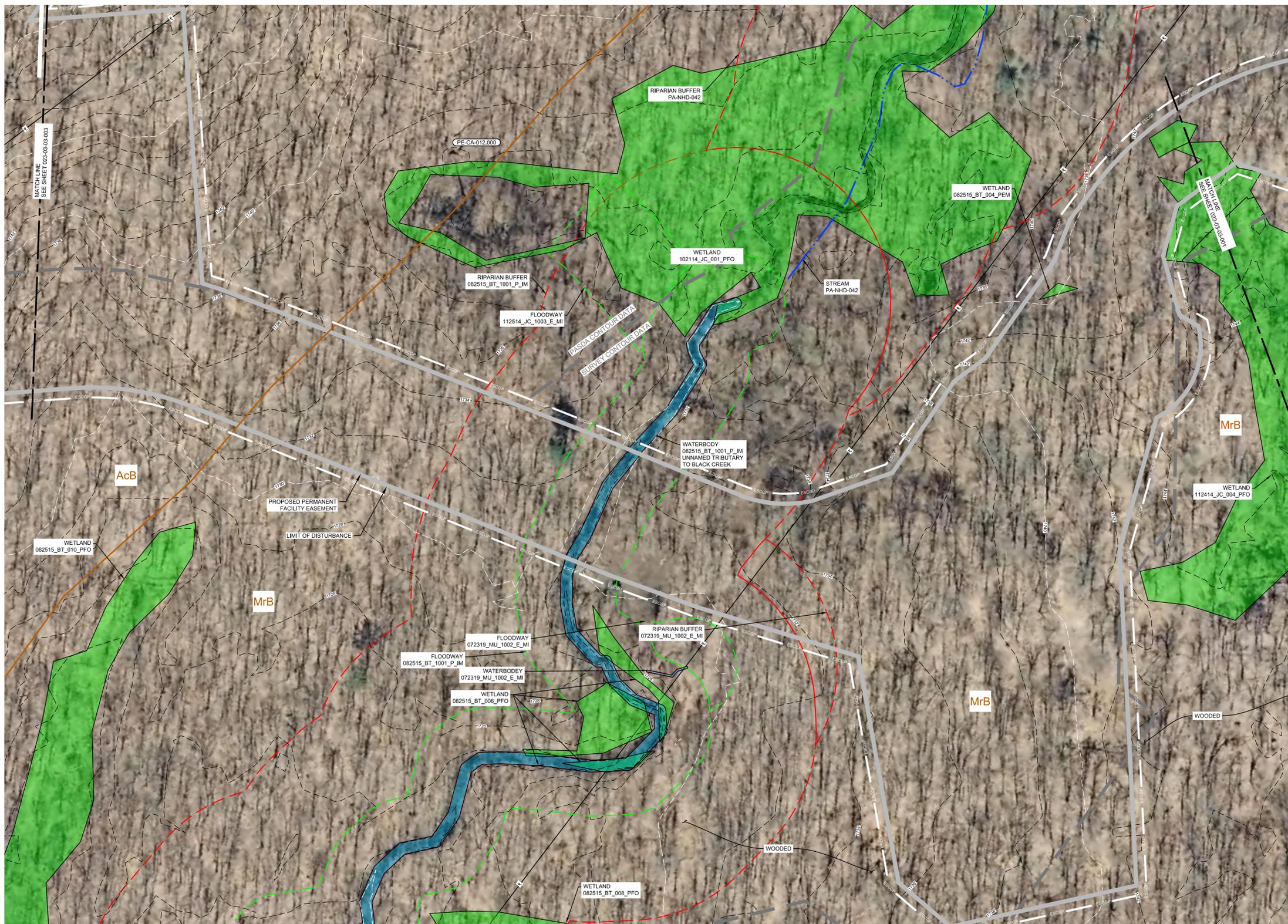


ENVIRONMENTAL NOTES:

1. AS PER §102.4(B)(5)(III), THE LAND USE CHARACTERISTICS ARE CLASSIFIED BY PRIMARY VEGETATION COVER TYPE AND/OR PREDOMINANT LAND USE. THE MAJORITY OF THE FACILITY SITE IS LAND USE TYPE FORESTED/WOODLAND, WITH ABOUT 0.1 ACRES OF THE WORKSPACE ON OPEN LAND.
2. AS PER §102.4(B)(5)(IV), THE SITE DRAINS TO AN UNT TO BLACK CREEK, WHICH HAS A CHAPTER 83 DESIGNATED USE OF HQ-CWF (HIGH QUALITY COLD WATER FISH), AND MF (MIGRATORY FISH).



CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCGP BOUNDARY
- EXISTING**
- PROPERTY LINE
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
 - SOIL TYPE ABBREVIATION
 - EXISTING UTILITY POLE
 - LINE LIST NUMBER
 - WETLAND (DELINEATED)
 - WATERBODY (DELINEATED)
 - APPROXIMATE 100 YEAR FLOODWAY
 - APPROXIMATE 150' RIPARIAN BUFFER
 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE

SITE PLAN
0 50' 100'
SCALE: 1" = 50'

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 4. WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
 5. HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP			10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP			10/2019	MWF(MM)	DOW(MM)	MJD(MM)



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PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
EXISTING CONDITIONS PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	023-03-03-002	REV. NO.	B

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CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCGP BOUNDARY
- EXISTING**
- PROPERTY LINE
 - 660' EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
 - SOIL TYPE ABBREVIATION
 - EXISTING UTILITY POLE
 - LINE LIST NUMBER
 - WETLAND (DELINEATED)
 - WATERBODY (DELINEATED)
 - APPROXIMATE 100 YEAR FLOODWAY
 - APPROXIMATE 150' RIPARIAN BUFFER
 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE

SITE PLAN
0 50' 100'
SCALE: 1" = 50'

- REFERENCE:**
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 - WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
 - HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP			10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP			10/2019	MWF(MM)	DOW(MM)	MJD(MM)

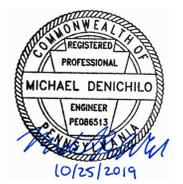


**PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
EXISTING CONDITIONS PLAN**
CARBON COUNTY, PENNSYLVANIA

DRAWN BY: CAF DATE ISSUED: 10/15/2018
CHECKED BY: KEK SCALE: AS SHOWN
APPROVED BY: JRD APPROVED BY: [Signature]

DWG. NO. 023-03-003 REV. NO. B

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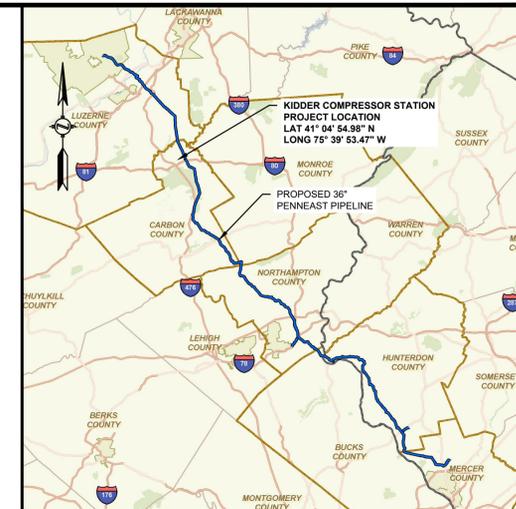


ENVIRONMENTAL NOTES:

- AS PER §102.4(B)(5)(III), THE LAND USE CHARACTERISTICS ARE CLASSIFIED BY PRIMARY VEGETATION COVER TYPE AND/OR PREDOMINANT LAND USE. THE MAJORITY OF THE FACILITY SITE IS LAND USE TYPE FORESTED/WOODLAND, WITH ABOUT 0.1 ACRES OF THE WORKSPACE ON OPEN LAND.
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CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

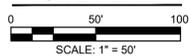
PROPOSED

- FACILITY PERMANENT EASEMENT
- FACILITY LIMITS OF DISTURBANCE
- ESCGP BOUNDARY

EXISTING

- PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SOIL BOUNDARY
- SOIL TYPE ABBREVIATION
- EXISTING UTILITY POLE
- LINE LIST NUMBER
- WETLAND (DELINEATED)
- WATERBODY (DELINEATED)
- APPROXIMATE 100 YEAR FLOODWAY
- APPROXIMATE 150' RIPARIAN BUFFER
- EXISTING ROAD CENTERLINE
- EXISTING OVERHEAD LINE

SITE PLAN



REFERENCE:

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REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
B	RE-ISSUED FOR PADEP			10/2019	MWF(MM)	DOW(MM)	MJD(MM)



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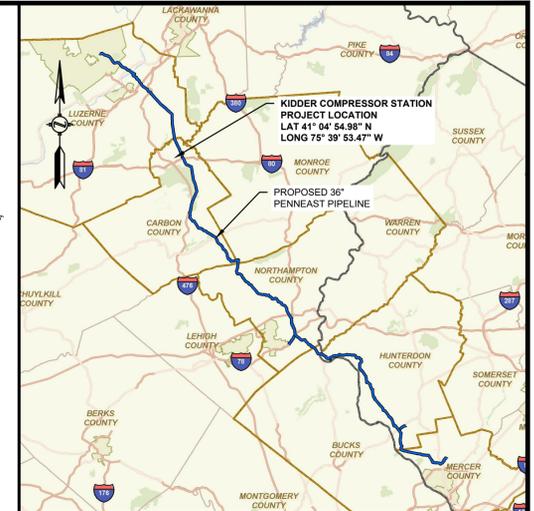
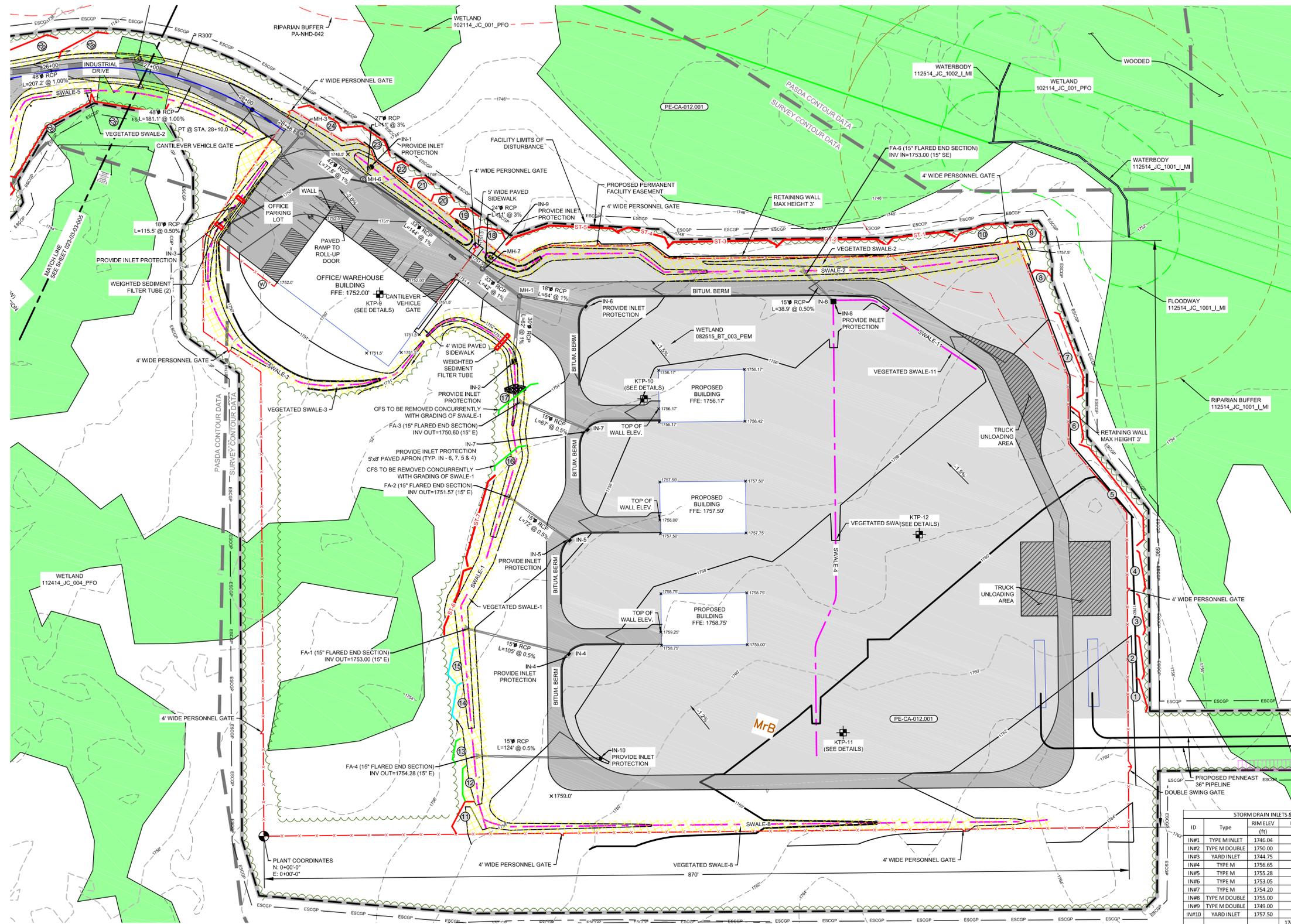


PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
EXISTING CONDITIONS PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/2019
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	023-03-03-003.1	REV. NO.	B

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CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



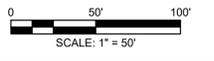
LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCGP BOUNDARY
 - PROPOSED MAJOR CONTOURS
 - PROPOSED MINOR CONTOURS
 - PROPOSED SPOT ELEVATION
 - PROPOSED PIPELINE
 - PROPOSED OVERHEAD LINE
 - PROPOSED FENCE
 - PROPOSED ACCESS ROAD
 - ROCK OUTLET PROTECTION
 - PROPOSED CULVERT
 - PROPOSED SWALE
 - 12" COMPOST FILTER SOCK
 - 18" COMPOST FILTER SOCK
 - 24" COMPOST FILTER SOCK
 - 32" COMPOST FILTER SOCK
 - COMPOST FILTER SOCK SEDIMENT TRAP
 - COMPOST FILTER SOCK NO. (SEE STANDARD E-S WORKSHEET #1 FOR SIZING)
 - ROCK CONSTRUCTION ENTRANCE
 - WEIGHTED SEDIMENT FILTER TUBE, 18"
 - ROCK FILTER
 - EROSION CONTROL BLANKETS
 - ORANGE SAFETY FENCE
 - PROPOSED TREELINE
- EXISTING**
- PROPERTY LINE
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
 - SOIL TYPE ABBREVIATION
 - EXISTING UTILITY POLE
 - LINE LIST NUMBER
 - WETLAND (DELINEATED)
 - WATERBODY (DELINEATED)
 - APPROXIMATE 100 YEAR FLOODWAY
 - APPROXIMATE 150' RIPARIAN BUFFER
 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE
 - TEST PITS

STORM DRAIN INLETS & MANHOLES				
ID	Type	RIM ELEV (ft)	INVERT IN (ft)	INVERT OUT (ft)
IN#1	TYPE M INLET	1746.04	NA	1743.81 (27' S)
IN#2	TYPE M DOUBLE	1750.00	NA	1745.54 (30' N)
IN#3	YARD INLET	1744.75	NA	1741.69 (18' NE)
IN#4	TYPE M	1756.65	NA	1753.53 (15' W)
IN#5	TYPE M	1755.28	NA	1751.94 (15' W)
IN#6	TYPE M	1753.05	NA	1746.47 (18' W)
IN#7	TYPE M	1754.20	NA	1750.95 (15' W)
IN#8	TYPE M DOUBLE	1755.00	NA	1753.19 (15' NW)
IN#9	TYPE M DOUBLE	1749.00	NA	1745.24 (24' S)
IN#10	YARD INLET	1757.50	NA	1754.90 (15' W)
M#1	5' DIA MH	1752.31	1744.92 (30' S)	1744.92 (33' W)
M#2	7' DIA MH	1746.73	1741.66 (42' E)	1740.42 (48' W)
M#3	5' DIA MH	1748.80	1742.96 (33' E)	1742.44 (42' W)
M#4	5' DIA MH	1751.80	1744.46 (33' E)	1744.46 (33' W)

SITE PLAN



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 - HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

REFERENCE DRAWINGS		REVISIONS				
DWG. NO.	TITLE	NO.	DATE	DRAWN	CHK	APPR
023-03-07-011	ACCESS ROAD PROFILE	A	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
		B	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
SOIL EROSION & SEDIMENT CONTROL PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	
DWG. NO.	023-03-03-004	REV. NO.	B



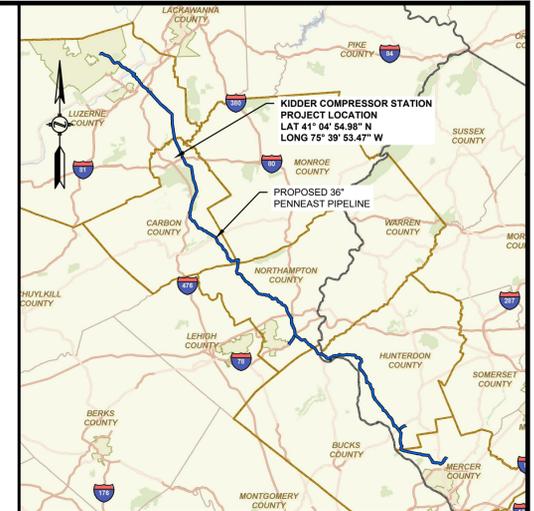
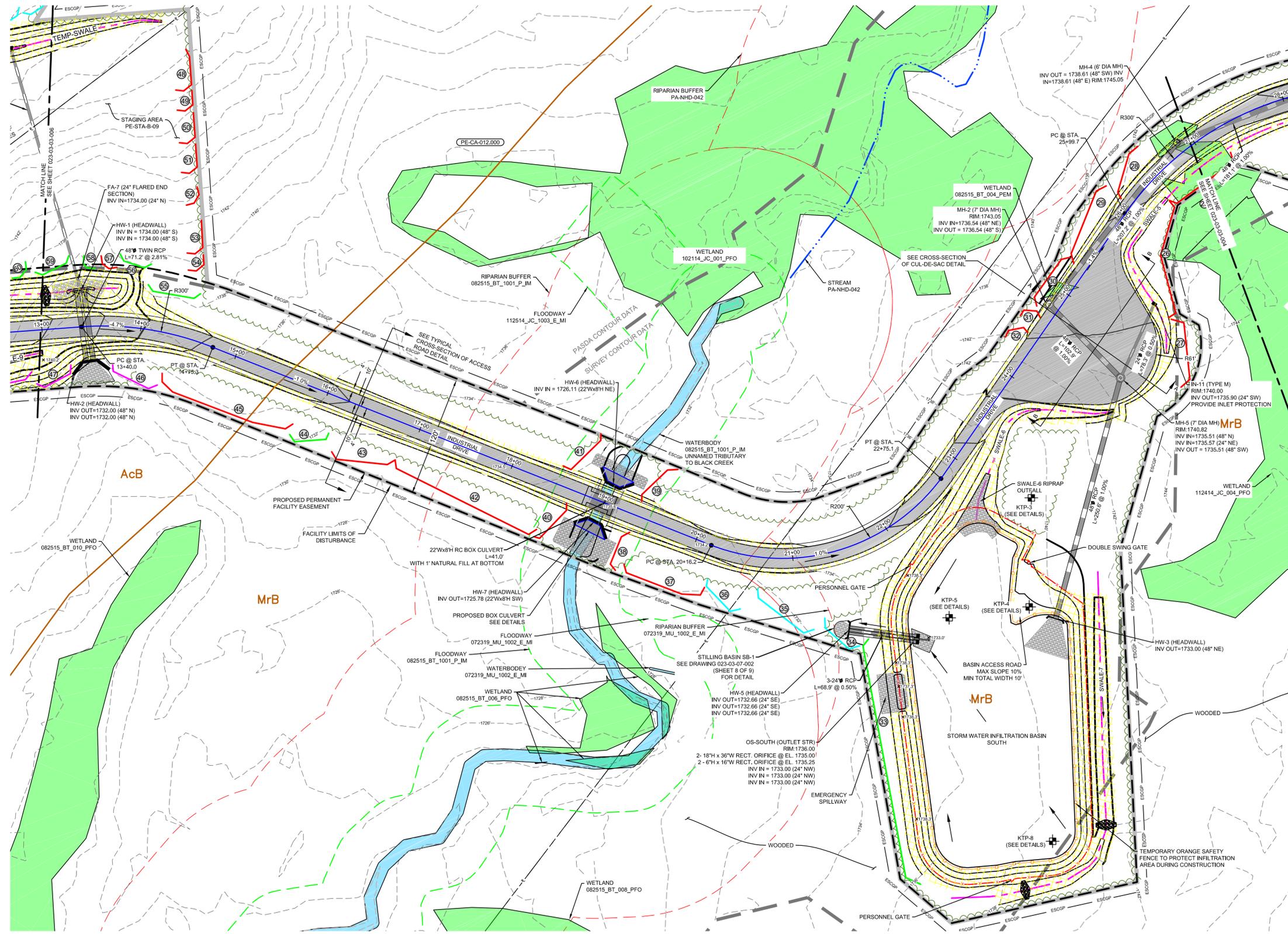
ENVIRONMENTAL NOTES:

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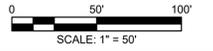
CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCCP BOUNDARY
 - PROPOSED MAJOR CONTOURS
 - PROPOSED MINOR CONTOURS
 - X 1733.1' PROPOSED SPOT ELEVATION
 - OH PROPOSED OVERHEAD LINE
 - PROPOSED FENCE
 - PROPOSED ACCESS ROAD
 - ROCK OUTLET PROTECTION
 - PROPOSED CULVERT
 - PROPOSED SWALE
 - 12" COMPOST FILTER SOCK
 - 18" COMPOST FILTER SOCK
 - 24" COMPOST FILTER SOCK
 - 32" COMPOST FILTER SOCK
 - COMPOST FILTER SOCK NO. (SEE STANDARD E+S WORKSHEET #1 FOR SIZING)
 - ROCK CONSTRUCTION ENTRANCE
 - WEIGHTED SEDIMENT FILTER TUBE, 18" (SEE FIG. 12A)
 - ROCK FILTER
 - EROSION CONTROL BLANKETS: SEE FIG. 23 & 24 (TYP.)
 - ORANGE SAFETY FENCE
 - PROPOSED TREELINE
- EXISTING**
- PROPERTY LINE
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
 - SOIL TYPE ABBREVIATION
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 - LINE LIST NUMBER
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 - APPROXIMATE 100 YEAR FLOODWAY
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 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE
 - TEST PITS

