STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:

PUMPED WATER FILTER BAGS

DAILY

ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING, CUTS, FILLS, TRENCHING, AND TEMPORARY ROAD CONSTRUCTION OR IMPROVEMENT, SHALL BE DONE IN ACCORDANCE WITH AN APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.

PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME

UNTIL THE PROBLEM IS CORRECTED

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- 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 LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT 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 BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS 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
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER. SEGREGATION OF TOPSOIL SHALL OCCUR WHERE TOPSOIL EXISTS WITHIN THE WORK AREA.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- 10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 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
- 11. ALL OFF—SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
- 13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES (CONTINUED):

- 14. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE-MULCH AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- 15. NO SOIL AMENDMENTS SUCH AS AGRICULTURAL LIME, FERTILIZER, ETC. WILL BE USED WITHIN WETLAND AREAS.
- 16. 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.
- 17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE AT THE END OF EACH DAY, OR AS NEEDED, OR AS DIRECTED BY THE CONSERVATION DISTRICT OR LOCAL MUNICIPALITY, AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- 18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 19. IN AREAS OF TOPSOIL SEGREGATION THE TOPSOIL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO THE RESTORATION OF THE TOPSOIL. AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILLOUT SLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL
- 20. 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.
- 21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.
- 22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY
- 23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED 17. INTO FILLS.
- 24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- 25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- 26. 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 100 FEET OF A SPECIAL PROTECTION SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- 27. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE CESSATION OF EARTH DISTURBANCE ACTIVITIES IN NON-SPECIAL PROTECTION WATERSHEDS WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM PROTECTION WATERSHEDS TEMPORARY STABILIZATION SHALL BE IMMEDIATE.
- 28. 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
- 29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
- 31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE 7. REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORM WATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- 32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- 33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING 1. 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 DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO\$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
- 34. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- 35. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- 36. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR GREATER AND ALL AREAS, 3. REGARDLESS OF SLOPE WITHIN 50 FEET OF NON-SPECIAL PROTECTION AND 100 FEET OF A SPECIAL PROTECTION SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- 37. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY IN A SPECIAL PROTECTION WATERSHED, THAT PORTION OF THE PROJECT SITE TRIBUTARY TO THE SPECIAL PROTECTION WATERS MUST BE IMMEDIATELY STABILIZED.
- 38. IF COAL OR OTHER ACID-PRODUCING ROCK IS ENCOUNTERED AT THE PROJECT SITE, THE ACID PRODUCING ROCK WILL EITHER BE REMOVED FROM THE SITE OR HANDLED ONSITE. IF COAL OR OTHER ACID-PRODUCING ROCK MUST BE HANDLED ON SITE IS SHOULD BE SAMPLED AND ANALYZED FOR TOTAL PERCENT SULFUR IN ACCORDANCE WITH PADEPS GUIDANCE. ON-SITE HANDLING METHODS SHOULD BE BASED ON TESTING AND PADEP GUIDANCE.
- 39. IF A SINKHOLE IS ENCOUNTERED, REPAIR SHOULD BE DONE UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER. SITE SPECIFIC SINKHOLE REPAIRS SHOULD BE DEVELOPED ON A CASE BY CASE BASIS.
- 40. IN-STREAM WORK TO OCCUR IN MINOR WATER BODIES (>10 FEET WIDE) WITHIN 24 HOURS, AND IN MAJOR WATER BODIES (10 TO 100 FEET WIDE) WITHIN 48 HOURS UNLESS APPROVED IN WRITING BY THE DEPARTMENT.

CONSTRUCTION SEQUENCE:

REFER TO THE E&SC PLAN DRAWINGS FOR THE LOCATION OF THE PROPOSED WORK AND THE ASSOCIATED BMPS. A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROLS. NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW DETAILED INFORMATION ON METHODS AND MATERIALS. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED IN THE FIELD.

- MAKE ALL APPROPRIATE NOTIFICATIONS AS INDICATED IN GENERAL NOTES ON PLAN SHEET ES-0.01.
- FLAG OR FENCE PROJECT LIMITS OF DISTURBANCE AND APPROVED ACCESS. SIGN AND FLAG WETLAND BOUNDARIES AND STREAMS.

- ORANGE CONSTRUCTION FENCE WILL BE PROVIDED AND INSTALLED AT WETLAND AREAS ADJACENT TO THE LOD AND NOT PLANNED TO BE IMPACTED TO IDENTIFY AND DETER CONSTRUCTION EQUIPMENT, VEHICLES AND PERSONNEL FROM ENTERING WETLAND.
- LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. INSTALL COMPOST FILTER SOCKS DOWN SLOPE OF THESE AREAS.
- EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN 5. INSTALL ROCK CONSTRUCTION ENTRANCES AS NEEDED. REFER TO THE ROCK CONSTRUCTION ENTRANCE DETAIL ON PLAN SHEET ES-0.05.
 - CONSTRUCT THE PROPOSED ACCESS ROADS AND IMPLEMENT TEMPORARY IMPROVEMENTS AS IDENTIFIED IN ACCESS ROAD SUMMARY TABLE AND DETAILED ON THE PLAN SHEETS. INSTALL COMPOST FILTER SOCKS AS SHOWN ON THE CONSTRUCTION DRAWINGS. INSTALLATIONS SIZING, AND SPACING MUST CONFORM TO THE CHART AND DETAILS PROVIDED ON PLAN SHEET
 - ES-0.05. APPROPRIATELY SIZED SILT FENCE IS AN APPROVED ALTERNATIVE IN AREAS THAT ARE NOT SPECIAL PROTECTION WATERSHEDS AND MUST CONFORM TO THE CHART AND DETAILS PROVIDED ON PLAN SHEET ES-0.06. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL COMMENCE ALONG THE PIPELINE ROUTE AND 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 BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN. FOR CLEARING, GRUBBING, AND TOPSOIL REMOVAL IN ALL STREAM, RIVER, WETLAND OF OTHER WATER BODY CROSSINGS, REFER TO CONSTRUCTION SEQUENCE NOTES BELOW. TOPSOIL WILL BE SEGREGATED AT LOCATIONS THROUGHOUT THE PROJECT WHERE TOPSOIL EXISTS. TEMPORARY WATERBARS OR APPROVED INTERCEPTOR DYKES WILL BE INSTALLED ALONG THE ALIGNMENT PRIOR TO PIPE INSTALLATION AT THE END OF EACH WORK DAY. DURING THE PERIODS OF TIME WHERE PIPE TRENCH IS OPEN CONTRACTORS WILL PROVIDE POSITIVE CONTROL OF ALL STORM WATER ON SITE, TEMPORARY WATERBARS WILL BE CONSTRUCTED BY THE END THE WORK
 - DAY, OR DURING EACH WORK DAY IF REQUIRED CONTRACTOR WILL INSTALL SILT FENCE TO CONTROL EROSION UNTIL 70% VEGETATION GROWTH HAS BEEN ACHIEVED MINIMIZE TOTAL AREA OF DISTURBANCE. MAINTAIN TEMPORARY SOIL STOCKPILES WITHIN EXISTING SOIL EROSION AND SEDIMENT CONTROLS. SHOULD EXCAVATION ENTER STREAMS, FOLLOW
 - SPECIFIC DETAILS FOR THESE AREAS SHOWN ON THE DRAWINGS AND INCLUDE THE STEPS DETAILED IN THE SPECIFIC SECTIONS BELOW. PULLBACK AREAS FOR HDDS WILL BE CLEARED AND PREPARED AS NEEDED TO SUPPORT STAGING, WELDING AND TESTING OF THE HDD PIPE SECTIONS. AREAS NOT UTILIZED FOR CONSTRUCTION ACTIVITIES SHOULD BE AVOIDED TO MINIMIZE INSTALL PIPE AND TRENCH PLUGS IN ACCORDANCE WITH DETAILS ON PLAN SHEET ES-0.07. WHEN OPEN CUTTING DRIVEWAYS AND ACCESS ROADS, CONTRACTOR SHALL HAVE ROAD PLATES
 - AVAILABLE TO MAINTAIN ACCESS FOR LANDOWNERS. THE 20-INCH PIPELINE WILL BE INSTALLED FIRST, FOLLOWED BY THE 16-INCH LINE. ANY TEMPORARY STABILIZATION REQUIRED BETWEEN THE TWO INSTALLATIONS WILL BE IMPLEMENTED IN ACCORDANCE WITH THIS E&S PLAN. BOTH PIPELINE'S WILL BE INSTALLED WITHIN THE SAME LIMIT OF DISTURBANCE AND IN THE SAME
 - 12. FOR OPEN-CUT AREAS, THE LENGTH OF TIME REQUIRED TO CLEAR AND GRADE THE AREA, EXCAVATE THE TRENCH, INSTALL THE PIPELINES, BACKFILL THE TRENCH AND BEGIN STABILIZATION OF DISTURBED AREAS WILL NOT EXCEED 30 CALENDAR DAYS FOR MOST INSTALLATIONS. LONGER TIME PERIODS MAY BE APPROVED ON A CASE-BY-CASE BASIS.
 - BACKFILL EXCAVATED AREA AND COVER WITH TOPSOIL (WHERE TOPSOIL WAS SEGREGATED).
 - BEFORE RESTORATION OF GRADE, THE SECOND 16-INCH PIPELINE WILL BE INSTALLED. ALL TEMPORARY BMPS WILL BE IMPLEMENTED BETWEEN THE TWO INSTALLATIONS IN ACCORDANCE WITH THE NOTES AND DETAILS FOR TEMPORARY SEEDING AND COVER.
 - RESTORE GRADE TO ORIGINAL SURFACE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF INSTALLATION OF PIPES. INSTALL PERMANENT WATERBARS IN ACCORDANCE WITH PLAN SHEET ES-0.08. IMMEDIATELY SEED AND MULCH DISTURBED AREAS OR PREPARE FOR PAVING IN ROADWAY AREAS.
 - INSTALL EROSION CONTROL BLANKET ON ALL SLOPES 3:1 OR GREATER AND ALL AREAS, REGARDLESS OF SLOPE AND WITHIN 100 FEET OF SPECIAL PROTECTION WATERS OR 50 FEET OF NON-SPECIAL PROTECTION SURFACE WATERS. LOCATIONS ARE SHOWN ON PLAN SHEETS
 - IN AREAS THAT USED STONE OR TIMBER MATS FOR TEMPORARY STABILIZATION AND/OR ACCESS, THE STONE OR MATS WILL BE REMOVED AND, IF NEEDED, THE SOIL WILL BE SCARIFIED OR RIPPED TO A DEPTH OF 8-12 INCHES TO DE-COMPACT THE SOIL. AFTER REESTABLISHING PRECONSTRUCTION CONTOURS, TOPSOIL WILL BE REPLACED TO A MINIMUM DEPTH OF 4-8 INCHES AND SEEDED AND MULCHED. VEHICULAR TRAFFIC AFTER RESTORATION SHOULD BE RESTRICTED FROM AREAS TO PREVENT SOIL COMPACTION.
 - MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED. REMOVE SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% PERENNIAL VEGETATIVE COVERAGE OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE SOIL EROSION AND SEDIMENT CONTROLS
 - AS PART OF THE ONGOING STORM WATER BMP INSPECTION AND MAINTENANCE PROGRAM ANY STRUCTURAL BMP RECORDED ON THIS PROJECT WILL BE INSPECTED MAINTAINED, AND REPAIRED IN ACCORDANCE WITH THE PLAN FILED WITH THE DEED. IN ACCORDANCE WITH 25 PA CODE 102.7, UPON COMPLETION OF ALL CONSTRUCTION ACTIVITIES, A NOTICE OF TERMINATION FORM WILL BE SUBMITTED TO TERMINATE THE AUTHORIZATION OF
 - FOR ALL EV WETLAND AND STREAM CROSSINGS, SPLP WILL INSTALL THE SECOND PIPELINE IMMEDIATELY FOLLOWING THE INSTALLATION OF THE FIRST PIPELINE, AS LONG AS NO UNANTICIPATED, EXTRANEOUS CIRCUMSTANCES OR SAFETY ISSUES ARE ENCOUNTERED. THE TWO PIPES WILL BE INSTALLED IN A SINGLE DISTURBANCE THAT WILL NOT REQUIRE INTERIM TEMPORARY STABILIZATION/RESTORATION.

ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES IN A SPECIAL FOR STREAM, RIVER, WETLANDS OR OTHER WATER BODY UTILITY CROSSINGS THAT WILL BE IMMEDIATE

- NO WORK SHALL COMMENCE THROUGH A STREAM, RIVER, WETLANDS OR OTHER WATER BODY DURING INCLEMENT WEATHER.
- A UTILITY LINE CROSSING OF A STREAM CHANNEL 10 FEET IN BOTTOM WIDTH OR LESS SHALL BE COMPLETED WITHIN 24 HOURS FROM START TO FINISH INCLUDING TRENCH BACKFILL, STABILIZATION OF STREAM BANKS AND STABILIZATION OF THE AREA 50 FEET BACK FROM THE TOP OF EACH STREAM BANK.
- A UTILITY LINE CROSSING OF A STREAM CHANNEL BETWEEN 10 FEET AND 100 FEET IN BOTTOM WIDTH SHALL BE COMPLETED WITHIN 48 HOURS FROM START TO FINISH INCLUDING TRENCH BACKFILL, STABILIZATION OF STREAM BANKS AND STABILIZATION OF THE AREA 50 FEET BACK FROM THE TOP OF EACH STREAM BANK.
- WETLAND CROSSINGS ARE TO BE COMPLETED ALONG WITH THE MAINLINE INSTALLATION AND WILL BE DEPENDENT UPON THE LENGTH OF THE CROSSING.
- 5. FACILITIES FOR REMOVING SEDIMENT FROM PUMPED WATER SHOULD BE AVAILABLE AT THE STREAM CROSSING SITE BEFORE TRENCHING COMMENCES AND MAINTAINED UNTIL TRENCH BACKFILLING IS COMPLETED. ASSEMBLY AREAS, TEMPORARY EQUIPMENT AND NON-HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 50 FEET BACK FROM THE TOP OF ANY BANK.
- 6. INSTALL TEMPORARY EQUIPMENT CROSSINGS AT STREAMS AND TEMPORARY TIMBER MATS AT WETLAND CROSSINGS IN ACCORDANCE WITH NOTES AND DETAILS.
- FOR DRY STREAM CROSSINGS INSTALL PUMP BYPASS, DRY FLUME, OR COFFERDAM IN ACCORDANCE WITH NOTES AND DETAILS.
- DEWATERING 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.
- STABILIZE CHANNEL EXCAVATION AND STREAM BANKS PRIOR TO REDIRECTING STREAM FLOW

COVERAGE INDICATING ALL ACTIVITIES UNDER THIS PERMIT HAVE BEEN COMPLETED.

FOR CONVENTIONAL AND HDD BORE CROSSINGS:

CONVENTIONAL BORES

- CONVENTIONAL BORES WILL BE CONDUCTED ALONG WITH MAIN LINE INSTALLATION TO LIMIT THE TIME OF DISTURBANCE IN THOSE AREAS.
- INSTALL COMPOST FILTER SOCKS DOWNGRADIENT OF THE BORE AND RECEIVING PITS.
- 3. EXCAVATE PITS AS SHOWN IN THE TYPICAL STREAM CROSSING DETAIL ON PLAN SHEET ES-0.17
- 4. BORE BENEATH STREAMS WHERE INDICATED ON THE CONSTRUCTION DRAWINGS.
- 5. WATER FROM THE BORE PITS AND WORK AREAS SHALL BE PUMPED TO A PUMPED WATER FILTER BAG IN ACCORDANCE WITH DETAIL ON PLAN SHEET ES-0.07.
- 6. UPON COMPLETION, BACKFILL ALL PITS.

<u>HDD BORES</u>

- INSTALL COMPOST FILTER SOCKS AT STAGING AND PULLBACK AREAS IN ACCORDANCE WITH E&S PLAN SHEETS. WHERE APPLICABLE TEMPORARY GRADING OF STAGING AREAS IS PROVIDED ON PLAN SHEETS.
- BORE AND PULLBACK AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET BACK FROM EACH TOP OF STREAM BANK UNLESS AUTHORIZED BY PADEP. THE HDD BORE ALIGNMENT SHALL BE MONITORED FOR INADVERTENT RETURNS. AN INADVERTENT RETURN PLAN HAS BEEN DEVELOPED FOR THIS PROJECT. THIS PLAN IS TO BE REVIEWED,
- ONSITE, AND IMPLEMENTED FOR EACH DRILL CONDUCTED.
- 4. UPON COMPLETION OF HDD BORE, RESTORE BORE AND PULLBACK AREAS TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH E&S PLANS AND DETAILS.

FOR WORKING WITHIN A WETLAND AREA:

- LOCATE STAGING AREAS AND ACCESS POINTS. STAGING AREAS SHOULD BE LOCATED AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF
- 2. INSTALL ROCK CONSTRUCTION ENTRANCE AS NEEDED. REFER TO THE ROCK CONSTRUCTION ENTRANCE DETAIL ON DRAWINGS FOR SUGGESTED DIMENSIONS.
- INSTALL ORANGE FLAGGING AROUND PERIMETER OF WETLAND AND SEDIMENT BARRIERS ALONG THE PERIMETERS OF THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- MATS, PADS, OR SIMILAR DEVICES SHALL BE USED DURING THE CROSSINGS OF WETLANDS. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD ON-SITE.
- SOIL EXCAVATED FROM WETLAND AREAS SHALL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND SURFACE RESTITUTION.
- DEWATER WORK AREA; WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT TRAP OR A FILTER BAG.
- 7. INSTALL PIPE.
- 8. INSTALL TRENCH PLUGS IN WETLAND AREAS TO PREVENT THE TRENCH FROM DRAINING THE WETLAND OR CHANGING ITS HYDROLOGY.
- 9. BACKFILL PIPE TRENCH. BACKFILL THE TOP 12—INCHES OF THE EXCAVATED TRENCH WITH THE STOCKPILED WETLAND SOIL TO MATCH ORIGINAL SURFACE GRADES. 10. NO SOIL AMENDMENTS SUCH AS AGRICULTURAL LIME, FERTILIZER, ETC. WILL BE USED WITHIN WETLAND AREAS.
- COMPACT BACKFILL AND GRADE THE SURFACE OF THE TRENCH AREA TO ALLOW FOR POSITIVE DRAINAGE TO SOIL EROSION AND SEDIMENT CONTROLS AND TO PREPARE DISTURBED AREAS FOR
- PERMANENT TRENCH RESTORATION.
- 12. MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- 13. REMOVE ALL SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE SOIL EROSION AND SEDIMENT CONTROLS.

FOR TEMPORARY EQUIPMENT STREAM AND WETLAND CROSSINGS:

- 1. INSTALL TEMPORARY EQUIPMENT CROSSINGS AND TEMPORARY TIMBER MAT WETLAND CROSSINGS IN ACCORDANCE WITH PLAN SHEETS ES-0.10.
- 2. TEMPORARY STREAM CROSSINGS SHALL BE INSPECTED ON A DAILY BASIS. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION AND BEFORE ANY SUBSEQUENT USE. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF THE INSPECTION.
- AS SOON AS THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE TEMPORARY CROSSING. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY AND DISTURBED AREAS STABILIZED. REMOVE ALL SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATION COVER OVER THE DISTURBED AREA.

REVISIONS NO. BY DATE REMARKS TETRA TECH www.tetratech.com 661 ANDERSEN DRIVE - FOSTER PLAZA 7 PITTSBURGH, PA 15220 T: (412) 921-7090 | F: (412) 921-4040

PROFESSIONAL ROBERT F. SIMCIK PENNSYLVANIA PIPELINE PROJECT ENGINEER PE-050435-E CONSTRUCTION SPREAD 6

SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

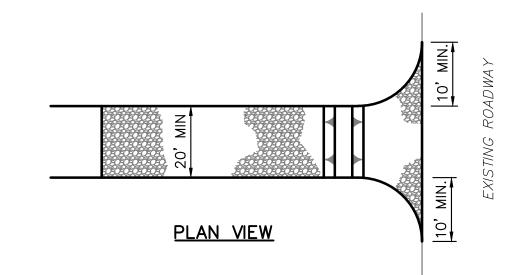
DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS

R: _Marcellus Shale Projects\Sunoco\5958 — Penn Pipeline Project\18 — Delaware\E&S\5958ES000.03.dwg PI

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

11/4/1 PROJECT NO.: 112C0595 DESIGNED BY: DRAWN BY: CHECKED BY: COPYRIGHT TETRA TECH INC. ES-0.03

SHEET 0.03 OF 60



PROFILE

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE IF NEEDED.

NOTES:

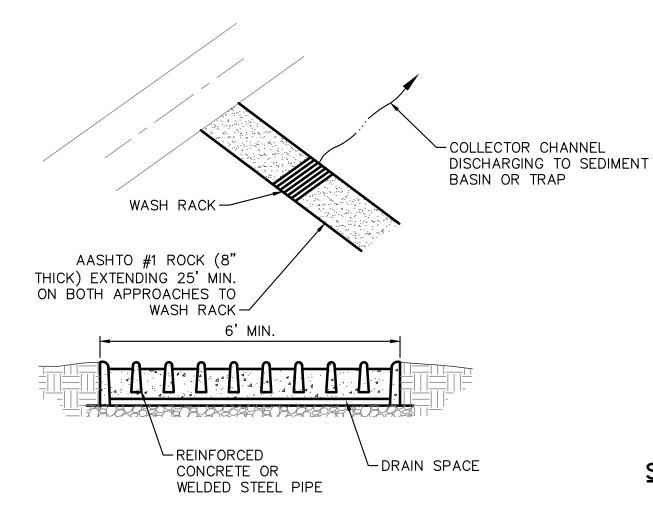
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

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

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTION 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

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THE 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.





NOTES:

WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

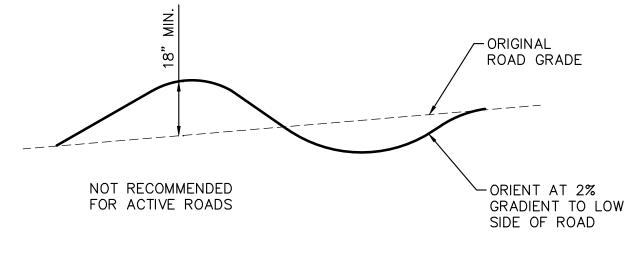
WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

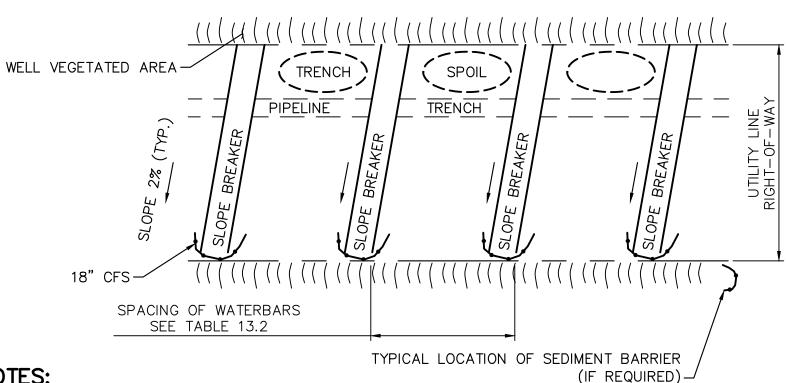
A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ENTRANCE WITH WASH RACK (3)

NO. BY DATE





NOTES:

ACHIEVED.

