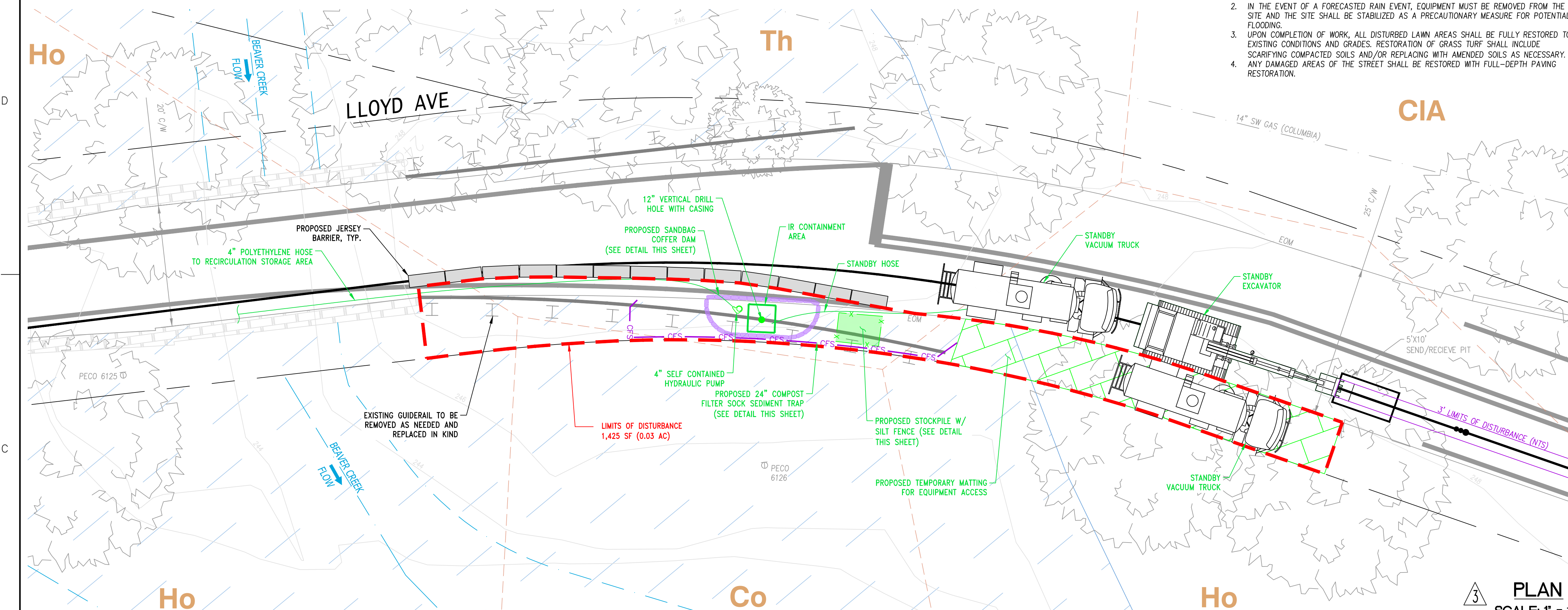


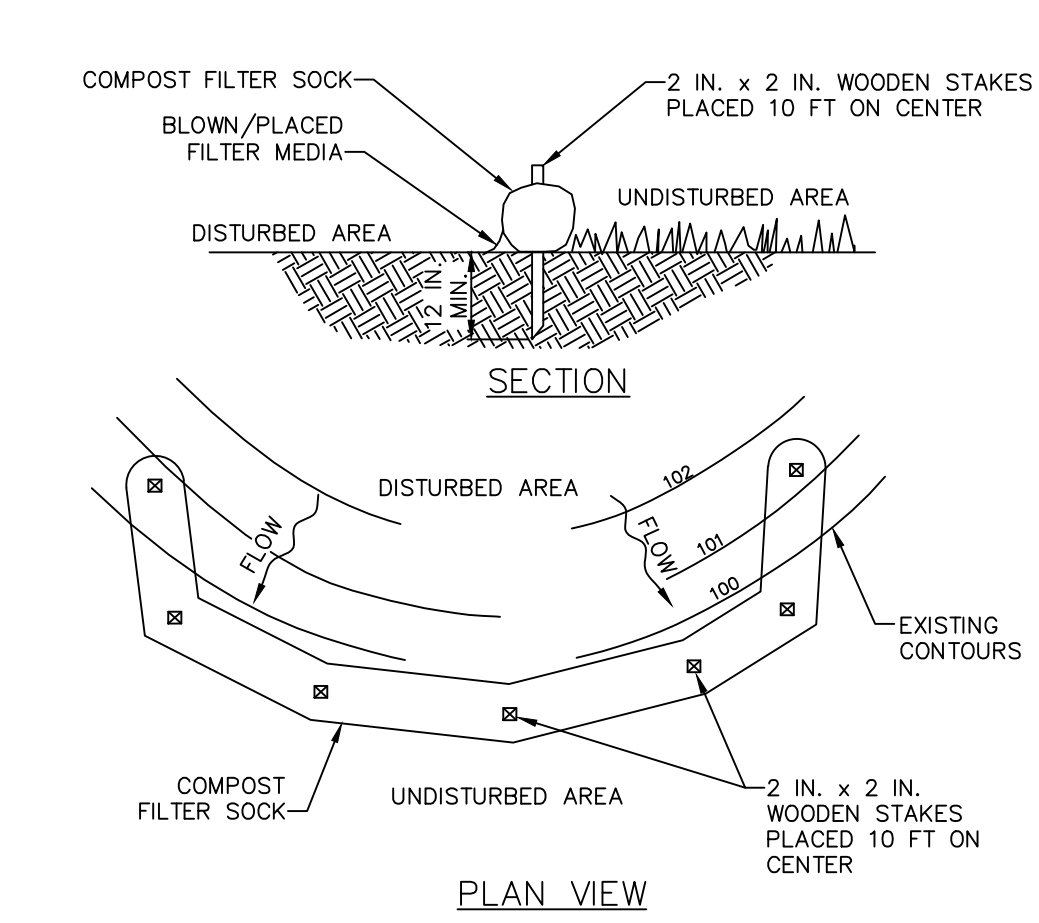
MINOR PERMIT MODIFICATION TO LLOYD AVENUE PHASE II, PADEP PERMIT NO. GP051501223-032



- NOTES:**
- ALL VEHICLES AND EQUIPMENT SHALL BE CLEANED OF SEDIMENT PRIOR TO ENTERING PAVED ROADWAYS. ALL SEDIMENT DEPOSITED ON PAVED 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.
 - IN THE EVENT OF A FORECASTED RAIN EVENT, EQUIPMENT MUST BE REMOVED FROM THE SITE AND THE SITE SHALL BE STABILIZED AS A PRECAUTIONARY MEASURE FOR POTENTIAL FLOODING.
 - UPON COMPLETION OF WORK, ALL DISTURBED LAWN AREAS SHALL BE FULLY RESTORED TO EXISTING CONDITIONS AND GRADES. RESTORATION OF GRASS TURF SHALL INCLUDE SCARIFYING COMPACTED SOILS AND/OR REPLACING WITH AMENDED SOILS AS NECESSARY. ANY DAMAGED AREAS OF THE STREET SHALL BE RESTORED WITH FULL-DEPTH PAVING RESTORATION.