SITE PLAN



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REFERENCE DRAWINGS		REVISIONS			
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	APPR.
023-03-07-012	CROSS SECTION DETAIL	A	ISSUED FOR PADEP	10/15/2018	CAF(MM) WMC(MM) MJD(MM)
023-03-07-011	ACCESS ROAD PROFILE	B	RE-ISSUED FOR PADEP	10/20/19	MWF(MM) DOW(MM) MJD(MM)



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
SOIL EROSION & SEDIMENT CONTROL PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY: CAF DATE ISSUED: 10/15/2018
CHECKED BY: KEK SCALE: AS SHOWN
APPROVED BY: MJD APPROVED BY: [Signature]

DWG. NO. 023-03-03-005 REV. NO. B



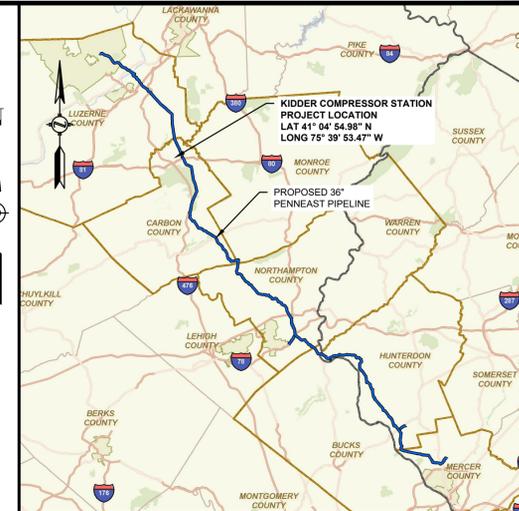
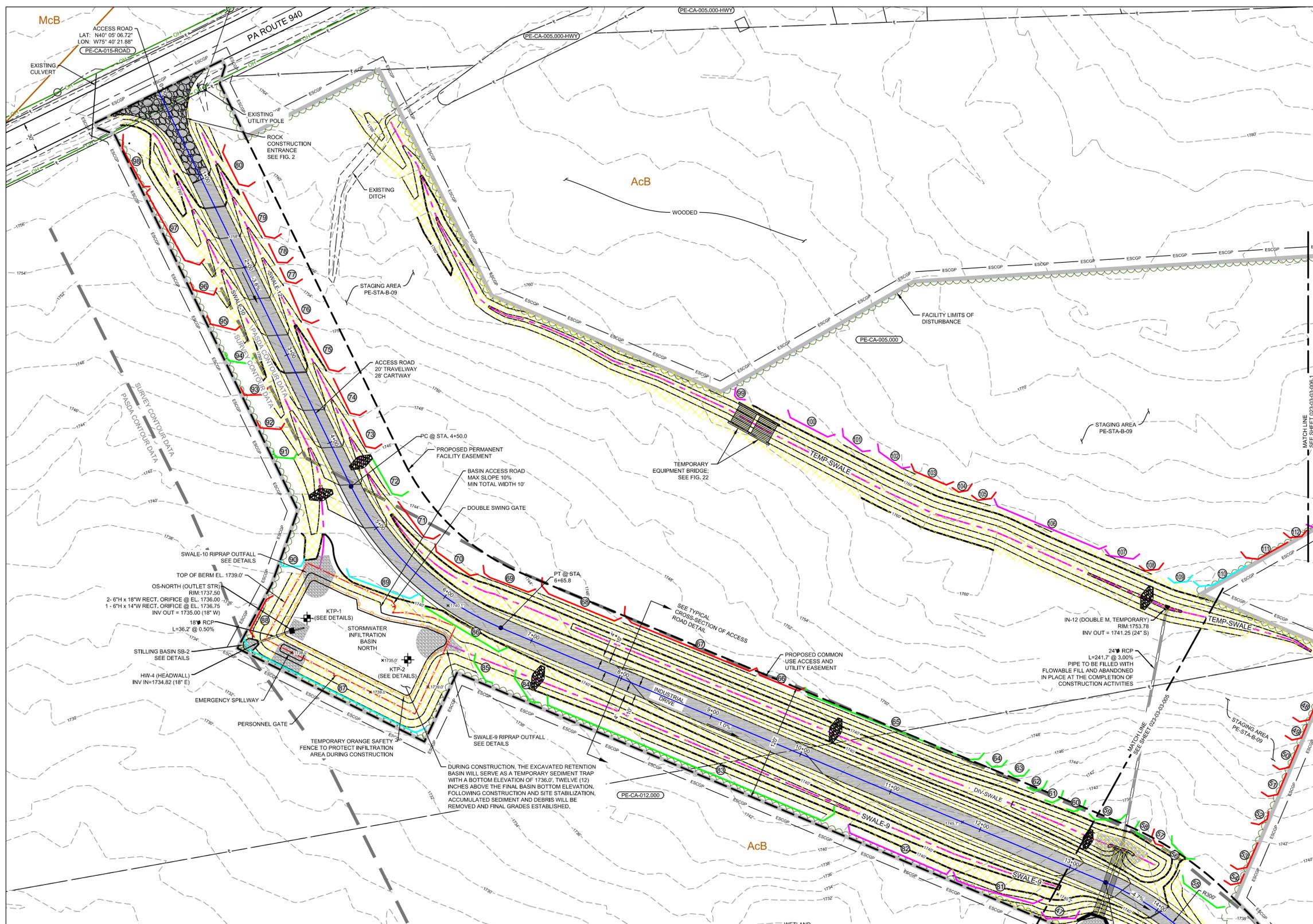
ENVIRONMENTAL NOTES:

- AS PER §102.4(b)(5)(iii), THE LAND USE CHARACTERISTICS ARE CLASSIFIED BY PRIMARY VEGETATION COVER TYPE AND/OR PREDOMINANT LAND USE. THE MAJORITY OF THE FACILITY SITE IS LAND USE TYPE FORESTED WOODLAND, WITH ABOUT 0.1 ACRES OF THE WORKSPACE ON OPEN LAND.
- AS PER §102.4(b)(5)(iv), THE SITE DRAINS TO AN UNT TO BLACK CREEK, WHICH HAS A CHAPTER 83 DESIGNATED USE OF HQ-CWF (HIGH QUALITY COLD WATER FISH), AND MF (MIGRATORY FISH).



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CARBON COUNTY, PENNSYLVANIA
USGS QUAD: HICKORY RUN, PENNSYLVANIA



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

- PROPOSED**
- FACILITY PERMANENT EASEMENT
 - FACILITY LIMITS OF DISTURBANCE
 - ESCGP BOUNDARY
 - 1265' PROPOSED MAJOR CONTOURS
 - PROPOSED MINOR CONTOURS
 - X 1733.1' PROPOSED SPOT ELEVATION
 - OH PROPOSED PIPELINE
 - PROPOSED OVERHEAD LINE
 - PROPOSED FENCE
 - PROPOSED ACCESS ROAD
 - ROCK OUTLET PROTECTION
 - PROPOSED CULVERT
 - PROPOSED SWALE
 - 12" COMPOST FILTER SOCK
 - 18" COMPOST FILTER SOCK
 - 24" COMPOST FILTER SOCK
 - 32" COMPOST FILTER SOCK
 - COMPOST FILTER SOCK NO. (SEE STANDARD E+S WORKSHEET #1 FOR SIZING)
 - ROCK CONSTRUCTION ENTRANCE
 - WEIGHTED SEDIMENT FILTER TUBE, 18"
 - ROCK FILTER
 - TEMPORARY EQUIPMENT BRIDGE
 - EROSION CONTROL BLANKETS
 - ORANGE SAFETY FENCE
 - PROPOSED TREELINE
- EXISTING**
- PROPERTY LINE
 - 660' EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - SOIL BOUNDARY
 - BhD SOIL TYPE ABBREVIATION
 - EXISTING UTILITY POLE
 - PE-CA-6466.000 LINE LIST NUMBER
 - WETLAND (DELINEATED)
 - WATERBODY (DELINEATED)
 - APPROXIMATE 100 YEAR FLOODWAY
 - APPROXIMATE 150' RIPARIAN BUFFER
 - EXISTING ROAD CENTERLINE
 - EXISTING OVERHEAD LINE
 - TEST PITS

SITE PLAN
0 50' 100'
SCALE: 1" = 50'

- REFERENCE:**
- EXISTING CONTOURS SHOWN WERE SURVEYED BY MOTT MACDONALD DURING 2015 THRU 2019. ADDITIONAL EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015 AND SUPPLEMENTED FROM USGS.
 - SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 THRU 2019.
 - PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
 - WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
 - HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

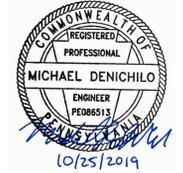
REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
023-03-07-011	ACCESS ROAD PROFILE	A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
		B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)

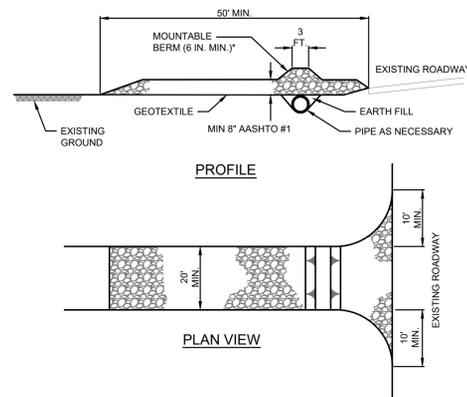


PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
SOIL EROSION & SEDIMENT CONTROL PLAN
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	
DWG. NO.	023-03-03-006	REV. NO.	B

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* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK COVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

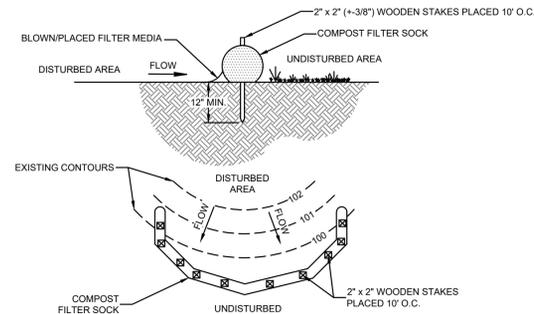
MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK, WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.



NO.	REVISION DESCRIPTION	DATE	DRAWN	CK	APPR.

PENNEAST PIPELINE PROJECT
**ROCK CONSTRUCTION ENTRANCE
 STANDARD CONSTRUCTION DETAIL
 #3-1**
 FIGURE 2



SOCK FABRIC SHALL MEET MINIMUM SPECIFICATIONS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30-50% PASS THROUGH 3/8\"/>
SOLUBLE SALT CONCENTRATION	5.0 ds MAXIMUM

NOTES:

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS SOIL SUPPLEMENT.

THIS BMP IS AN APPROVED ABACT (ANTI-DEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES) FOR USE IN HQ/EV WATERSHEDS.

18\"/>



NO.	REVISION DESCRIPTION	DATE	DRAWN	CK	APPR.

PENNEAST PIPELINE PROJECT
**COMPOST FILTER SOCK
 STANDARD CONSTRUCTION DETAIL
 #4-1**
 FIGURE 4

**TABLE 4.1
 Compost Sock Fabric Minimum Specifications**

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFFP)	Heavy Duty Multi-Filament Polypropylene (HDMFFP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12\"/>				
Mesh Opening	3/8\"/>				
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting	HDPE biaxial net Continuously wound Fusion-welded junctures 3/4\"/>				
Outer Filtration Mesh	Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16\"/>				
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					



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PENNEAST PIPELINE PROJECT
**COMPOST SOCK FABRIC
 MINIMUM SPECIFICATIONS**
 FIGURE 4A

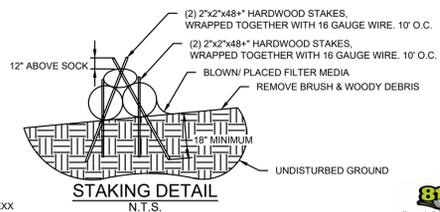
Maximum Slope Length for Compost Filter Sock

Slope - Percent	Maximum Slope Length (ft) Above Sock			
	Filter Sock Diameter (inches)			
5	250	350	500	650
10	150	250	300	400
15	100	200	250	350
20	70	150	200	250
25	50	100	150	180
30	45	70	100	130
35	40	60	90	100
40	35	45	80	90
45	30	40	60	80
50	20	30	40	60

ADAPTED FROM PA DEP GRAPH (FIGURE 4.2)
 SLOPES OVER 50% NEED A 32-INCH DURASOXX INDEPENDENT OF UPSLOPE LENGTH.

THREE COMPOST FILTER SOCKS MAY BE STACKED IN PYRAMIDAL FORM AND USED IN PLACE OF 24-INCH OR 32-INCH COMPOST FILTER SOCK WHERE NECESSARY. THE FOLLOWING EQUIVALENCY TABLE SHALL BE USED IN SUCH INSTANCES:

SINGLE COMPOST FILTER SOCK DIAMETER	ACCEPTABLE COMPOST FILTER SOCK PYRAMIDAL CONFIGURATION EQUIVALENT
24-INCH	12\"/>
32-INCH	18\"/>

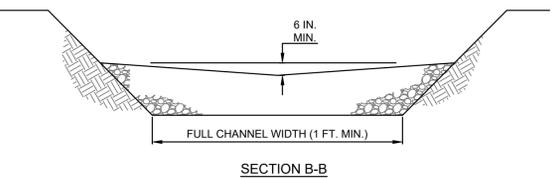
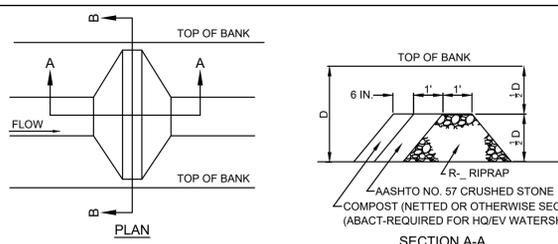


ADAPTED FROM FILTREXX



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PENNEAST PIPELINE PROJECT
**MAXIMUM SLOPE LENGTH
 FOR COMPOST FILTER SOCK**
 FIGURE 4B



FOR D ≥ 3 FT. - USE R-4
 FOR D ≥ 2 FT. TO D < 3 FT. - USE R-3
 NOT APPLICABLE FOR D < 2 FT.

NOTES:

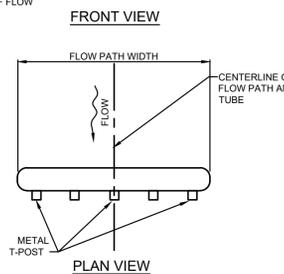
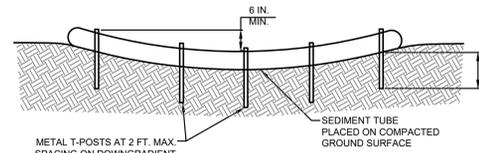
SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.

IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, INSTALLER REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.



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PENNEAST PIPELINE PROJECT
**ROCK FILTER
 STANDARD CONSTRUCTION DETAIL
 #4-14**
 FIGURE 12



NOTES:

THIS DETAIL APPLICABLE TO FLOW PATHS WITH WIDTHS LESS THAN OR EQUAL TO ONE TUBE LENGTH.

METAL T-POSTS SHALL BE INSTALLED AT THE CENTER AND AT EACH END OF THE TUBE. ADDITIONAL T-POSTS SHALL BE INSTALLED AS NEEDED TO MEET THE MAXIMUM 2-FOOT SPACING.

SEDIMENT TUBES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE TUBE AND DISPOSED AS DIRECTED ELSEWHERE IN THE E&S PLAN.

DAMAGED TUBES SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION. A SUPPLY OF TUBES SHALL BE KEPT ON SITE FOR THIS PURPOSE.



NO.	REVISION DESCRIPTION	DATE	DRAWN	CK	APPR.

PENNEAST PIPELINE PROJECT
**WEIGHTED SEDIMENT FILTER TUBE
 INSTALLATION, CONCENTRATED FLOW AREA
 STANDARD CONSTRUCTION DETAIL #4-4**
 FIGURE 12A



CLIENT APPROVAL
 DATE

REVISIONS

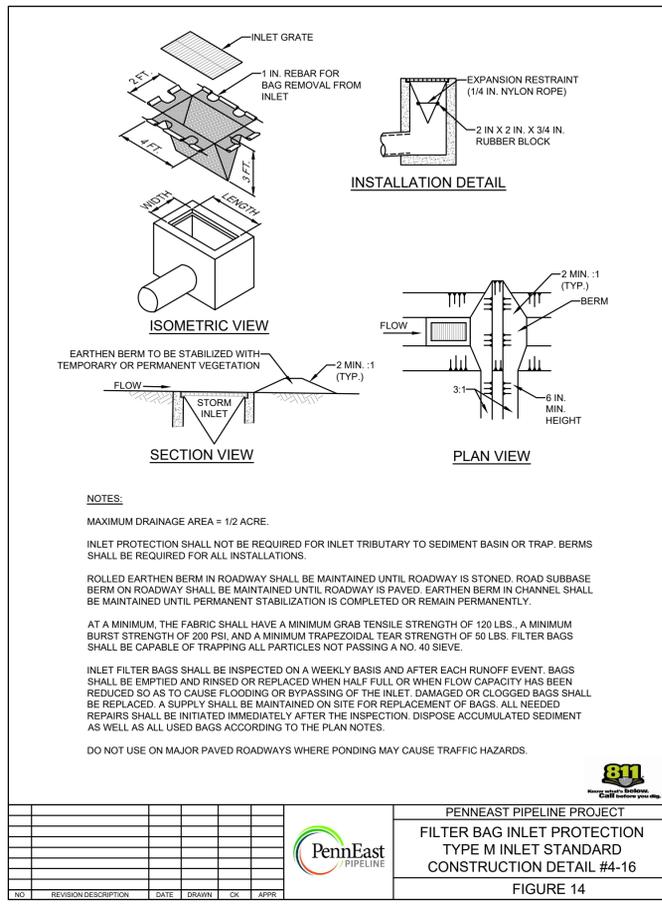
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A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)

PENNEAST PIPELINE PROJECT
**KIDDER COMPRESSOR STATION
 E&S TYPICAL DETAILS
 CARBON COUNTY, PENNSYLVANIA**

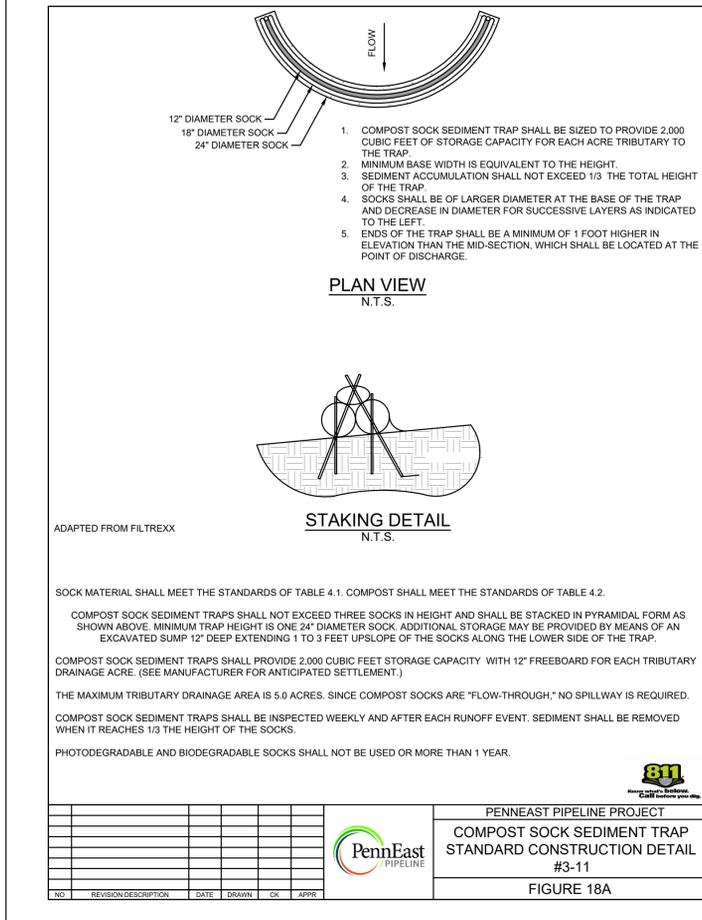
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 CHECKED BY KEK SCALE AS SHOWN
 APPROVED BY MJD APPROVED BY

DWG. NO. 023-03-04-001 REV. NO. 8

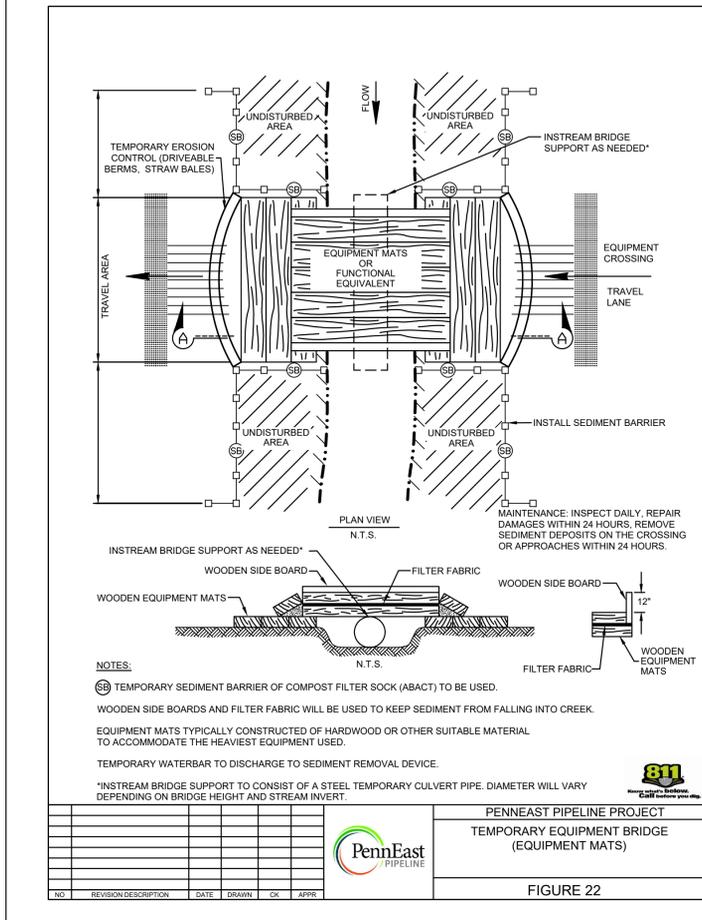
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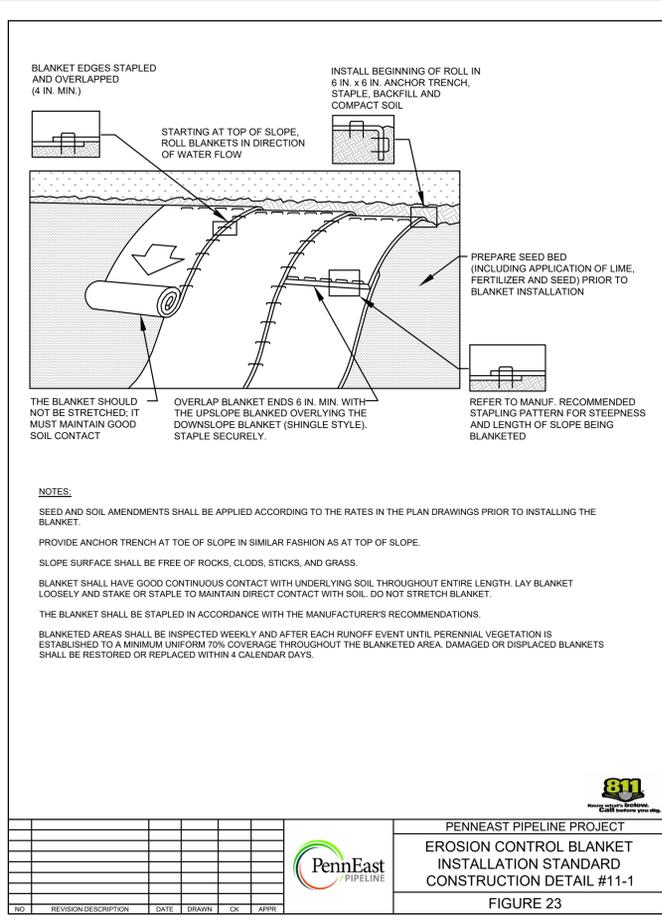
PENNEAST PIPELINE PROJECT
FILTER BAG INLET STANDARD CONSTRUCTION DETAIL #4-16
 FIGURE 14



