

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

CHESTER COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN

MARCH 2016

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ES-6.01 TO ES-6.82	EROSION & SEDIMENT CONTROL & SITE RESTORATION PLANS

PREPARED BY:



TETRA TECH

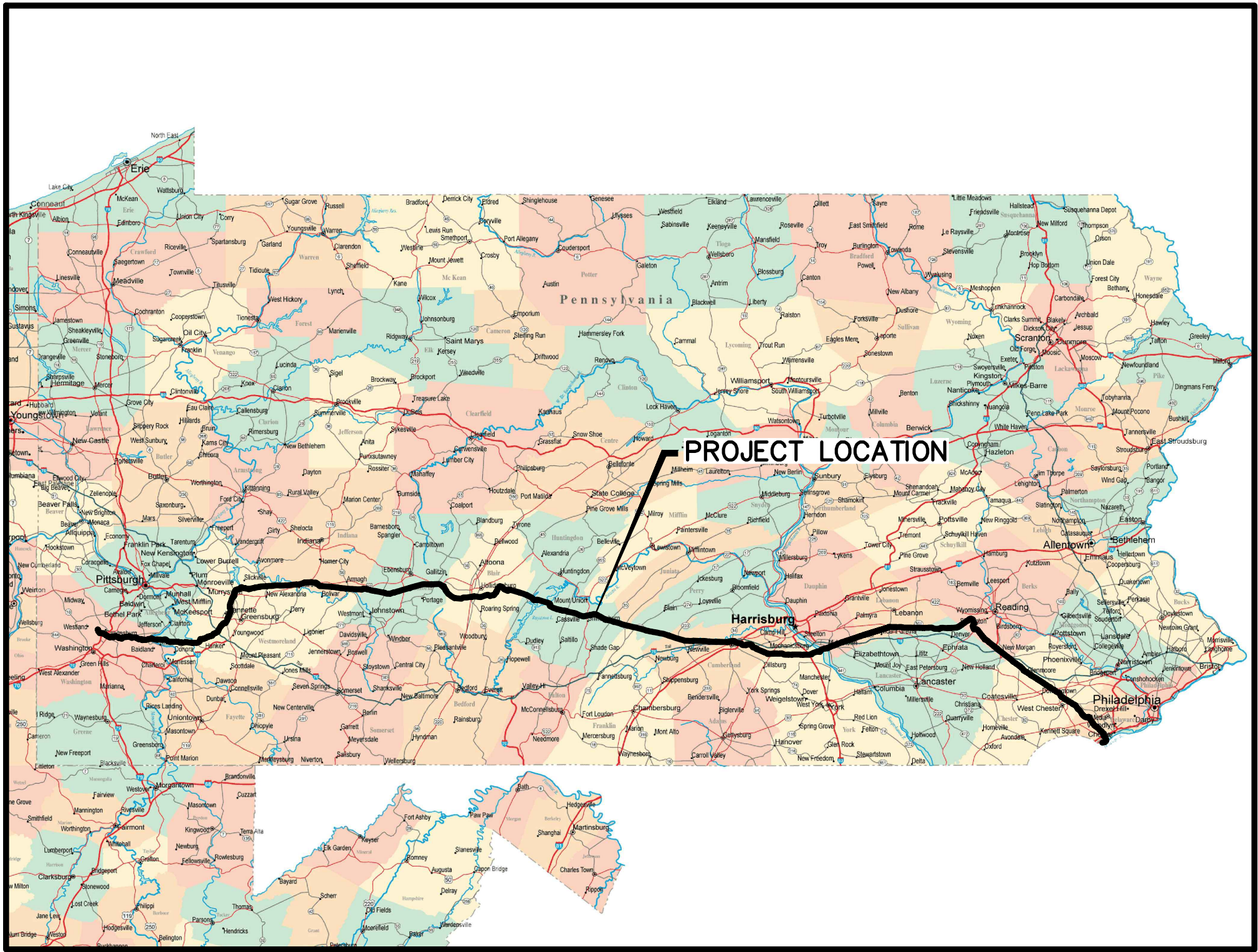
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PREPARED FOR:



SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA



LOCATION MAP
PENNSYLVANIA PIPELINE PROJECT
HOUSTON, PENNSYLVANIA TO MARCUS HOOK, PENNSYLVANIA

NOTES:

1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.
2. THE PROJECT TAKES PLACE WITHIN CHESTER COUNTY, PENNSYLVANIA.
3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU.
4. 100-YEAR FEMA FLOODPLAINS FROM WWW.PASDA.PSU.EDU.
5. SEE SHEET ES-0.03 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. GENERAL LOCATION AND SPACING FOR WATERBARS ARE SHOWN ON THE PLAN. WATERBARS MAY BE ADJUSTED IN THE FIELD DUE TO ACTUAL SITE CONDITIONS; HOWEVER, INSTALLATION AND SPACING MUST CONFORM TO THE DETAIL PROVIDED ON THE PLAN SHEET ES-0.08.
9. AT ALL STREAM CROSSINGS, RUNOFF MUST BE DIRECTED TO A SEDIMENT REMOVAL AREA (i.e. COMPOST FILTER SOCKS).
10. 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.
11. GENERAL SOIL STOCKPILE LOCATIONS ARE SHOWN. ALONG THE ALIGNMENT, TOPSOIL WILL BE PUSHED TO ONE SIDE OF THE RIGHT OF WAY. THE TOPSOIL WILL BE PUSHED BACK DURING SITE RESTORATION.
12. PAST AND PRESENT LAND USE CONSISTS OF AGRICULTURAL, FORESTED AND RESIDENTIAL AREAS. POST CONSTRUCTION LAND USE WILL BE A MAINTAINED, VEGETATED RIGHT-OF-WAY.
13. ACCUMULATED SEDIMENT ON TIMBER MATS WILL BE REMOVED BY HAND AND PLACED IN THE SOIL STOCKPILES.
14. COMPOST FILTER SOCK INSTALLATION TO BE ADJUSTED AS NEEDED TO ACCOMMODATE ACTUAL CONTOURS IDENTIFIED IN FIELD DURING VARIOUS PHASES OF THE PROJECT.
15. CONSTRUCTION IS RESTRICTED IN STOCKED TROUT STREAMS FROM MARCH 1 THROUGH JUNE 15, WILD TROUT STREAMS FROM OCTOBER 1 THROUGH DECEMBER 31 AND LAKE ERIE TRIBUTARIES FROM SEPTEMBER 1 THROUGH DECEMBER 1 UNLESS APPROVAL IS OBTAINED FROM THE FISH AND BOAT COMMISSION'S DIVISION OF ENVIRONMENTAL SERVICES.
16. THIS PROJECT WILL REQUIRE WATER FOR DUST CONTROL, PIPELINE CLEANING, HORIZONTAL DIRECTIONAL DRILLING AND HYDROSTATIC TESTING OF THE PIPELINE AND MAINLINE VALVES. ALL WATER FOR THESE ACTIVITIES WITHIN THE DELAWARE RIVER BASIN WILL BE SOURCED FROM MUNICIPAL WATER SOURCES. NO SURFACE WATER WITHDRAWAL WITHIN THE DELAWARE RIVER BASIN IS PROPOSED FOR THIS PROJECT.
17. ALL WATER USED FOR HYDROSTATIC TESTING OF THE PIPELINE AND MAINLINE VALVES WITHIN THE DELAWARE RIVER BASIN WILL BE DISCHARGED THROUGH THE DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY VIA SUNOCO FACILITIES AT MARCUS HOOK, DELAWARE COUNTY, PA.
18. AFTER 70% PERENNIAL VEGETATION IS ACHIEVED WITHIN UWCHLAN TOWNSHIP, REMOVE WATERBARS, STABILIZE AND RE-VEGETATE THE AREA.

DRAWINGS BY TOWNSHIP		
COUNTY	TOWNSHIP	PLAN SHEETS
CHESTER	ELVERSON BOROUGH	ES-6.01 TO ES-6.03
	WEST NANTMEAL	ES-6.03 TO ES-6.12
	EAST NANTMEAL	ES-6.09 TO ES-6.12
	WALLACE	ES-6.12 TO ES-6.23
	UPPER UWCHLAN	ES-6.23 TO ES-6.34
	UWCHLAN	ES-6.34 TO ES-6.43
	WEST WHITELAND	ES-6.43 TO ES-6.54 & ES-6.75 TO ES-6.80
	EAST WHITELAND	ES-6.80 TO ES-6.82
	WEST GOSHEN	ES-6.54 TO ES-6.58
	EAST GOSHEN	ES-6.58 TO ES-6.69
	WESTTOWN	ES-6.69 TO ES-6.74

LIMIT OF DISTURBANCE/PROJECT AREA TABLE		
	LIMIT OF DISTURBANCE	PROJECT AREA
CHESTER COUNTY	184 ACRES	184 ACRES

LEGEND

1320

EXISTING 10' CONTOUR

EXISTING 2' CONTOUR

EXISTING TREE LINE

x x x

EXISTING FENCELINE

EXISTING STREAM WITH FLOW DIRECTION

- - -

EXISTING WATERSHED BOUNDARY

OVH

EXISTING ELECTRIC OVERHEAD

UE

EXISTING ELECTRIC UNDERGROUND

EXISTING LIGHT POLE

W

EXISTING WATER LINE

GAS

EXISTING GAS LINE

DOWN

EXISTING DOMINION GAS LINE

SAN

EXISTING SANITARY SEWER LINE

EXISTING BUILDING

PROPERTY LINE

COUNTY BOUNDARY

TOWNSHIP BOUNDARY

100-YEAR FLOODWAY

100-YEAR FEMA FLOODPLAIN

- - -

WATERSHED BOUNDARY

ORANGE CONSTRUCTION FENCE

EXISTING PEM WETLAND

EXISTING PFO WETLAND

EXISTING PSS WETLAND

g

PROPOSED PIPE LOCATION

- - -

PROPOSED RIGHT-OF-WAY

RIPARIAN FOREST BUFFER

LIMIT OF DISTURBANCE/AREA TO BE RESTORED

AASHTO #1 ROCK CONSTRUCTION ENTRANCE

AASHTO #1 ROCK CONSTRUCTION ENTRANCE WITH WASH RACKS

AGGREGATE STOCKPILE

WATER BAR

EROSION CONTROL BLANKET

12" COMPOST FILTER SOCK

18" COMPOST FILTER SOCK

24" COMPOST FILTER SOCK

COMPOST SOCK SEDIMENT TRAP

SILT FENCE

SUPER SILT FENCE

REINFORCED SILT FENCE

TIMBER MATS/ TEMPORARY EQUIPMENT BRIDGE

TRENCH PLUGS

WATER DEFLECTOR

SOIL STOCKPILE -SEE NOTE 7 UNDER STANDARD EROSION & SEDIMENT CONTROL NOTES ON SHEET ES-0.06

HORIZONTAL DIRECTIONAL DRILL

CONVENTIONAL BORE

DETAIL INDICATOR

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REVISIONS			
NO.	BY	DATE	REMARKS

SUNOCO PIPELINE L.P.

SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT

CONSTRUCTION SPREAD 6

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

CHESTER COUNTY CONSERVATION DISTRICT

EROSION & SEDIMENT CONTROL PLAN

GENERAL NOTES & LEGEND

DATE:	3/18/16
PROJECT NO.:	112C05958
DESIGNED BY:	JB
DRAWN BY:	BH
CHECKED BY:	RS
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SHEET 0.01 OF 93	

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NOTES FOR SITE RESTORATION:

1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.

2. THE PROJECT TAKES PLACE WITHIN CHESTER COUNTY, PENNSYLVANIA.

3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU.

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

5. SEE SHEET ES–0.03 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 FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR CONSERVATION DISTRICT.

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 WILL BE SHOWN ON THE PLAN SHEETS TO ACCOUNT FOR THE INCREASE IN STORM WATER RUNOFF. AS A RESULT OF APPLYING THE INFILTRATION BERM AND RESTORING THE RIGHT OF WAY TO A MEADOW CONDITION, THERE WILL BE NO INCREASE IN STORMWATER RUNOFF RATES OR VOLUMES.

CONSTRUCTION SEQUENCE FOR POST CONSTRUCTION STORMWATER MANAGEMENT CONTROLS:

REFER TO THE PLAN DRAWINGS FOR THE LOCATION OF THE PROPOSED WORK AND THE ASSOCIATED STORMWATER 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 EMPTY 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 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. 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.

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, 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.

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.

LEGEND

INFILTRATION BERM

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DETAIL INDICATOR

DETAIL NUMBER

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REVISIONS			
NO.	BY	DATE	REMARKS

COMMONWEALTH OF PENNSYLVANIA

REGISTERED PROFESSIONAL

ROBERT F. SIMCIK

ENGINEER

PL-500428-1

SUNOCO PIPELINE L.P.

SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT

CONSTRUCTION SPREAD 6

1–20" & 1–16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES

CHESTER COUNTY CONSERVATION DISTRICT

SITE RESTORATION PLAN

GENERAL NOTES & LEGEND

DATE: 3/18/16

PROJECT NO.: 112C05958

DESIGNED BY: JB

DRAWN BY: BH

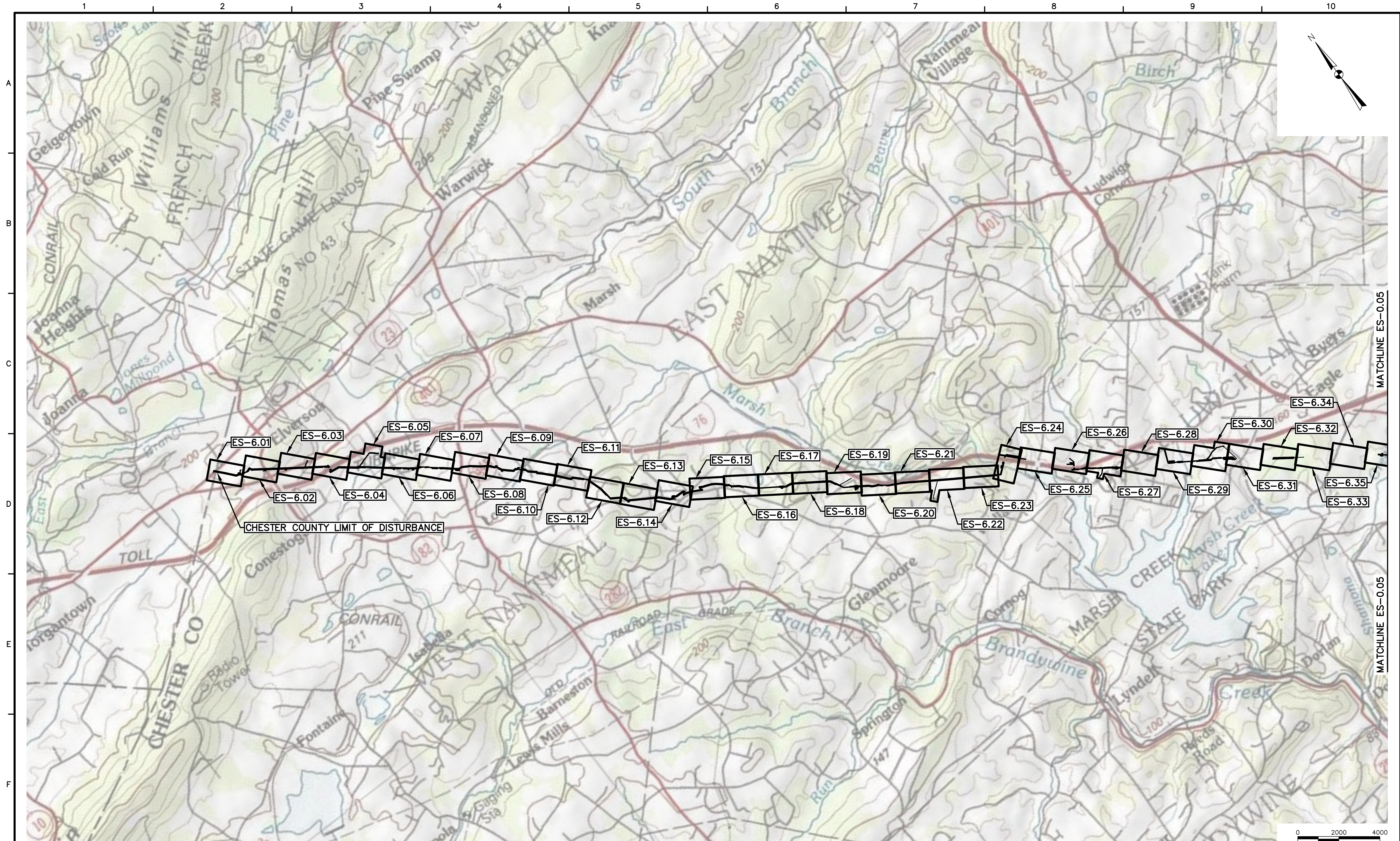
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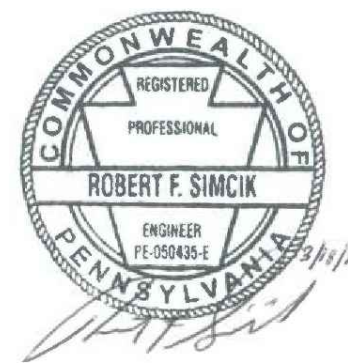
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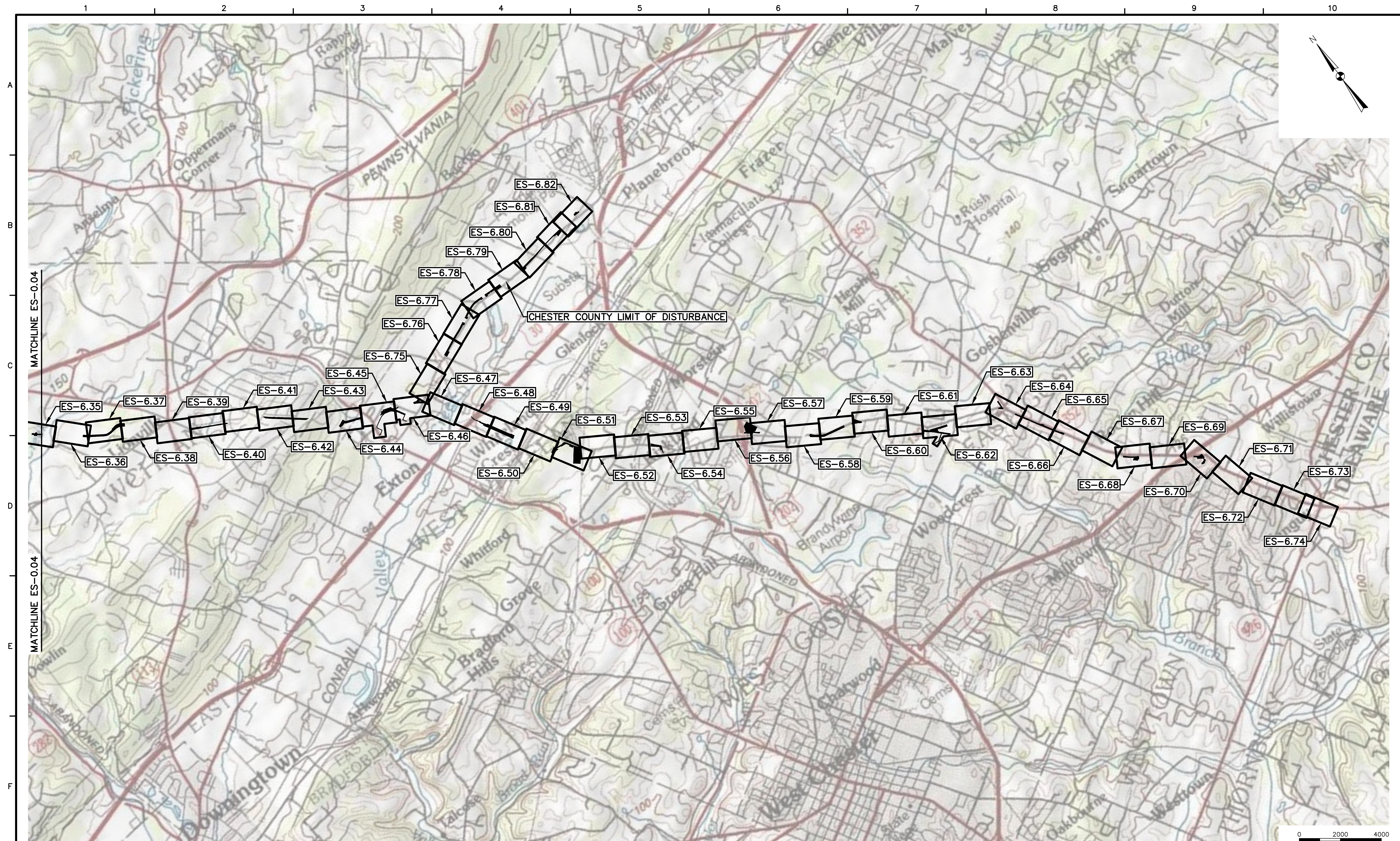
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NO.	BY	DATE		



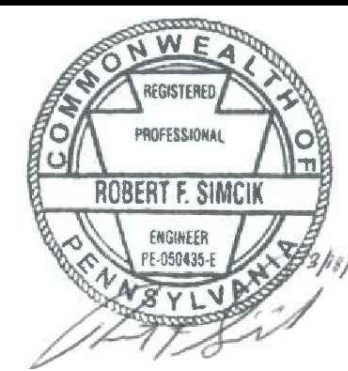
SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
CHESTER COUNTY CONSERVATION DISTRICT
KEY PLAN
SHEET 1 OF 2

DATE: 3/18/16
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PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6

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

CHESTER COUNTY CONSERVATION DISTRICT
KEY PLAN
SHEET 2 OF 2

DATE:	3/18/16
PROJECT NO.:	112C05958
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TEMPORARY EROSION AND SEDIMENT CONTROLS
INSPECTION AND MAINTENANCE SCHEDULE

BMP	INSPECTION FREQUENCY	MAINTENANCE TO BE PERFORMED
COMPOST FILTER SOCK	WEEKLY AND AFTER RUNOFF EVENTS	MAINTENANCE SHALL BE PERFORMED AS NEEDED, SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE THIRD THE ORIGINAL HEIGHT OF THE BARRIER. COMPOST FILTER SOCK SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF COMPOST FILTER SOCK IS REDUCED. COMPOST FILTER SOCKS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATION AT THE COMPOST FILTER SOCK SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE COMPOST FILTER SOCK IS REMOVED.
ROCK CONSTRUCTION ENTRANCE	DAILY	CONTRACTOR SHALL MAINTAIN/REPLACE MATERIAL AS NEEDED THROUGHOUT CONSTRUCTION TO MAINTAIN SPECIFIED MINIMUM THICKNESS DURING USE OF ACCESS ROAD. A STOCKPILE OF ROCK WILL BE MAINTAINED ON SITE FOR THIS PURPOSE
MULCH STABILIZATION	WEEKLY AND AFTER RUNOFF EVENTS	REPLACE MULCH AS REQUIRED. RESTORE SEEDING IN AFFECTED AREA IF NECESSARY.
TIMBER MAT	WEEKLY AND AFTER RUNOFF EVENTS	INSPECT THE TIMBER MAT FOR EROSION AND MAKE ANY NECESSARY REPAIRS.
WATERBARS	WEEKLY AND AFTER RUNOFF EVENTS	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.
PUMPED WATER FILTER BAGS	DAILY	FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
SILT FENCE	WEEKLY AND AFTER RUNOFF EVENTS	MAINTENANCE SHALL BE PERFORMED AS NEEDED, SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE THIRD THE ORIGINAL HEIGHT OF THE BARRIER. SILT FENCE SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF SILT FENCE IS REDUCED. SILT FENCE SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATION AT THE SILT FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE SILT FENCE IS REMOVED.

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES

- 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 (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 SUBMITAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- 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 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.
- 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.
- 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 THE SITE.
- 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.
- ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.

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 EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADEING, RESEEDING, REMULCHING AND RENEETING 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. 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.

16. 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.

17. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.

18. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.

19. 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.

20. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

21. 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 FILLS.

22. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.

23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.

24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

25. 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.

26. 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.

27. 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.

28. 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.

29. 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.

30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER 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.

31. 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.

32. 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 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.

33. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODYDEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.

34. 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.

35. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.

36. 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.

37. 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 PADEP'S GUIDANCE. ON-SITE HANDLING METHODS SHOULD BE BASED ON TESTING AND PADEP GUIDANCE.

38. 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

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TEMPORARY SEEDING

TEMPORARY GRASS COVER SHALL BE ESTABLISHED IN THE FOLLOWING AREAS:

1. WHERE SOIL STOCKPILES ARE TO BE EXPOSED FOR A PERIOD GREATER THAN FOUR (4) DAYS, THE STOCKPILE SHALL BE SEEDED.

2. WHERE VEGETATIVE FILTERS MUST BE ESTABLISHED BELOW FILTER BAGS, A MINIMUM DISTANCE OF 10 FT SHALL BE SEEDED DOWN SLOPE OF THE TRAP OUTLET.

TEMPORARY COVER

SEED MIXTURE FOR TEMPORARY COVER SHALL CONSIST OF 100% ANNUAL RYEGRASS. SEED SHALL BE APPLIED AT THE RATE OF 40 LB/ACRE OR AS RECOMMENDED BY A LOCAL RECOGNIZED SEED SUPPLIER APPROVED BY THE OWNER'S REPRESENTATIVE. PRIOR TO SEEDING, APPLY 1 TON OF AGRICULTURAL GRADE LIMESTONE PER ACRE PLUS 10–10–10 FERTILIZER AT THE RATE OF 500 LB. PER ACRE AND WORK INTO SOIL.

MULCHING

THE PURPOSE OF MULCH IS TO REDUCE RUNOFF AND EROSION, PREVENT SURFACE COMPACTION OR CRUSTING, CONSERVE MOISTURE, AID IN ESTABLISHING PLANT COVER, AND CONTROL WEEDS. MULCH SHALL BE APPLIED ON ANY AREA SUBJECT TO EROSION, OR WHICH HAS UNFAVORABLE CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. THE PRACTICE MAY BE USED ALONE OR IN CONJUNCTION WITH OTHER STRUCTURAL AND VEGETATIVE CONSERVATION PRACTICES, SUCH AS WATERWAYS, PONDS, SEDIMENTATION TRAPS OR CRITICAL AREA PLANTING. ON SEDIMENT PRODUCING AREAS WHERE THE PERIOD OF EXPOSURE IS LESS THAN TWO (2) MONTHS, MULCH MATERIALS SHALL BE APPLIED ACCORDING TO THE FOLLOWING GUIDELINES:

1. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.
2. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION BY AT LEAST ONE OF THE FOLLOWING METHODS.
A. "CRIMPED" INTO THE SOIL USING TRACTOR DRAWN EQUIPMENT (STRAIGHT BLADED COULTER OR SIMILAR). THIS METHOD IS LIMITED TO SLOPES NO STEEPER THAN 3:1. MACHINERY SHOULD BE OPERATED ON THE CONTOUR. (CRIMPING OF HAY OR STRAW BY RUNNING IT OVER WITH TRACKED MACHINERY IS NOT RECOMMENDED)
B. ASPHALT, EITHER EMULSIFIED OR CUT-BACK, CONTAINING NO SOLVENTS OR OTHER DILUTING AGENTS TOXIC TO PLANT OR ANIMAL LIFE, UNIFORMLY APPLIED AT THE RATE OF 31 GALLONS PER 1000 FT2.
C. SYNTHETIC BINDERS (CHEMICAL BINDERS) MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THAT IT IS NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
D. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND AFTER EACH RUNOFF EVENT (E.G. RAIN, SNOWMELT, ETC) FOR DAMAGE UNTIL THE DESIRED PURPOSE OF THE MULCHING IS ACHIEVED. DAMAGED PORTIONS OF THE MULCH OR TIE-DOWN MATERIAL SHALL BE REPAIRED UPON DISCOVERY.