WATERBARS SHALL DISCHARGE TO A STABLE AREA.

WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.

TABLE 13.2

MAXIMUM SPACING

FOR PERMANENT

NATERBARS ON A UTILITY

LINE RIGHT-OF-WAY

ERCENT SLOPE SPACING (FT

5-15

15-30

>30

250

150

100

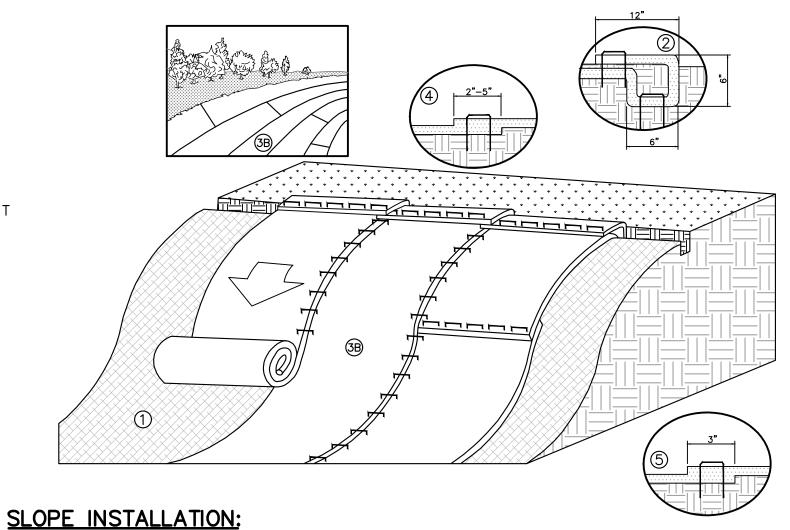
50

MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT—OF—WAY HAS ACHIEVED PERMANENT STABILIZATION. WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN

SEE TABLE 13.2 ABOVE FOR WATERBAR SPACING.

PERMANENT WATERBARS ARE REQUIRED AT ALL STREAM, RIVER, AND OTHER WATER-BODY CROSSINGS AS WELL AS UPSLOPE FROM ROADWAY AND RAILROAD CUT SLOPES.





REVISIONS

REMARKS

- 1. PREPARE SOIL BEFORE INSTALLING RECPS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6 IN. DEEP X 6 IN. WIDE TRENCH WITH APPROXIMATELY 12 IN. OF RECPS EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12 IN. APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12 IN. PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12 IN. APART ACROSS THE WIDTH OF THE RECPs.
- 3. ROLL THE RECPS (3A) DOWN OR (3B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY REPLACING STAPLES/STAKES
- IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. 4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH AN APPROXIMATELY 2 IN. - 5 IN. OVERLAP DEPENDING ON THE
- 5. CONSECUTIVE RECP SPLICED DOWN THE SLOPE MUST BE END-OVER-END (SHINGLE STYLE) WITH AN APPROXIMATE 3 IN. OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12 IN. APART ACROSS ENTIRE RECPS WIDTH.

250 300 150 100 200 250 140 200 70 100 140 45 100 35 40 60 90 60 40 45 50 40

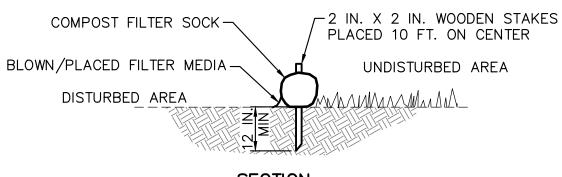
SLOPE

2 (OR LESS)

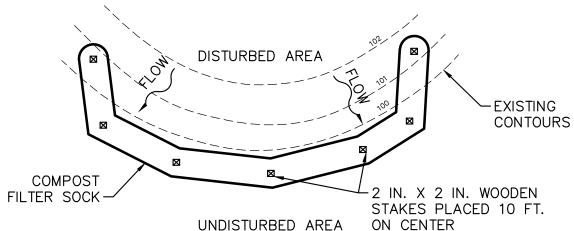
1.7 STAPLES PER SQ YD

(2:1 SLOPES)

MAXIMUM SLOPE LENGTHS FOR COMPOST FILTER SOCK DIAMETER DIAMETER DIAMETER 520 700 1000 250 340 500



<u>SECTION</u>



PLAN VIEW

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE EPA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXITING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/8 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCK 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 COMPOST FILTER SOCKS 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 A SOIL SUPPLEMENT.

TABLE 4.1

MATERIAL TYPE 3 MIL HDPE 5 MIL HDPE 5 MIL HDPE MULTI-FILAMENT POLYPROPYLENE (MFPP) HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (MFPP) MATERIAL PHOTO- CHARACTERISTICS PHOTO- PHOTO- DEGRADABLE DEGR	COMPO	OST SOCK	FABRIC	MINIMUM S	PECIFICATIO	NS		
CHARACTERISTICS DEGRADABLE DEGRADAE DEGRADABLE DEGRADAE DEGRADABLE DEGRADAE DEGRADA	MATERIAL TYPE				POLYPROPYLENE	MULTI-FILAMENT POLYPROPYLENE		
SOCK 12" 18" 18" 18" 24" 24" 24" 24" 32"				DEGRADABLE	DEGRADABLE	DEGRADABLE		
TENSILE STRENGTH ULTAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155) MINIMUM FUNCTIONAL LONGEVITY INNER CONTAINMENT NETTING OUTER FILTRATION MESH TENSILE 26 PSI 26 PSI 26 PSI 44 PSI 202 PSI 202 PSI 44 PSI 202 PSI 202 PSI 2			18" 24"	18" 24"	18" 24"	18" 24"		
STRENGTH ULTAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155) MINIMUM FUNCTIONAL LONGEVITY INNER CONTAINMENT NETTING OUTER FILTRATION MESH STRENGTH ULTAVIOLET STABILITY % 23% AT 100% AT 100% AT 1000 HR.	MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"		
STABILITY % 23% AT 1000 HR. 10			26 PSI	26 PSI	44 PSI	202 PSI		
FUNCTIONAL LONGEVITY TWO-PLY SYSTEMS HDPE BIAXIAL NET CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES 3/4" X 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE	STABILITY % ORIGINAL STRENGTH							
INNER CONTAINMENT NETTING CONTINUOUSLY WOUND FUSION—WELDED JUNCTURES 3/4" X 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON—WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE	FUNCTIONAL	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS		
OUTER FILTRATION MESH CONTINUOUSLY WOUND FUSION—WELDED JUNCTURES 3/4" X 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON—WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE			TWO-F	PLY SYSTEMS				
FUSION—WELDED JUNCTURES 3/4" X 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON—WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE					HDPE BIAXIAL N	IET		
3/4" X 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE	INNER C	ONTAINMENT I	NETTING					
OUTER FILTRATION MESH COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE								
OUTER FILTRATION MESH (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE					, ,			
	OUTER	R FILTRATION	MESH	(WOVEN L	(WOVEN LAYER AND NON-WOVEN FLEECE			
SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS.								
	SOCK FABRICS CO	OMPOSED OF E	BURLAP MAY E	E USED ON PRO	JECTS LASTING 6 N	MONTHS OR LESS.		

TABLE 4.2

COMPOST 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" SIEVE					
SOLUBLE SALT CONCENTRATION	5.0 DS/M (MMHOS/XM) MAXIMUM					

COMPOST FILTER SOCK

RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS. EROSION CONTROL BLANKET - SLOPE INSTALLATION (4) NOT TO SCALE

PROFESSIONAL ROBERT F. SIMCIK

SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

RECOMMENDATIONS,

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS

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ENGINEER

STAPLE PATTERN GUIDE

1.6

1.15 STAPLES PER SQ YD

(3:1 SLOPES)

2"-5" E ____2"-5"

+ - - • *

• • • •

3.75 STAPLES PER SQ YD

(HIGH FLOW CHANNEL AND

SHORELINE)

OWNER APPROVED EQUAL MATERIAL/METHOD.

OR OWNER APPROVED EQUAL MATERIAL/METHOD.

DRAWINGS PRIOR TO INSTALLING THE BLANKET.

1. FOR SLOPES BETWEEN 3:1 AND 1:1, USE NORTH AMERICAN GREEN ERONET SC 150 OR

2. IN AREAS WHERE LIVESTOCK ARE KEPT, USE NORTH AMERICAN GREEN BIONET SC 150 BN

3. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN

4. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE

6. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT

8. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL

THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE

PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE

ENTIRE PROJECT LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN

5. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

7. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURERS

DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

3.3'

0.7 STAPLES PER SQ YD

(4:1 SLOPES)

2"-5" D 2"-5"

20"

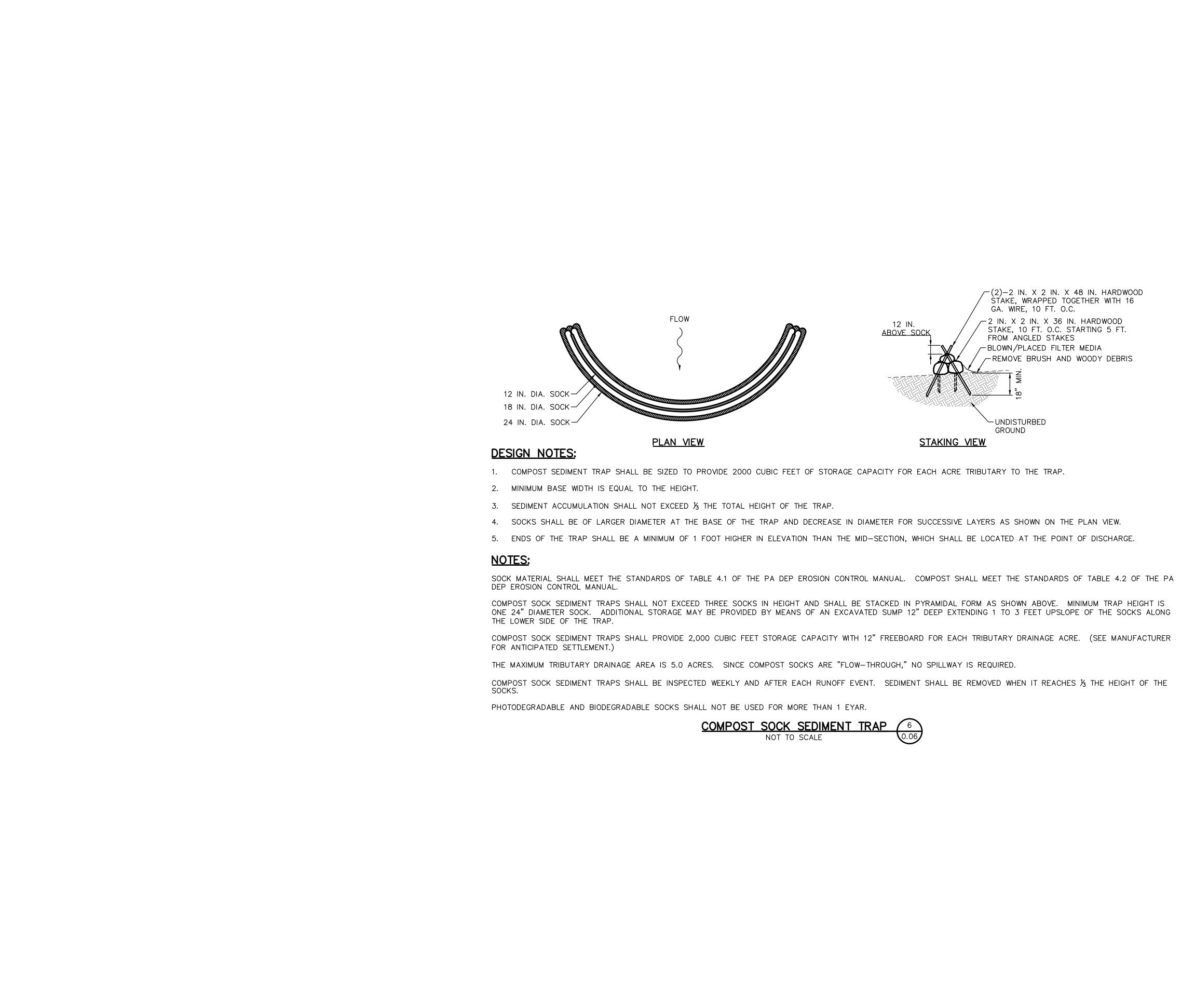
3.3'