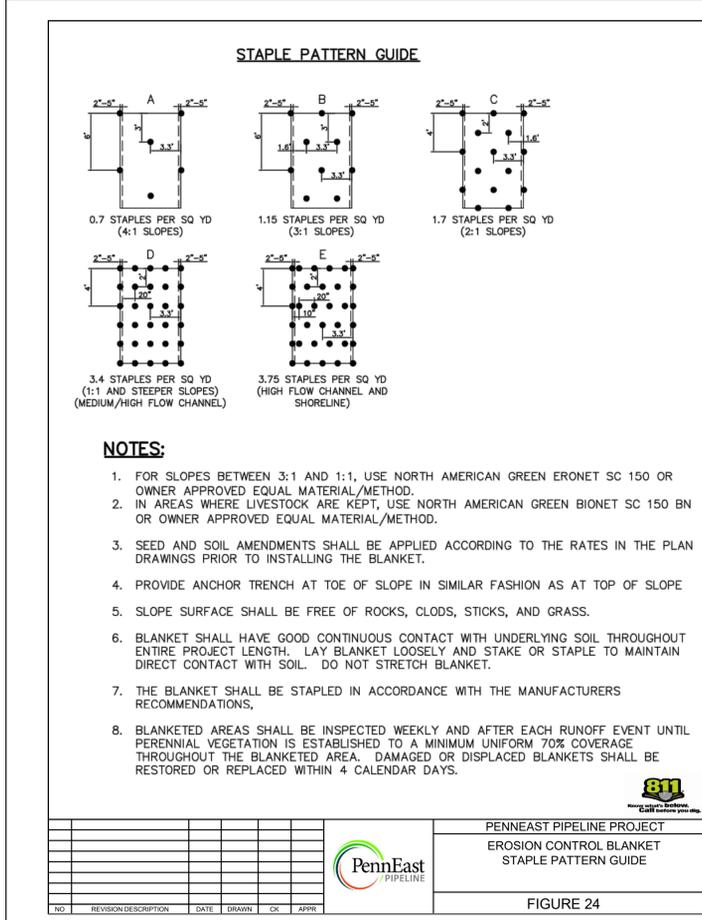
PENNEAST PIPELINE PROJECT
COMPOST SOCK SEDIMENT TRAP STANDARD CONSTRUCTION DETAIL #3-11
 FIGURE 18A



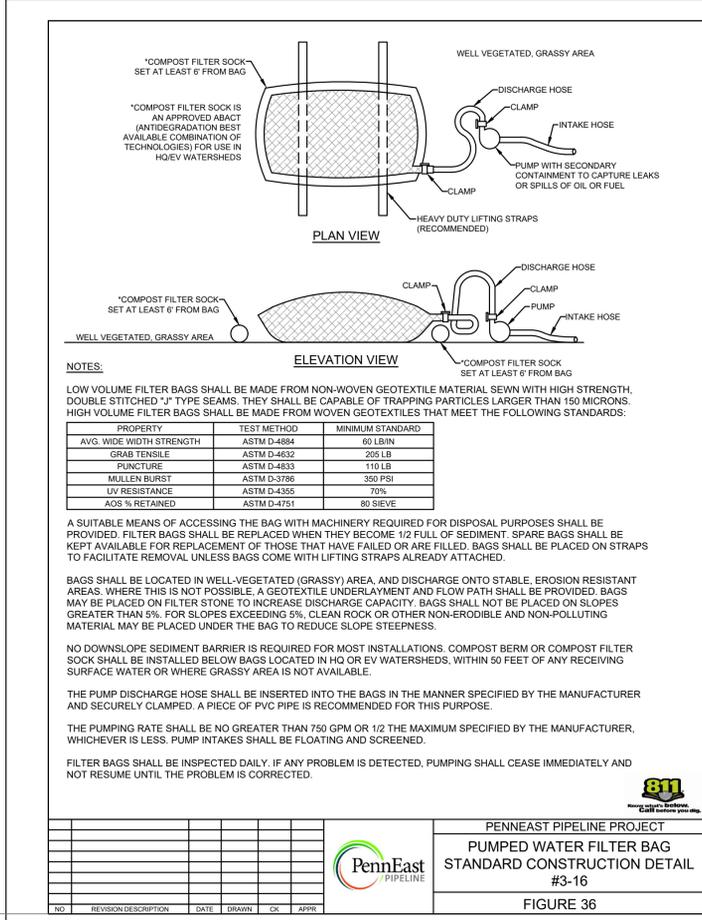
PENNEAST PIPELINE PROJECT
TEMPORARY EQUIPMENT BRIDGE (EQUIPMENT MATS)
 FIGURE 22



PENNEAST PIPELINE PROJECT
EROSION CONTROL BLANKET INSTALLATION STANDARD CONSTRUCTION DETAIL #11-1
 FIGURE 23



PENNEAST PIPELINE PROJECT
EROSION CONTROL BLANKET STAPLE PATTERN GUIDE
 FIGURE 24



PENNEAST PIPELINE PROJECT
PUMPED WATER FILTER BAG STANDARD CONSTRUCTION DETAIL #3-16
 FIGURE 36



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

CLIENT APPROVAL

DATE

REVISIONS

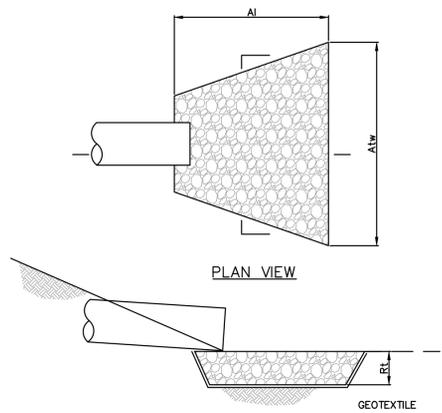
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B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)

PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION E&S TYPICAL DETAILS
 CARBON COUNTY, PENNSYLVANIA

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OUTLET NO.	PIPE DIA. P _d (IN)	RIPRAP			APRON	
		SIZE (R-)	THICK R _t (IN)	LENGTH A _i (FT)	INITIAL WIDTH A _w (FT)	TERMINAL WIDTH A _{tw} (FT)
BASIN SOUTH (HW#3)	48	R-6	36	30	12	42
HW#2	48	R-5	27	30	24	54

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

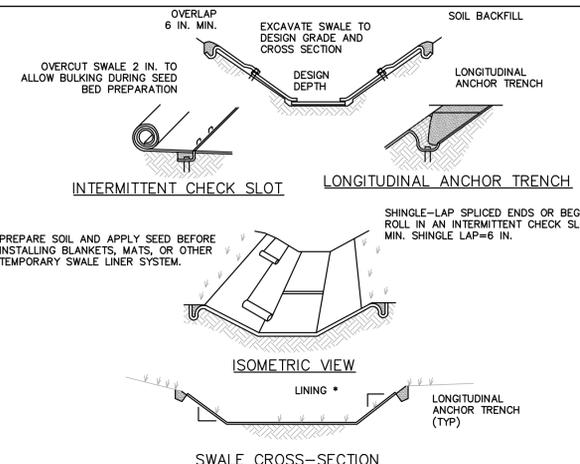
EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.



PENNEAST PIPELINE PROJECT

RIPRAP APRON AT PIPE OUTLET NO. FLARED ENDWALL STANDARD CONSTRUCTION DETAIL #9-2

FIGURE 39



* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

NOTES:

ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF SWALE IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

SWALE DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. SWALE SHALL BE CLEANED WHENEVER TOTAL SWALE DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO SWALE WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT SWALES TO ENSURE SUFFICIENT SWALE CAPACITY.

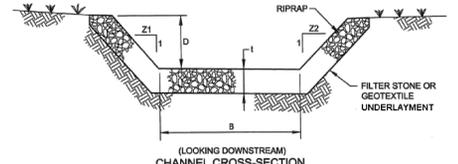
CHANNEL ID	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)
SWALE1	6	2	3	3
SWALE3	4	1	3	3
SWALE4	3	1	3	3
SWALE6	4	2	3	3
SWALE9	3	2	3	3
TEMP-SWALE	2	2.5	3	3



PENNEAST PIPELINE PROJECT

VEGETATED CHANNEL STANDARD CONSTRUCTION DETAIL #6-1

FIGURE 49



Stackhouse Bensinger, Inc.

Filter stone underlayment for bed slopes > 0.10 ft/ft shall be used.

Channel dimensions are for the completed channel after rock placement. Channel must be over-excavated a sufficient amount to allow for the volume of rock placed within the channel while providing the specified finished dimensions.

Channel dimensions shall be constantly maintained. Channel shall be cleaned whenever total channel depth is reduced by 25% at any location. sediment deposits shall be removed within 24 hours of discovery or as soon as soil conditions permit access to channel without further damage.

Damaged lining shall be repaired or replaced within 48 hours of discovery.

The minimum rock thickness (t) shall be 1.5 times the max rock size.

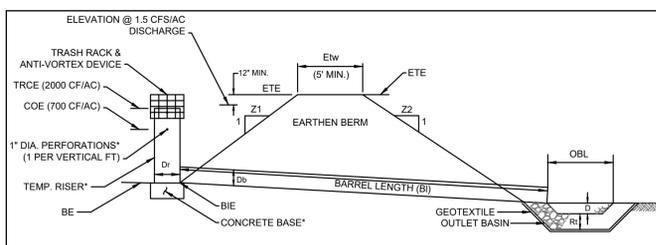
CHANNEL ID	BOTTOM WIDTH W _o (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP GRADATION	ROCK THICKNESS t (IN)	UNDERLAYMENT	UNDERLAYMENT THICKNESS (IN)
DIV. SWALE	6	4	2.5	2	R-3	9	AASHTO#3	6
SWALE10	3	2	3	3	R-4	18	AASHTO#3	6
SWALE11	4	1	3	3	R-3	9	AASHTO#3	6
SWALE12	2	2	3	3	R-6	63	AASHTO#3	6
SWALE2	3	2	3	3	R-4	18	AASHTO#3	6
SWALE5	4	2	3	3	R-3	9	AASHTO#3	6
SWALE7	4	2	3	3	R-4	18	AASHTO#3	6
SWALE8	2	1	3	3	R-3	9	AASHTO#3	6



PENNEAST PIPELINE PROJECT

RIPRAP CHANNEL STANDARD CONSTRUCTION DETAIL #6-3

FIGURE 50



TRAP NO.	Z1 (FT)	Z2 (FT)	RISER			BARREL			EMBANKMENT		CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)			
			DIA D _r (IN)	CREST TRCE (FT)	BOT PERELEV (FT)	DIA D _b (IN)	INLET ELEV BIE (FT)	LENGTH BI (FT)	OUTLET ELEV BOE (FT)	TOP ELEV ETE (FT)			TOP WIDTH Etw (FT)		
NORTH BASIN	3	4	PVC	18	1738.0	1736.25	PVC	14	1736.0	36.2	1735.0	1739.0	8	1736.25	1736.0

TRAP NO.	CONCRETE BASE			OUTLET BASIN				
	LENGTH CBI (IN)	WIDTH CBw (IN)	THICKNESS CBT (IN)	RIPRAP SIZE (R-)	Rock Thickness Rt (IN)	DEPTH D (IN)	WIDTH OBW (FT)	LENGTH OBL (FT)
NORTH BASIN	36	36	12	R-3	12	12	3.5	7

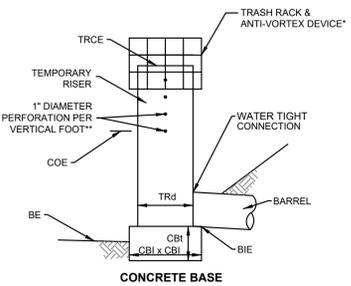
- In special protection - HQ or EV - watersheds, add 6" layer of compost on top of stone or replace stone with suitable compost filter sock.
- Fill material for the embankments shall be free of roots, or other woody vegetation, organic material, large stones, and other objectionable materials. The embankment shall be compacted in layered lifts of not more than 6" to 9". The maximum rock size shall be no greater than 2/3 the lift thickness.
- Upon completion, the embankment shall be seeded, mulched, and blanketed or otherwise stabilized according to the specifications of the E&S plan drawings.
- All sediment traps shall be inspected at least weekly and after each runoff event.
- Access for sediment removal and other required maintenance activities shall be provided.
- A clean out stake shall be placed near the center of each trap. Accumulated sediment shall be removed when it has reached the clean out elevation on the stake and the trap restored to its original dimensions. Dispose of materials removed from the trap in the manner described in the E&S plan.
- Check embankments, spillways, and outlets for erosion, piping and settlement. Clogged or damaged spillways and/or embankments shall be immediately restored to the design specifications.
- Displaced riprap within the outlet protection shall be replaced immediately.



PENNEAST PIPELINE PROJECT

BARREL/RISER SEDIMENT TRAP STANDARD CONSTRUCTION DETAIL #8-2

FIGURE 51



TRAP NO.	TEMPORARY RISER			CONCRETE BASE		BARREL	
	DIA TRd (IN)	CREST ELEV TRCE (FT)	CLEAN OUT ELEV COE (FT)	LENGTH CBI (IN)	WIDTH CBw (IN)	THICK. CBT (IN)	INLET ELEV BIE (FT)
NORTH BASIN	18	1738.0	1736.25	36	36	14	1736.0

- Clogged or damaged spillways shall be repaired immediately. Trash and other debris from the trap and riser shall be removed.
- Place a minimum of 2 #8 rebar at right angles and projecting through sides of riser to anchor it to concrete base. Rebar shall project a minimum of 1/4 riser diameter beyond outside of riser.
- Concrete base shall be poured in such a manner as to ensure that concrete fills bottom of riser to invert of the outlet pipe to prevent riser from breaking away from the base. Minimum base width equals 2 times riser diameter.
- Embedded section of aluminum or aluminumized pipe shall be painted with zinc chromate or equivalent.



PENNEAST PIPELINE PROJECT

SEDIMENT BASIN TEMPORARY RISER STANDARD CONSTRUCTION DETAIL #7-7

FIGURE 52



CLIENT APPROVAL

DATE

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B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



PENNEAST PIPELINE PROJECT

KIDDER COMPRESSOR STATION

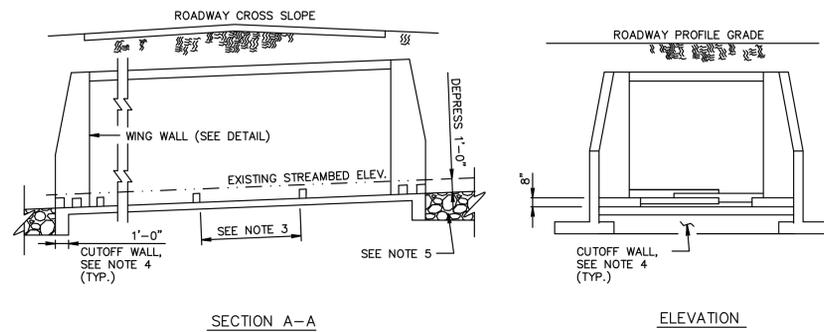
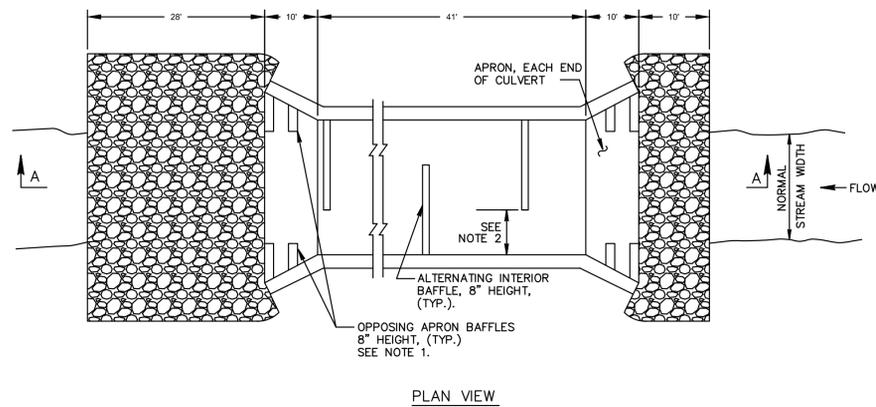
E&S TYPICAL DETAILS

CARBON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018

CHECKED BY KEK SCALE AS SHOWN

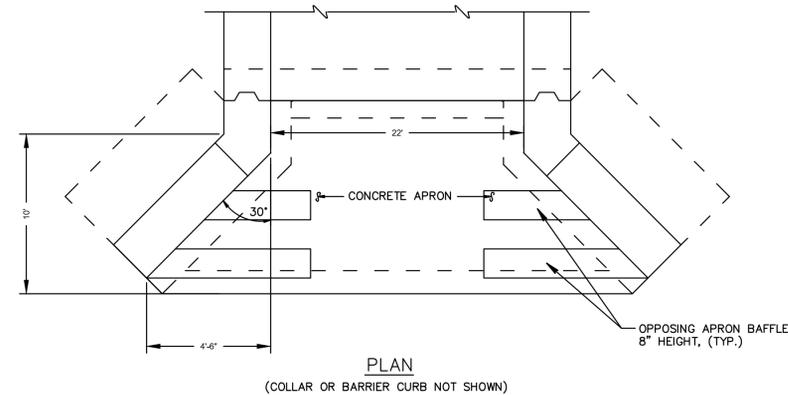
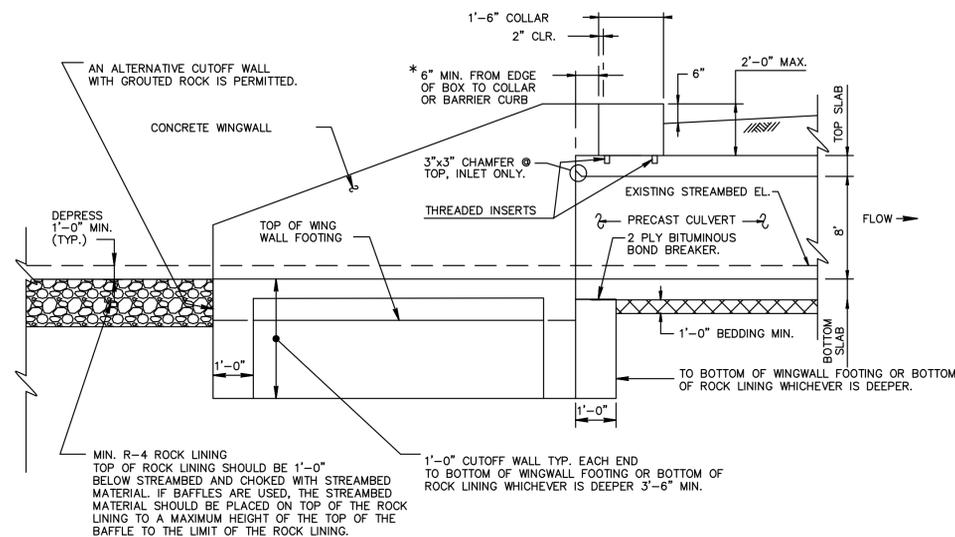
APPROVED BY MJD APPROVED BY



NOTES:

1. THE OPENING IN THE APRON BAFFLES SHOULD BE EQUAL TO AVERAGE NORMAL WIDTH OF THE STREAM. THE APRON BAFFLES SHOULD CONNECT TO THE WING WALLS AT EACH SIDE OF THE CULVERT. PLACE THE FIRST SET OF BAFFLES AT THE END OF THE APRON. IF THE APRON IS GREATER THAN 8'-0" LONG, A SECOND SET OF OPPOSING BAFFLES ARE REQUIRED TO BE SET AT 1/2 THE DISTANCE FROM THE END BAFFLE TO THE FACE OF THE BOX. FOR LONGER APRONS, BAFFLES NOT TO EXCEED 8' - 0" SPACING.
2. THE OPENING IN THE INTERIOR BAFFLES SHOULD BE EQUAL TO 1/3 THE AVERAGE NORMAL WIDTH OF THE STREAM.
3. BAFFLES SHOULD BE SPACED AT THE AVERAGE NORMAL STREAM WIDTH OR 8' , WHICHEVER IS GREATER. THE FIRST INTERIOR BAFFLE AT THE OUTLET SHOULD BE LOCATED AS CLOSE TO THE DOWNSTREAM END OF CULVERT AS POSSIBLE AND SPACED ACCORDINGLY FROM THAT POINT TO THE INLET. CUTOFF WALL IS TO ENSURE STREAMFLOW DOES NOT PASS BENEATH THE CULVERT. BOTTOM OF CUTOFF WALL IS TO EQUAL WING WALL FOOTINGS OR ROCK LINING WHICHEVER IS DEEPER 3'-6" MIN.
4. ROCK LINING AT THE INLET AND OUTLET SHOULD BE DEPRESSED THE ENTIRE LENGTH AND CHOKED WITH NATURAL STREAMBED MATERIAL. THE ROCK SHOULD BE FLUSH WITH THE CULVERT BOTTOM, NOT THE TOP OF THE BAFFLES. STREAMBED MATERIAL SALVAGED FROM EXCAVATION FOR THE BOX CULVERT SHOULD BE PLACED ON TOP OF THE ROCK LINING AND APRON TO THE MAXIMUM HEIGHT OF THE TOP OF THE BAFFLE TO THE LIMIT OF THE ROCK LINING TO FACILITATE THE DEVELOPMENT OF A NATURAL STREAM BOTTOM IF FEASIBLE.
5. THE SLOPE OF THE NEW STRUCTURE SHOULD MATCH THE NATURAL STREAM SLOPE.