- INADVERTENT RETURN (IR) RECIRCULATION PLAN NOTES:**
- COMMUNICATION/NOTIFICATIONS:**
- PRIOR NOTIFICATION TO THE COUNTY CONSERVATION DISTRICT AND THE PADEP SOUTHEAST REGIONAL OFFICE WILL BE MADE AT LEAST 3 DAYS BEFORE COMMENCEMENT OF THE DIRECTIONAL DRILLING OPERATIONS.
- ENHANCED CONTROLS:** BEFORE RESTARTING THE HDD
- INSTALL ADDITIONAL COMPOST FILTER SOCK AS IDENTIFIED ON THIS PLAN.
 - INSTALL ANY ADDITIONAL CONSTRUCTION MATTING.
- INSPECTIONS:** BEFORE RESTARTING THE HDD
- INSPECT ALL PREVIOUSLY INSTALLED EAS CONTROLS, ADDITIONAL CONSTRUCTION MATTING, AND THE IR CONTAINMENT STRUCTURE FOR INTEGRITY AND CONDUCT ANY MAINTENANCE AS NEEDED.
 - USE ABACT BMPS
 - NO TREES OR SHRUBS SHALL BE CLEARED WITHIN THE LIMITS OF DISTURBANCE.
- SITE PREPARATION:** BEFORE RESTARTING THE HDD
- ALL EQUIPMENT AND MATERIALS, INCLUDING SUPPLEMENTAL EQUIPMENT AND MATERIALS RELATED TO THIS IR RECIRCULATION PLAN AND IN ACCORDANCE WITH THE HDD INADVERTENT RETURN PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN, WILL BE STAGED WITHIN THE LOD AND WILL BE READY FOR IMMEDIATE USE. THIS LIST INCLUDES AT A MINIMUM:
- 24" Compost Filter Sock
 - Ample supply of Straw Bales (Certified Weed Free) and Wooden Stakes
 - Ample supply of Sandbags
 - Reinforced Silt Fence
 - Plastic Sheeting
 - 12" corrugated Pipe cut in half for hydraulic lines
 - Shovels
 - Push Brooms
 - Minimum of 4 pumps (Centrifugal, Trash and Sump Pumps)
 - Minimum of 2 Vacuum Trucks at all times.
 - Excavator on-site
 - Skid Steer staged on HDD Pad
 - Additional Timber and Composite Mats should they be needed.
- OPERATIONS:**
- A 4-INCH SELF-CONTAINED HYDRAULIC PUMP WILL BE USED TO DEWATER THE AREA WITHIN THE IR CONTAINMENT STRUCTURE INTO ONSITE STORAGE TANKS. THE 4-INCH PUMP WILL BE USED TO EMPTY THE IR CONTAINMENT STRUCTURE OF WATER PRIOR TO INITIATION OF HDD OPERATIONS. THE DEWATERED STATUS WILL BE MAINTAINED THROUGHOUT THE OPERATION.
 - ANY WATER OR DRILLING FLUID, OR COMBINATION THEREOF, EMERGING AS A RESULT OF THE HDD OPERATION WILL BE PUMPED TO THE RECIRCULATION STORAGE AREA USING VACUUM TRUCKS AND/OR PUMPS. ONE (1) VACUUM TRUCK WILL BE STAGED ON CONSTRUCTION MATS IN THE UPLAND AREA ADJACENT TO THE CONTAINMENT TO MITIGATE A RELEASE RATE THAT MAY OVERWHELM THE CONTAINMENT. IN ADDITION, A STANDBY VACUUM TRUCK AND THREE STANDBY PUMPS WILL BE ONSITE WITHIN THE HDD STAGING AREA.
 - IF AN IR WERE TO OCCUR OUTSIDE OF THE IR CONTAINMENT STRUCTURE, THE FOLLOWING STEMS WILL BE TAKEN IMMEDIATELY:
 - NOTIFICATIONS WILL BE MADE IN ACCORDANCE WITH THE TRENCHLESS TECHNOLOGY INADVERTENT RETURN PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN FOR LLOYD AVENUE PHASE II, PREPARED BY TOTAL ENGINEERING & CONSULTING SERVICES LLC., DATED APRIL 2024.
 - AN IR WILL BE IMMEDIATELY CONTAINED USING SILT FENCE, COMPOST FILTER SOCKS, AND/OR SANDBAGS
 - AN IR WILL BE IMMEDIATELY RECOVERED USING HAND TOOLS, VACUUM TRUCKS, AND PUMPS
 - UPON COMPLETION OF THE PIPE PULLBACK, ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED CONTAINMENT WILL BE STABILIZED IN ACCORDANCE WITH THE CHAPTER 102 & CHAPTER 105 PERMIT REQUIREMENTS RECEIVED FOR THE PROJECT.
 - HEAVY CONSTRUCTION EQUIPMENT SHALL NOT ENCRUSH WITHIN 10' OF STREAM BANK.