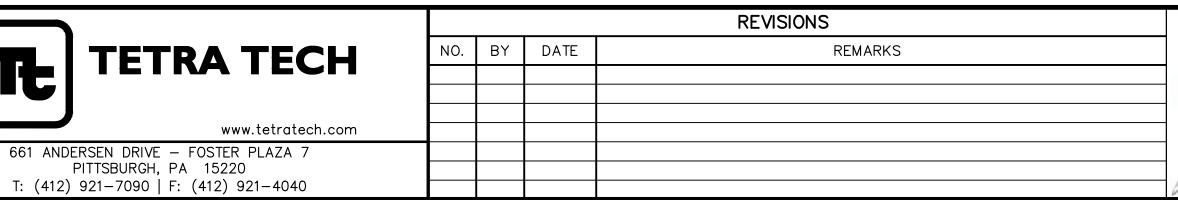
. . . *** 3.4 STAPLES PER SQ YD

(1:1 AND STEEPER SLOPES)

(MEDIUM/HIGH FLOW CHANNEL)

NOTES:





SUNOCO PIPELINE L.P.

SINKING SPRING, PENNSYLVANIA

ROBERT F. SIMCIK

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

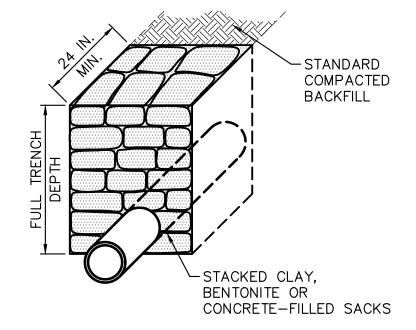
1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

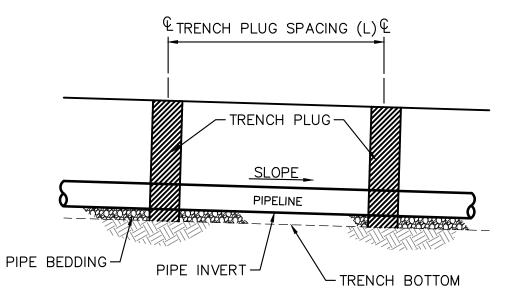
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PROJECT NO.: 112C05958 DESIGNED BY: JB DRAWN BY: BH	COPYRIGHT TETRA	TECH INC.
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PROJECT NO.: 112C05958	DRAWN BY:	вн
, ,	DESIGNED BY:	JB
DATE: 11/4/10	PROJECT NO.:	112C05958
DATE: 11 /4 /16	DATE:	11/4/16

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SECTION VIEW

ELEVATION

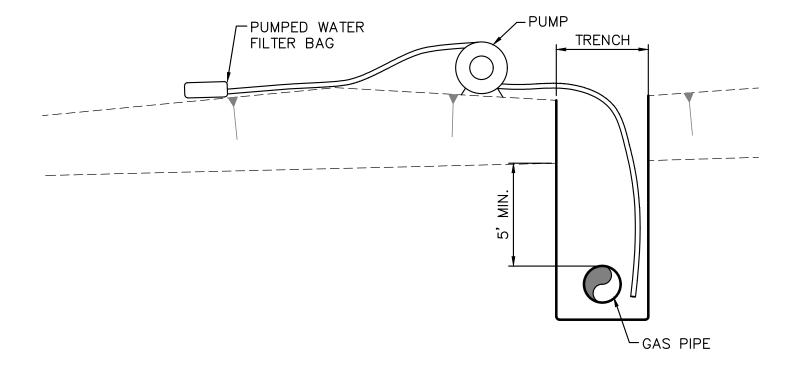
REQUIRE	D SPACI	NG & MATERIALS FOR TRENCH PLUGS
TRENCH SLOPE (%)	SPACING L (FT)	PLUG MATERIAL
<5	1,000	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS
5-15	500	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS
15-25	300	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS
25-35	200	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS
35-100	100	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS
>100	50	CEMENT BACS (WETTED) OR MORTARED STONE

* TOP SOIL MAY NOT BE USED TO FILL SACKS

NOTES:

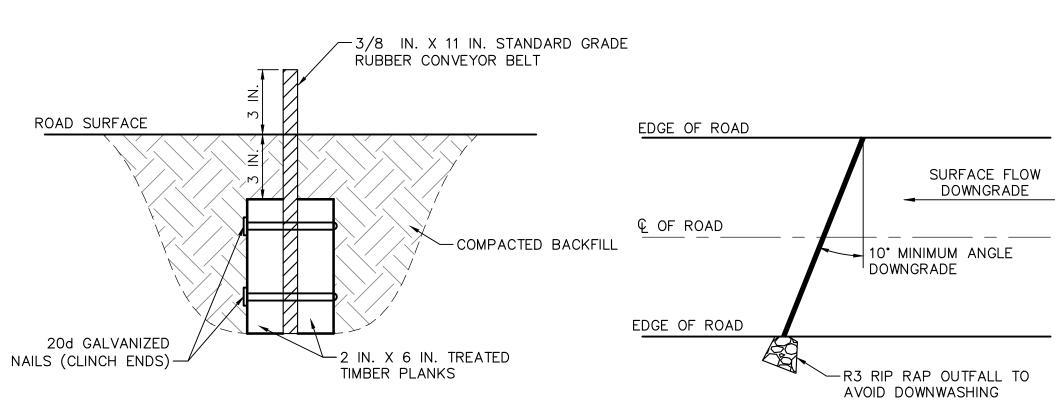
IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL STREAM, RIVER, WETLAND, OR OTHER WATERBODY CROSSINGS.





TRENCH DEWATERING DETAIL

NOT TO SCALE



NOTE:

- 1. DEFLECTOR SHALL BE INSPECTED WEEKLY AND
- AFTER EACH RUNOFF EVENT.

 2. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM
- 3. BELT SHALL BE REPLACED WHEN WORN AND NO

DEFLECTOR WITHIN 24 HOURS OF INSPECTION.

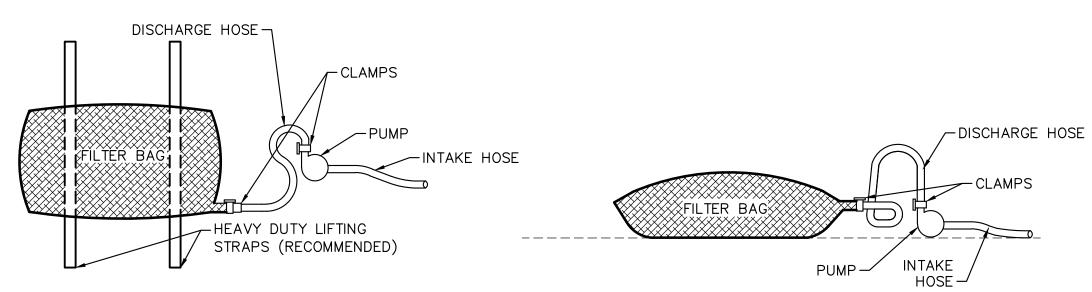
LONGER EFFECTIVE.

4. MAXIMUM SPACING OF DEFLECTORS SHALL BE AS

SHOWN IN TABLE.

ROAD GRADE (PERCENT)	SPACING BETWEEN DIPS, CULVERTS,OR DEFLECTORS (FEET)
<2	300
3	235
4	200
5	180
6	165
7	155
8	150
9	145
10	140





PLAN VIEW

ELEVATION VIEW

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-3751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME ½ FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL—VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NO POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACE DON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON—ERODIBLE AND NON—POLLUTING MATERIAL MAY BE PLACE UNDER THE GAB TO REDUCE SLOPE STEEPNESS.

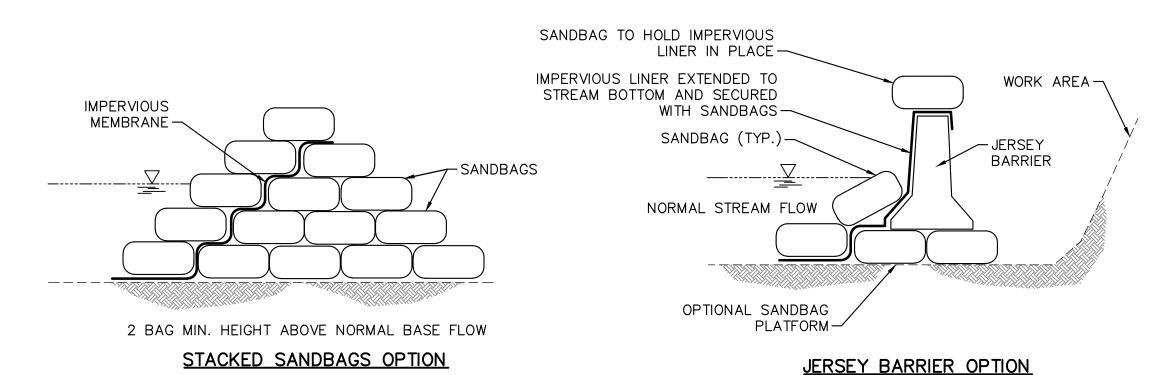
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ½ THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.





NOTES:

CONSTRUCT DAMS WITH SAND BAGS, JERSEY BARRIERS OR SIMILAR MATERIAL WITH AN IMPERVIOUS LINER EXTENDED TO THE STREAM BOTTOM AND SECURED WITH SANDBAGS MAINTAINING AMBIENT DOWNSTREAM FLOW RATES.