PRE-FABRICATED BOX CULVERT
NOT TO SCALE



CULVERT WINGWALLS
NOT TO SCALE

BOX CULVERT DESIGN CRITERIA

THE ENGINEER OF RECORD SHALL DELEGATE THE RESPONSIBILITY FOR THE DESIGN AND PLANS OF THE BOX CULVERT TO A SPECIALTY ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA. BASIS OF DESIGN AND PROVIDED ITEMS ASSOCIATED WITH THE BOX CULVERT CONSTRUCTION SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. SUBMIT SHOP DRAWINGS AND CALCULATIONS TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO FABRICATING ANY BRIDGE COMPONENTS. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BE SIGNED, DATED, AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN PENNSYLVANIA.
2. BOX CULVERT DESIGN AND CONSTRUCTION SHALL MEET THE FOLLOWING CRITERIA:
 - a. DESIGN SPECIFICATIONS: AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LOAD AND RESISTANCE FACTOR (LRFD) BRIDGE DESIGN SPECIFICATIONS (7TH EDITION AND ALL SUBSEQUENT INTERIMS.
 - b. GOVERNING CONSTRUCTION SPECIFICATIONS: COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION (PENNDOT) PUBLICATION 408/2016 SPECIFICATIONS AS AMENDED BY THESE PLANS OR PROJECT SPECIFICATIONS.
 - c. DESIGN LOADINGS:
 - i. DEAD LOADS
 1. SELF-WEIGHT OF ALL STRUCTURAL COMPONENTS AND TRAFFIC RAILING
 2. EARTHWORK/FILL - 120 PCF
 3. ASPHALT - 145 PCF
 4. FUTURE ADDITIONAL ASPHALT - 15 PSF
 - ii. LIVE LOADS FOR BOX CULVERT AND WING WALLS
 1. HL-93 DESIGN LOAD
 2. PENNDOT LEGAL LOAD FOR LOAD RATING
 3. CONSTRUCTION LOADING: IT IS THE CONSTRUCTION CONTRACTOR'S RESPONSIBILITY TO PROVIDE SUPPORT FOR CONSTRUCTION LOADS THAT EXCEED HL-93 LOADING AND ANY CONSTRUCTION LOAD APPLIED PRIOR TO THE PLACEMENT OF THE DESIGN COMPACTED FILL ABOVE THE TOP SLAB.
 4. TL-3 TRAFFIC RAILING LOAD
 - d. DESIGN SERVICE LIFE = 75 YEARS
 - e. MATERIAL PROPERTIES AND CONCRETE CLEAR COVER SHALL MEET PENNDOT REQUIREMENTS.
 - f. FILTER FABRIC SHALL BE PLACED OVER JOINTS IN SLABS AND HEADWALLS AS REQUIRED TO PREVENT SOIL LEACHING UNDER FULLY SUBMERGED CONDITIONS. THE DESIGN LIFE OF THE FILTER FABRIC AND PLACEMENT DETAILS SHALL BE NO LESS THAN THE BOX CULVERT DESIGN SERVICE LIFE.
 - g. BOX CULVERT GEOMETRY SHALL PROVIDE THE REQUIRED HYDRAULIC OPENING, SLAB ELEVATIONS, AND BRIDGE WIDTH SHOWN IN THE PLANS. LARGER STRUCTURES WHICH MEET THE PROJECT REQUIREMENTS MAY BE PROVIDED.
 - h. LIMIT DIFFERENTIAL SETTLEMENT BETWEEN SEPARATE ADJACENT PRECAST BOX SECTIONS TO 0.50 INCHES OR LESS.
 3. CONTRACTOR SHALL SUBMIT A SIGNED AND SEALED LOAD RATING FOR THE AS-BUILT CONDITION OF THE BOX CULVERT MEETING THE REQUIREMENTS OF THE PENNDOT BRIDGE SAFETY INSPECTION MANUAL (PUB 238, CURRENT EDITION).
 4. CONTRACTOR SHALL PROVIDE AS-BUILT BOX CULVERT PLANS AND A CERTIFICATION LETTER STATING THAT THE STRUCTURE HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. BOTH THE AS-BUILT PLANS AND THE CERTIFICATION LETTER SHALL BE SIGNED AND SEALED BY THE BOX CULVERT SPECIALTY ENGINEER.

DETAILS FOR CONCRETE CULVERT AS ADOPTED FROM PENNDOT PUBLICATION 218M: BRIDGE DESIGN (BD) STANDARDS, BD-632M, DATED NOV. 2014.

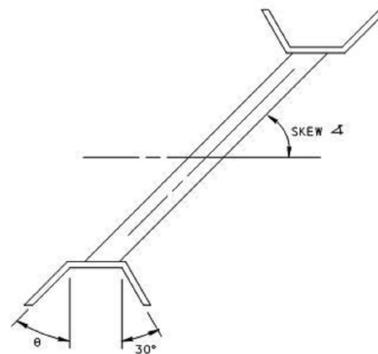
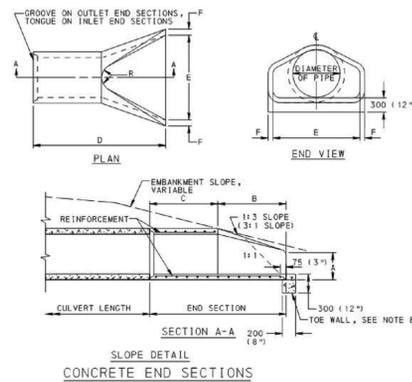
PROJECT BOX CULVERT STRUCTURE DIMENSIONS	
CULVERT SPAN (FT) =	22
CULVERT RISE (FT) =	8
OPENING OF INTERIOR BAFFLE (FT) =	4 (SEE NOTE 2)
BAFFLE SPACING (FT) =	11 (SEE NOTE 3)
RIPRAP LINING D50 (in) =	12
NOMINAL PLACEMENT THICKNESS (in) =	30

CLIENT APPROVAL					
DATE					
REVISIONS					
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B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
BOX CULVERT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	

DWG. NO.	023-03-07-001	REV. NO.	8
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METRIC EQUATION

$$**SD = \frac{D_{D-W}}{\cos \theta} = \frac{D_{D-W}}{\sin \text{SKEW } \Delta}$$

$$L_{D-W} = SD + 0.70 \text{ m}$$

$$W_1 = \frac{2D_{D-W} - 0.60 \text{ m}}{\cos \theta} \text{ FOR 1:2 SLOPE}$$

$$W_1 = \frac{X}{\cos \theta} (D_{D-W} - 0.5 - \frac{1.0}{X}) \text{ (FOR VARIABLE SLOPE WHEN X EQUALS HORIZONTAL DIMENSION OF THE SLOPE DESIGNATION.)}$$

ENGLISH EQUATION

$$**SD = \frac{D_{D-W}}{\cos \theta} = \frac{D_{D-W}}{\sin \text{SKEW } \Delta}$$

$$L_{D-W} = SD + 2.3'$$

$$W_1 = \frac{2D_{D-W} - 2.0'}{\cos \theta} \text{ FOR 2:1 SLOPE}$$

$$W_1 = \frac{X}{\cos \theta} (D_{D-W} - 0.5 - \frac{1.0}{X}) \text{ (FOR VARIABLE SLOPE WHEN X EQUALS HORIZONTAL DIMENSION OF THE SLOPE DESIGNATION.)}$$

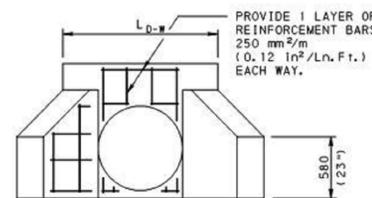
GENERAL NOTES

- PROVIDE END SECTIONS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 616. PROVIDE GALVANIZED STEEL END SECTIONS WHEN SECTIONS ARE REQUIRED WITH ALUMINIZED STEEL PIPE OR PRECOATED GALVANIZED STEEL PIPE.
- PROVIDE 2.77 THICK (12 GAGE) SIDES AND 3.50 THICK (10 GAGE) CENTER PANELS FOR 3 PIECE UNITS. PROVIDE CENTER PANEL WIDTH GREATER THAN 20% OF PIPE PERIPHERY. PROVIDE 50 (2") LAP JOINT TIGHTLY FASTENED BY 10 (3/8") GALVANIZED OR ALUMINIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM ALLOY RIVETS OR BOLTS FOR ALUMINUM UNITS, ON CENTERLINE, SPACED 150 (6") C TO C FOR MULTIPLE PANEL UNITS. CONSTRUCT SKIRTS OF THE SAME THICKNESS AND PIECES AS THE END SECTION.
- PROVIDE TOE PLATES OF THE SAME MATERIAL AS THE END SECTION. LOCATE PUNCHED HOLES IN PLATE TO MATCH HOLES IN SKIRT. PROVIDE 10 (3/8") GALVANIZED OR ALUMINIZED BOLTS AND NUTS FOR STEEL UNITS AND ALUMINUM ALLOY BOLTS AND NUTS FOR ALUMINUM UNITS. PROVIDE TOE PLATE LENGTHS AS FOLLOWS:
 PIPE-ARCH CULVERT 1060 x 740, 1010 x 790 (42" x 29" x 40" x 31") OR SMALLER-W+250 (+10")
 PIPE-ARCH CULVERT 1240 x 840, 1160 x 920 (49" x 33", 46" x 36") OR LARGER-W+500 (+20")
 PIPE 750 (30") DIAMETER OR SMALLER-W+250 (+10")
 PIPE 900 (36") DIAMETER OR LARGER-W+500 (+20")
- SUPPLEMENT REINFORCED EDGES WITH GALVANIZED STEEL STIFFENER ANGLES WITH GALVANIZED OR ALUMINIZED BOLTS AND NUTS OR ALUMINUM ALLOY STIFFENER ANGLES WITH ALUMINUM ALLOY NUTS AND BOLTS OF THE FOLLOWING SIZES:
 • 50 (2") x 63 (2 1/2") x 6 (1/4") FOR, 1500 (60") TO 1800 (72") DIAMETER PIPE, 1950 x 1320, 1850 x 1400 (77" x 52", 73" x 55") AND 2100 x 1450, 2050 x 1500 (83" x 57", 81" x 59") PIPE-ARCH CULVERT.
 • 63 (2 1/2") x 63 (2 1/2") x 6 (1/4") FOR, 1950 TO 2100 (78" TO 84") DIAMETER PIPE.
 PLACE ANGLE REINFORCEMENT UNDER THE CENTER PANEL SEAMS FOR, 1950 x 1320, 1850 x 1400 (77" x 52", 73" x 55") AND 2100 x 1450, 2050 x 1500 (83" x 57", 81" x 59") PIPE-ARCH CULVERTS.
- ANCHOR ALUMINUM OR STEEL END SECTIONS, THAT ARE USED ON THE INLET END OF PIPE LARGER THAN 1350 (54") DIAMETER, AS INDICATED ON THE PLAN.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN () PARENTHESES.
- FOR DIMENSION TABLES SEE TABLE BELOW.
- PROVIDE TOE WALL OF CLASS A CONCRETE.

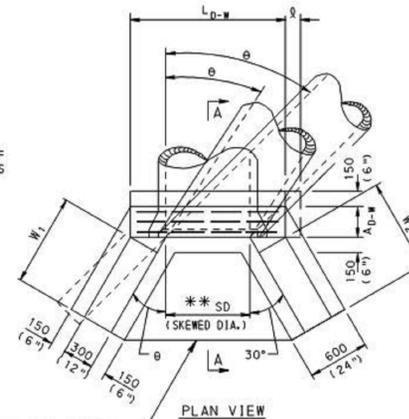
#13 (#4) BARS @ 300 (12") C TO C (TYP) EACH WAY TOP & BOTTOM



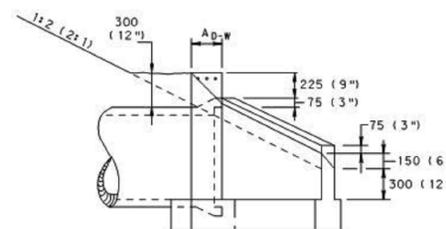
FRONT ELEVATION VIEW
BASE SECTION FOR TYPE D-W



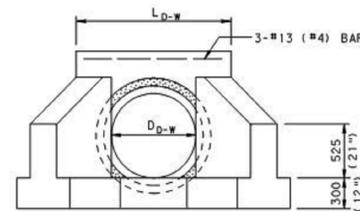
FRONT ELEVATION VIEW
HEAD & WINGWALL SECTION
FOR TYPE D-W



ALLOW FOR OPTIONAL APRON ON PRECAST UNITS.



SECTION A-A



FRONT ELEVATION VIEW

TYPE D-W ENDWALL
(SEE TABLE A FOR DIMENSIONS NOT INDICATED.)

CONCRETE END WALLS (HEAD WALLS)
NOT TO SCALE

TABLE A (ENGLISH) DIMENSIONS FOR END SECTION FOR CONCRETE PIPE								
DIA	A	B	C	D	E	F	R	
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"	7 1/2"	
21"	9"	3'-0"	3'-1"	6'-1"	3'-6"	2 1/2"	8"	
24"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"	8"	
27"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	4'-6"	3 1/4"	9"	
30"	12"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3 1/2"	8"	
33"	13 1/2"	4'-10 1/2"	3'-1 1/2"	8'-0"	5'-6"	3 3/4"	9"	
36"	15"	5'-3"	2'-9"	8'-0"	6'-0"	4"	10"	
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"	11"	
48"	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"	12"	

CONCRETE FLARED END SECTIONS
NOT TO SCALE

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.



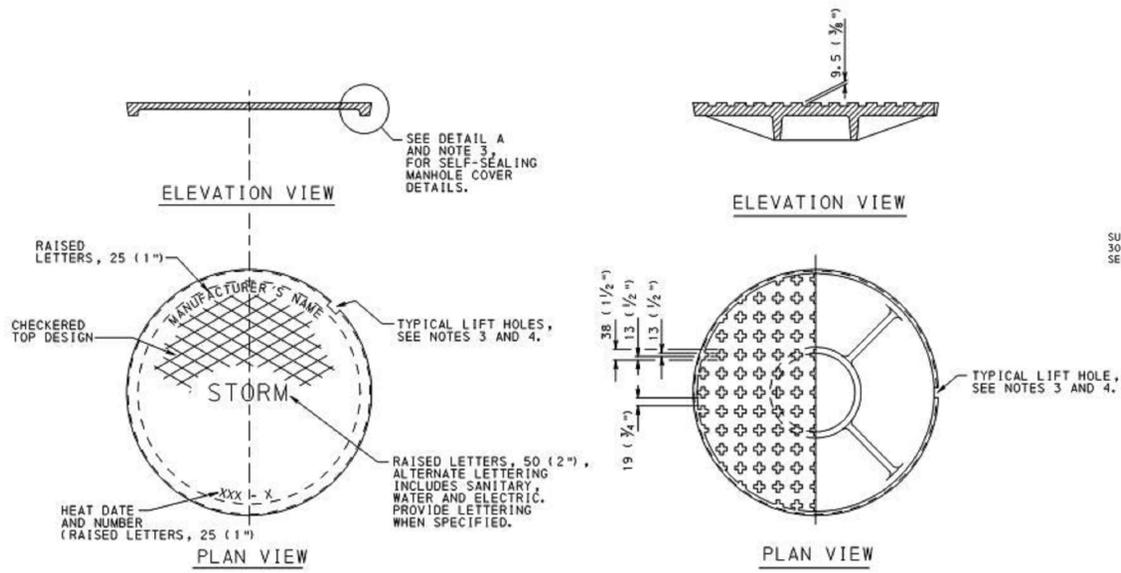
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018
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APPROVED BY JRD APPROVED BY

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CLIENT APPROVAL
DATE

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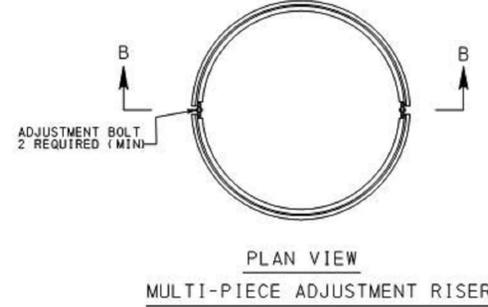
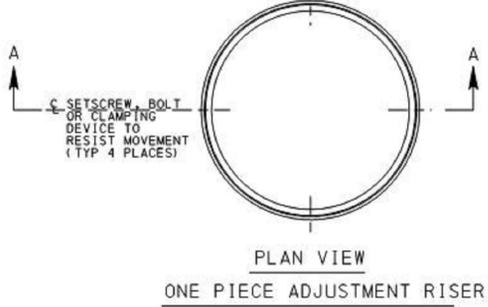
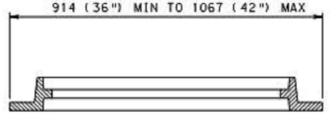


CAST IRON MANHOLE COVER
(PLATEN COVER)

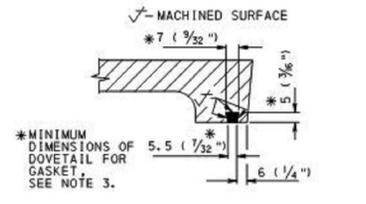
CAST IRON MANHOLE COVER
(STANDARD COVER)



- NOTES**
- PROVIDE MANHOLE FRAMES AND COVERS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(b). DESIGN MANHOLE FRAME, COVER AND GRADE ADJUSTMENT RINGS FOR PHL 93 (HS25) LIVE LOAD. IF MANHOLES ARE NOT IN OR ADJACENT TO ROADWAY, DESIGN FOR ALL POSSIBLE LIVE LOADS AS APPROVED BY THE DEPARTMENT.
 - PROVIDE MANHOLE FRAMES, COVERS AND GRADE ADJUSTMENT RISERS SUPPLIED BY A MANUFACTURER AS LISTED IN BULLETIN 15. FOR DEVIATION OR MODIFICATION TO THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
 - PROVIDE A GASKET SEALING SYSTEM, DOVETAIL GROOVE AND CONTINUOUS GASKET, AS INDICATED IN DETAIL A, TO PREVENT INFLOW THROUGH THE BEARING SURFACES, OF SURFACE RUNOFF WATER INTO THE MANHOLE SYSTEM, WHEN SPECIFIED. PROVIDE 6 (1/4") DIA ONE PIECE SELF-SEAL POLYISOPRENE ROUND GASKET, 40 DIAMETER GLUED IN PLACE. PROVIDE TWO (2) LIFT HOLES AT 180° TO FACILITATE COVER REMOVAL FOR SELF-SEALING MANHOLE COVER.
 - PROVIDE ONE LIFT HOLE TO FACILITATE COVER REMOVAL FOR NON-SEALING MANHOLE COVER.
 - FRAME AND GRADE ADJUSTMENT RISER TO HAVE A MINIMUM BEARING SEAT OF 25 (1") FOR COVER.
 - LOCATE TOP OF FRAME OR ADJUSTMENT RISER 3 (1/4") BELOW THE TOP OF ROADWAY SURFACE.
 - PROVIDE GRADE ADJUSTMENT RISERS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 606, AND AS MODIFIED HEREIN:
 - CUSTOM FABRICATE EACH ADJUSTMENT RISER FROM MEASUREMENTS PROVIDED WITH EACH ORDER.
 - MANUFACTURE BAR STOCK AND RETAINER CLIP FROM U.S. MADE CARBON STEEL MEETING OR EXCEEDING THE MINIMUM REQUIREMENTS OF ASTM A-36M.
 - REQUIRE FULL CIRCUMFERENTIAL WELDS ON BOTH TOP AND BOTTOM RINGS. MAKE THE INNER WELD A BEVEL GROOVE WELD (FLUSH FINISH) FOR PROPER SEATING OF MANHOLE LID AND MAKE THE OUTER WELD A FILLET WELD.
 - MAKE THE MINIMUM WIDTH OF BOTTOM AND TOP BAR STOCK 25 (1") AND 10 (3/4"), RESPECTIVELY.
 - TAP THE BOTTOM BAR STOCK FOR MULTI-PIECE ADJUSTMENT RISER FOR M14 ADJUSTMENT BOLT.
 - REINFORCE THE ADJUSTMENT RISER ADEQUATELY TO PREVENT BENDING.
 - PROVIDE AN ADJUSTMENT RISER WHICH IS FLUSH WITH COVER AND DOES NOT ALLOW EXCESSIVE MOVEMENT. PROVIDE AN ADJUSTMENT RISER WHICH CONFORMS TO THE SHAPE OF THE ORIGINAL FRAME.
 - ATTACH FRAME AND/OR PRECAST CONCRETE GRADE RINGS RIGIDLY TO TOP OF MANHOLE. USE 3-M14 (1/2") THREADED STUDS WITH HEX HEAD NUTS AND WASHERS, INSERTED THROUGH AT 16 (5/8") DIA HOLES THROUGH FRAME AND/OR RINGS. SPACE HOLES AT 120° AND 50 (2") FROM OUTSIDE EDGE OF FRAME. EMBED STUDS 102 (4") MINIMUM INTO MANHOLE. GROUT STUDS INTO MANHOLE.
 - SET THE BASE OF THE FRAME AND/OR PRECAST CONCRETE GRADE RINGS IN A BED OF CEMENT MORTAR.



ADJUSTMENT RISERS



PRECAST DRAINAGE MANHOLES
NOT TO SCALE

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.