REVEGETATION

LIMING RATES
MINIMUM 6 TONS PER ACRE AT 100% EFFECTIVE NEUTRALIZING VALUE (% ENV), UNLESS THE SOIL TEST DETERMINES THAT A LESSER AMOUNT IS NEEDED. TO DETERMINE THE ACTUAL AMOUNT OF REGULAR LIME TO APPLY, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % ENV FOR THE PRODUCT USED. FOR EXAMPLE, IF 6 TONS PER ACRE IS NEEDED AND THE ENV FOR THE LIME USED IS 88%, DIVIDE 6 BY 0.88 RESULTING IN 6.8 TONS NEEDED TO BE APPLIED.
FOR DLOMITIC LIME, WHICH HAS A SIGNIFICANT AMOUNT OF MAGNESIUM IN IT, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % CALCIUM CARBONATE EQUIVALENT (% CCE) LISTED FOR THE PRODUCT INSTEAD OF THE % ENV. THE % CCE MAY BE ABOVE 100% WHICH ACCOUNTS FOR THE FACT THAT MAGNESIUM HAS A GREATER EFFECT PER POUND THAN THE CALCIUM IN REGULAR LIME.
NOTE: WHEN A SOIL TEST REQUIRES MORE THAN 8,000 POUNDS OF LIME PER ACRE, THE LIME MUST BE MIXED INTO THE TOP 6 INCHES OF SOIL.

FERTILIZATION RATES
APPLY 10–20–20 AT 600 POUNDS/ACRE, IF TOP DRESSED OR 1,000 POUNDS/AC, IF INCORPORATED, UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

SOIL AMENDMENT APPLICATION RATE EQUIVALENTS

SOIL AMENDMENT	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YDS.	NOTES
PERMANENT SEEDING APPLICATION RATE				
AGRICULTURAL LIME	6 TONS	240 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
10–20–20 FERTILIZER	1,000 LBS.	25 LBS.	210 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

RECOMMENDED SEED MIXTURES

MIXTURE NO.	SPECIES	SEEDING RATES – PLS(1)	
		MOST SITES	ADVERSE SITES
1 (2)	SPRING OATS (SPRING), OR 64 96	64	96
	ANNUAL RYEGRASS (SPRING OR FALL), OR	10	15
	WINTER WHEAT (FALL), OR	90	120
	WINTER RYE (FALL)	56	112
2 (3)	TALL FESCUE, OR 75	60	75
	FINE FESCUE, OR 40	35	40
	KENTUCKY BLUEGRASS, PLUS 25 30	25	30
	REDTOP(4), OR	3	3
PERENNIAL RYEGRASS	15	20	
	3	BIRDSFOOT TREFOIL, PLUS 6 10	6
TALL FESCUE		30	35
4	BIRDSFOOT TREFOIL, PLUS	6	10
	REED CANARYGRASS	10	15
5 (5)	CROWNVETCH, PLUS	10	15
	TALL FESCUE, OR	20	25
	PERENNIAL RYEGRASS	20	25
	6 (5,6)	CROWNVETCH, PLUS	10
ANNUAL RYEGRASS		20	25
7 (5)	BIRDSFOOT TREFOIL, PLUS	20	30
	CROWNVETCH, PLUS	20	30
	TALL FESCUE	20	25
8	FLATPEA, PLUS	20	30
	TALL FESCUE, OR	20	30
	PERENNIAL RYEGRASS	20	25
	9 (7)	SERECIA LESPEDEZA, PLUS	10
TALL FESCUE, PLUS		20	25
REDTOP(4)		3	3
10		TALL FESCUE, PLUS	40
	FINE FESCUE	10	15
11	DEERTONGUE, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
12(8)	SWITCHGRASS, OR	15	20
	BIG BLUESTEM, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
	13	ORCHARDGRASS, OR	20
SMOOTH BROMEGRASS, PLUS		25	35
BIRDSFOOT TREFOIL		6	10

NOTES:

1. PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35 PERCENT, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE-ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
2. IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF TWO BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT ONE BUSHEL PER ACRE. IF GERMINATION IS BELOW 90 PERCENT, INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
3. THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN FOUR INCHES.
4. KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
5. SEED MIXTURES CONTAINING CROWN VETCH SHOULD NOT BE USED IN AREAS ADJACENT TO WETLANDS OR STREAM CHANNELS DUE TO THE INVASIVE NATURE OF THIS SPECIES.
6. USE FOR HIGHWAY SLOPES AND SIMILAR SITES WHERE THE DESIRED SPECIES AFTER ESTABLISHMENT IS CROWNVETCH.
7. USE ONLY IN EXTREME SOUTHEASTERN OR EXTREME SOUTHWESTERN PA. SERECIA LESPEDEZA IS NOT WELL ADAPTED TO MOST OF PA.
8. DO NOT MOW SHORTER THAN NINE TO 10 INCHES.

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REDTOP(4)		3	3
10		TALL FESCUE, PLUS	40
	FINE FESCUE	10	15
11	DEERTONGUE, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
12(8)	SWITCHGRASS, OR	15	20
	BIG BLUESTEM, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
	13	ORCHARDGRASS, OR	20
SMOOTH BROMEGRASS, PLUS		25	35
BIRDSFOOT TREFOIL		6	10

NOTES:

1. PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35 PERCENT, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE-ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
2. IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF TWO BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT ONE BUSHEL PER ACRE. IF GERMINATION IS BELOW 90 PERCENT, INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
3. THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN FOUR INCHES.
4. KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
5. SEED MIXTURES CONTAINING CROWN VETCH SHOULD NOT BE USED IN AREAS ADJACENT TO WETLANDS OR STREAM CHANNELS DUE TO THE INVASIVE NATURE OF THIS SPECIES.
6. USE FOR HIGHWAY SLOPES AND SIMILAR SITES WHERE THE DESIRED SPECIES AFTER ESTABLISHMENT IS CROWNVETCH.
7. USE ONLY IN EXTREME SOUTHEASTERN OR EXTREME SOUTHWESTERN PA. SERECIA LESPEDEZA IS NOT WELL ADAPTED TO MOST OF PA.
8. DO NOT MOW SHORTER THAN NINE TO 10 INCHES.

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TEMPORARY SEEDING

TEMPORARY GRASS COVER SHALL BE ESTABLISHED IN THE FOLLOWING AREAS:

1. WHERE SOIL STOCKPILES ARE TO BE EXPOSED FOR A PERIOD GREATER THAN FOUR (4) DAYS, THE STOCKPILE SHALL BE SEEDED.

2. WHERE VEGETATIVE FILTERS MUST BE ESTABLISHED BELOW FILTER BAGS, A MINIMUM DISTANCE OF 10 FT SHALL BE SEEDED DOWN SLOPE OF THE TRAP OUTLET.

TEMPORARY COVER

SEED MIXTURE FOR TEMPORARY COVER SHALL CONSIST OF 100% ANNUAL RYEGRASS. SEED SHALL BE APPLIED AT THE RATE OF 40 LB/ACRE OR AS RECOMMENDED BY A LOCAL RECOGNIZED SEED SUPPLIER APPROVED BY THE OWNER'S REPRESENTATIVE. PRIOR TO SEEDING, APPLY 1 TON OF AGRICULTURAL GRADE LIMESTONE PER ACRE PLUS 10–10–10 FERTILIZER AT THE RATE OF 500 LB. PER ACRE AND WORK INTO SOIL.

MULCHING

THE PURPOSE OF MULCH IS TO REDUCE RUNOFF AND EROSION, PREVENT SURFACE COMPACTION OR CRUSTING, CONSERVE MOISTURE, AID IN ESTABLISHING PLANT COVER, AND CONTROL WEEDS. MULCH SHALL BE APPLIED ON ANY AREA SUBJECT TO EROSION, OR WHICH HAS UNFAVORABLE CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. THE PRACTICE MAY BE USED ALONE OR IN CONJUNCTION WITH OTHER STRUCTURAL AND VEGETATIVE CONSERVATION PRACTICES, SUCH AS WATERWAYS, PONDS, SEDIMENTATION TRAPS OR CRITICAL AREA PLANTING. ON SEDIMENT PRODUCING AREAS WHERE THE PERIOD OF EXPOSURE IS LESS THAN TWO (2) MONTHS, MULCH MATERIALS SHALL BE APPLIED ACCORDING TO THE FOLLOWING GUIDELINES:

1. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.
2. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION BY AT LEAST ONE OF THE FOLLOWING METHODS.
A. "CRIMPED" INTO THE SOIL USING TRACTOR DRAWN EQUIPMENT (STRAIGHT BLADED COULTER OR SIMILAR). THIS METHOD IS LIMITED TO SLOPES NO STEEPER THAN 3:1. MACHINERY SHOULD BE OPERATED ON THE CONTOUR. (CRIMPING OF HAY OR STRAW BY RUNNING IT OVER WITH TRACKED MACHINERY IS NOT RECOMMENDED)
B. ASPHALT, EITHER EMULSIFIED OR CUT-BACK, CONTAINING NO SOLVENTS OR OTHER DILUTING AGENTS TOXIC TO PLANT OR ANIMAL LIFE, UNIFORMLY APPLIED AT THE RATE OF 31 GALLONS PER 1000 FT2.
C. SYNTHETIC BINDERS (CHEMICAL BINDERS) MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THAT IT IS NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
D. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND AFTER EACH RUNOFF EVENT (E.G. RAIN, SNOWMELT, ETC) FOR DAMAGE UNTIL THE DESIRED PURPOSE OF THE MULCHING IS ACHIEVED. DAMAGED PORTIONS OF THE MULCH OR TIE-DOWN MATERIAL SHALL BE REPAIRED UPON DISCOVERY.

REVEGETATION

LIMING RATES
MINIMUM 6 TONS PER ACRE AT 100% EFFECTIVE NEUTRALIZING VALUE (% ENV), UNLESS THE SOIL TEST DETERMINES THAT A LESSER AMOUNT IS NEEDED. TO DETERMINE THE ACTUAL AMOUNT OF REGULAR LIME TO APPLY, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % ENV FOR THE PRODUCT USED. FOR EXAMPLE, IF 6 TONS PER ACRE IS NEEDED AND THE ENV FOR THE LIME USED IS 88%, DIVIDE 6 BY 0.88 RESULTING IN 6.8 TONS NEEDED TO BE APPLIED.
FOR DLOMITIC LIME, WHICH HAS A SIGNIFICANT AMOUNT OF MAGNESIUM IN IT, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % CALCIUM CARBONATE EQUIVALENT (% CCE) LISTED FOR THE PRODUCT INSTEAD OF THE % ENV. THE % CCE MAY BE ABOVE 100% WHICH ACCOUNTS FOR THE FACT THAT MAGNESIUM HAS A GREATER EFFECT PER POUND THAN THE CALCIUM IN REGULAR LIME.
NOTE: WHEN A SOIL TEST REQUIRES MORE THAN 8,000 POUNDS OF LIME PER ACRE, THE LIME MUST BE MIXED INTO THE TOP 6 INCHES OF SOIL.

FERTILIZATION RATES
APPLY 10–20–20 AT 600 POUNDS/ACRE, IF TOP DRESSED OR 1,000 POUNDS/AC, IF INCORPORATED, UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

SOIL AMENDMENT APPLICATION RATE EQUIVALENTS

SOIL AMENDMENT	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YDS.	NOTES
PERMANENT SEEDING APPLICATION RATE				
AGRICULTURAL LIME	6 TONS	240 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
10–20–20 FERTILIZER	1,000 LBS.	25 LBS.	210 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

RECOMMENDED SEED MIXTURES

MIXTURE NO.	SPECIES	SEEDING RATES – PLS(1)	
		MOST SITES	ADVERSE SITES
1 (2)	SPRING OATS (SPRING), OR 64 96	64	96
	ANNUAL RYEGRASS (SPRING OR FALL), OR	10	15
	WINTER WHEAT (FALL), OR	90	120
	WINTER RYE (FALL)	56	112
2 (3)	TALL FESCUE, OR 75	60	75
	FINE FESCUE, OR 40	35	40
	KENTUCKY BLUEGRASS, PLUS 25 30	25	30
	REDTOP(4), OR	3	3
PERENNIAL RYEGRASS	15	20	
	3	BIRDSFOOT TREFOIL, PLUS 6 10	6
TALL FESCUE		30	35
4	BIRDSFOOT TREFOIL, PLUS	6	10
	REED CANARYGRASS	10	15
5 (5)	CROWNVETCH, PLUS	10	15
	TALL FESCUE, OR	20	25
	PERENNIAL RYEGRASS	20	25
	6 (5,6)	CROWNVETCH, PLUS	10
ANNUAL RYEGRASS		20	25
7 (5)	BIRDSFOOT TREFOIL, PLUS	20	30
	CROWNVETCH, PLUS	20	30
	TALL FESCUE	20	25
8	FLATPEA, PLUS	20	30
	TALL FESCUE, OR	20	30
	PERENNIAL RYEGRASS	20	25
	9 (7)	SERECIA LESPEDEZA, PLUS	10
TALL FESCUE, PLUS		20	25
REDTOP(4)		3	3
10		TALL FESCUE, PLUS	40
	FINE FESCUE	10	15
11	DEERTONGUE, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
12(8)	SWITCHGRASS, OR	15	20
	BIG BLUESTEM, PLUS	15	20
	BIRDSFOOT TREFOIL	6	10
	13	ORCHARDGRASS, OR	20
SMOOTH BROMEGRASS, PLUS		25	35
BIRDSFOOT TREFOIL		6	10

NOTES:

1. PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35 PERCENT, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE-ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
2. IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF TWO BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT ONE BUSHEL PER ACRE. IF GERMINATION IS BELOW 90 PERCENT, INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
3. THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN FOUR INCHES.
4. KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
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2. WHERE VEGETATIVE FILTERS MUST BE ESTABLISHED BELOW FILTER BAGS, A MINIMUM DISTANCE OF 10 FT SHALL BE SEEDED DOWN SLOPE OF THE TRAP OUTLET.

TEMPORARY COVER

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REVEGETATION

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NOTE: WHEN A SOIL TEST REQUIRES MORE THAN 8,000 POUNDS OF LIME PER ACRE, THE LIME MUST BE MIXED INTO THE TOP 6 INCHES OF SOIL.