- (DD) - SEQUENCE OF CONSTRUCTION FOR DIRECTIONAL DRILL:**
- EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED.
- THE CHESTER COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE START OF CONSTRUCTION BY THE CONTRACTOR.
 - INSTALL INLET PROTECTION PRIOR TO ANY EARTH DISTURBANCE.
 - STREAM CROSSING ITSELF IS TO BE UNDERTAKEN DURING DRY WEATHER.
 - PREPARATORY EARTHWORK OPERATIONS.
 - DRILLING RIG MOBILIZATION AND SET-UP.
 - PILOT HOLE DRILLING.
 - REAMING OPERATIONS.
 - PIPE PULLING OPERATIONS.
 - PIPE TESTING OPERATIONS.
 - RESTORATION AND DEMOBILIZATION.
 - THE LIMITS OF DISTURBANCE ASSOCIATED WITH THE DRILLING PROCESS WILL BE WITHIN EXISTING RIGHT-OF-WAY, AS SHOWN.
 - EXCAVATE FOR WATER PIPE. IF GROUNDWATER SEEPAGE INTO WATER MAIN TRENCH OCCURS, PUMP WATER INTO SEDIMENT FILTER BAG. (ALL SATURATED SOILS TO BE REMOVED SHALL BE HAULED IN A WATER TIGHT CONTAINER/DUMP TRUCK.)



NOTES:

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 PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING 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.

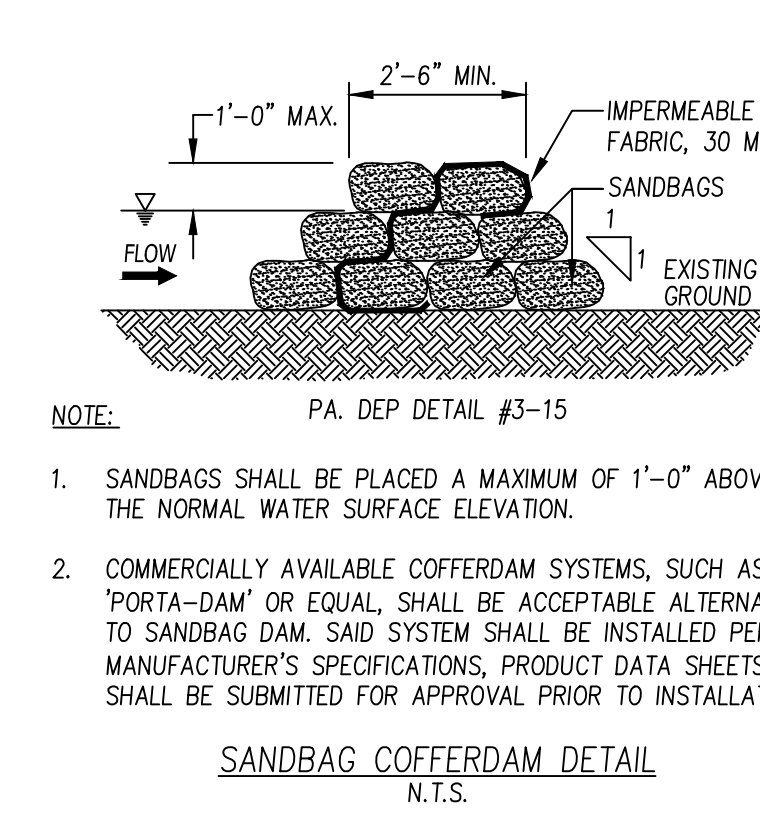
TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