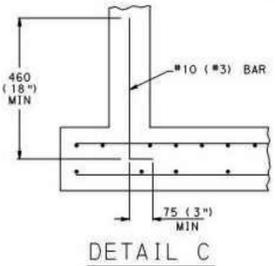
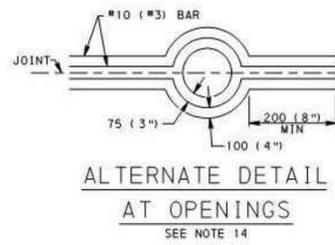
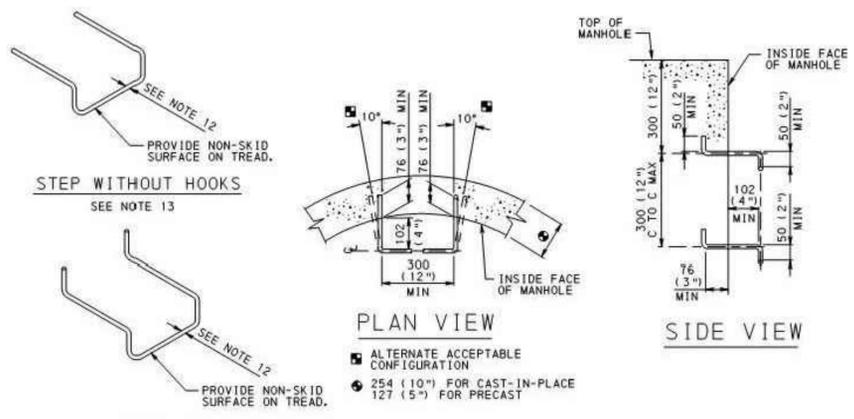
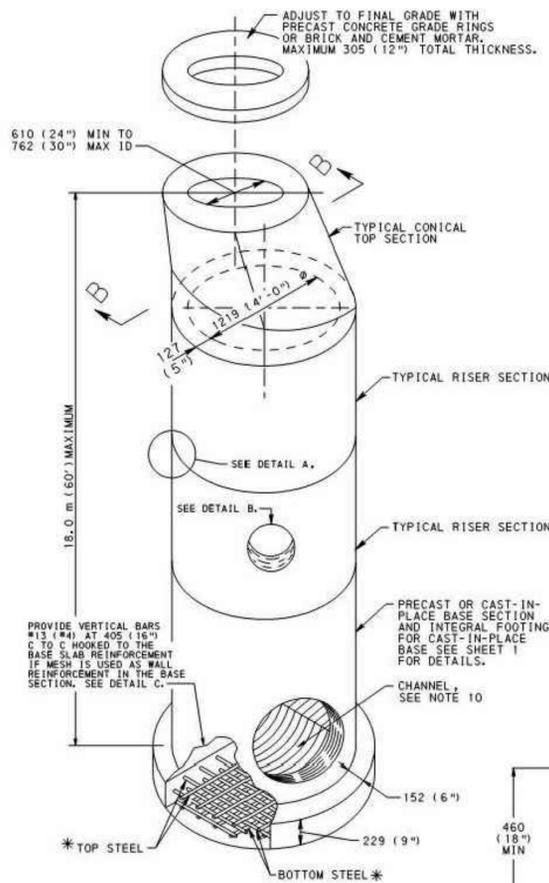


	CLIENT APPROVAL
	DATE

REVISIONS					
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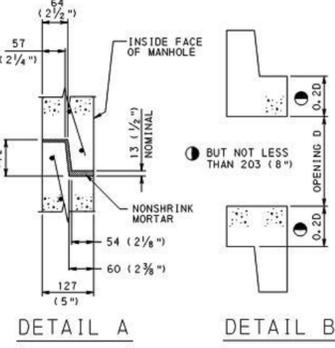
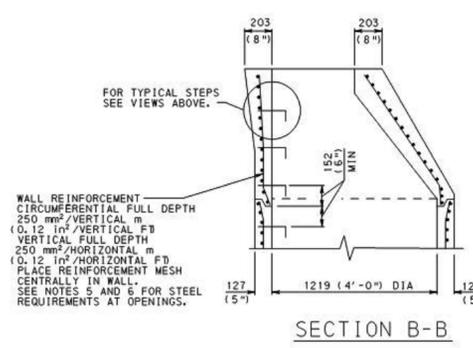
PENNEAST PIPELINE PROJECT			
KIDDER COMPRESSOR STATION			
POST CONSTRUCTION STORMWATER			
MANAGEMENT DETAILS			
CARBON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	023-03-07-003	REV. NO.	B

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ID (FT)	WALL THK (IN)
4 FT	5"
5 FT	6"
6 FT	7"
7 FT	8"
8 FT	9"
9 FT	10"
10 FT	11"

PRECAST MANHOLE
FOR PIPES 750 (30") INSIDE DIAMETER AND LESS
*SEE TABLE B FOR BASE SLAB STEEL REQUIREMENTS. PROVIDE WALL REINFORCEMENT DETAILS AT BASE SLAB TYPICAL OF CAST-IN-PLACE MANHOLE. SEE SHEET 1.



PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0.0 m TO 9.0 m (0'-0" TO 30'-0")	#13 BARS AT 150 C TO C OR 700 mm ² /m WWF 152 MAXIMUM SPACING (#4 BARS AT 6" C TO C OR 0.33 in ² /FT WWF 6" MAXIMUM SPACING)	#13 BARS AT 300 C TO C OR 340 mm ² /m WWF 152 MAXIMUM SPACING (#4 BARS AT 12" C TO C OR 0.16 in ² /FT WWF 6" MAXIMUM SPACING)
> 9.0 m TO 18.0 m (> 30'-0" TO 60'-0")	#16 BARS AT 150 C TO C OR 1190 mm ² /m WWF 152 MAXIMUM SPACING (#5 BARS AT 6" C TO C OR 0.56 in ² /FT WWF 6" MAXIMUM SPACING)	#13 BARS AT 150 C TO C OR 575 mm ² /m WWF 152 MAXIMUM SPACING (#4 BARS AT 6" C TO C OR 0.27 in ² /FT WWF 6" MAXIMUM SPACING)

SEE NOTE 7, SHEET 1

PRECAST DRAINAGE MANHOLES
NOT TO SCALE

NOTES

1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. FOR CONSTRUCTION REQUIREMENTS SEE NOTE 1, SHEET 1. FOR DESIGN REQUIREMENTS SEE NOTE 1, SHEET 5.
3. FOR PERMISSIBLE LOCATION OF PIPES SEE PLAN VIEW AND NOTE 3, SHEET 1.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUIT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 203 (8") BETWEEN THE OPENING AND THE CLOSEST JOINT BETWEEN RISERS - SEE DETAIL B.
5. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 18.0 m (60'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B-B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 3.0 m (10') AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 340 mm²/VERTICAL m (0.16 in²/VERTICAL FT) FOR THE HEIGHT OF RISER OR BASE SECTION.
6. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 3.0 m (10'), BUT LESS THAN OR EQUAL TO 7.6 m (25'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 930 mm²/VERTICAL m (0.44 in²/VERTICAL FT) FOR THE HEIGHT OF THE RISER OR BASE SECTION.
7. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 7.6 m (25'), USE A 254 (10") THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 470 mm²/VERTICAL m (0.22 in²/VERTICAL FT) EACH FACE.
8. MARK RISERS OR BASE SECTIONS WITH HOLES CLEARLY WITH MAXIMUM ALLOWABLE DEPTH.
9. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS SHEET 1.
10. FOR CHANNEL DETAILS IN PRECAST MANHOLE SEE CAST-IN-PLACE MANHOLE SHEET 1.
11. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.21(c). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
12. PROVIDE MINIMUM 25 (1") SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM 19 (3/4") SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
13. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
14. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.

SHEET 1 NOTES:

1. CONSTRUCTION REQUIREMENTS:
 - A. CONSTRUCT IN ACCORDANCE WITH PUBLICATION 408, SECTIONS 605, 606 AND 714; AND ASTM C-478-90, STANDARD SPECIFICATION FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, AS MODIFIED HEREIN.
 - B. MINIMUM CONCRETE CLASS: CAST-IN-PLACE CLASS A PRECAST CLASS AA
 - C. PROVIDE STEEL REINFORCEMENT IN ACCORDANCE WITH ASTM A185, STEEL WELDED WIRE FABRIC ASTM A663/A663M & A675/A675M, PLAIN BILLET STEEL BARS OR ASTM A615/A615M, DEFORMED BILLET STEEL BARS. PROVIDE MINIMUM YIELD STRENGTH OF 400 MPa (60,000 PSI).
 - D. CLEAR COVER FOR STEEL: WALLS: CAST-IN-PLACE 50 (2") PRECAST 40 (1 1/2") FOOTINGS: CAST-IN-PLACE 60 (2 1/4") TOP BARS 80 (3") BOTTOM BARS 50 (2") SIDE COVER PRECAST 50 (2") TOP BARS 40 (1 1/2") BOTTOM BARS 40 (1 1/2") SIDE COVER SLABS: CAST-IN-PLACE 50 (2") TOP & BOTTOM BARS
2. FOR PIPES WITH INSIDE DIAMETERS GREATER THAN 750 (30") SEE MODIFIED CAST-IN-PLACE MANHOLES, SHEET 2.
3. PROVIDE 300 (12") MINIMUM HORIZONTAL CLEARANCE BETWEEN OPENINGS LOCATED AT THE SAME DEPTH. LOCATE PIPES NOT AT THE SAME DEPTH VERTICALLY AT LEAST ONE HALF THE MAXIMUM OPENING DIAMETER APART.
4. FORM A CONCRETE CHANNEL AT THE BOTTOM OF THE MANHOLE CONFORMING TO THE SHAPE OF THE LOWER HALF OF THE INCOMING AND/OR OUTGOING PIPES. PROVIDE A FULL DEPTH U-SHAPED CHANNEL WHEN NECESSARY TO REDUCE ENERGY LOSSES.
5. USE 127 (5") THICK WALLS WITH ONE (1) ROW OF REINFORCING, OR USE 254 (10") THICK OR GREATER WALLS WITH TWO (2) ROWS OF REINFORCING.
6. CONSTRUCTION JOINTS AND KEYS MAY BE CONSTRUCTED UPWARDS OR DOWNWARDS. CLEAN JOINTS AND KEYS THOROUGHLY BEFORE PLACING NEXT CONCRETE SEGMENT.
7. A SAFE BEARING CAPACITY OF 0.15 MPa (1.5 TONS/SF) UNDER THE ENTIRE BASE SLAB IS ASSUMED TO DETERMINE THE BASE SIZE. WHEN THE SUBSOIL IS EXTREMELY POOR, PROCEED WITH CONSTRUCTION ONLY AFTER THE ENGINEER SPECIFIES AN ADEQUATE BASE DESIGN.
8. FOR FOOTING TOP REINFORCEMENT, BOTH DIRECTIONS, USE #19 (#6) BARS AT 300 (12") FOR DEPTHS TO 18.0 m (60') OR 635 mm²/m (0.30 in²/FT) WWF FOR DEPTHS TO 9.0 m (30') AND 680 mm²/m (0.32 in²/FT) WWF FOR DEPTHS GREATER THAN 9.0 m (30'), 152 (6") MAXIMUM SPACING FOR WWF.
9. FOR FOOTING BOTTOM REINFORCEMENT, BOTH DIRECTIONS, USE #13 (#4) BARS AT 480 (18") FOR DEPTHS TO 18.0 m (60') OR 320 mm²/m (0.15 in²/FT) WWF FOR DEPTHS TO 9.0 m (30') AND 340 mm²/m (0.16 in²/FT) WWF FOR DEPTHS GREATER THAN 9.0 m (30'), 152 (6") MAXIMUM SPACING FOR WWF.
10. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN () PARENTHESES.

SHEET 5 NOTES:

1. PROVIDE MANHOLE FRAMES AND COVERS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.21(b). DESIGN MANHOLE FRAME, COVER AND GRADE ADJUSTMENT RINGS FOR PHL 93 (H525) LIVE LOAD. IF MANHOLES ARE NOT IN OR ADJACENT TO ROADWAY, DESIGN FOR ALL POSSIBLE LIVE LOADS AS APPROVED BY THE DEPARTMENT.
2. PROVIDE MANHOLE FRAMES, COVERS AND GRADE ADJUSTMENT RISERS SUPPLIED BY A MANUFACTURER AS LISTED IN BULLETIN 15. FOR DEVIATION OR MODIFICATION TO THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. PROVIDE A GASKET SEALING SYSTEM, DOVETAIL GROOVE AND CONTINUOUS GASKET AS INDICATED IN DETAIL A, TO PREVENT INFLOW THROUGH THE BEARING SURFACES, OF SURFACE RUNOFF WATER INTO THE MANHOLE SYSTEM. WHEN SPECIFIED, PROVIDE 6 (1/4") DIA ONE PIECE SELF-SEAL POLYISOPRENE ROUND GASKET, 40 DIAMETER GLUED IN PLACE. PROVIDE TWO (2) LIFT HOLES AT 180° TO FACILITATE COVER REMOVAL FOR SELF-SEALING MANHOLE COVER.

NOTE:

ALL PROPOSED INLETS AND MANHOLES SHOWN ON THESE PLANS SHALL HAVE A 3-FT SUMP BELOW THE INVERT OF THE LOWEST CONNECTING PIPE, UNLESS OTHERWISE NOTED.

Know what's below. Call before you dig.

REVISIONS		DATE	DRAWN	CK	APPR
NO.	DESCRIPTION				
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

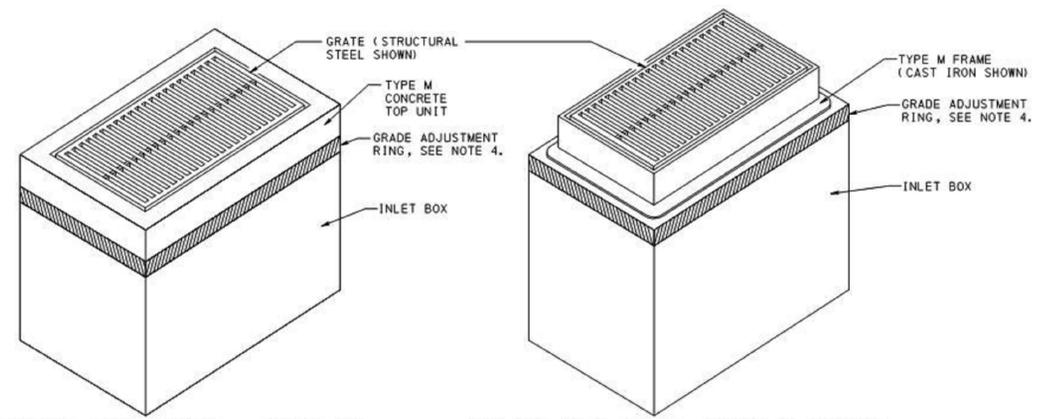
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	023-03-07-004	REV. NO.	B

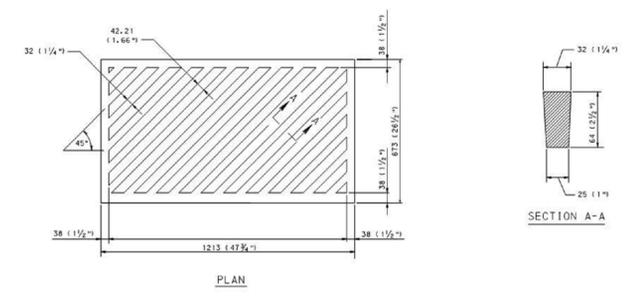
10/25/2019

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.

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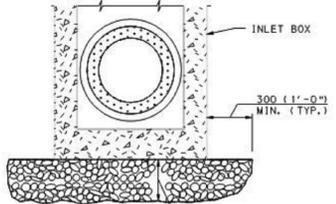
CONCRETE TOP UNIT - TYPE M INLET BOX WITH TYPE M FRAME



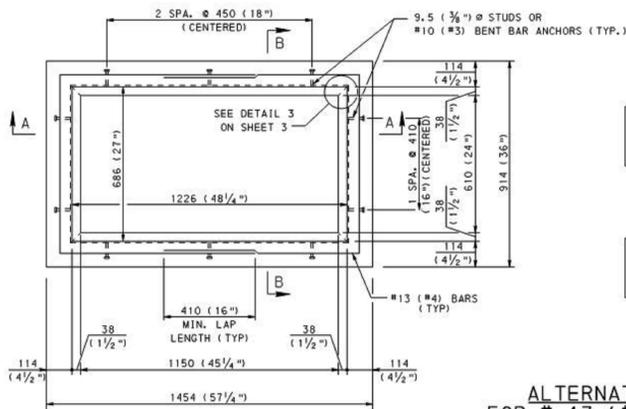
ONE PIECE CAST IRON GRATE

- CAST IRON GRATE NOTES:**
- SHEETS 4 AND 10 DEPICT THE DIMENSIONS REQUIRED FOR UNIFORMITY AND INTERCHANGEABILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR FABRICATION OR MANUFACTURING. FOR DEVIATIONS OR MODIFICATIONS OF THE STANDARDS, SUBMIT SHOP DRAWINGS TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF FOR REVIEW AND ACCEPTANCE.
 - PROVIDE CAST IRON GRATES SUPPLIED BY A MANUFACTURER LISTED IN PENNDOT BULLETIN 15.
 - PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE PUBLICATION 408 AND THE CONTRACT SPECIAL PROVISIONS.
 - PROVIDE GRAY CAST IRON CONFORMING TO AASHTO M105 (ASTM A48/A48M), CLASS 225B (35B) AND AASHTO M306.
 - PROVIDE BICYCLE SAFE GRATES WHERE BICYCLE TRAFFIC IS ANTICIPATED, SUCH AS CURBED ROADWAYS IN URBAN AREAS OR ROADWAYS SPECIFICALLY ESTABLISHED AND SIGNED AS BIKEWAYS OR HAVING BIKE LANES. ALTERNATE BICYCLE SAFE GRATE DESIGNS REQUIRE A SHOP DRAWING, AS SPECIFIED IN NOTE 1, AND MUST CONFORM TO THE DIMENSIONAL REQUIREMENTS FOR PROPER INSTALLATION WITH THE CURRENT TOP UNITS.
 - PROVIDE ADA COMPLIANT GRATES WHERE PEDESTRIAN TRAFFIC IS ANTICIPATED, SUCH AS CURBED ROADWAYS IN URBAN AREAS ADJACENT TO SIDEWALKS. ALTERNATE ADA COMPLIANT GRATE DESIGNS REQUIRE A SHOP DRAWING, AS SPECIFIED IN NOTE 1, AND MUST CONFORM TO THE DIMENSIONAL REQUIREMENTS FOR PROPER INSTALLATION WITH THE CURRENT TOP UNITS.
 - CAST IRON GRATES ARE PERMITTED TO BE USED AS AN ALTERNATE TO THE STRUCTURAL STEEL GRATES PROVIDED THEY ARE SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15 AND ARE APPROVED FOR PHL-93 OR HS-25 LOADING. CAST IRON GRATES NOT APPROVED FOR PHL-93 OR HS-25 LOADING MAY BE USED OUTSIDE OF THE TRAVEL LANES; AT THE EDGE OF OUTSIDE SHOULDERS, SWALES, WIDE MEDIUM SWALES AND INFIELD AREAS.
 - REFER TO SHEET 10 FOR TWO-PIECE CAST IRON GRATES.

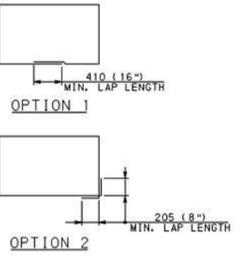
- NOTES:**
- FOR ADDITIONAL NOTES, SEE SHEET 1 NOTES.
 - STANDARD INLET BOXES SHOWN, PROVIDE TOP SLABS FOR OTHER INLET BOX TYPES.
 - SEE RC-45M FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES.
 - PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45M FOR DETAILS.



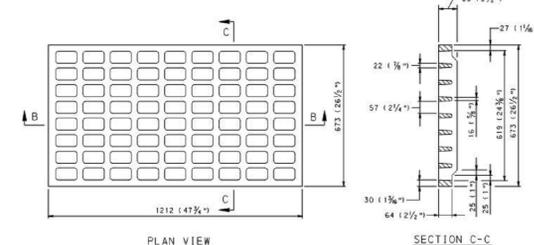
INLET BOX SUBBASE PREPARATION DETAIL (SEE FIELD CONSTRUCTION NOTES ON SHEET 1)



PLAN VIEW - TYPE M

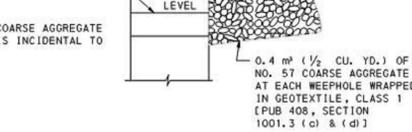


ALTERNATE ONE BAR OPTIONS FOR #13 (#4) HORIZONTAL U-BARS

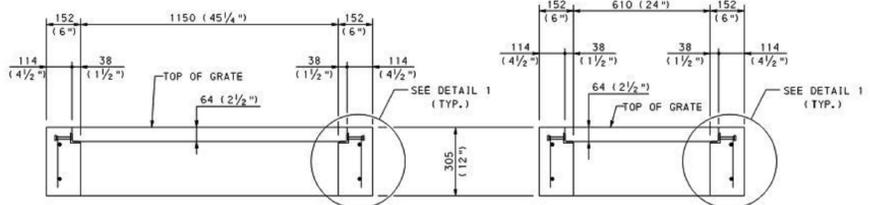


ONE PIECE CAST IRON GRATE - BICYCLE SAFE

- SHEET 1 NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN () PARENTHESES.
 - METRIC UNITS INDICATED ARE SOFT CONVERTED FROM U.S. CUSTOMARY UNITS.
 - DESIGN SPECIFICATIONS AND REQUIREMENTS:
 - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND AS SUPPLEMENTED BY THE DESIGN MANUAL, PART 4, STRUCTURES
 - DESIGN IS IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD).
 - INLET BOXES ARE DESIGNED FOR AN ALLOWABLE FOUNDATION PRESSURE EQUAL TO 0.190 MPa (2.0 TONS/SQ. FT.) AT THE SERVICE LIMIT STATE.
 - CONSTRUCTION SPECIFICATIONS:
 - PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE CURRENT VERSION OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408 AND THE CONTRACT SPECIAL PROVISIONS.
 - SHOP DRAWINGS FOR INLET BOXES, TOP SLABS, AND TRANSITION SLABS ARE NOT REQUIRED IF THE ITEM IS CONSTRUCTED/FABRICATED IN ACCORDANCE WITH THIS STANDARD.
 - THIS STANDARD DEPICTS THE DIMENSIONS REQUIRED FOR UNIFORMITY AND INTERCHANGEABILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR FABRICATION OR MANUFACTURING. FOR DEVIATIONS OR MODIFICATIONS OF THE STANDARDS, SUBMIT SHOP DRAWINGS TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF FOR REVIEW AND ACCEPTANCE.
 - THE DESIGNER IS RESPONSIBLE FOR DETERMINING THE TYPE OF INLET BOX REQUIRED BASED ON THE REQUIRED PIPE SIZE(S) AND PIPE OPENING(S). REFER TO TABLES A AND B OR SHEET 45 FOR ADDITIONAL INFORMATION. THE DESIGNER IS ALSO RESPONSIBLE TO DETERMINE THE REQUIRED PAY ITEM FOR AN INSTALLATION BASED ON THE OVERALL INSTALLATION HEIGHT.
 - THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.
 - THE SIZE OF THE INLET TOP UNITS, PER RC-45M, ARE BASED ON THE MINIMUM DIMENSIONS INDICATED FOR THE STANDARD INLET BOX.
 - MINIMUM PIPE DIAMETERS (INSIDE):
 - FILL HEIGHT LESS THAN OR EQUAL TO 7600 mm (25') 450 mm (18") FOR CIRCULAR PIPE OR EQUIVALENT SIZE PIPE ARCH
 - FILL HEIGHTS GREATER THAN 7600 mm (25') 600 mm (24")
 - INSIDE INLET BOX DIMENSIONS ARE BASED ON PROVIDING A PIPE OPENING TO ACCOMMODATE A MINIMUM 450 mm (18") PIPE TO A MAXIMUM 450 mm (18") PIPE. IF A LARGER PIPE SIZE IS REQUIRED, THE DESIGNER IS RESPONSIBLE FOR PROVIDING DESIGN AND DETAILS IN ACCORDANCE WITH PENNDOT REQUIREMENTS.
 - INLETS THAT EXCEED THE MAXIMUM HEIGHT INDICATED REQUIRE SPECIAL DESIGN AND DETAILS. DESIGNER IS RESPONSIBLE FOR PROVIDING DESIGN AND DETAILS IN ACCORDANCE WITH PENNDOT REQUIREMENTS.
 - SHOW ORIENTATION OF INLET BOXES ON THE CONTRACT DRAWINGS.
 - THE TOP SLAB IS NOT PERMITTED TO BE POURED MONOLITHICALLY WITH THE ADJACENT BOX SECTION.
 - PROVIDE 50 mm (2") DIAMETER WEEPHOLES IN THE WALLS WHEN THE DEPTH BETWEEN THE FINISHED GRADE ELEVATION AND THE TOP OF BOTTOM SLAB ELEVATION IS GREATER THAN 3048 mm (10'-0").
 - VERTICAL PLACEMENT: 1500 mm (5'-0") MAXIMUM SPACING
 - HORIZONTAL PLACEMENT: PLACE WEEPHOLES IN THE SIDE WALLS THAT ARE PERPENDICULAR TO TRAFFIC.
 - LOCATE WEEPHOLES A MINIMUM OF 150 mm (6") FROM PIPE OPENINGS OR JOINTS.
 - LOCATE WEEPHOLES A MINIMUM OF 305 mm (1'-0") ABOVE OUTLET PIPE INVERT.