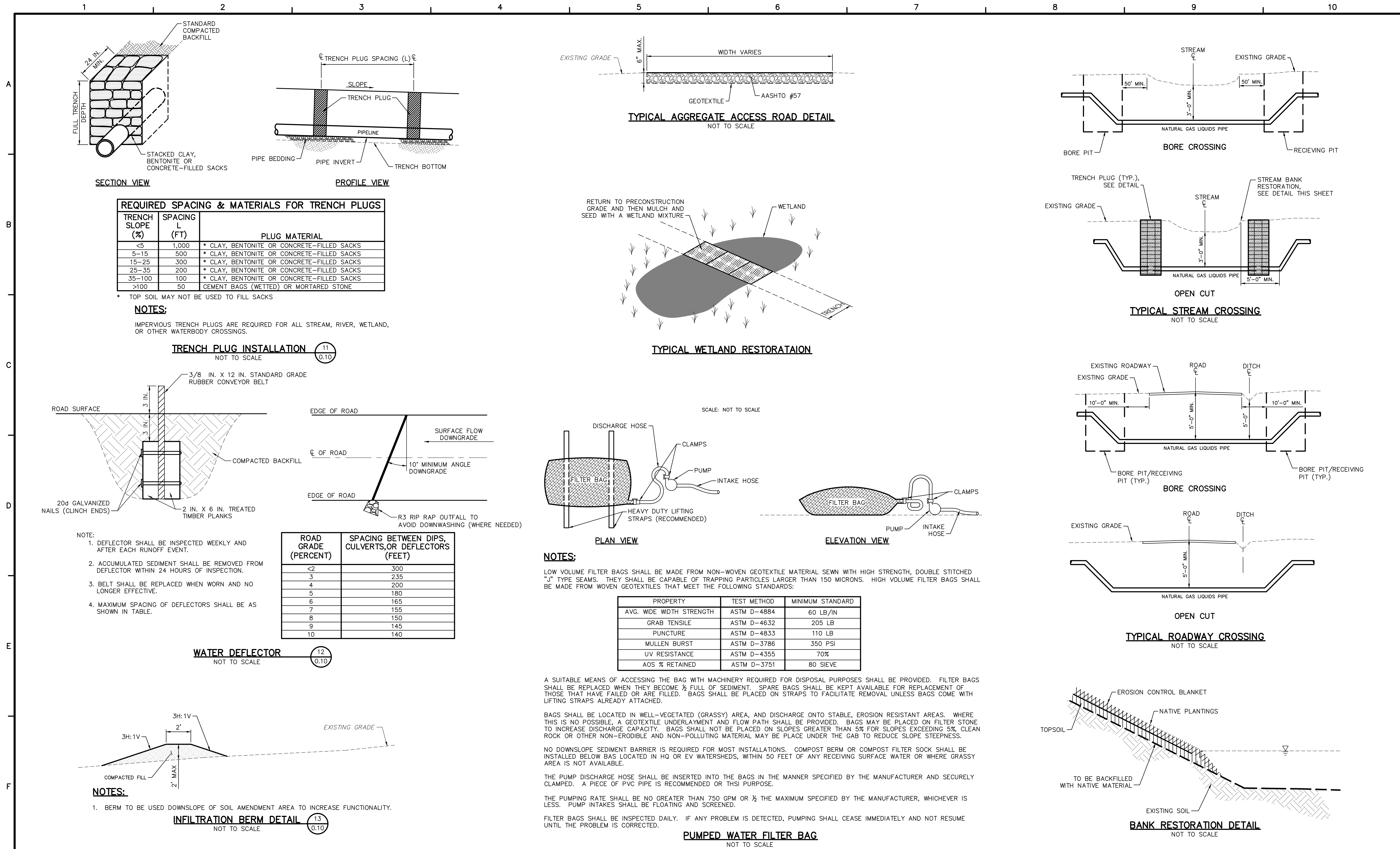
FERTILIZATION RATES
APPLY 10–20–20 AT 600 POUNDS/ACRE, IF TOP DRESSED OR 1,000 POUNDS/AC, IF INCORPORATED, UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

SOIL AMENDMENT APPLICATION RATE EQUIVALENTS

SOIL AMENDMENT	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YDS.	NOTES
PERMANENT SEEDING APPLICATION RATE				
AGRICULTURAL LIME	6 TONS	240 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
10–20–20 FERTILIZER	1,000 LBS.	25 LBS.	210 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

RECOMMENDED SEED MIXTURES

MIXTURE NO.	SPECIES	SEEDING RATES – PLS(1)	
		MOST SITES	ADVERSE SITES
1 (2)	SPRING OATS (SPRING), OR 64 96	64	96
	ANNUAL RYEGRASS (SPRING OR FALL), OR	10	15
	WINTER WHEAT (FALL), OR	90	120
	WINTER RYE (FALL)	56	112