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

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

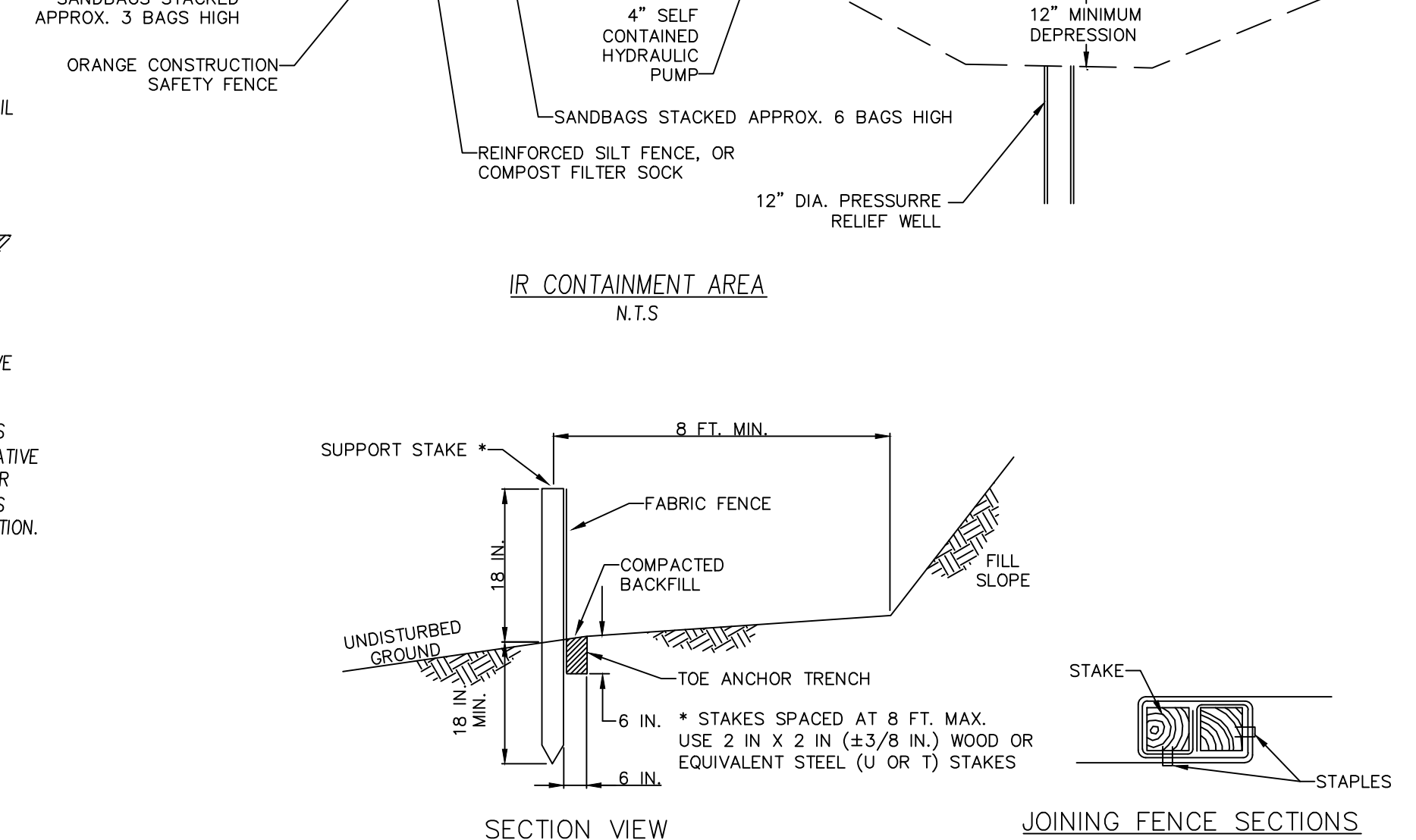
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

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.



NOTE:

- SANDBAGS SHALL BE PLACED A MAXIMUM OF 1'-0" ABOVE THE NORMAL WATER SURFACE ELEVATION.
- COMMERCIALLY AVAILABLE COFFERDAM SYSTEMS, SUCH AS 'PORTA-DAM' OR EQUAL, SHALL BE ACCEPTABLE ALTERNATIVE TO SANDBAG DAM. SAID SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. PRODUCT DATA SHEETS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION.