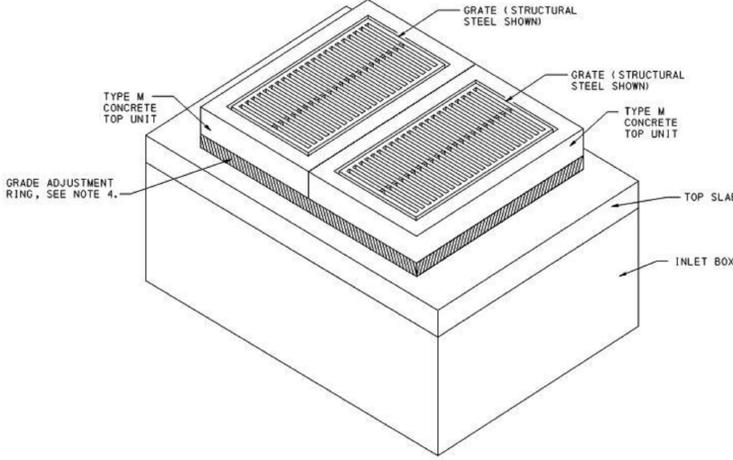


WEEPHOLE DETAIL (SEE GENERAL NOTE 15 ON SHEET 1)

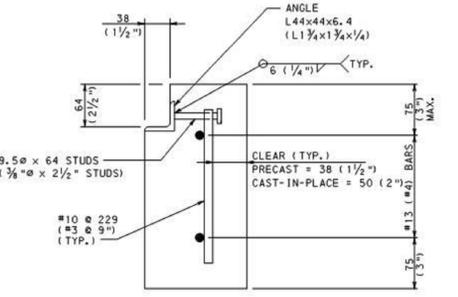


SECTION A-A

SECTION B-B



CONCRETE TOP UNIT - DOUBLE TYPE M



DETAIL 1

PRECAST INLET BOX NOT TO SCALE

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.

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

CLIENT APPROVAL				
DATE				

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CHK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
 CARBON COUNTY, PENNSYLVANIA

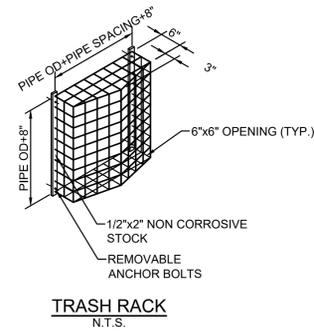
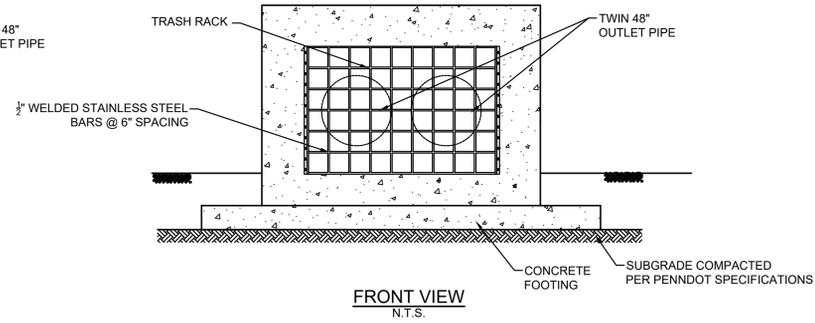
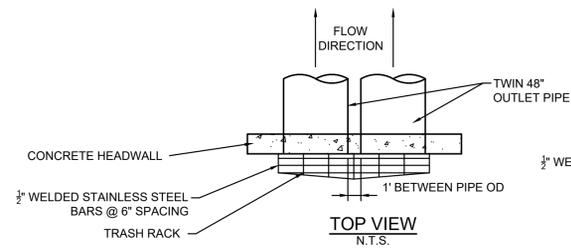
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	

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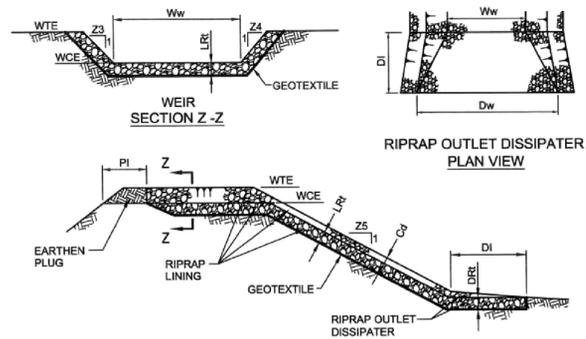


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C:\PenEast\353754_PennEast_Pipeline_EPC\KIDDER\Drafting\013 - C - Plan & Profiles\Kidder_Compresor_Station\PADEP_Civil\include in both sets\023-03-07-005.dwg



ENTRANCE TRASH RACK FOR PROPOSED HEADWALL HW#1
NOT TO SCALE



NOTES:

DISPLACED RIPRAP WITHIN SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

SITE	BASIN ID	WEIR				LINING				DISSIPATER				
		Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	RIPRAP SIZE (R-)	RIPRAP THICK Lrt (IN)	Z5 (FT)	DEPTH Cd (FT)	LENGTH DI (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-)	RIPRAP THICK DRt (IN)
KIDDER COMPRESSOR STATION	NORTH	3	3	1738.00	1737.25	25	R-5	27	3	1	4	28	R-5	18
	SOUTH	3	3	1739.00	1738.00	35	R-7	45	3	1	4	38	R-7	54

EMERGENCY SPILLWAY
NO SCALE

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.



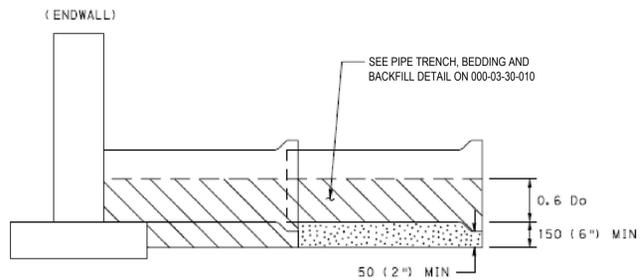
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REVISIONS					
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A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
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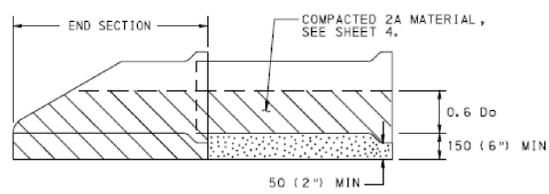
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	

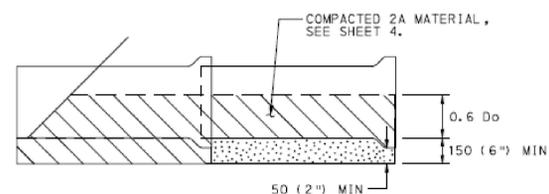
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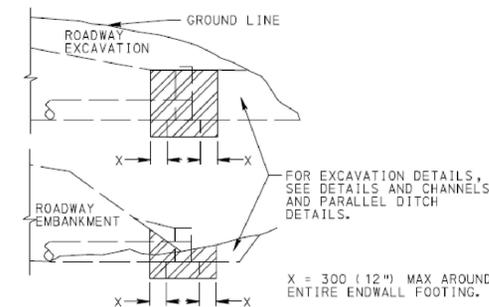
BACKFILL DETAIL AT ENDWALL
(FOR CONCRETE PIPE)



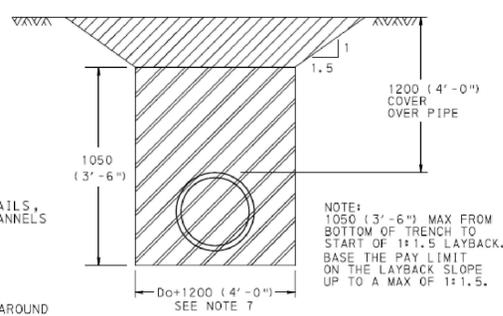
BACKFILL DETAIL AT END SECTION
(FOR CONCRETE PIPE)



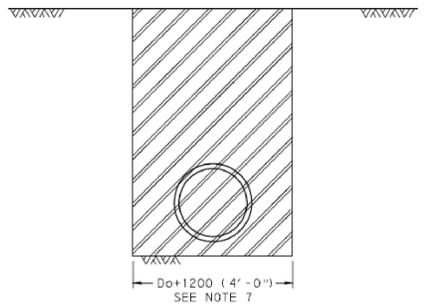
BACKFILL DETAIL AT LAST SECTION OF PIPE
(FOR CONCRETE PIPE)



EXCAVATION FOR ENDWALLS



PIPE TRENCH, BEDDING AND BACKFILL DETAIL
NOT TO SCALE



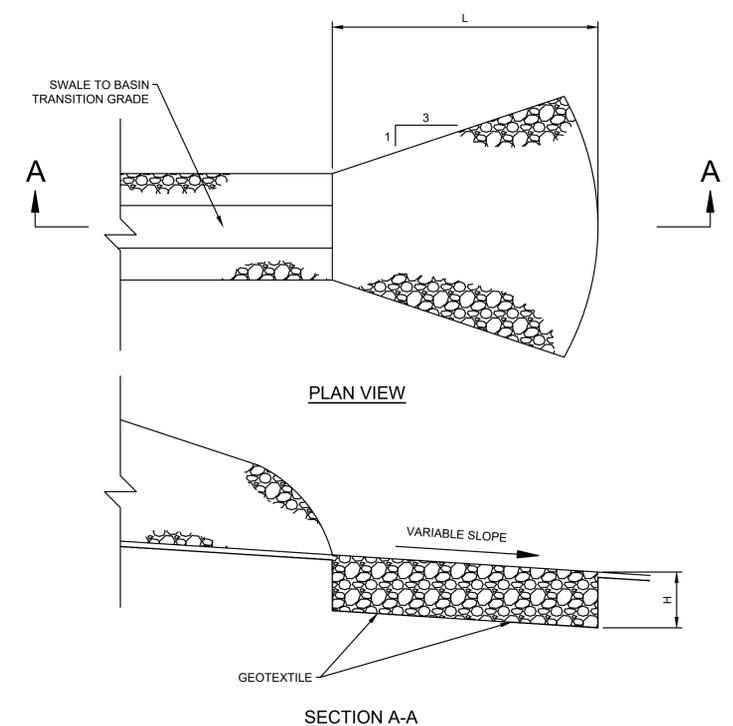
PAY LIMITS FOR PIPE EXCAVATION

- NOTES**
1. PROVIDE MATERIALS AND CONSTRUCT AS SPECIFIED IN PUBLICATION 408, SECTION 601 FOR PIPE CULVERTS, SECTION 602 FOR CORRUGATED METAL PIPE-ARCH CULVERTS AND SECTION 603 FOR METAL PLATE CULVERTS.
 2. SHORING OR TRENCH BOX INSTALLATION FOR FLEXIBLE PIPE IS NOT NORMALLY USED. IF SHORING OR TRENCH BOX INSTALLATION IS PERMITTED IN SPECIAL CIRCUMSTANCES, REFER TO PUBLICATION 408, SECTION 601.3(g).
 3. IN ALL EXCAVATION AREAS FOLLOW OSHA SAFETY REQUIREMENTS.
 4. DO NOT COMPACT NO. 8 MATERIAL USED FOR BEDDING UNDER CONCRETE PIPES.
 5. ALLOW NO PAYMENT FOR EXCAVATION IN EXCESS OF SPECIFIED LIMITS AND FOR ADDITIONAL BACKFILL MATERIAL REQUIRED.
 6. PAYMENT FOR THE BACKFILL ENVELOPE, INCLUDING BEDDING, COARSE AGGREGATE AND SUITABLE MATERIAL UP TO 300 (12') ABOVE THE PIPE IS INCIDENTAL TO THE PIPE.
 7. FOR BOTTOM TRENCH WIDTHS ≥ 2.5 m (8'-0"), ALL EXCAVATION IS CLASS 1.
 8. FOR INLET OR OUTLET PROTECTION SEE DETAIL A-1.
 9. CONSTRUCT FLEXIBLE BASE REPLACEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 316.
 10. PREPARE EXPOSED VERTICAL AND HORIZONTAL SURFACES AS PER PUBLICATION 408, SECTION 409.3(k).
 11. FOR NON-OVERLAY APPLICATIONS, THE TOP 40 (1 1/2") OF BASE REPLACEMENT WILL BE SUPERPAVE WEARING COURSE.
 12. FOR RESTORATION OF RIGID PAVEMENT, REFER TO PUBLICATION 408, SECTION 516 AND RC-26M.
 13. FOR SUPERPAVE BASE REPLACEMENT, SAW CUTTING, EXCAVATION, HAULING AND DISPOSAL, BITUMINOUS TACK COAT, BITUMINOUS MATERIAL, AND SEALING OF THE JOINTS ARE CONSIDERED AS INCIDENTAL.
 14. PERFORM AND COMPLETE PIPE RESTORATION WORK PRIOR TO THE FLEXIBLE SUPERPAVE BASE REPLACEMENT.

LEGEND

- CLASS 4 EXCAVATION
- CLASS 1 EXCAVATION
- AGGREGATE FOR BEDDING (AASHTO NO. 8)
- COARSE AGGREGATE (2A)

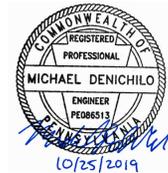
Do = OUTSIDE DIAMETER OF PIPE.



SWALE OUTFALL PROTECTION
NOT TO SCALE

SWALE ID	RIPRAP SIZE	LENGTH OF APRON L, FT	PLACEMENT THICKNESS H, IN
SWALE 6	R-3	9	9
SWALE 9	R-3	13	9
SWALE 10	R-4	10	18

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.



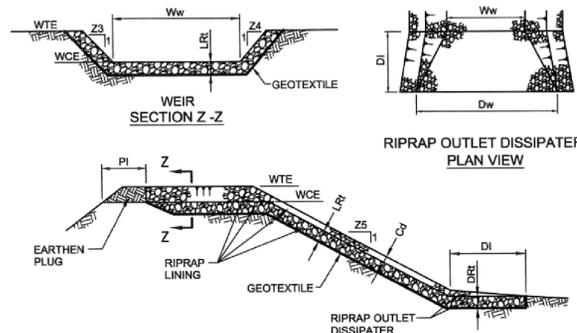
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018
CHECKED BY WMC SCALE AS SHOWN
APPROVED BY JRD APPROVED BY

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Basin or Trap No.	Pipe Size (in)	S (in)	No. of Collars	Distance Riser to 1st Collar (ft)	Collar Spacing (ft)
NORTH	18	42	1	8	NA
SOUTH	24	37	1	8	NA

ANTI-SEEP COLLAR
NOT TO SCALE



NOTES:
DISPLACED RIPRAP WITHIN SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

BASIN ID	WEIR		TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	LINING		CHANNEL		DISSIPATER			
	Z3 (FT)	Z4 (FT)				RIPRAP SIZE (R-)	RIPRAP THICK LRT (IN)	Z5 (FT)	DEPTH Cd (FT)	LENGT H DI (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-)	RIPRAP THICK DRT (IN)
NORTH	3	3	1738.00	1737.25	25	R-5	27	3	1	4	28	R-5	18
SOUTH	3	3	1739.00	1738.00	35	R-7	45	3	1	4	38	R-8	18

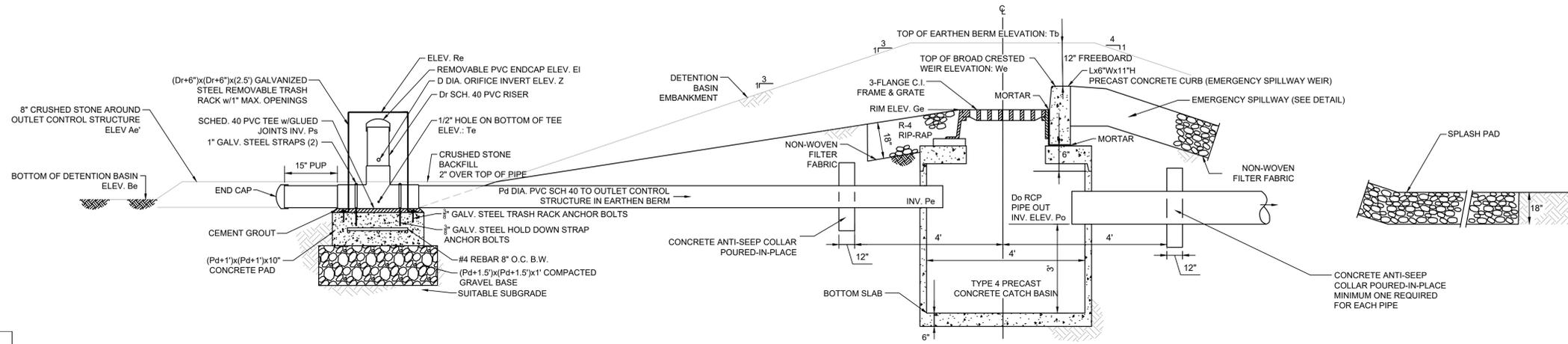
SURFACE BASIN SPILLWAY RIPRAP LINING
NOT TO SCALE

Test Pit Summary

BASIN NAME	Test Pit No.	Existing Grade Elevation (feet)	Proposed BMP Invert (feet)	Infiltration Test Elevation (feet)	Excavation Depth Elevation (feet)	Depth to High Groundwater (feet)
NORTH BASIN	KTP-1	1735.9	1735.0	1735.0	1732.9	No evidence of high groundwater observed
	KTP-2	1736.3	1735.0	1735.0	1733.0	No evidence of high groundwater observed
	KTP-3	1737.5	1733.0	1733.0	1731.0	No evidence of high groundwater observed
SOUTH BASIN	KTP-4	1739.0	1733.0	1733.0	1731.0	No evidence of high groundwater observed
	KTP-5	1738.2	1733.0	1733.0	1731.0	No evidence of high groundwater observed
	KTP-6	1736.1	1733.0	1733.0	1731.0	No evidence of high groundwater observed
	KTP-7	1736.8	1733.0	1733.0	1731.0	No evidence of high groundwater observed
	KTP-8	1738.7	1733.0	1733.0	1731.0	No evidence of high groundwater observed

TEST PIT SUMMARY

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.

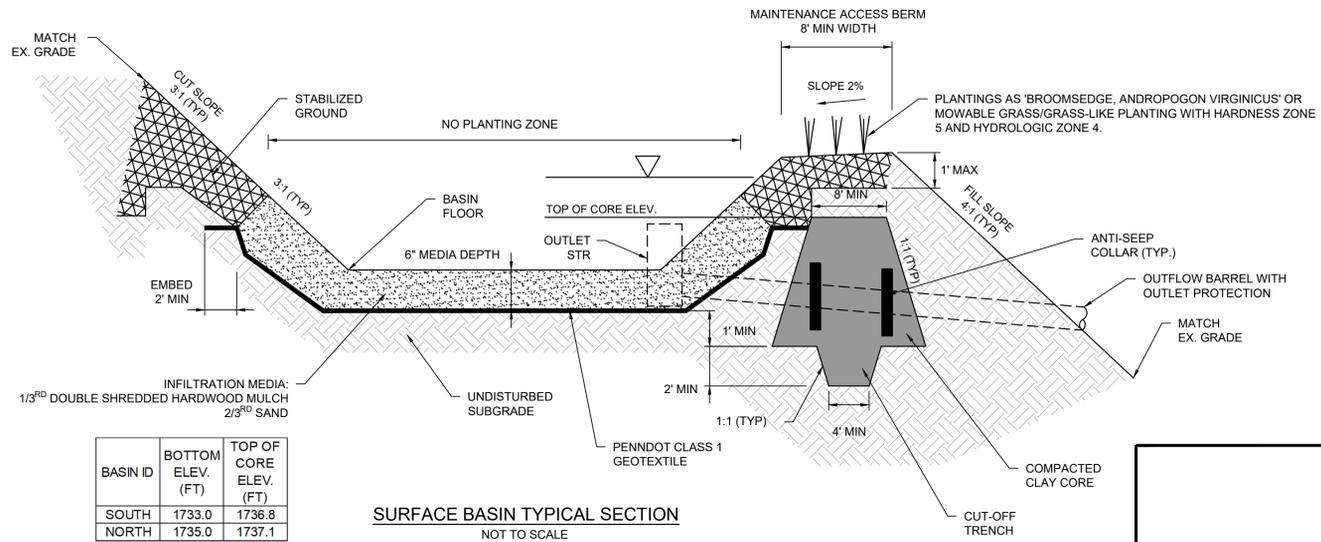


NOTES:

- REFER TO GRADING AND DRAINAGE PLANS FOR INVERT ELEVATIONS OF BASIN OUTLET STRUCTURES.
- SITE SOILS FREE OF ORGANIC SUBSTANCE, LARGE AGGREGATES AND DEBRIS SHALL BE USED FOR BASIN BOTTOM FILL.
- THE BASIN BOTTOM AND EARTHEN BERM SHALL RECEIVE A NATIVE SPECIES SEED MIX IN ACCORDANCE WITH PENNSYLVANIA BMP MANUAL PLANTS LIST. SEE APPENDIX B OF PA BMP MANUAL FOR RECOMMENDED PLANT SPECIES LIST. HYDROLOGIC ZONE 3, HYDROLOGIC ZONE 4 AND PLANT HARDINESS ZONE 6 ARE TO BE USED FOR BASIN BOTTOM AND BASIN BERM PLANT SPECIES SELECTION.
- NO COMPACTION IS ALLOWED FOR BASIN BOTTOM.
- FOLLOWING STABILIZATION THE CONTRACTOR SHALL PERFORM INFILTRATION TESTS ON EACH INFILTRATION BASIN. A MINIMUM OF TWO TESTS SHALL BE PERFORMED PER BASIN OR ONE PAIR OF TESTS PER 8,000 SF OF BASIN INVERT AREA WHICHEVER RESULTS IN A GREATER NUMBER OF TESTS. THE INFILTRATION TESTS SHALL BE CONDUCTED AS PER THE PA BMP MANUAL. SHOULD THE INFILTRATION TESTING FAIL TO PROVIDE THE DESIGN INFILTRATION RATE (1/3 TESTED RATE) THAT WOULD ALLOW THE BASIN TO DRAIN FROM THE LOW OUTLET TO THE BASIN INLET IN 72 HOURS. THE CONTRACTOR SHALL RESTORE OR AMEND THE 18" OF SOIL AND THE TEST REPEATED. THE TEST SHALL CONTINUE UNTIL A DESIGN INFILTRATION RATE THAT CAN DRAIN THE BASIN IN 72 HOUR AS DESCRIBED ABOVE IS REACHED.