SANDBAG OR DIVERSION DAM NOT TO SCALE 13 0.07

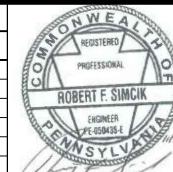
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	REVISIONS							
NO.	BY	DATE	REMARKS					



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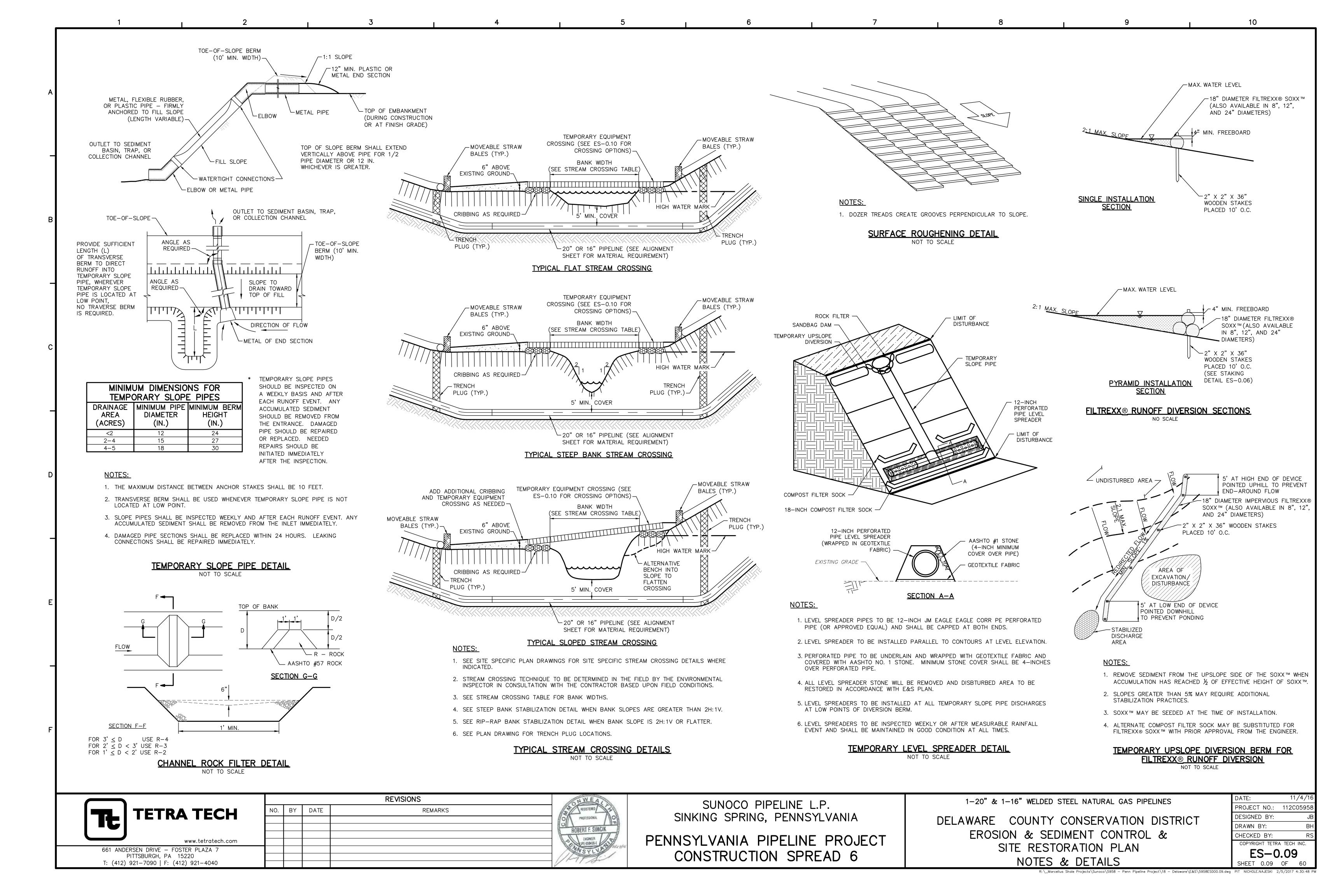
PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS

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DESIGNED BY:	JB
PROJECT NO.:	112C05958
DATE:	11/4/16

SHEET 0.07 OF 60



STREAMBANK STABILIZATION TABLE

			SPECIAL				SHEAR	SHEAR		IF "RIP RAP"	THICKNESS (IN)	
			PROTECTION	NORMAL	SLOPE	VELOCITY	STRESS	STRESS LESS	RIP RAP	REQ'D, SIZE	OF RIP RAP	FILTER
	COUNTY	STREAM	WATER	DEPTH (ft)	(ft/ft)	(ft/sec)	(lb/sf)	THAN 0.25?	REQUIRED	(Table 6.6)	(Table 6.6)	STONE TYPE
3	Delaware	S-C44	yes	1.57	0.005	2.53	0.49	no	yes	R-3 (1)	9	AASHTO #57
4	Delaware	S-H29	yes	2.42	0.005	3.37	0.76	no	yes	R-3 (1)	9	AASHTO #57
5	Delaware	S-H28	yes	1.95	0.021	5.91	2.56	no	yes	R-3 (1)	9	AASHTO #57
6	Delaware	S-H43		3.55	0.013	6.58	2.88	no	yes	R-4	18	AASHTO #3

(1) R-4 IS MINIMUM RIPRAP SIZE TO BE USED. IF CALCULATIONS IDENTIFIED SMALLER STONE SIZE WILL BE INCREASED TO R-4

MATCH EXISTING GRADE EROSION WITH 2 TO 1 MAX SLOPE -CONTROL BLANKET TRANSITION DETAIL -SEE LONGITUDINAL SEAM DETAIL -EROSION CONTROL BLANKET (SC150), STAPLE PATTERN 'C' — 6" TOPSOIL -EXISTING NORMAL THICKNESS WATER SURFACE ELEVATION - TOPSOIL └─ SUB-GRADE STREAM BED - STEP SUB-GRADE TO MINIMIZE A SHEAR - R-4 MINIMUM FAILURE OF TOPSOIL SEE NOTE 5 └ AASHTO #3 MINIMUM FILTER STONE

NOTES:

- A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT MUST BE USED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
- 2. REFER TO NORTH AMERICAN GREEN DETAILS.
- 3. MATTING WILL EXTEND FROM TOP OF BANK 50' PERPENDICULARLY AWAY FROM TOP OF BANK OR 100' IN HQ/EV WATERSHEDS.
- 4. NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION.
- 5. WHERE NATURAL STONE IS REMOVED FROM THE STREAM CROSSING, NATURAL STONE SHALL BE INSTALLED AS TOP 6 INCHES OF RIPRAP.

RIP-RAP BANK STABILIZATION DETAIL

NOTES:

MATCH EXISTING

MAX SLOPE

ANCHOR ·

GRADE WITH 1 TO 1

6" TOPSOIL

SEE LONGITUDINAL SEAM DETAIL

EROSION CONTROL BLANKET

(SC250), STAPLE PATTERN 'D'

EXISTING NORMAL

WATER SURFACE

ELEVATION

STREAM BED

 A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT MUST BE USED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.

FILTER STONE

R-4 MINIMUM
SEE NOTE 5
- AASHTO #3 MINIMUM

- 2. REFER TO NORTH AMERICAN GREEN DETAILS.
- 3. MATTING WILL EXTEND FROM TOP OF BANK 50' PERPENDICULARLY AWAY FROM TOP OF BANK OR 100' IN HQ/EV WATERSHEDS.
- 4. NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION.

CONTROL BLANKET

TRANSITION DETAIL -

THICKNESS

- STEP SUB-GRADE TO MINIMIZE A SHEAR

FAILURE OF TOPSOIL

└─ SUB-GRADE

- 5. WHERE NATURAL STONE IS REMOVED FROM THE STREAM CROSSING, NATURAL STONE SHALL BE INSTALLED AS TOP 6 INCHES OF RIPRAP.
- 6. FOR SLOPES GREATER THAN 1:1 REFER TO SITE SPECIFIC PLANS FOR APPROPRIATE CONTROLS.

STEEP BANK STABILIZATION DETAIL

NOT TO SCALE

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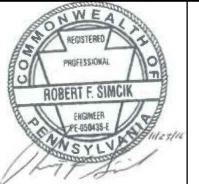
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NO. BY DATE REMARKS

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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS DATE: 11/4/16
PROJECT NO.: 112C05958
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SHEET 0.19 OF 60

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SITE RESTORATION GENERAL NOTES:

- 1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.
- 2. THE PROJECT TAKES PLACE WITHIN DELAWARE COUNTY, PENNSYLVANIA.
- 3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU.
- 4. 100-YEAR FEMA FLOODPLAINS TAKEN FROM WWW.PASDA.PSU.EDU.
- 5. SEE SHEET ES-0.02 FOR STREAM AND WETLAND CROSSING TABLE.
- 6. PIPELINE LOCATION AND RIGHT-OF-WAY FROM SUNOCO PIPELINE L.P.
- 7. USE COMPOST FILTER SOCK AS REQUIRED TO PREVENT RUNOFF FROM SPOIL AREA.
- 8. AT ALL STREAM CROSSINGS, RUNOFF MUST BE DIRECTED TO A SEDIMENT REMOVAL AREA (I.E. COMPOST FILTER SOCKS).
- 9. THE RIGHTS—OF—WAYS AND EASEMENTS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF SUNOCO PIPELINE L.P. TO SECURE WITH THE INDIVIDUAL PROPERTY OWNER. THE RIGHTS—OF—WAY AND EASEMENTS SHOWN ON THIS PERMIT DRAWING REPRESENT THE BEST AVAILABLE PROPERTY INFORMATION AS PROVIDED TO TETRA TECH, INC. BY SUNOCO PIPELINE L.P. THE RIGHTS—OF—WAY AND EASEMENTS SHALL BE VERIFIED AND LOCATED IN THE FIELD BY SUNOCO PIPELINE L.P.
- 10. PAST AND PRESENT LAND USE CONSISTS OF AGRICULTURAL, FORESTED AND RESIDENTIAL AREAS. POST CONSTRUCTION LAND USE WILL BE A MAINTAINED, VEGETATED RIGHT—OF—WAY.
- 11. DRAWINGS REPRESENT THE FINAL PLAN FOR CONSTRUCTION.
- 12. THE EROSION & SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN, INSPECTION REPORTS, AND MONITORING REPORTS MUST BE AVAILABLE AT THE PROJECT SITE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR CONSERVATION DISTRICT.

CONSTRUCTION SEQUENCE FOR POST CONSTRUCTION STORMWATER MANAGEMENT CONTROLS:

A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR RESTORATION AND POST—CONSTRUCTION STORMWATER MANAGEMENT OF THE SITE. NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW DETAILED INFORMATION ON METHODS AND MATERIALS. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED IN THE FIELD.

A PRECONSTRUCTION MEETING IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY. THE PADEP OR APPLICABLE COUNTY CONSERVATION DISTRICT, CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, AND THE PLAN PREPARER MUST BE INVITED TO THIS MEETING AT LEAST SEVEN DAYS IN ADVANCE.

INFILTRATION BERM

- 1. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL BMPS AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL.
- 2. COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERM WILL BE CONSTRUCTED; MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF SOIL) IN ORDER TO MAXIMIZE INFILTRATION.
- 3. LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
- 4. BRING IN FILL MATERIAL TO MAKE UP THE MAJOR PORTION OF THE BERM. SOIL SHOULD BE ADDED IN 8—INCH LIFTS AND COMPACTED PRIOR TO AND AFTER EACH CONSECUTIVE LIFT ACCORDING TO DESIGN SPECIFICATIONS. THE SLOPE AND SHAPE OF THE BERM SHOULD BE GRADED OUT AS SOIL IS ADDED.
- 5. PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION. IF COMPACTION OF THIS AREA DOES OCCUR, SCARIFY SOIL TO A DEPTH OF AT LEAST 8—INCHES.
- 6. COMPLETE FINAL GRADING OF THE BERM AFTER THE TOP LAYER OF SOIL IS ADDED. TAMP SOIL DOWN LIGHTLY AND SMOOTH SIDES OF THE BERM. THE CREST AND BASE OF THE BERM SHOULD BE AT LEVEL GRADE.
- 7. PLANT BERM WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
- 8. MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.