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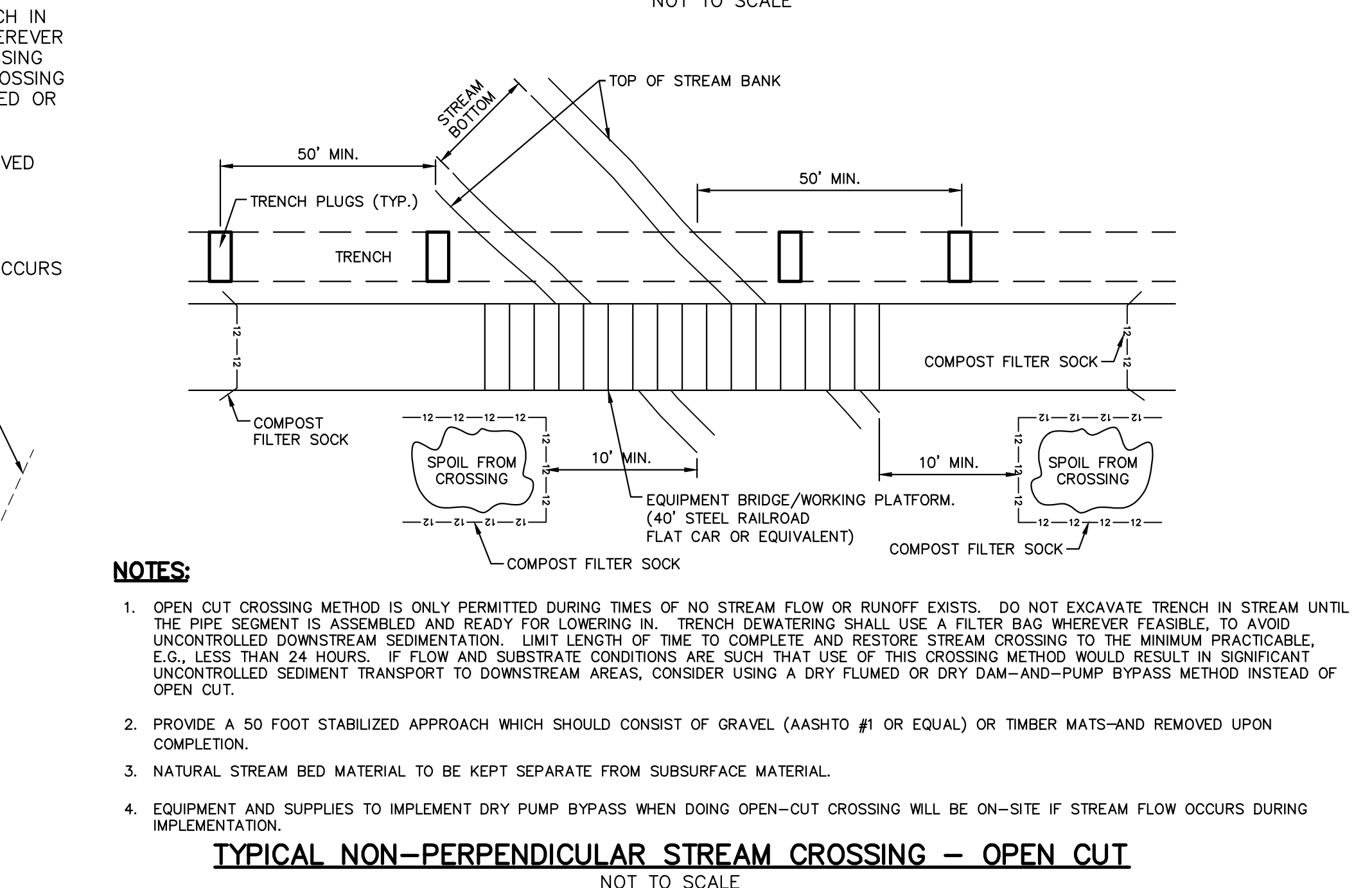
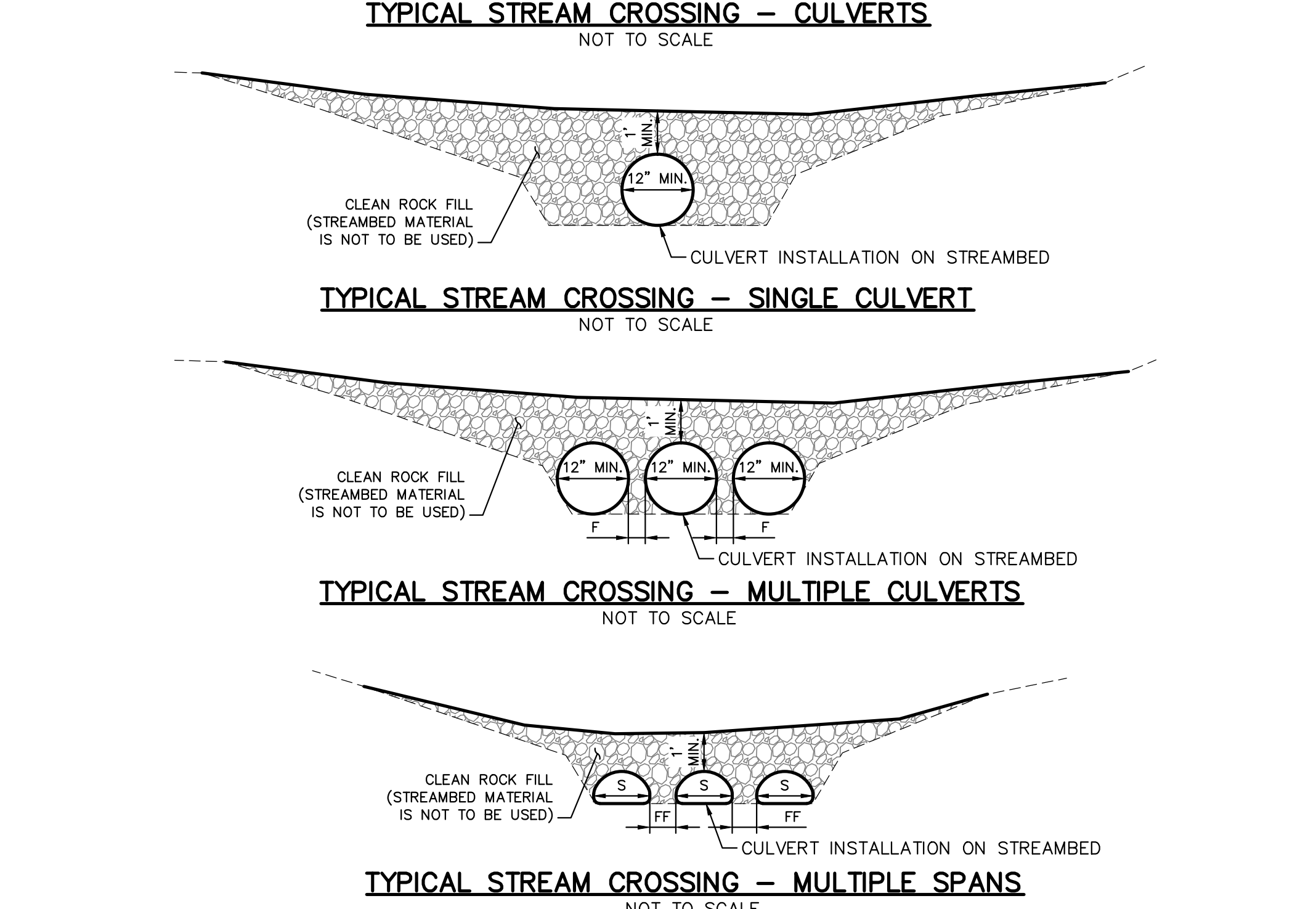
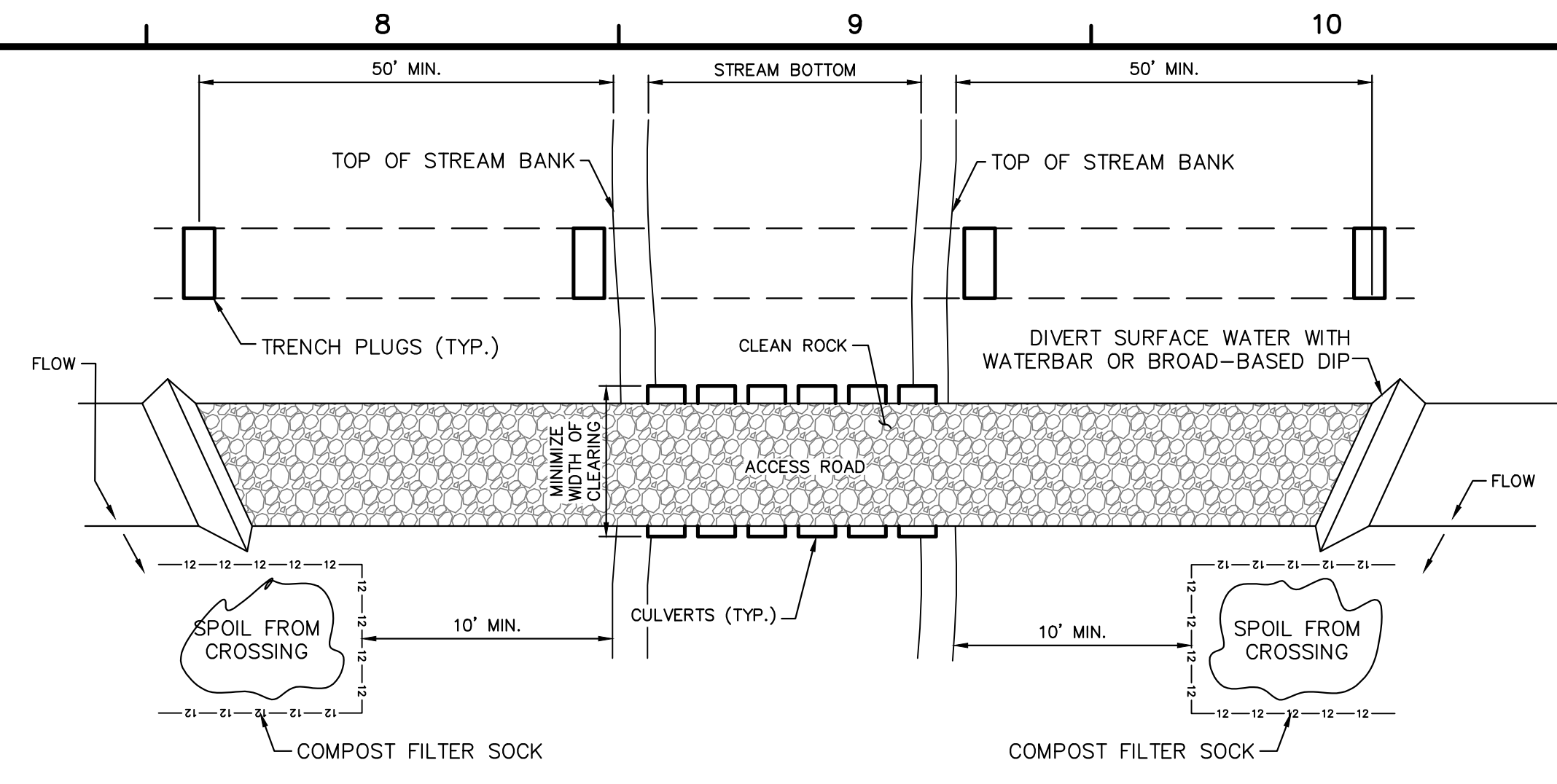
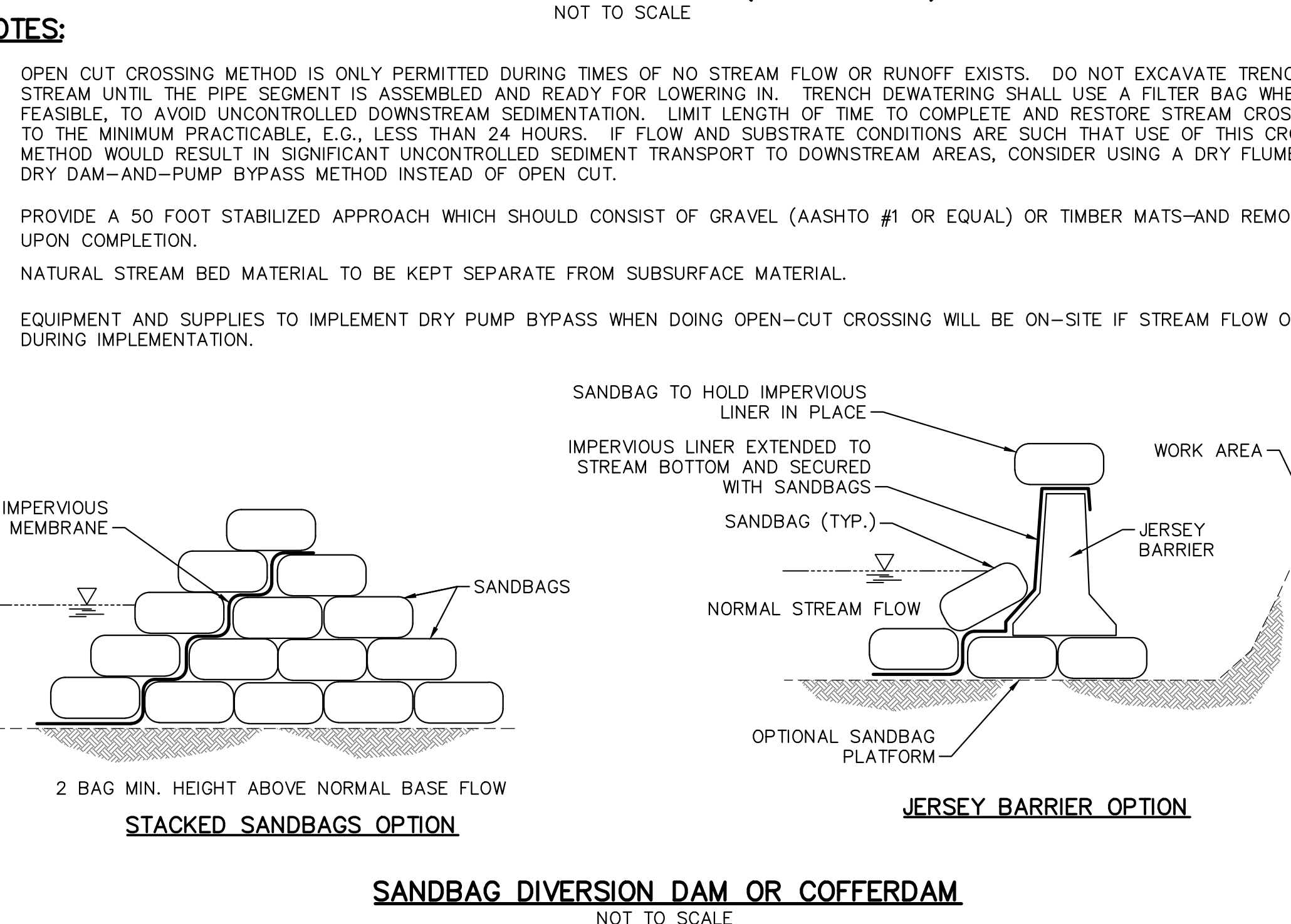
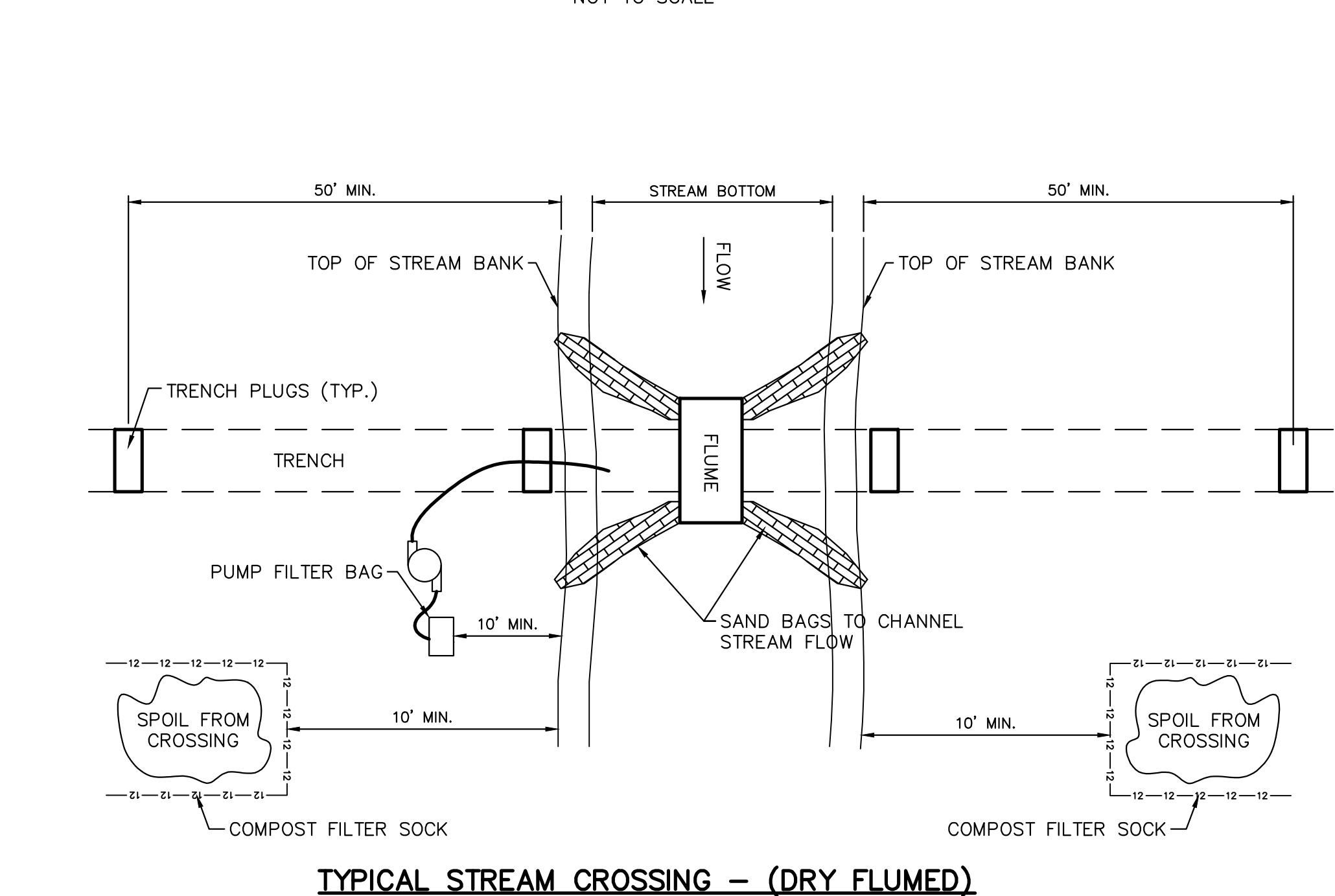
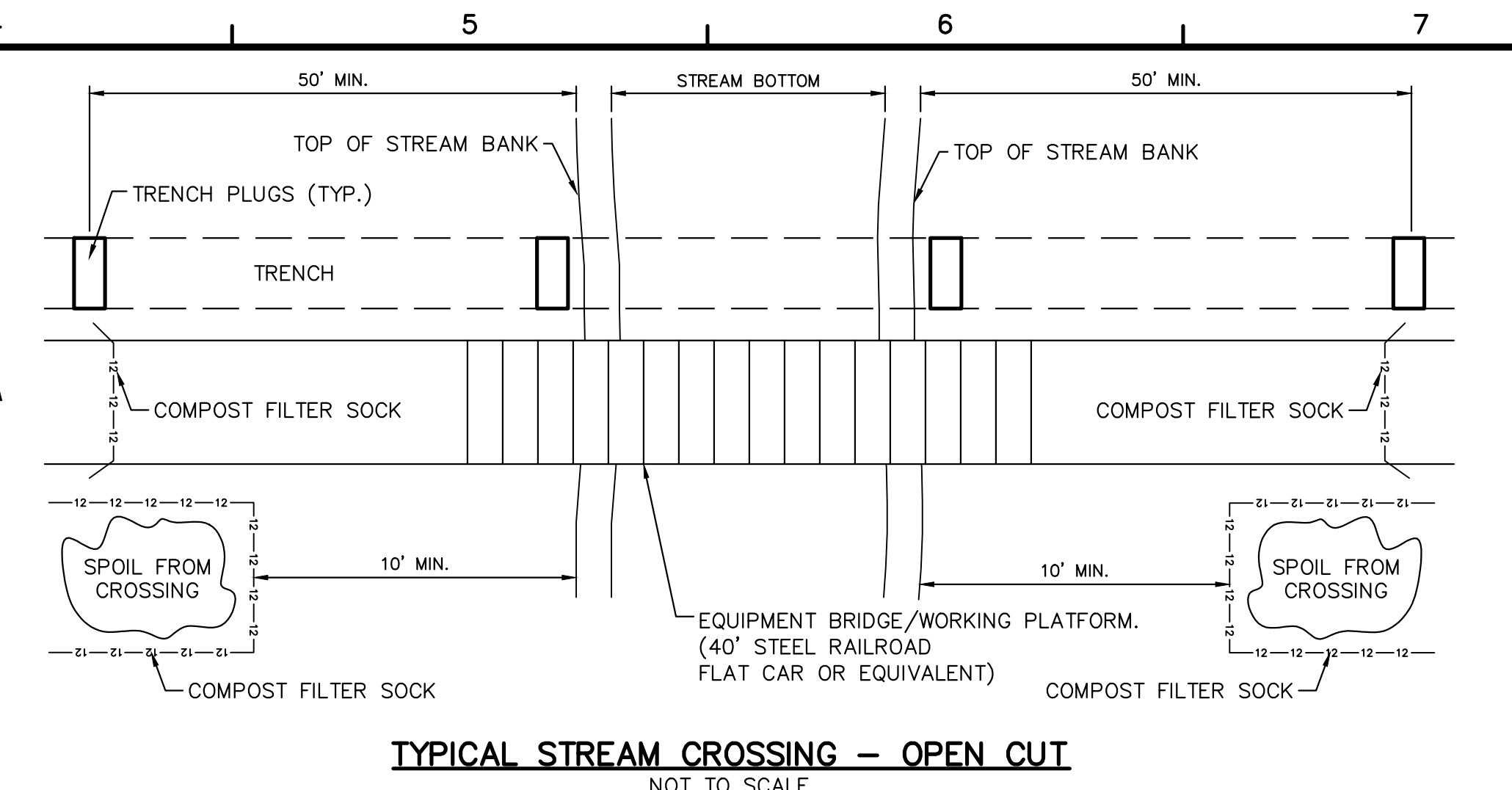
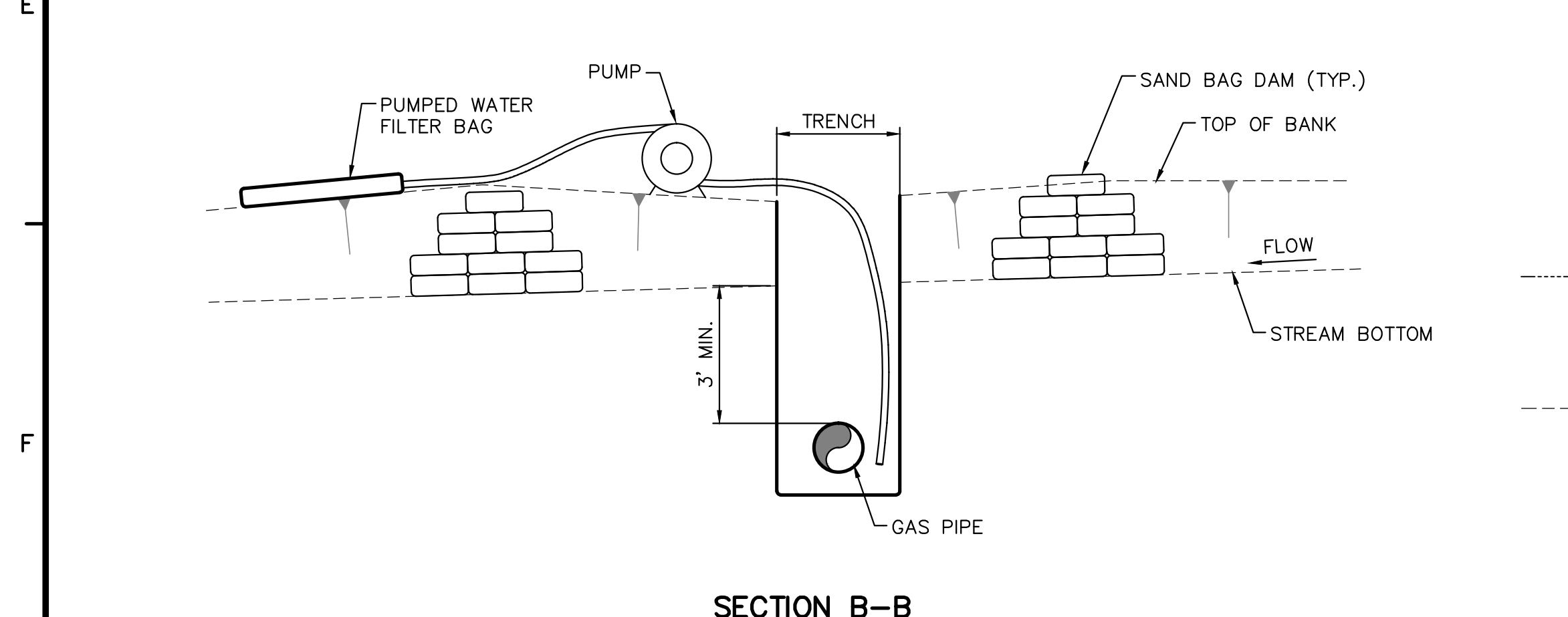
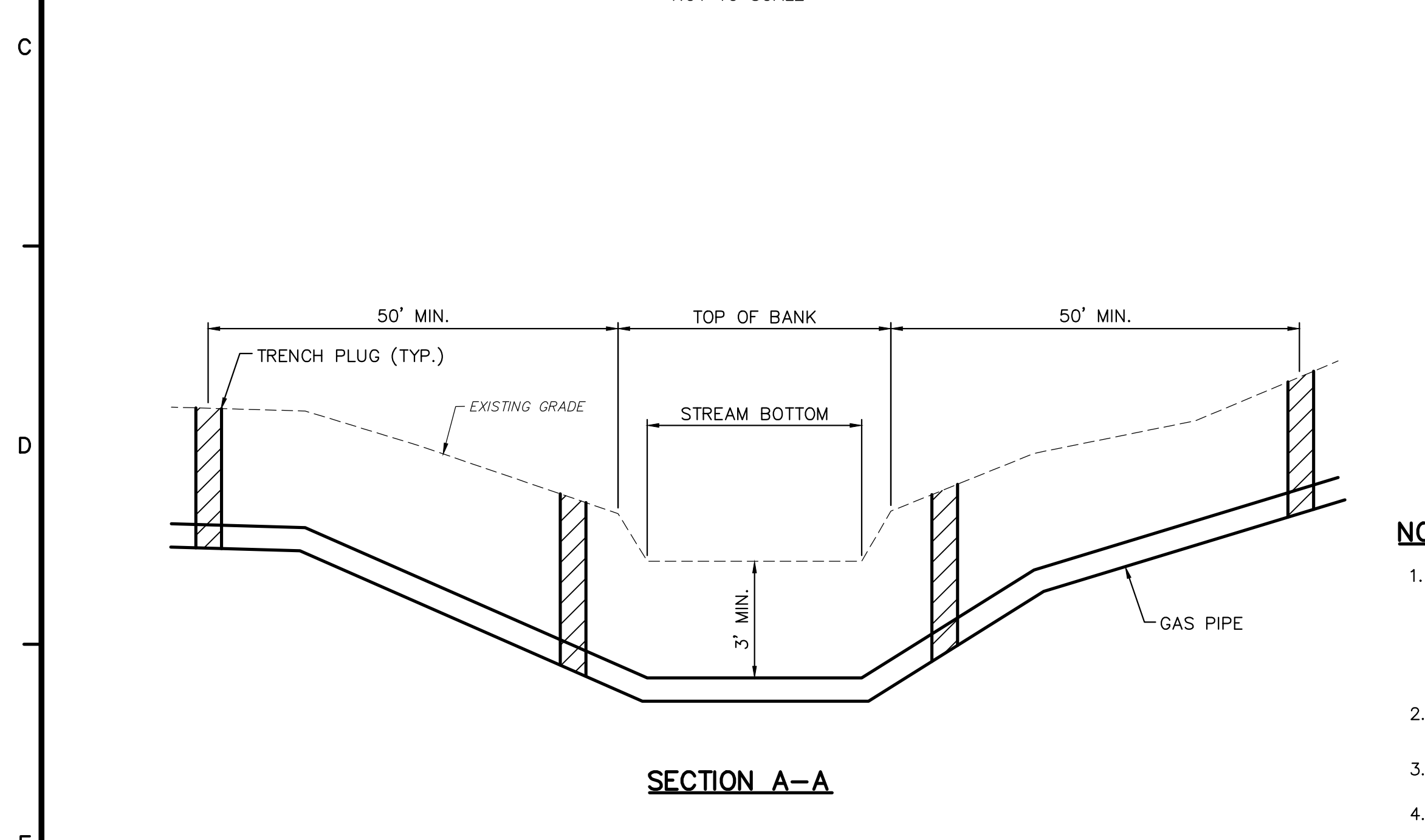
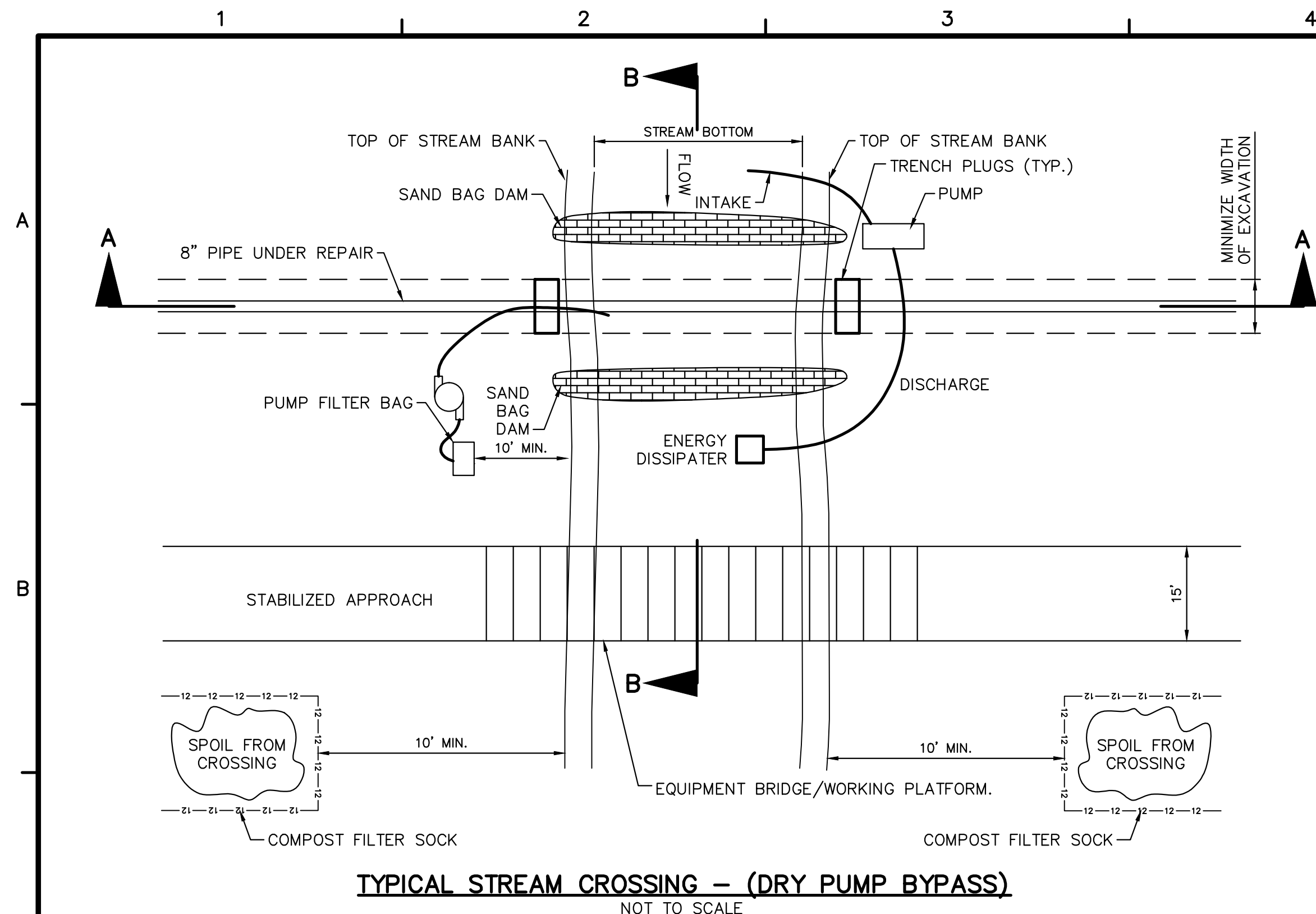
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SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
CHESTER COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION DETAILS
SHEET 3 OF 3