SITE AND BASIN DESCRIPTION		RISER							CATCH BASIN									
SITE	BASIN ID	Be (FT)	D (IN)	ORIFICE QUANTITY	EI (FT)	Z (FT)	Ps (FT)	Re (FT)	Pe (FT)	Pd (IN)	Ge (FT)	Tb (FT)	Po (FT)	We (FT)	Do (IN)	L (FT)	Riser Height (FT)	No. of outlet pipes
KIDDER COMPRESSOR STATION	NORTH-BASIN	1735	6	2	1737.17	1736	1735.31	1737.42	1735.00	14	1737.5	1739	1735	1738	18	36.2	2	1
	SOUTH-BASIN	1733	18	2	1737.17	1735	1733.38	1737.42	1733.00	14	1736	1738.25	1733	1737.25	24	68.9	4	3

OUTLET CONTROL AND EMERGENCY OVERFLOW STRUCTURE
NOT TO SCALE



BASIN ID	BOTTOM ELEV. (FT)	TOP OF CORE ELEV. (FT)
SOUTH	1733.0	1736.8
NORTH	1735.0	1737.1

SURFACE BASIN TYPICAL SECTION
NOT TO SCALE

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

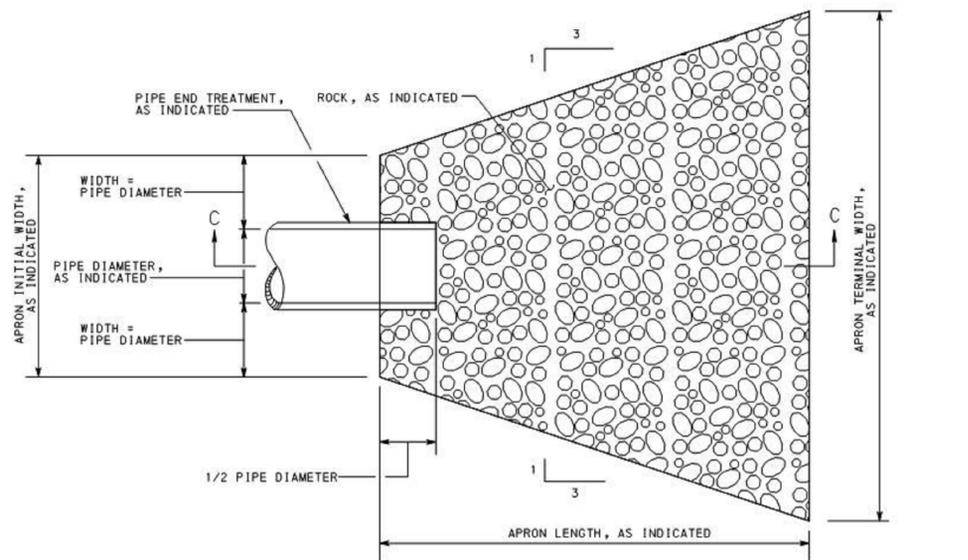
PennEast PIPELINE

PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

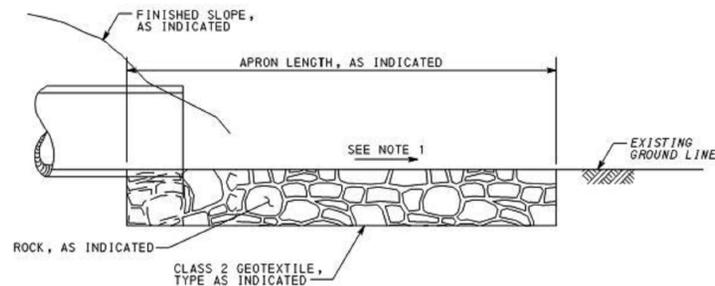
DRAWN BY: CAF DATE ISSUED: 10/15/2018
CHECKED BY: WMC SCALE: AS SHOWN
APPROVED BY: JRD APPROVED BY: [Signature]

DWG. NO. 023-03-07-008 REV. NO. 8

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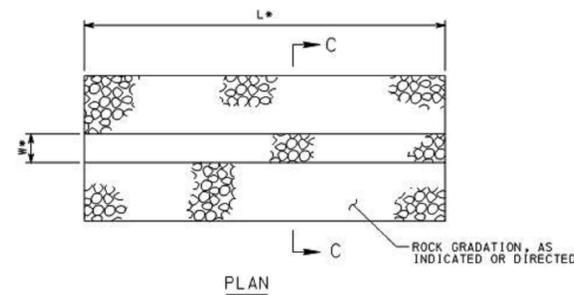
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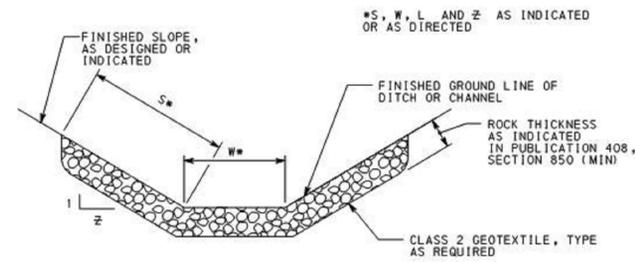
SECTION C-C
ROCK APRON (FLAT AREA)

OUTLET NO.	PIPE DIA. Pd (IN)	RIPRAP			APRON	
		SIZE (R-)	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Alw (FT)	TERMINAL WIDTH Atw (FT)
BASIN SOUTH (HW#3)	48	R-6	36	30	12	42
HW#2	48	R-5	27	30	24	54

RIPRAP OUTLET PROTECTION
NOT TO SCALE



PLAN



SECTION C-C

NOTES

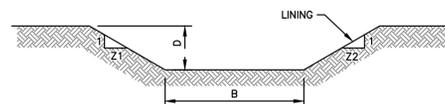
1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE ROCK BARRIER. REPLACE CLOGGED FILTER STONE. REMOVE AND DISPOSE OF SEDIMENT IN AN APPROVED MANNER.
2. PROVIDE GEOTEXTILE MATERIAL ALONG ALL INTERFACE AREAS WITH GROUND CONTACT.

NOTES:

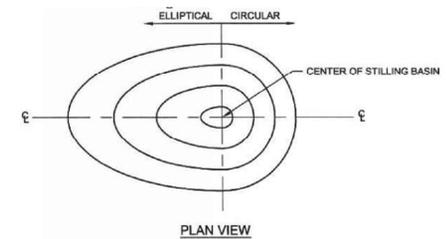
1. CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.
2. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED.
3. CHANNEL SHALL BE CLEANED WHENEVER TOTAL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
4. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HRS OF DISCOVERY OR AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.
5. DAMAGED LINING SHALL BE REPLACED WITHIN 48 HRS OF DISCOVERY.
6. THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

CHANNEL ID	BOTTOM WIDTH Wo (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP GRADATION	ROCK THICKNESS t (IN)	UNDERLAYMENT	UNDERLAYMENT THICKNESS (IN)
DIV SWALE	6	4	2.5	2	R-3	9	AASHTO#3	6
SWALE10	3	2	3	3	R-4	18	AASHTO#3	6
SWALE11	4	1	3	3	R-3	9	AASHTO#3	6
SWALE12	2	2	3	3	R-8	63	AASHTO#3	6
SWALE2	3	2	3	3	R-4	18	AASHTO#3	6
SWALE5	4	2	3	3	R-3	9	AASHTO#3	6
SWALE7	4	2	3	3	R-4	18	AASHTO#3	6
SWALE8	2	1	3	3	R-3	9	AASHTO#3	6

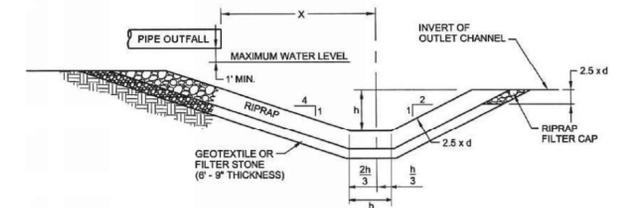
RIPRAP SWALE LINING
NOT TO SCALE



TYPICAL VEGETATED SWALE CROSS-SECTION
NOT TO SCALE



PLAN VIEW



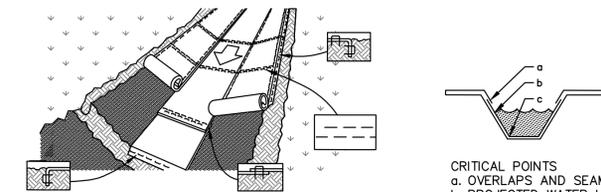
SECTION ALONG CENTERLINE

OUTLET NO.	X (ft)	h (ft)	Riprap Size (R-)	d+ Stone Size	Placement Thickness (ft)	Major Axis, Ft	Minor Axis, Ft
NORTH BASIN (SB-2)	3	1	R-3	3	1	5	2
SOUTH BASIN (SB-1)	4	2	R-7	18	4	10	15

NOTE: MINOR AXIS FOR SB-1 ACCOUNTS FOR THREE OUTFALL PIPES.

STILLING BASIN

NOT TO SCALE



NOTE: HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

REFER TO STAPLE PATTERN DETAIL FOR STAPLE REQUIREMENTS.

NOTES:

1. ALL GRADING IS TO MINIMIZE HARD EDGES TO PRODUCE CONTOURED SMOOTH GRADE CHANGES.
2. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED.
3. CHANNEL SHALL BE CLEANED WHENEVER TOTAL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
4. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HRS OF DISCOVERY OR AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.
5. DAMAGED LINING SHALL BE REPLACED WITHIN 48 HRS OF DISCOVERY.
6. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

CHANNEL ID	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)
SWALE1	6	2	3	3
SWALE3	4	1	3	3
SWALE4	8	1	3	3
SWALE6	4	2	3	3
SWALE9	3	2	3	3

VEGETATED SWALE LINING

NOT TO SCALE

DETAILS FOR DRAINAGE STRUCTURES AS ADOPTED FROM PENNDOT PUBLICATION 72M: STANDARDS FOR ROADWAY CONSTRUCTION, DATED JUNE 2010.



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018
CHECKED BY WMC SCALE AS SHOWN
APPROVED BY JRD APPROVED BY

DWG. NO. 023-03-07-009 REV. NO. 8

PROJECT CONSTRUCTION SEQUENCING/SOIL LIMITATIONS

CONSTRUCTION SEQUENCE:

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OWNER AND/OR OPERATOR SHALL NOTIFY THE PADEP AND CARBON COUNTY CONSERVATION DISTRICT BY EITHER TELEPHONE OR CERTIFIED MAIL OF THE INTENT TO COMMENCE EARTH DISTURBANCE ACTIVITIES. ATTENDANCE AT A PRE-CONSTRUCTION CONFERENCE IS REQUIRED UPON REQUEST OF THE PADEP.
2. AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776 TO DET STAKE OUT CONSTRUCTION WORK LIMITS.
3. INSTALL STABILIZED ROCK CONSTRUCTION ENTRANCE AND EROSION/SEDIMENT CONTROL BARRIERS (ECB) WHERE CONSTRUCTION TRAFFIC WILL EXIT THE PROJECT SITE ONTO PA ROUTE 940.
4. INSTALL TEMPORARY PARKING AREAS AS NEEDED IN STAGING AREA PE-STA-B-09 WITH STABILIZED CRUSHED GRAVEL SURFACE.

TREE CLEARING (15 DAYS)

5. CLEAR TREES AND BRUSH; HAUL MERCHANTABLE TIMBER OFF SITE; CHIP REMAINDER OF VEGETATION AND HAUL OFF SITE.

TREE STUMP REMOVE, TOPSOIL STRIPPING, ACCESS ROAD, SITE GRADING, AND RUNOFF MEASURES (20 DAYS)

6. STAKE OUT REMAINDER OF TEMPORARY ECBs; INSTALL ECBs. EXCAVATE AND ROUGH GRADE STORMWATER DETENTION BASIN (NORTH BASIN), LESS 12 INCHES OF DEPTH; INSTALL OUTLET CONTROL STRUCTURE WITH TEMPORARY RISER AT END OF THE PVC PIPE TO OUTLET CONTROL STRUCTURE. DO NOT DRILL HOLES IN PERMANENT RISER UNTIL FINAL GRADING OF NORTH BASIN IS PERFORMED. ENGINEER SHALL INSPECT INSTALLATION AND STABILIZATION OF TEMPORARY SWALE. STORMWATER DETENTION BASIN (NORTH BASIN) LESS 12 INCHES OF DEPTH, AND TEMPORARY OUTLET CONTROL STRUCTURE.
7. GRUB TREE STUMPS AND ROOTS; HAUL STUMPS OFF SITE OR GRIND STUMPS AND DISPOSE OF CHIPS OFF SITE.
8. STRIP AND STACK TOPSOIL; SCREEN ESTIMATED QUANTITY OF TOPSOIL NEEDED FOR REUSE AND STACK ON SITE; HAUL SURPLUS TOPSOIL OFF SITE.
9. INSTALL PERMANENT TWIN 48-INCH RCPS WITH CONCRETE HEADWALLS AT STA. 13+90; BACKFILL RCPS WITH BORROW GRAVEL.
10. INSTALL TEMPORARY COFFERDAM AND PUMP BYPASS MEASURES. MAINTAIN BASE STREAM FLOW BY PUMPING FROM UPSTREAM TO DOWNSTREAM OF THE COFFERDAMS. DEWATER WORK AREA: WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG, WHERE POSSIBLE, EXCAVATION SHALL BE FROM THE TOP OF THE STREAM BANK, WHERE TECHNICALLY FEASIBLE. INSTALL 22-FOOT W X 8-FOOT H PRECAST CONCRETE BOX CULVERT, HEADWALLS, AND RIP RAP AT STA. 19+40; BACKFILL STRUCTURES WITH BORROW GRAVEL. UPON BACKFILLING OF THE COMPLETED BOX CULVERT AND HEADWALL, INSTALLATION, REMOVE TEMPORARY COFFERDAM AND PUMP BYPASS MEASURES. PROVIDE STREAMBANK RESTORATION. ENGINEER SHALL INSPECT CULVERT INSTALLATION.
11. STAKE OUT ACCESS ROAD TO STA. 29+00; EXCAVATE AND FILL ACCESS ROAD TO SUBGRADE; EXCAVATE ROADSIDE SWALES.
12. INSTALL DRAINAGE PIPING, MANHOLES, CATCHBASINS AND INLETS; EXCAVATE PERIMETER DRAINAGE SWALE IN COMPRESSOR PAD AREA; INSTALL ECBs AT CATCHBASINS AND INLETS. ENGINEER SHALL INSPECT DRAINAGE PIPING, MANHOLES, CATCHBASINS AND INLETS, AND SWALES.
13. PROOF ROLL ACCESS ROAD SUBGRADE; INSTALL LAYER OF PENNDOT 2A GRAVEL SUB-BASE OVER APPROVED SUBGRADE; GRADE AND ROLL GRAVEL.
14. STAKE OUT COMPRESSOR PAD AREA; EXCAVATE AND FILL PAD TO SUBGRADE; INSTALL BORROW MATERIAL AS NEEDED TO BRING THE PAD TO SUBGRADE ELEVATIONS.
15. STAKE OUT OFFICE/WAREHOUSE BUILDING PARKING AREA AND PERIMETER ACCESS ROAD IN COMPRESSOR PAD AREA; EXCAVATE AND FILL PARKING AREA AND ROADWAY TO SUBGRADE.
16. PROOF ROLL PERIMETER ROAD SUBGRADE; INSTALL LAYER OF PENNDOT 2A GRAVEL SUB-BASE OVER APPROVED SUBGRADE; GRADE AND ROLL GRAVEL.
17. EXCAVATE STORMWATER DETENTION BASIN (SOUTH BASIN); INSTALL OUTLET CONTROL STRUCTURES AND ASSOCIATED PIPING. INSTALL ECBs AT PERIMETER OF BASIN, INLETS, AND OUTLETS. ENGINEER SHALL INSPECT STORMWATER DETENTION BASIN (SOUTH BASIN), OUTLET CONTROL STRUCTURES, ASSOCIATED PIPING, INLETS AND OUTLETS.
18. EXCAVATE ACCUMULATED SEDIMENT AND DEBRIS IN NORTH BASIN AND PERFORM FINAL GRADING. CUT TEMPORARY RISER FROM END OF THE PVC PIPE TO OUTLET CONTROL STRUCTURE AND INSTALL END CAP. DRILL HOLES FOR PERMANENT RISER PER STORMWATER DETAILS. IMMEDIATELY SEED BASIN AND INSTALL EROSION CONTROL BLANKET ON EMBANKMENT SLOPES. INSTALL ECBs AT PERIMETER OF BASIN, INLETS, AND OUTLETS. ENGINEER SHALL INSPECT STORMWATER DETENTION BASIN (NORTH BASIN) AND PERMANENT OUTLET CONTROL STRUCTURE.

EXCAVATE, FORM, POUR COMPRESSOR FOUNDATION BLOCKS (9 DAYS)

19. EXCAVATE FOR COMPRESSOR FOUNDATION BLOCKS (3).
20. FORM, INSTALL REINFORCING STEEL, AND POUR BLOCKS.
21. INSTALL GRAVEL BACKFILL AND COMPACT SOIL.

EXCAVATE, FORM, POUR BUILDING FOUNDATIONS (21 DAYS)

22. EXCAVATE FOR OFFICE/WAREHOUSE BUILDING FOUNDATION.
23. FORM, INSTALL REINFORCING STEEL, AND POUR BUILDING FOUNDATION.
24. INSTALL GRAVEL, BACKFILL AND COMPACT SOIL.
25. UNDER-SLAB UTILITY INSTALLATION.
26. POUR CONCRETE FLOOR SLAB.

EXCAVATE, FORM, POUR REMAINING FOUNDATIONS (21 DAYS)

27. EXCAVATE FOR GAS COOLER, FILTER SEPARATORS, LAUNCHER/RECEIVER, BLOWDOWN SILENCERS, LIQUID TANKS, MISCELLANEOUS FOUNDATIONS.
28. FORM, INSTALL REINFORCING STEEL, AND POUR FOUNDATIONS.
29. INSTALL GRAVEL, BACKFILL AND COMPACT SOIL.

EXCAVATE, INSTALL PLANT BURIED CONDUIT (9 DAYS)

30. TRENCH EXCAVATION FOR BURIED CONDUIT.
31. CONDUIT INSTALLATION.
32. ENCASE CONDUIT AND BACKFILL WITH SELECT MATERIAL.

INSTALL PLANT POWER FEED, PHONE, CABLE, LIGHTING ALONG ACCESS ROAD (4 DAYS)

33. UTILITY POLES INSTALLATION.
34. STRING OVERHEAD CABLES.
35. STREET LIGHTS INSTALLATION.

ERECT, SET WAREHOUSE/OFFICE/CONTROL BUILDING (24 DAYS)

36. BUILDING ERECTION.

SET COMPRESSORS (3 DAYS)

37. INSTALLATION OF COMPRESSOR AND ENGINES.
38. START COMPRESSOR BUILDING ERECTION ONCE UNITS ARE SET

SET MAIN GAS EQUIPMENT (27 DAYS)

39. INSTALL BELOW GRADE AND ABOVE GRADE GAS PIPING IN COMPRESSOR PAD AREA.
40. INSTALL CRUSHED STONE SURFACE IN COMPRESSOR PAD AREA.
41. EXCAVATE LARGE BORE PIPE TRENCHES.
42. FABRICATE, INSTALL LARGE BORE AND SMALL BORE PIPING AND SKIDS - RUNS TO SEPTEMBER.

FINAL GRADING AND PAVING

43. RESTORE DISTURBED AREAS; SPREAD TOPSOIL; SEED AND MULCH.
44. INSTALL PERMANENT SECURITY GATE AND FENCING.
45. INSTALL HOT MIXED ASPHALT BASE COURSE AND BINDER COURSE.
46. GRADE ROADSIDE SWALES; INSTALL TOPSOIL; SEED AND MULCH.
47. INSTALL PENNDOT 2A GRAVEL ROADWAY SHOULDERS.
48. INSTALL HOT MIXED ASPHALT WEARING COURSE (TOP COURSE).

ERECT COMPRESSOR BUILDING FRAMING AND INTERIOR LINER (30 DAYS)

49. BUILDING ERECTION OF FRAMING AND INTERIOR LINER STARTS IMMEDIATELY AFTER COMPRESSORS ARE SET
50. INSTALL SMALLER MECHANICAL AND ELECTRICAL EQUIPMENT
51. SET ELECTRICAL BUILDINGS
52. PULL AND TERMINATE WIRES

FINAL CLEANUP, DEMOBILIZATION, AND MAINTENANCE (38 DAYS)

53. MAINTAIN ECBs AND REPAIR ANY ERODED AREAS; REPAIR ANY AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES.
54. FINAL CLEANUP; REMOVE SURPLUS AND TRASH FROM SITE.
55. DEMOBILIZE CONTRACTOR EQUIPMENT.
56. MONITOR AND MAINTAIN SEEDED AREAS.