SITE RESTORATION SCHEDULE:

- 1. AGRICULTURAL LIME APPLICATION RATES WILL BE DETERMINED BY FIELD PH TESTING. TESTING WILL BE PERFORMED AT A RATE OF 1 TEST/ACRE (MIN). IN ABSENCE OF FIELD TESTING, APPLY AT 6 TONS/ACRE.
- 2. APPLY 10-20-20 FERTILIZER AT THE RATE OF 1,000 LB/ACRE, OR AT A RATE DETERMINED BY FIELD TESTING.
- 3. WORK IN LIME AND FERTILIZER TO A DEPTH OF 4 IN. USING SUITABLE EQUIPMENT.
- 4. SEED PER PERMANENT SEED MIXTURE.
- 5. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.

LONG TERM INSPECTIONS AND MAINTENANCE FOR SITE RESTORATION AND PCSM CONTROLS:

LONG TERM MAINTENANCE OF THE PROJECT WILL INCLUDE PERIODIC VISUAL INSPECTIONS FOR SUFFICIENT VEGETATIVE GROWTH AND COVER. INSUFFICIENT VEGETATIVE COVER IS DEFINED AS ANY AREA NOT ACHIEVING A UNIFORM 70% PERENNIAL VEGETATIVE COVER. BARE SPOTS AND AREAS WITH INSUFFICIENT VEGETATIVE COVER WILL BE RESEEDED AND MULCHED WITHIN 24 HOURS OF DISCOVERY. RESTORATION AREAS WILL BE INSPECTED FOR SIGNS OF EROSION, ESPECIALLY ON STEEP SLOPES. CORRECTIVE MEASURES WILL BE TAKEN, AS NEEDED. IF THERE IS EVIDENCE OF TRENCH SETTLING, THE AREA WILL BE REGRADED TO MAINTAIN PRE—CONSTRUCTION DRAINAGE PATTERNS, THEN MULCHED, AND SEEDED.

THE PROPOSED, PERMANENT ACCESS ROAD WHICH WILL REMAIN AS A PERMANENT GRAVEL DRIVE SHALL BE INSPECTED PERIODICALLY. AGGREGATE WILL BE APPLIED TO THE PERMANENT ACCESS ROAD AS NEEDED TO MAINTAIN AN ADEQUATE THICKNESS. THE INFILTRATION BERM SHALL BE INSPECTED REGULARLY TO ENSURE IT IS INFILTRATING PROPERLY AND NOT CLOGGED WITH SEDIMENT. VEGETATION OVER THE BERM SHALL BE MAINTAINED AS NECESSARY, WHICH MAY REQUIRE ANNUAL MULCHING. ROUTINELY REMOVE ACCUMULATED DEBRIS AND INVASIVE PLANTS AS NEEDED. INSPECT FOR SIGNS OF FLOW CHANNELIZATION AND RESTORE LEVEL GRADIENT IMMEDIATELY AFTER ANY DEFICIENCIES ARE OBSERVED. THE SOIL AMENDMENT AREAS WILL BE INSPECTED BIANNUALLY TO VERIFY THEIR EFFECTIVENESS. TRAFFIC WILL NOT BE PERMITTED TO DRIVE OFF OF THE AGGREGATE ACCESS ROADS AND INTO THE SOIL AMENDMENT AREAS. IF THE AREAS APPEAR TO BE COMPACTED OR INEFFECTIVE DURING AN INSPECTION, ADDITIONAL SOIL AND COMPOST WILL BE APPLIED.

A WRITTEN REPORT IS REQUIRED FOR EACH INSPECTION AND FOR EACH REPAIR OR MAINTENANCE ACTIVITY, AND THE REPORT SHOULD SPECIFY HOW TO ACCESS THE SITE. SUNOCO PIPELINE L.P. IS RESPONSIBLE FOR MAINTAINING THE RIGHT OF WAY UNDER THE PROVISIONS OF THIS PERMIT.

SITE RESTORATION:

FOLLOWING COMPLETION OF PIPELINE INSTALLATION AND TRENCH BACKFILLING, THE AREA SHALL BE RETURNED TO GENERAL PRECONSTRUCTION GRADES PRESENT PRIOR TO PIPELINE INSTALLATION IN ORDER TO MAINTAIN PRECONSTRUCTION DRAINAGE PATTERNS. GROUNDS DISTURBED BY ANY OF THE OPERATIONS NECESSARY TO COMPLETE THE WORK FOR THIS PROJECT ARE TO BE PERMANENTLY SEEDED, OR IF SPECIFIED, SODDED, UNLESS OCCUPIED BY STRUCTURES, PAVED, OR DESIGNATED AS A PERMANENT ACCESS ROAD. THE ENTIRE RIGHT-OF-WAY WILL BE RESTORED BACK TO A MEADOW CONDITION OR LAWN IN ACCORDANCE WITH THE PERMANENT REVEGETATION PLAN ON ES-0.04. A TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITIES THAT LASTS FOUR DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION. DISTURBED AREAS, WHICH ARE AT FINAL GRADE, SHALL BE SEEDED AND MULCHED IMMEDIATELY, WITH THE EXCEPTION OF THE PERMANENT ACCESS ROADS. IF SEEDING CANNOT BE COMPLETED IMMEDIATELY AFTER THE AREA REACHES FINAL GRADE DUE TO WEATHER CONDITIONS. THE DISTURBED AREA SHALL BE STABILIZED AND MULCHED WITH STRAW AT THE RATE OF THREE TONS PER ACRE. THIS STRAW SHALL BE ANCHORED USING A METHOD DESCRIBED UNDER MULCHING OF THIS NARRATIVE. TEMPORARY ACCESS ROADS WILL BE RESTORED TO A VEGETATED CONDITION FOLLOWING CONSTRUCTION. THE PROPOSED PERMANENT ACCESS ROADS WILL REMAIN IN PLACE FOLLOWING CONSTRUCTION. AN INFILTRATION BERM OR SOIL AMENDMENTS WILL BE SHOWN ON THE PLAN SHEETS TO ACCOUNT FOR THE INCREASE IN STORM WATER RUNOFF. AS A RESULT OF APPLYING SOIL AMENDMENT OR INFILTRATION BERM THE ENTIRE THE RIGHT OF WAY WILL BE RESTORED BACK TO A MEADOW OR LAWN CONDITION. THERE WILL BE NO INCREASE IN STORM WATER RUNOFF RATES OR VOLUMES.

	REVISIONS					
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SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS DATE: 11/4/16
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3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU

4. 100-YEAR FEMA FLOODPLAINS FROM WWW.PASDA.PSU.EDU

5. PIPELINE LOCATION AND RIGHT-OF-WAY FROM SUNOCO PIPELINE L.P.

6. USE COMPOST FILTER SOCK AS REQUIRED TO PREVENT RUNOFF FROM SPOIL AREA.

7. AT ALL STREAM CROSSINGS, RUNOFF MUST BE DIRECTED TO A SEDIMENT REMOVAL AREA (i.e. COMPOST FILTER SOCKS).

8. THE RIGHTS-OF-WAYS AND EASEMENTS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF SUNOCO PIPELINE L.P. TO SECURE WITH THE INDIVIDUAL PROPERTY OWNER. THE RIGHTS-OF-WAY AND EASEMENTS SHOWN ON THIS PERMIT DRAWING REPRESENT THE BEST AVAILABLE PROPERTY INFORMATION AS PROVIDED TO TETRA TECH, INC. BY SUNOCO PIPELINE L.P. THE RIGHTS-OF-WAY AND EASEMENTS SHALL BE VERIFIED AND LOCATED IN THE FIELD BY SUNOCO PIPELINE L.P.

9. PAST AND PRESENT LAND USE CONSISTS OF AGRICULTURAL, FORESTED AND RESIDENTIAL AREAS, POST CONSTRUCTION LAND USE WILL BE A MAINTAINED. VEGETATED RIGHT-OF-WAY.

10. DRAWINGS REPRESENT THE FINAL PLAN FOR CONSTRUCTION.

11. THE EROSION & SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN, INSPECTION REPORTS, AND MONITORING REPORTS MUST BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR CONSERVATION DISTRICT.

12. THE LICENSED PROFESSIONAL OR DESIGNEE SHALL BE PRESENT ON SITE FOR THE CONSTRUCTION OF THE INFILTRATION BERMS AND TRENCHES.

13. A RECORDED INSTRUMENT WILL BE RECORDED AT THE RECORDER OF DEEDS TO PROVIDE FOR NECESSARY ACCESS FOR LONG TERM OPERATION AND MAINTENANCE FOR PCSM BMP'S. THE DEED WILL PROVIDE NOTICE THAT THE RESPONSIBILITY FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PCSM BMP'S IS A COVENANT THAT RUNS WITH THE LAND AND IS BINDING AND ENFORCEABLE BY SUBSEQUENT GRANTEES.

SITE RESTORATION SCHEDULE:

1. AGRICULTURAL LIME APPLICATION RATES WILL BE DETERMINED BY FIELD PH TESTING. TESTING WILL BE PERFORMED AT A RATE OF 1 TEST/ACRE (MIN). IN ABSENCE OF FIELD TESTING, APPLY AT 6 TONS/ACRE.

2. APPLY 10-20-20 FERTILIZER AT THE RATE OF 1,000 LB/ACRE, OR AT A RATE DETERMINED BY FIELD TESTING.

3. WORK IN LIME AND FERTILIZER TO A DEPTH OF 4 IN. USING SUITABLE EQUIPMENT.

4. SEED PER PERMANENT SEED MIXTURE.

5. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.

SITE RESTORATION:

FOLLOWING COMPLETION OF PIPELINE INSTALLATION AND TRENCH BACKFILLING, THE AREA SHALL BE RETURNED TO THE GENERAL GRADE PRESENT PRIOR TO PIPELINE INSTALLATION IN ORDER TO MAINTAIN PRECONSTRUCTION DRAINAGE PATTERNS. GROUNDS DISTURBED BY ANY OF THE OPERATIONS NECESSARY TO COMPLETE THE WORK FOR THIS PROJECT ARE TO BE PERMANENTLY SEEDED, OR IF SPECIFIED, SODDED, UNLESS OCCUPIED BY STRUCTURES, PAVED, OR DESIGNATED AS A PERMANENT ACCESS ROAD. A TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITIES THAT LASTS FOUR DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION. DISTURBED AREAS, WHICH ARE AT FINAL GRADE, SHALL BE SEEDED AND MULCHED IMMEDIATELY, WITH THE EXCEPTION OF THE PERMANENT ACCESS ROADS. IF SEEDING CANNOT BE COMPLETED IMMEDIATELY AFTER THE AREA REACHES FINAL GRADE DUE TO WEATHER CONDITIONS, THE DISTURBED AREA SHALL BE STABILIZED AND MULCHED WITH STRAW AT THE RATE OF THREE TONS PER ACRE. THIS STRAW SHALL BE ANCHORED USING A METHOD DESCRIBED UNDER MULCHING OF THIS NARRATIVE. TEMPORARY ACCESS ROADS WILL BE RESTORED TO A VEGETATED CONDITION FOLLOWING CONSTRUCTION. THE PROPOSED PERMANENT ACCESS ROADS WILL REMAIN IN PLACE FOLLOWING CONSTRUCTION. AN INFILTRATION BERM OR SOIL AMENDMENTS WILL BE SHOWN ON THE PLAN SHEETS TO ACCOUNT FOR THE INCREASE IN STORM WATER RUNOFF. AS A RESULT OF APPLYING THE SOIL AMENDMENT OR INFILTRATION BERM AND RESTORING THE RIGHT OF WAY TO A MEADOW CONDITION, THERE WILL BE NO INCREASE IN STORMWATER RUNOFF RATES OR VOLUMES.