DATE:	3/18/16
PROJECT NO.:	112C05958
DESIGNED BY:	JB
DRAWN BY:	BH
CHECKED BY:	RS
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SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6

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

CHESTER COUNTY CONSERVATION DISTRICT
STREAM CROSSING DETAILS

DATE: 3/18/16
PROJECT NO.: 112C05958
DESIGNED BY: JB
DRAWN BY: BH
CHECKED BY: RS

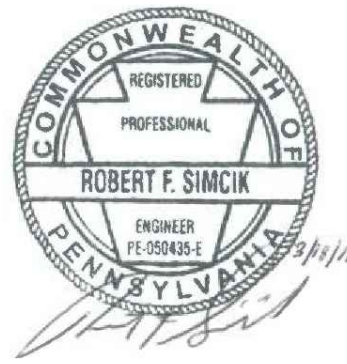
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SHEET 0.11 OF 93



- NOTES:
1. SEE ES-0.01 & ES-0.02 FOR GENERAL NOTES & LEGEND.
 2. SEE ES-0.03 FOR STREAM & WETLAND CROSSING TABLES.
 3. BMP INSTALLATION TO BE ADJUSTED AS NEEDED TO ACCOMMODATE ACTUAL CONTOURS IDENTIFIED IN FIELD DURING VARIOUS PHASES OF THE PROJECT.

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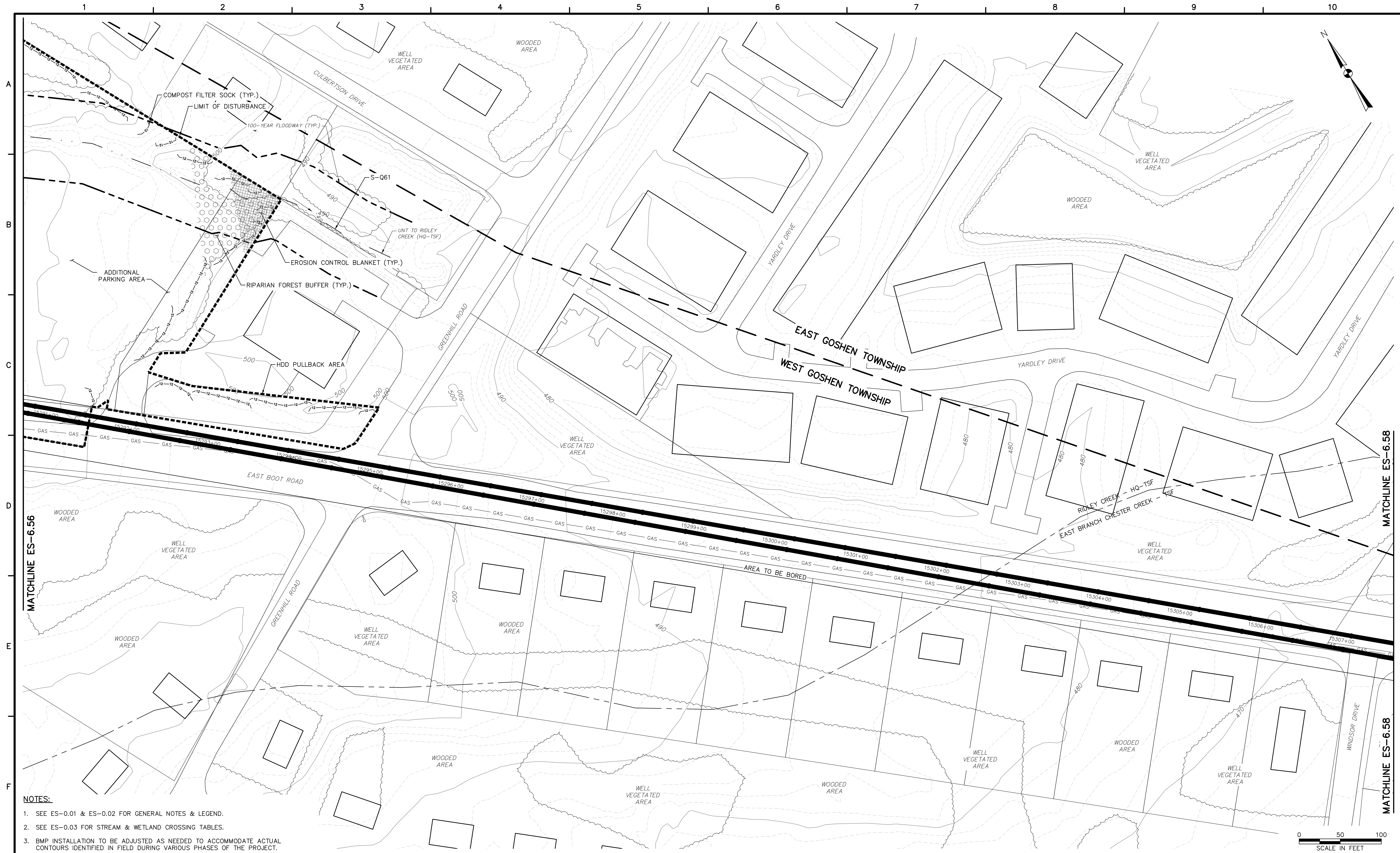
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PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
CHESTER COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
SHEET 56 OF 82

DATE:	3/18/16
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- NOTES:**
1. SEE ES-0.01 & ES-0.02 FOR GENERAL NOTES & LEGEND.
 2. SEE ES-0.03 FOR STREAM & WETLAND CROSSING TABLES.
 3. BMP INSTALLATION TO BE ADJUSTED AS NEEDED TO ACCOMMODATE ACTUAL CONTOURS IDENTIFIED IN FIELD DURING VARIOUS PHASES OF THE PROJECT.