REMOVE ECBs UPON ESTABLISHMENT OF VEGETATION.

LIMITING SOIL CHARACTERISTICS LEGEND																			
MAP SYMBOL	SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK-SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS	MIN DEPTH TO BEDROCK	pH
A&B	ALBRIGHTS VERY STONY LOAM, 0 TO 8 PERCENT SLOPES	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
MB	MORRIS VERY STONY SILT LOAM, 0 TO 8 PERCENT SLOPES	X	C/S	X	X		X	X	X	X		X	X				X	X	

SOURCE: AS TAKEN FROM TABLE E.1 OF THE THE PADEP E&SPCC MANUAL, MARCH 2012. [HTTP://WWW.ELIBRARY.DEP.STATE.PA.US/DSWEB/GET/DOCUMENT-88925/363-2134-008.PDF](http://www.elibrary.dep.state.pa.us/dsweb/get/document-88925/363-2134-008.pdf)

THE SOIL LIMITATIONS SHALL BE ADDRESSED AS FOLLOWS:

LIMITATIONS AND RESOLUTIONS:

LIMITATION: CUTBANKS CAVE, LOW STRENGTH - CUTBANKS HAVE POTENTIAL TO CAVE AND MANY SOILS ARE LOW STRENGTH.

RESOLUTION: CONTRACTOR SHALL BE AWARE OF POTENTIAL ISSUES AND FOLLOW OSHA GUIDELINES FOR OPEN TRENCHING. LOW SOIL STRENGTH IS NOT A CONCERN DUE TO THE NATURE OF THE PROPOSED PROJECT. UTILITY TRENCHING WILL NOT BE ADVERSELY EFFECTED BY POOR SOIL STRENGTH.

LIMITATION: CORROSIVE TO STEEL AND/OR CONCRETE

RESOLUTION: IF STEEL PIPE IS USED RUST PROTECTION BY COATINGS AND/OR USE OF CATHODIC PROTECTION IS RECOMMENDED. IF CONCRETE IS USED SOIL SHALL BE TESTED AND CONCRETE COATED AS RECOMMENDED BY MANUFACTURER.

LIMITATION: DROUGHTY - SOILS EXHIBITING A POOR MOISTURE-HOLDING CAPACITY, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.

RESOLUTION: FOR DROUGHTY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. DROUGHTY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

LIMITATION: EASILY ERODIBLE

RESOLUTION: SPECIAL ATTENTION SHALL BE GIVEN TO MAINTAINING EXISTING VEGETATION IN EASILY ERODIBLE SOILS. TO THE EXTENT POSSIBLE, EASILY ERODIBLE SOILS WITHIN 50 FEET OF A SURFACE WATER SHOULD BE BLANKETED. WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT SUFFICIENT VEGETATIVE FILTER STRIP BETWEEN THE WATERBAR AND A RECEIVING SURFACE WATER, THE WATERBAR SHOULD BE PROVIDED WITH A TEMPORARY PROTECTIVE LINER.

LIMITATION: FLOODING - ANY SOIL SUBJECT TO INUNDATION DURING A 2-YEAR/24HR STORM EVENT.

RESOLUTION: (SEE WET SOILS)

LIMITATION: HIGH WATER TABLE, POTENTIALLY HYDRIC - HIGH WATER TABLE IS TO BE EXPECTED AND MANY OF THE SOILS ARE POTENTIALLY HYDRIC.

RESOLUTION: FOLLOW E&S PLAN WITH REGARD TO PUMPING AND DEWATERING. DISCHARGE OF SEDIMENT LADEN WATER IS PROHIBITED UNLESS WITHOUT FIRST PASSING THRU A "PUMPED WATER FILTER BAG" BMP.

LIMITATION: HYDRIC / HYDRIC INCLUSIONS - A SOIL THAT IS SATURATED, FLOODED, OR PONDED LONG ENOUGH DURING THE GROWING SEASON TO DEVELOP ANAEROBIC CONDITIONS. WHEN SUCH A SOIL IS LOCATED IN AN AREA THAT HAS HYDROPHYTIC VEGETATION AND WETLAND HYDROLOGY, A WETLAND IS PRESENT.

RESOLUTION: HYDRIC SOILS THAT ARE DELINEATED WETLANDS, SHOULD BE AVOIDED TO THE EXTENT POSSIBLE. STAGING AREAS SHOULD BE LOCATED 50 FEET FROM THE EDGE OF WETLAND. MOVEMENT OF VEHICLES ACROSS WETLAND MUST BE MINIMIZED. WHERE VEHICLES NEED TO CROSS WETLANDS, THE USE OF TEMPORARY TIMBER MATS SHALL BE USED DUE TO THE POTENTIAL FOR RUTTING. TRENCH PLUGS SHALL BE INSTALLED TO PREVENT THE TRENCH FROM DRAINING THE WETLANDS OR CHANGING THE HYDROLOGY.

LIMITATION: LOW STRENGTH / LANDSLIDE PRONE - SOILS WITH LOW STRENGTH HAVE A LESSER ABILITY TO RESIST SLOPE FAILURE, SUCH AS SLUMPING, FLOWING, ETC. MATERIALS WITH LOW SHEAR STRENGTH ARE MORE SUSCEPTIBLE TO LANDSLIDES AND EMBANKMENT FAILURES.

RESOLUTION: PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE "PADEP - EROSION AND SEDIMENT CONTROL PROGRAM MANUAL," UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.

LIMITATION: SLOW PERCOLATION - PERMEABILITY RATE LESS THAN OR EQUAL TO 0.2 INCHES/HR.

RESOLUTION: BMPs TO BE INSPECTED AFTER RUNOFF EVENTS, MAKE SURE THERE IS ADEQUATE AREA FOR PUMPED WATER DISCHARGE. PCSM FACILITIES DESIGN BASED ON SITE SPECIFIC TESTING.

LIMITATION: PIPING

RESOLUTION: PIPING POTENTIAL IN THE SOIL WILL BE MINIMIZED BY THE USE OF TRENCH PLUGS.

FURTHERMORE, ANY PLANNED EMBANKMENTS OR PERMANENT IMPOUNDMENTS SUSCEPTIBLE TO PIPING SHALL UTILIZE ANTI-SEEP COLLARS OR FILTER DIAPHRAGMS ON OUTLET BARRELS.

LIMITATION: LIMITED AVAILABLE TOPSOIL

RESOLUTION: ANY EXCAVATED TOPSOIL WILL BE STOCKPILED AND REUSED. IF NECESSARY, ADDITIONAL TOPSOIL WILL BE BROUGHT ON-SITE.

LIMITATION: FROST ACTION - THE LIKELIHOOD OF UPWARD OR LATERAL EXPANSION OF THE SOIL CAUSED BY THE FORMATION OF SEGREGATED ICE LENSES, OR FROST HEAVE, AND THE SUBSEQUENT COLLAPSE OF THE SOIL AND LOSS OF STRENGTH ON THAWING, WHICH CAN DAMAGE ROADS, BUILDINGS, AND OTHER STRUCTURES AS WELL AS PLANT ROOTS.

RESOLUTION: PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE TO ROADWAYS AND STRUCTURES.

LIMITATION: WET SOILS - SOME SOILS MAY EXHIBIT A HIGH WATER TABLE OR PONDING.

RESOLUTION: IF HIGH WATER TABLE IS ENCOUNTERED, TRENCH DEWATERING WILL BE EMPLOYED. LOCATE PCSM FACILITIES AWAY FROM WET SOILS.

LIMITATION: MIN. DEPTH TO BEDROCK - SOME SOILS HAVE A MIN DEPTH OF BEDROCK LESS THAN THE TYPICAL TRENCH DEPTH OF 7 FT (ASSUMES 3 FT OF COVER, PIPE DIAMETER, AND BEDDING DEPTH OF 1 FT).

RESOLUTION: CONTRACTOR TO PLAN FOR ROCK REMOVAL DURING TRENCHING OPERATIONS. FOR SEDIMENT BARRIERS REQUIRING STAKING (E.G. SILT FENCES, ETC.), DEPTH TO BEDROCK LESS THAN 2 FT CAN IMPACT ABILITY TO DRIVE STAKE AND/OR POLE (FOR SUPER SILT FENCE). IN THESE AREAS, COMPOST FILTER SOCK OR OTHER APPLICABLE BMP NOT REQUIRING STAKING MAY BE CONSIDERED.

LIMITATION: pH - SOME SOILS HAVE pH VALUES LESS THAN 5.5, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.

RESOLUTION: AS IS TYPICAL FOR THESE TYPE OF SOILS, LIME WILL BE ADDED AS NEEDED TO PRODUCE VEGETATIVE STABILITY.

LIMITATION: LOW FERTILITY

RESOLUTION: IF NECESSARY TO PRODUCE VEGETATIVE STABILITY OF THE SOIL, FERTILIZER OR NUTRIENT SUPPLEMENTS WILL BE ADDED TO THE SOIL TO PRODUCE VEGETATIVE STABILITY. FOR LOW FERTILITY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. LOW FERTILITY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.



CLIENT APPROVAL

DATE

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NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	JRD(MM)
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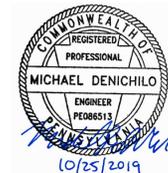
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
POST CONSTRUCTION STORMWATER
MANAGEMENT DETAILS
CARBON COUNTY, PENNSYLVANIA

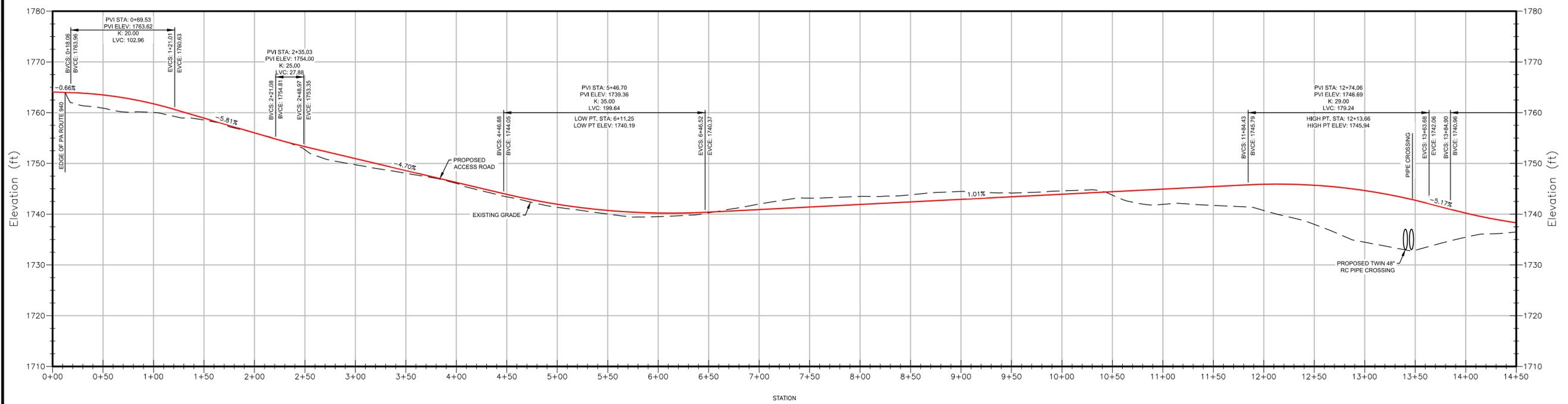
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CHECKED BY: WMC SCALE: AS SHOWN

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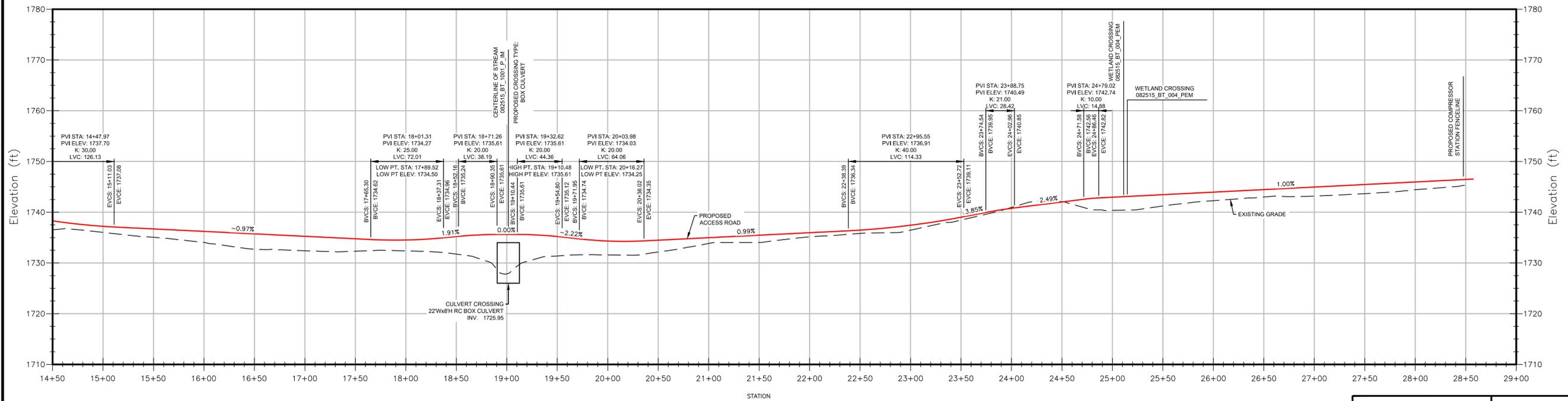
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ACCESS ROAD PROFILE

HORIZ SCALE: 50' 25' 0' 50'
 VERT SCALE: 10' 5' 0' 10'



ACCESS ROAD PROFILE

HORIZ SCALE: 50' 25' 0' 50'
 VERT SCALE: 10' 5' 0' 10'

LEGEND

- EXISTING GRADE
- PROPOSED ACCESS ROAD

FOR VERTICAL SIGHT DISTANCES, CHAPTER 3 OF THE AASHTO PUBLICATION "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" WAS APPLIED. THE STOPPING SIGHT DISTANCE REQUIRED WAS DETERMINED TO BE 215'. THE SIGHT LINE REPORT CONFIRMED THE PROPOSED VERTICAL SIGHT LINES ARE WITHIN THE REQUIREMENTS DICTATED BY AASHTO.



PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
ACCESS ROAD PROFILE
 CARBON COUNTY, PENNSYLVANIA

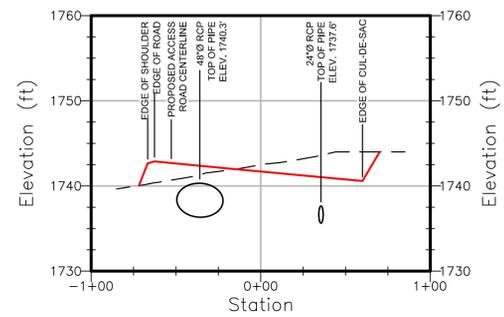
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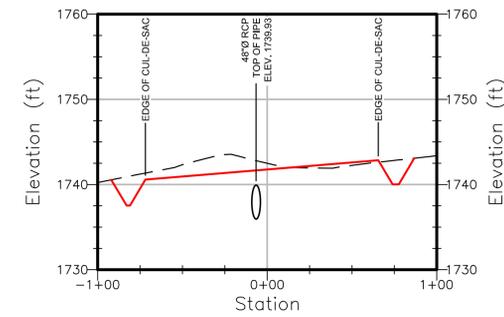
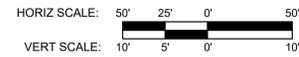
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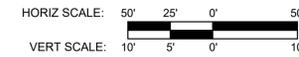
G:\PennEast\Pipeline_EPCMD\Prod\Facilities\Drafting\013 - C - Plan & Profiles\Kidder_Compressor_Station\PADEP_Civil\Include in both sets\023-03-07-011.dwg



CUL-DE-SAC CROSS SECTION A-A



CUL-DE-SAC CROSS SECTION B-B



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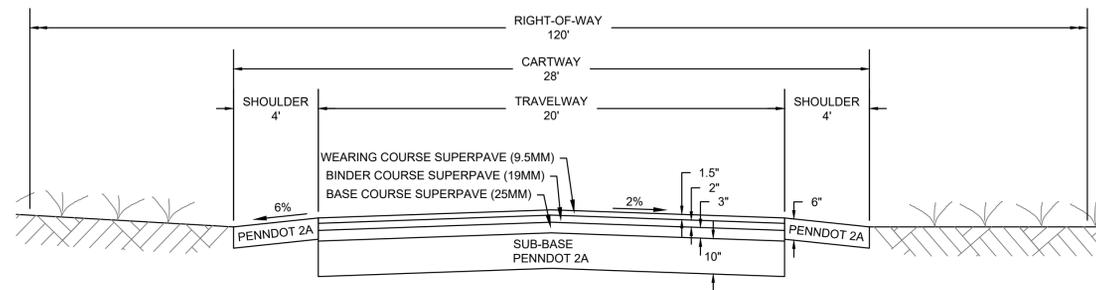
10/25/2019

PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
CROSS SECTION DETAILS
CARBON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	

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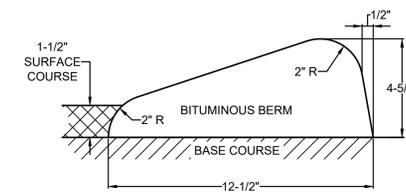
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TYPICAL CROSS-SECTION OF ACCESS ROAD
NOT TO SCALE

SPEED LIMIT = 35 MPH
MAX SLOPE = 10%

BASED ON KIDDER TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, TABLE 153-29-1, DESIGN STANDARDS FOR ROADS (NONRESIDENTIAL BUSINESS AND INDUSTRIAL, LOCAL STREET).
NOTE:
THE PROPOSED CARTWAY WIDTH IS BASED ON PROPOSED TOWNSHIP REGULATIONS. IF THE PROPOSED TOWNSHIP REGULATIONS ARE NOT ADOPTED, PENNEAST WILL REQUEST A WAIVER DURING FINAL PLAN APPROVAL.



CURB DETAIL
NOT TO SCALE

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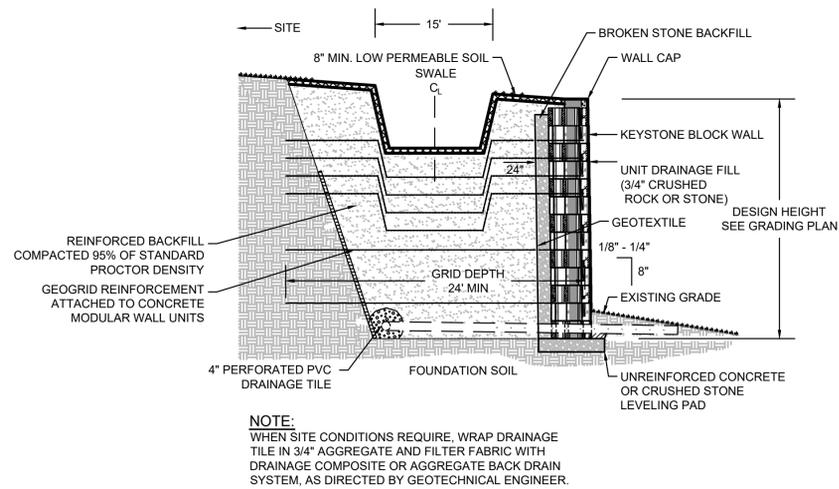
PENNEAST PIPELINE PROJECT
KIDDER COMPRESSOR STATION
TYPICAL ACCESS ROAD SECTION
AND DETAILS
CARBON COUNTY, PENNSYLVANIA

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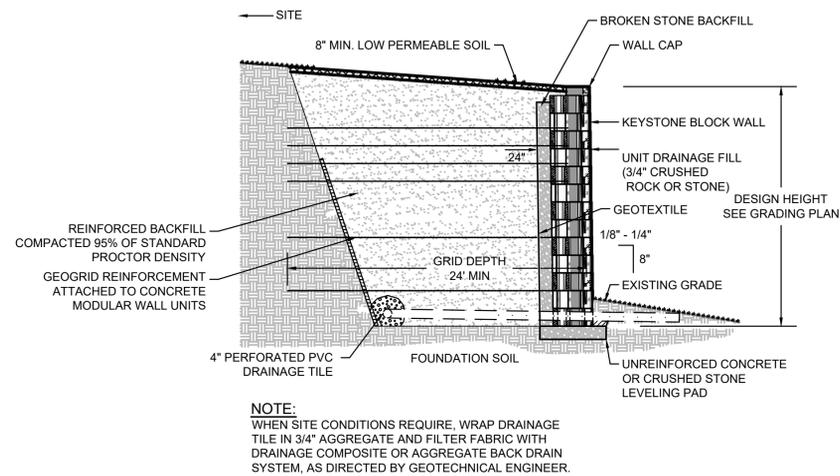
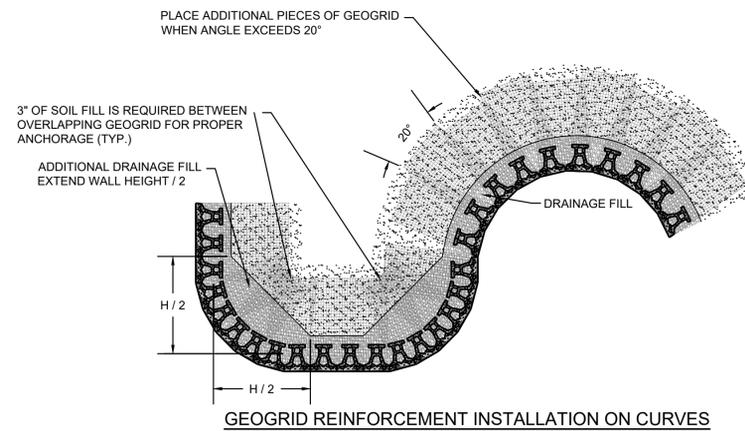
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10/25/2019



TYPICAL REINFORCED RETAINING WALL SECTION WITH SWALE



TYPICAL REINFORCED RETAINING WALL SECTION WITHOUT SWALE

		CLIENT APPROVAL			
		DATE			
REVISIONS					
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		PENNEAST PIPELINE PROJECT	
		KIDDER COMPRESSOR STATION	
RETAINING WALL AND GEOGRID DETAILS		CARBON COUNTY, PENNSYLVANIA	
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
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