POST CONSTRUCTION STORMWATER MANAGEMENT CONSTRUCTION SEQUENCE

- GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION.
- 2. INSTALL POST CONSTRUCTION BMPS AFTER COMPLETION OF PIPELINE CONSTRUCTION

INFILTRATION BERM

- 1. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL BMPS AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL
- 2. INSTALL ORANGE CONSTRUCTION FENCING AROUND THE PONDING AREA OF THE INFILTRATION BERM AS SHOWN ON THE PCSM PLAN DRAWINGS. COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERM WILL BE CONSTRUCTED AND THE EXTENT OF THE PONDING AREA; MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF EMPTY SOIL) IN ORDER TO MAXIMIZE INFILTRATION. IF EQUIPMENT MUST TRAVEL THROUGH THE PONDING AREA, TIMBER MATTING SHALL BE PLACED TO MINIMIZE COMPACTION, AND EQUIPMENT TRAFFIC SHALL BE MINIMIZED.
- 3. LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
- 4. BRING IN FILL MATERIAL TO MAKE UP THE MAJOR PORTION OF THE BERM. SOIL SHOULD BE ADDED IN 8-INCH LIFTS AND COMPACTED AFTER EACH ADDITION
- ACCORDING TO DESIGN SPECIFICATIONS. THE SLOPE AND SHAPE OF THE BERM SHOULD BE GRADED OUT AS SOIL IS ADDED. 5. PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION.
- 6. COMPLETE FINAL GRADING OF THE BERM AFTER THE TOP LAYER OF SOIL IS ADDED. TAMP SOIL DOWN LIGHTLY AND SMOOTH SIDES OF THE BERM. THE CREST AND
- BASE OF THE BERM SHOULD BE AT LEVEL GRADE. 7. PLANT BERM WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
- 8. MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.

INFILTRATION TRENCH

- 1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION
- 2. GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE.
- 3. PROTECT INFILTRATION TRENCH AREA FROM COMPACTION PRIOR TO INSTALLATION. INSTALL ORANGE CONSTRUCTION FENCE AROUND THE TRENCH AND, IF
- APPLICABLE, THE PONDING AREA OF THE DOWNSLOPE BERM.
- ACTIVITY. AFTER INSTALLATION, PREVENT SEDIMENT LADEN WATER FROM ENTERING INLETS AND PIPES. IF IT IS NOT POSSIBLE TO INSTALL THE INFILTRATION TRENCH

4. IF POSSIBLE, INSTALL INFILTRATION TRENCH DURING LATER PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION

- DURING THE LATER PHASES OF CONSTRUCTION, PLACE COMPOST FILTER SOCK UPSLOPE OF THE TRENCH TO PREVENT SEDIMENT FROM REACHING AND CLOGGING THE TRENCH. 5. EXCAVATE INFILTRATION TRENCH BOTTOM TO A UNIFORM, LEVEL UNCOMPACTED SUBGRADE FREE FROM ROCKS AND DEBRIS. DO NOT COMPACT SUBGRADE. THE
- CONSTRUCTION EQUIPMENT SHALL REMAIN OUTSIDE OF THE INFILTRATION TRENCH WHILE EXCAVATING IT.
- 6. PLACE NONWOVEN GEOTEXTILE ALONG BOTTOM AND SIDES OF TRENCH. NONWOVEN GEOTEXTILE ROLLS SHOULD OVERLAP BY A MINIMUM OF 16 INCHES WITHIN THE TRENCH. FOLD BACK AND SECURE EXCESS GEOTEXTILE DURING STONE PLACEMENT.
- 7. INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, ETC.
- 8. PLACE UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH. CARE SHALL BE TAKEN SO AS NOT TO COMPACT THE SUBGRADE.
- 9. INSTALL CONTINUOUSLY PERFORATED PIPE AS INDICATED ON PLANS. BACKFILL WITH UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH. CARE SHALL BE TAKEN SO AS NOT TO COMPACT THE SUBGRADE.
- 10. FOLD AND SECURE NONWOVEN GEOTEXTILE OVER INFILTRATION TRENCH, WITH MINIMUM OVERLAP OF 16- INCHES.
- 11. PLACE 6-INCH LIFT OF APPROVED TOPSOIL OVER INFILTRATION TRENCH, AS INDICATED ON PLANS.
- 12. SEED AND STABILIZE TOPSOIL.
- 13. ANY SEDIMENT THAT ENTERS INLETS DURING CONSTRUCTION IS TO BE REMOVED WITHIN 24 HOURS.
- 14. IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE.
- 15. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- 16. REMOVE EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT CONTROLS.

POST CONSTRUCTION STORMWATER MANAGEMENT CONSTRUCTION SEQUENCE CONTINUED

GEOWEB CONSTRUCTION SEQUENCE

- 1. GRADE SURFACE TO SUBGRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION. DO NOT COMPACT.
- 2.IF NEEDED, SCARIFY THE SOIL OR PROVIDE ADDITIONAL ROUGHENING SUCH AS DEEP RIPPING OR CHISEL RIPPING TO RESTORE THE AREA TO A MINIMAL COMPACTED STATE.
- 3.INSTALL GEOTEXTILE SEPARATION LAYER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- 4.EXPAND GEOWEB TO REQUIRED DIMENSIONS AND ANCHOR EDGES WITH ATRA ANCHORS, IF NEEDED. JOIN ADJACENT SECTIONS WITH ATRA KEYS.
- 5.ANCHOR GEOWEB ON SLOPES GREATER THAT 5% WITH 24" ATRA ANCHORS PLACED ON A 3X8 CELL PATTERN.
- 6.MIX AND PLACE ENGINEERED INFILL MATERIAL (2/3 AASHTO #57 STONE AND 1/3 SCREENED TOPSOIL) INTO THE GEOWEB CELLS. INFILL MATERIAL SHALL BE FREE-FLOWING AND NOT FROZEN WHEN PLACED IN THE GEOWEB SECTIONS. LIMIT DROP HEIGHT TO 3 FEET TO AVOID DAMAGING OR DISPLACEMENT OF THE CELL WALL. SLIGHTLY OVERFILL THE CELLS AND LEVEL OFF MATERIAL ONCE SETTLEMENT IS NEGLIGIBLE. DO NOT COMPACT.
- 7.SEED AND MULCH FILLED SECTIONS IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE ONCE INFILL IS PLACED.
- 8.MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70-PERCENT PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

SOIL AMENDMENT AND RESTORATION

- 1. GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION.
- 2.IN THE DESIGNATED SOIL AMENDMENT AREA, TILL THE GROUND AND MIX IN THE COMPOST AT A RATIO OF 2:1 (SOIL: COMPOST) TO A DEPTH OF 24
- 3.IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE
- 4.MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

SLOW RELEASE TRENCH

- 1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- 2.GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE.
- 3.IF POSSIBLE, INSTALL SLOW RELEASE TRENCH DURING LATER PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER INSTALLATION, PREVENT SEDIMENT LADEN WATER FROM ENTERING INLETS AND PIPES. IF IT IS NOT POSSIBLE TO INSTALL THE SLOW RELEASE TRENCH DURING THE LATER PHASES OF CONSTRUCTION, PLACE COMPOST FILTER SOCK UPSLOPE OF THE TRENCH TO PREVENT SEDIMENT FROM REACHING AND CLOGGING THE TRENCH.
- 4.EXCAVATE SLOW RELEASE TRENCH BOTTOM TO A UNIFORM, LEVEL SUBGRADE FREE FROM ROCKS AND DEBRIS.
- 5.INSTALL AN IMPERMEABLE LINER WITHIN THE SLOW RELEASE TRENCH. SECURE IMPERMEABLE LINER DURING STONE PLACEMENT WITH AN ANCHOR TRENCH.
- 6.INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, ETC.
- 7.PLACE UNIFORMLY GRADED, CLEAN-WASHED AGGREGATE IN 8-INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE
- AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH.
- 8.INSTALL CONTINUOUSLY PERFORATED PIPE AND UNDERDRAIN OUTLET AS INDICATED ON PLANS. BACKFILL WITH UNIFORMLY GRADED, CLEAN-WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH.
- 9.PLACE 6-INCH LIFT OF APPROVED TOPSOIL OVER SLOW RELEASE TRENCH, AS INDICATED ON PLANS.
- 10. SEED AND STABILIZE TOPSOIL
- 11. ANY SEDIMENT THAT ENTERS INLETS DURING CONSTRUCTION IS TO BE REMOVED WITHIN 24 HOURS.
- 12.IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE.
- 13. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- 14. REMOVE EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT CONTROLS.

LEVEL SPREADER

PROFESSIONAL

ROBERT F. SIMCIK

ENGINEER

PE-050435-E

- 1. THE UPHILL DEVELOPMENT SHALL BE STABILIZED BEFORE DIVERTING RUNOFF TO ANY DISPERSING FLOW TECHNIQUES.
- 2.ALL CONTRIBUTING STORMWATER ELEMENTS (INFILTRATION BERMS, INLETS, OUTLET CONTROL STRUCTURES, PIPES, ETC.) SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE LEVEL SPREADER.
- 3.HDPE PIPE SHALL BE INSTALLED ALONG A CONTOUR UPHILL OF THE LEVEL SPREADER, WITH CARE TAKEN TO CONSTRUCT A SLIGHTLY SLOPED BOTTOM.
- 4.IF NECESSARY, INSTALL EROSION CONTROL MATTING ALONG THE LENGTH OF THE LEVEL SPREADER AND TO A DISTANCE DOWNHILL, AS SPECIFIED BY THE MANUFACTURER/SUPPLIER.

5.A BERM SHALL BE INSTALLED ALONG THE OUTLET OF THE HDPE PIPE TO ENSURE STORMWATER RUNOFF IS ROUTED TO THE LEVEL SPREADER.

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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

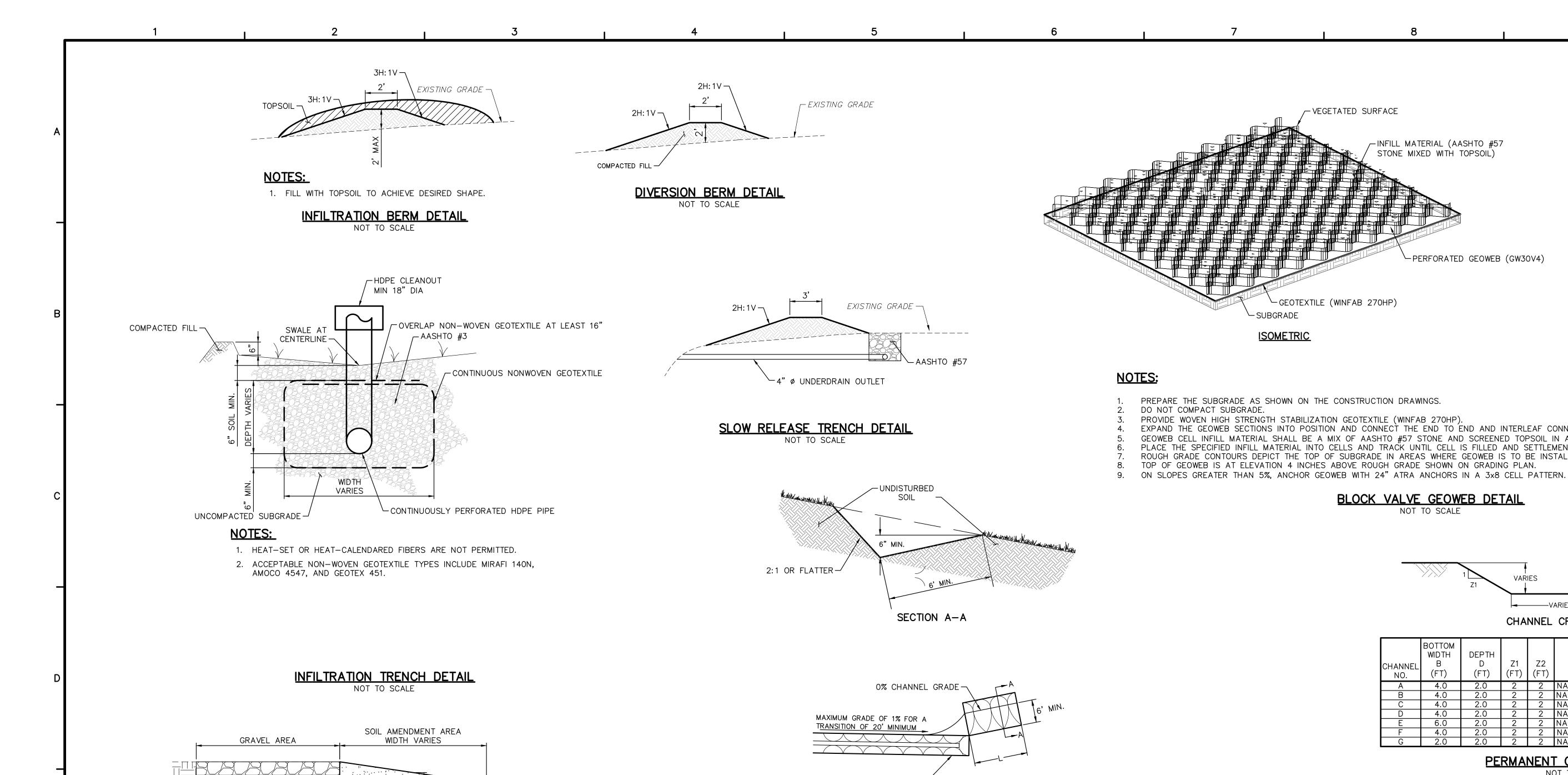
PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