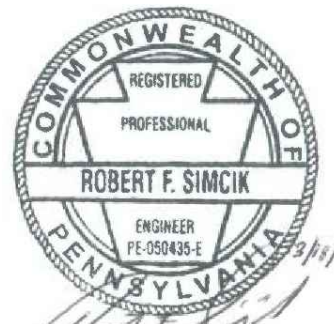


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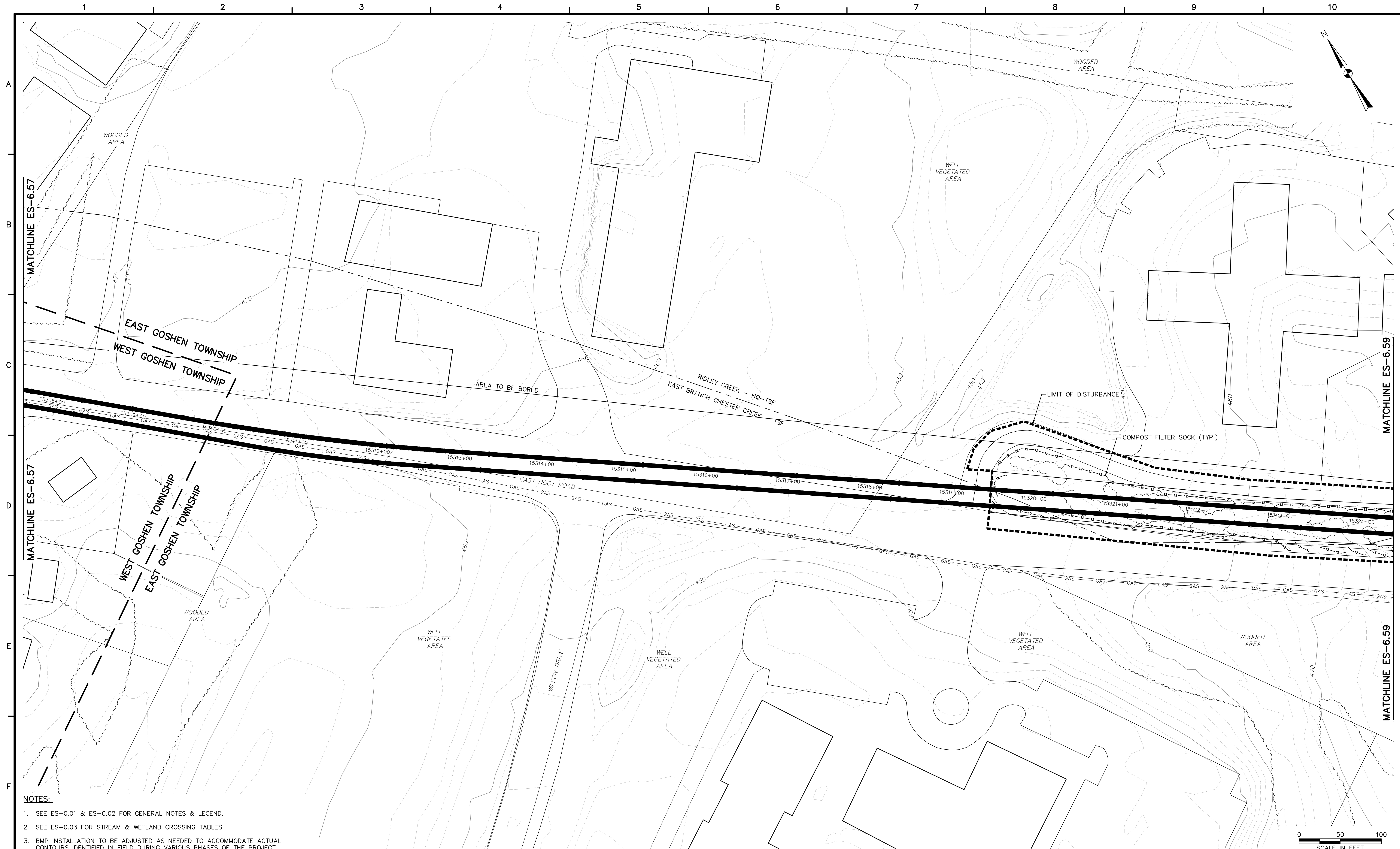
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SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 6**

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
**CHESTER COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
SHEET 57 OF 82**

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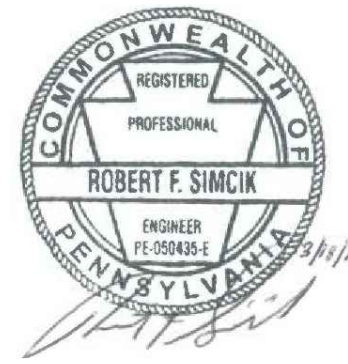
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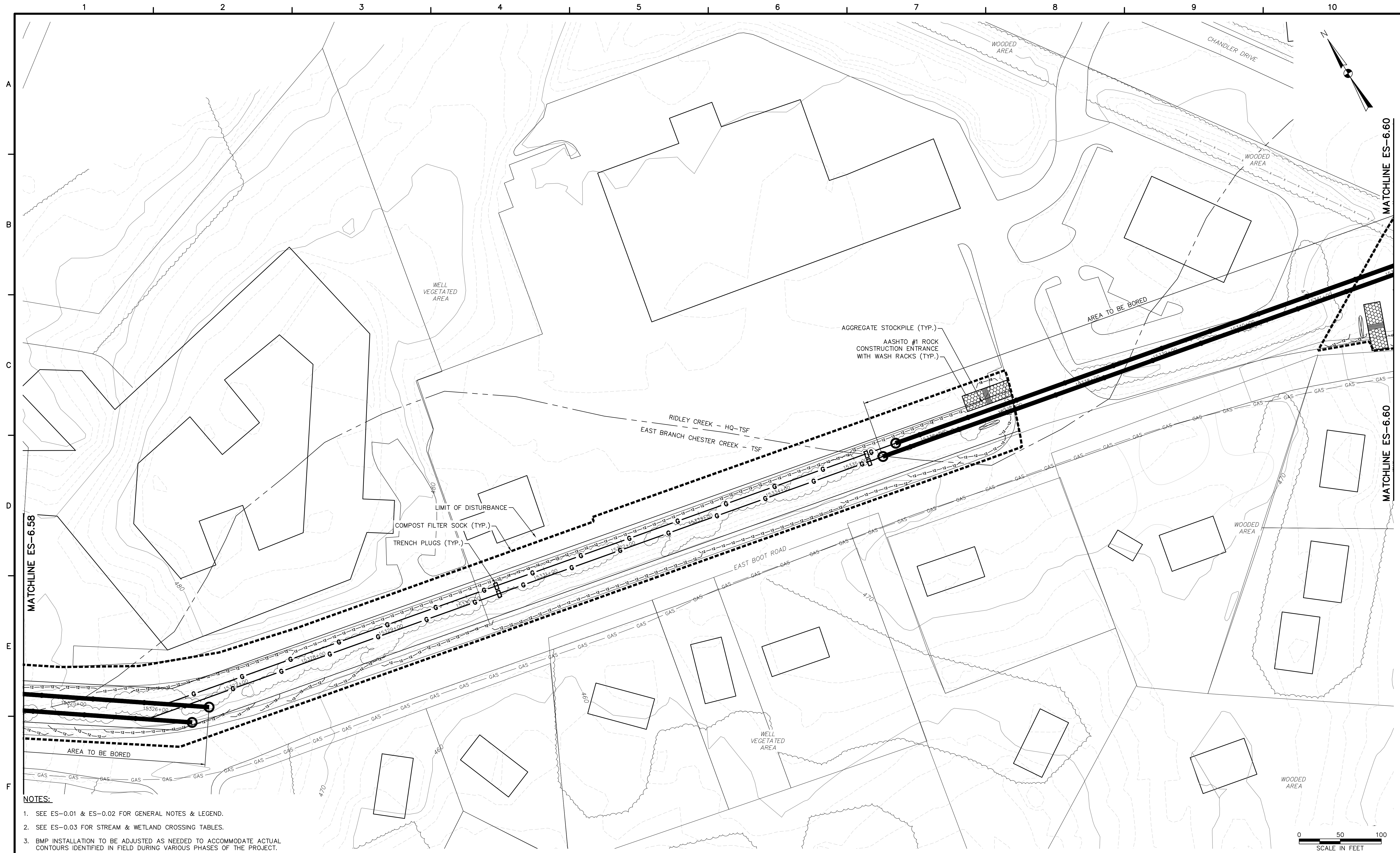
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SITE RESTORATION PLAN
SHEET 58 OF 82**

DATE: 3/18/16
PROJECT NO.: 112C05958
DESIGNED BY: JB
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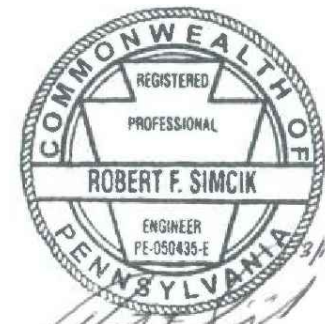


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 2. SEE ES-0.03 FOR STREAM & WETLAND CROSSING TABLES.
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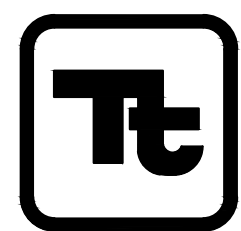
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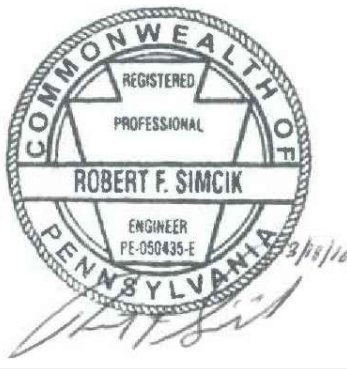