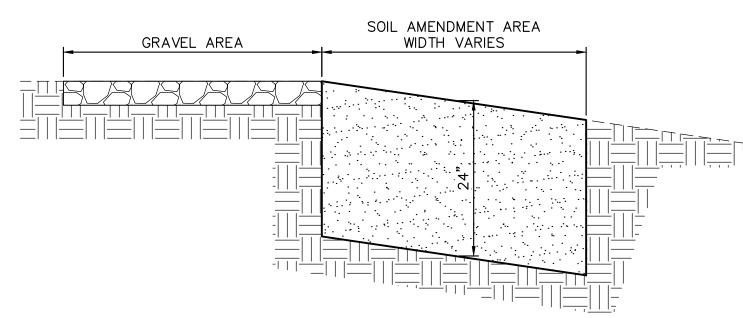
1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS

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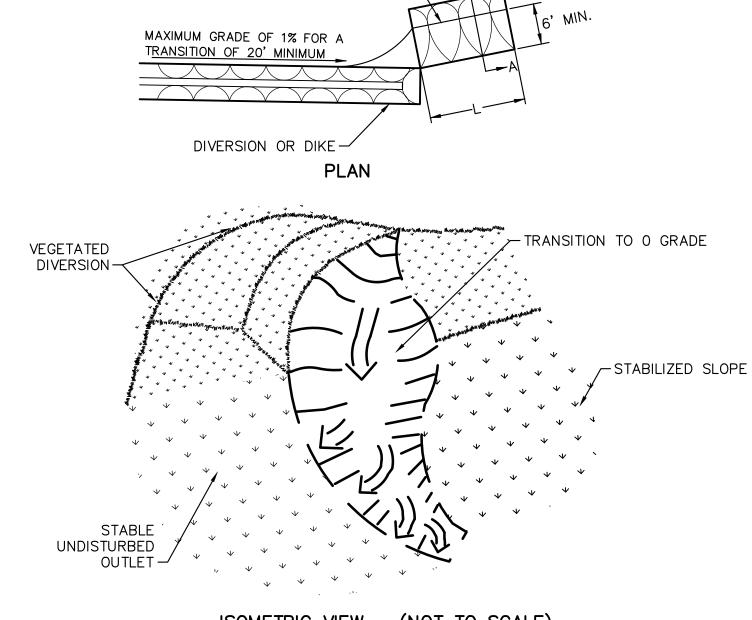




NOTES:

- 1. SOIL AMENDMENT MEDIA SHOULD CONSIST OF SOIL AND COMPOST AT A RATIO OF 2:1 (SOIL: COMPOST).
- 2. SOIL AMENDMENT SHOULD NOT BE USED ON SLOPES GREATER THAN 30%.
- 3. COMPOST CAN BE SUBSTITUTED WITH MULCH, MANURE, SAND.
- 4. NO VEHICULAR TRAFFIC WILL BE PERMITTED TO DRIVE IN UNPROTECTED SOIL AMENDMENT AREAS TO MINIMIZE THE POSSIBILITY OF COMPACTION
- 5. ALL CONSTRUCTION SHOULD BE COMPLETED AND STABILIZED BEFORE BEGINNING SOIL RESTORATION.
- 6. SOIL AMENDMENT TO BE INSTALLED BY TILLING.

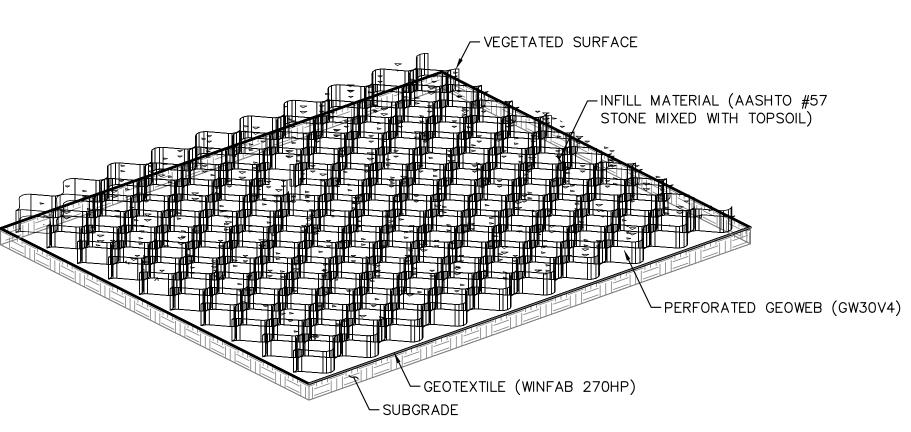
SOIL AMENDMENT DETAIL NOT TO SCALE



ISOMETRIC VIEW - (NOT TO SCALE)

EARTHEN LEVEL SPREADER NOT TO SCALE

PCSM DETAILS

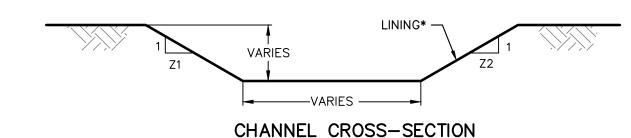


─ VEGETATED SURFACE ASHTD #57 STONE & TOPSOIL SUBGRADE GEOTEXTILE <u>SECTION</u>

- PREPARE THE SUBGRADE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- EXPAND THE GEOWEB SECTIONS INTO POSITION AND CONNECT THE END TO END AND INTERLEAF CONNECTIONS WITH ATRA KEYS.
- GEOWEB CELL INFILL MATERIAL SHALL BE A MIX OF AASHTO #57 STONE AND SCREENED TOPSOIL IN AN APPROXIMATE RATIO OF 2/3 #57 AND 1/3 TOPSOIL. PLACE THE SPECIFIED INFILL MATERIAL INTO CELLS AND TRACK UNTIL CELL IS FILLED AND SETTLEMENT OF INFILL IS NEGLIBILE.
- ROUGH GRADE CONTOURS DEPICT THE TOP OF SUBGRADE IN AREAS WHERE GEOWEB IS TO BE INSTALLED.
- TOP OF GEOWEB IS AT ELEVATION 4 INCHES ABOVE ROUGH GRADE SHOWN ON GRADING PLAN.

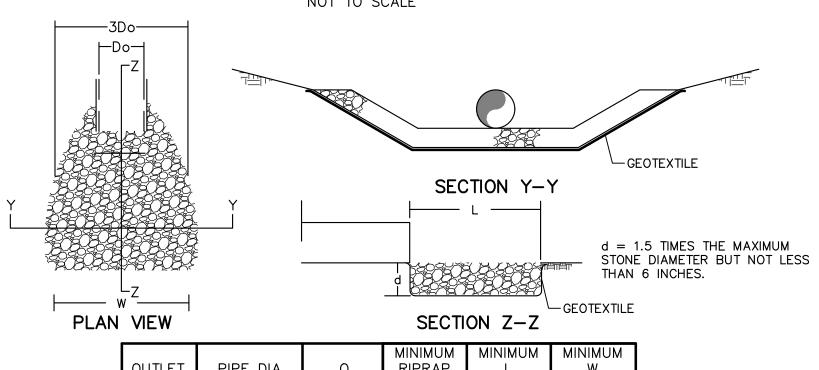
BLOCK VALVE GEOWEB DETAIL

NOT TO SCALE



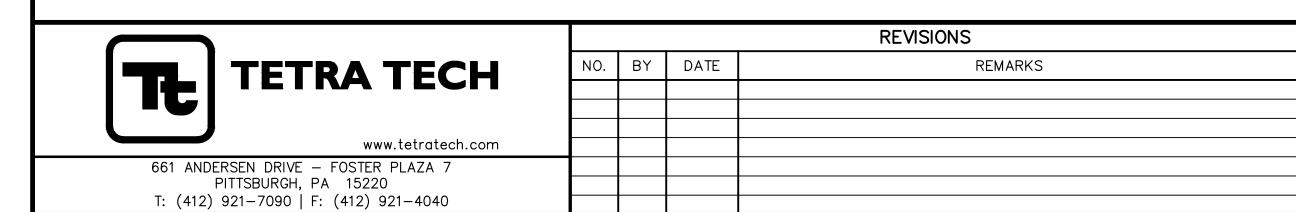
CHANNEL NO.	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
Α	4.0	2.0	2	2	NAG S150 ECB WITH CLASS C FINAL STABILIZATION
В	4.0	2.0	2	2	NAG P300 ECB WITH CLASS C FINAL STABILIZATION
С	4.0	2.0	2	2	NAG S150 ECB WITH CLASS C FINAL STABILIZATION
D	4.0	2.0	2	2	NAG S150 ECB WITH CLASS C FINAL STABILIZATION
Е	6.0	2.0	2	2	NAG P300 ECB WITH CLASS C FINAL STABILIZATION
F	4.0	2.0	2	2	NAG S150 ECB WITH CLASS C FINAL STABILIZATION
G	2.0	2.0	2	2	NAG S150 ECB WITH CLASS C FINAL STABILIZATION

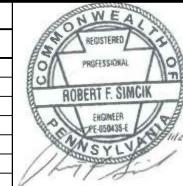
PERMANENT CHANNEL DETAIL



OUTLET NO.	PIPE DIA Do (FT)	Q (CFS)	MINIMUM RIPRAP SIZE	MINIMUM L (FT)	MINIMUM W (FT)
RA-01	4.0	6.66	R-3	12.0	16.0
RA-02	4.0	19.77	R-3	14.0	18.0
RA-03	2.0	7.76	R-3	10.0	13.0
RA-04	2.0	48.43	R-5	26.0	32.0
RA-05	1.5	9.99	R-3	10.0	13.0
RA-06	1.5	10.34	R-3	10.0	13.0

RIPRAP APRONS AT PIPE OUTLETS WITH FLARED END SECTIONS





SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

DELAWARE COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS

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