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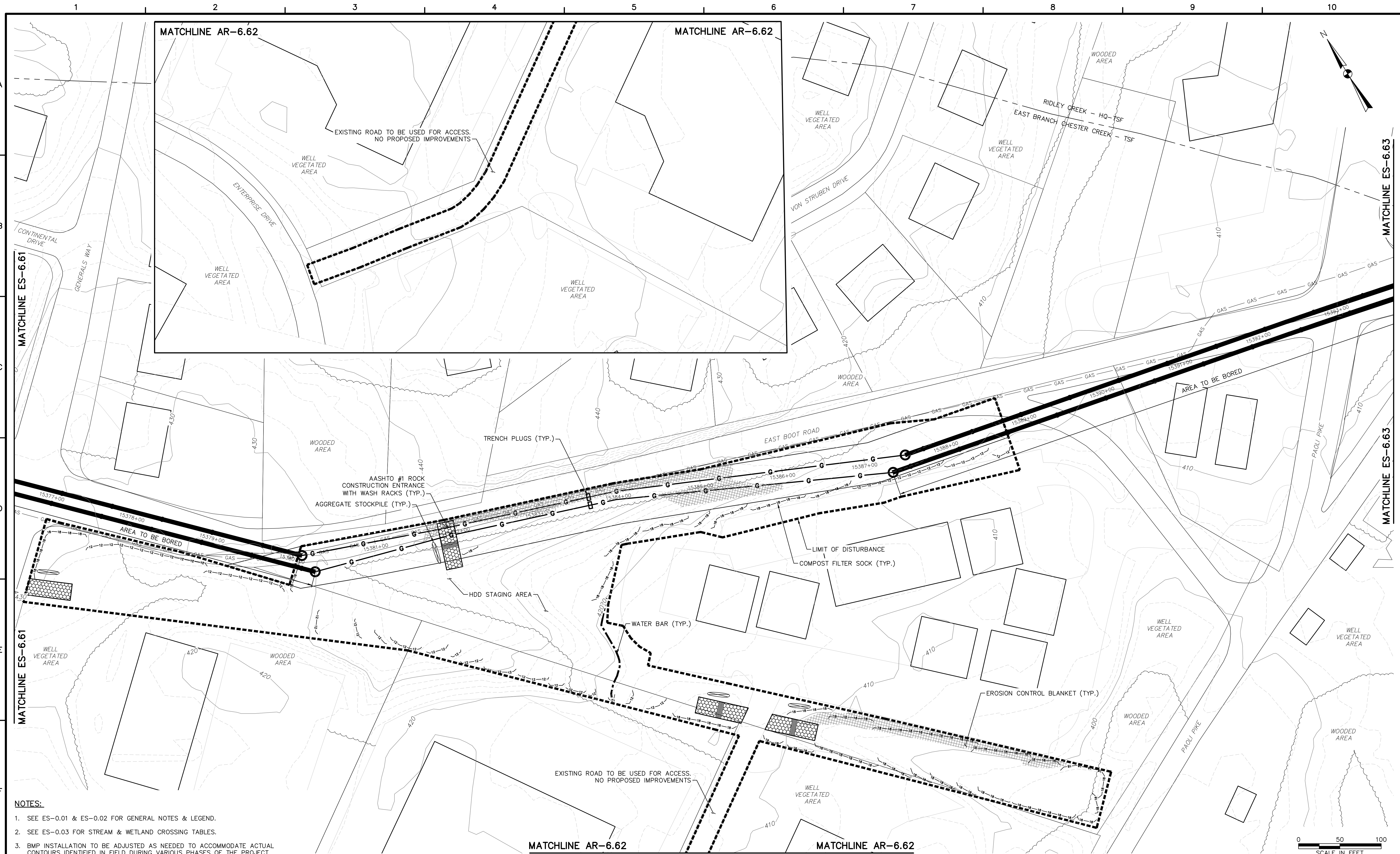
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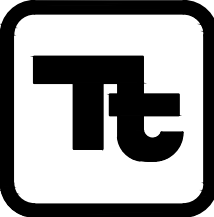
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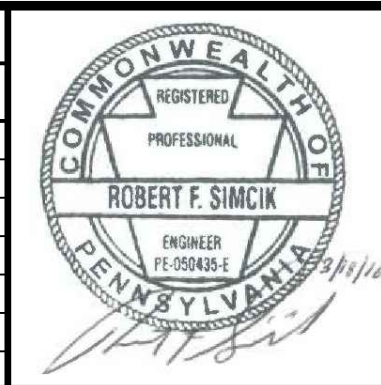
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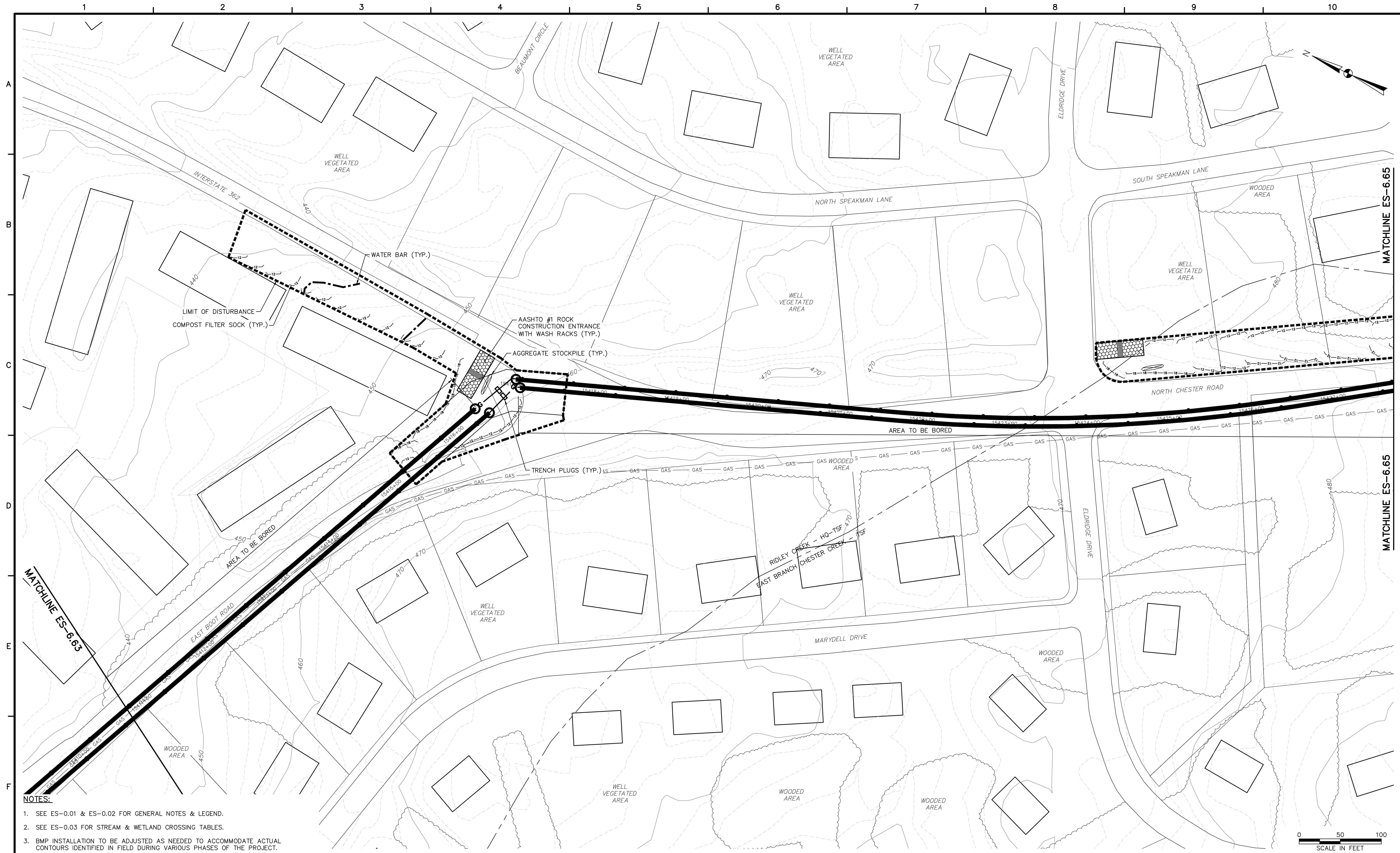
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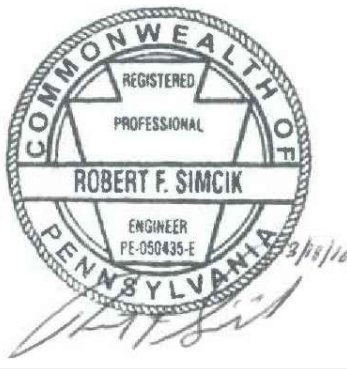
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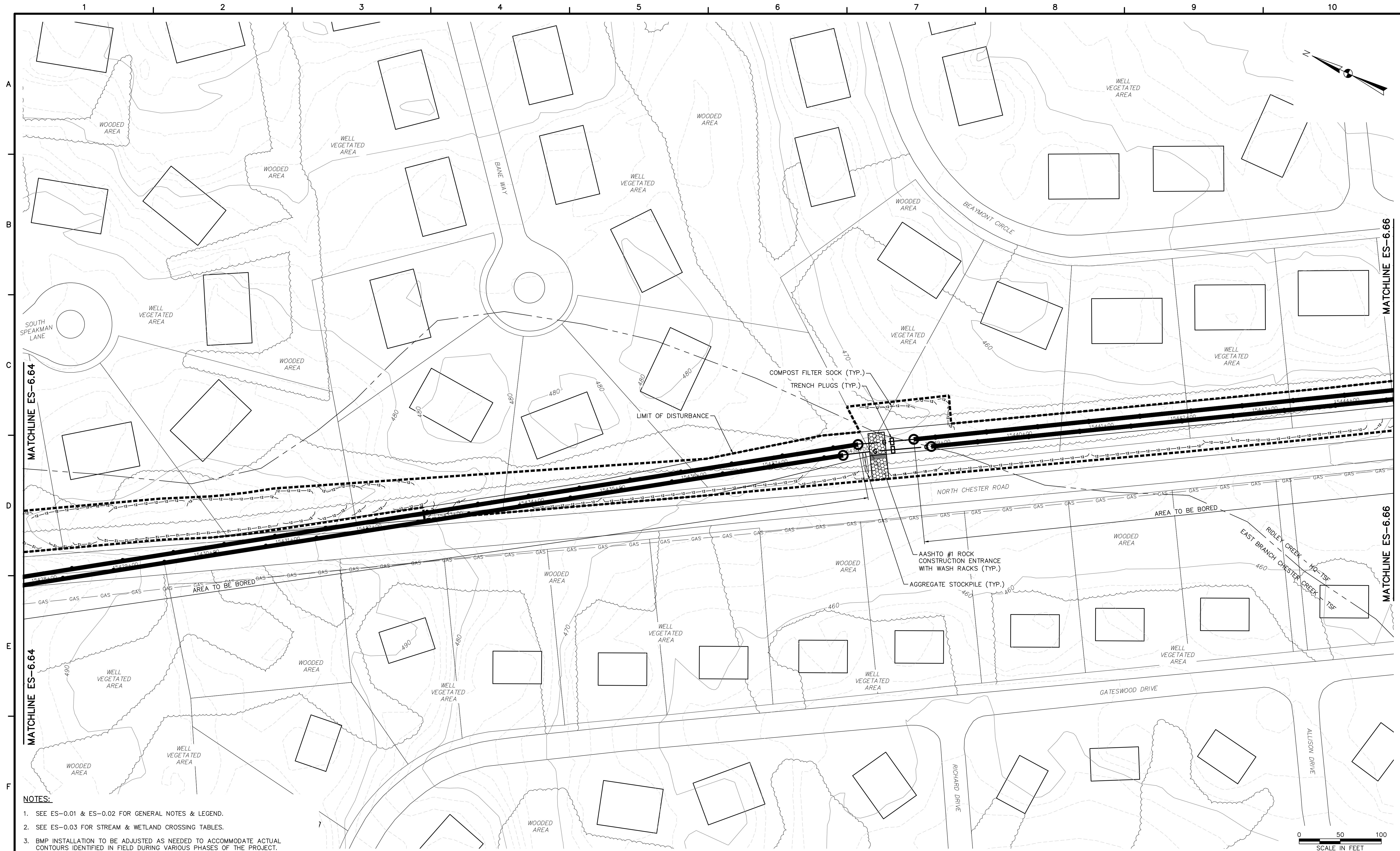
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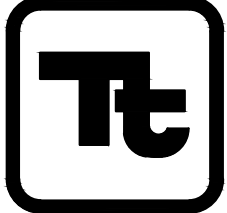
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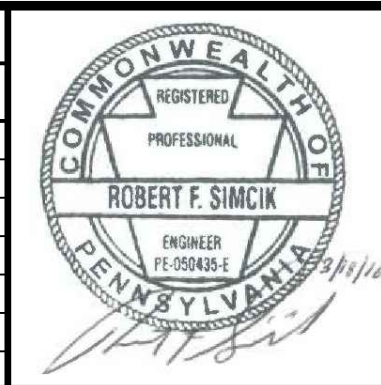
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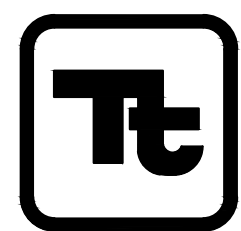
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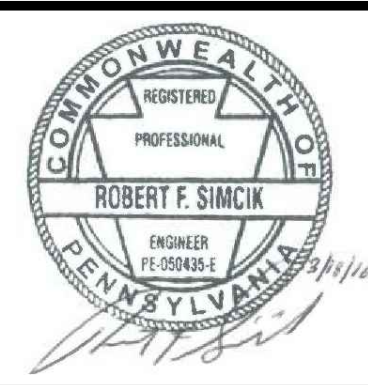
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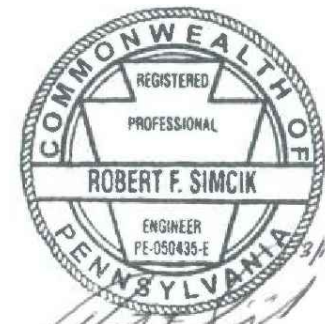


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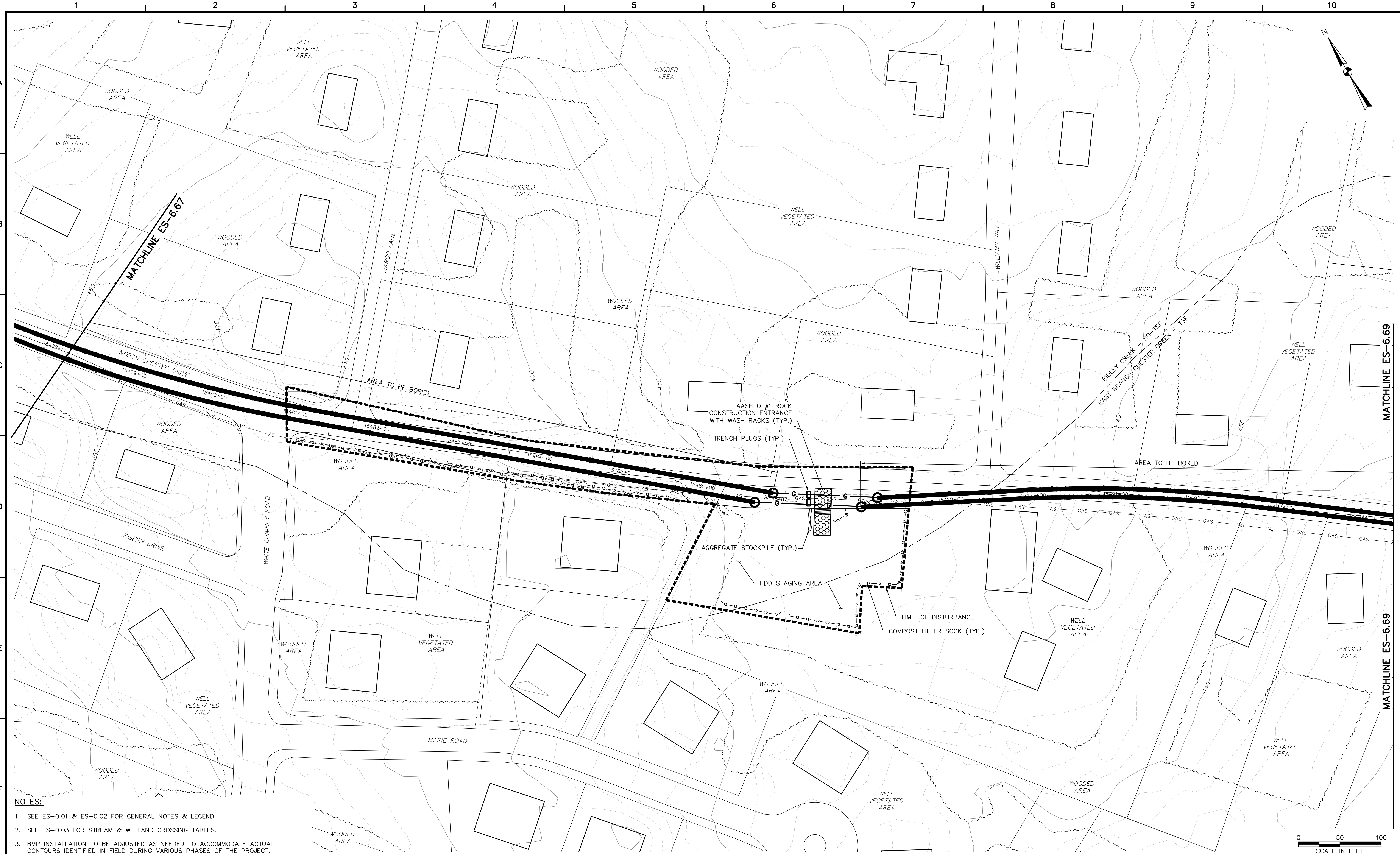
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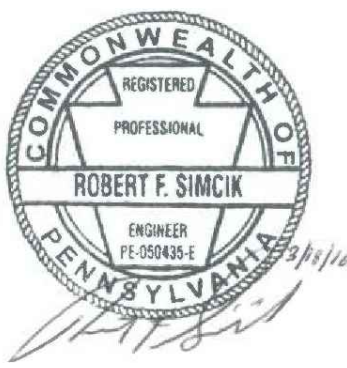


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