NOTES:

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 OF THE PA DEP EROSION CONTROL MANUAL.

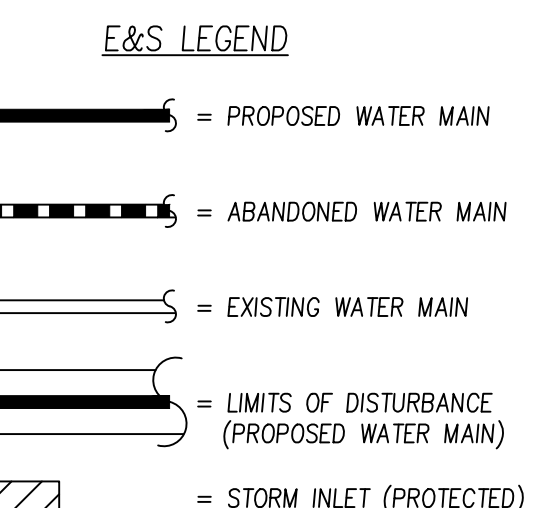
FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.

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

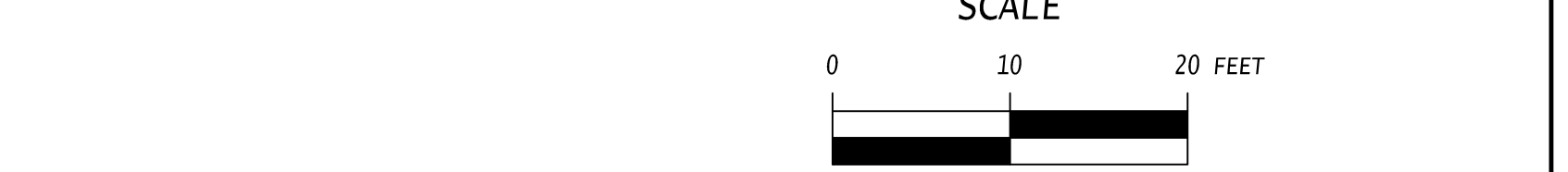
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET (STANDARD CONSTRUCTION DETAIL # 4-6).

FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.



- DRILLING FLUIDS PPC PLAN:**
- THIS LIST IS NOT EXHAUSTIVE. REFER TO THE TRENCHLESS TECHNOLOGY INADVERTENT RETURN PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN FOR LLOYD AVENUE PHASE II, PREPARED BY TOTAL ENGINEERING & CONSULTING SERVICES, LLC., DATED APRIL 2024
- DRILLING FLUIDS:** DRILLING FLUIDS USED IN THE DRILLING OPERATIONS SHALL BE MIXTURES OF BENTONITE AND WATER OR SUCH OTHER FLUIDS OF THE CONTRACTORS CHOOSING.
- DISPOSAL OF SUCH DRILLING FLUIDS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONDUCTED IN COMPLIANCE WITH ALL RELATIVE ENVIRONMENTAL REGULATIONS, RIGHT-OF-WAY AND WORK SPACE AGREEMENTS AND PERMIT REQUIREMENTS.
 - MINIMIZE TO EVERY EXTENT POSSIBLE, THE OCCASIONS OF INADVERTENT RETURNS OF DRILLING FLUIDS AT LOCATIONS OTHER THAN THE PLANNED ENTRY AND EXIT POINTS. COFFER DAM INSTALLATION IS REQUIRED IF INADVERTENT RETURNS OCCUR.
 - PERFORM DISPOSAL OF DRILLING FLUIDS IN COMPLIANCE WITH ALL RELATIVE ENVIRONMENTAL REGULATIONS.
 - IMMEDIATELY SUSPEND DRILLING OPERATIONS ONCE AN INADVERTENT RETURN IS DISCOVERED AND IMPLEMENT CONTROLS PRIOR TO RESUMING DRILLING.
 - PERFORM IMMEDIATE CLEAN-UP OF INADVERTENT DRILLING FLUID RETURNS AT ALL LOCATIONS WHERE THEY OCCUR.
 - A VACUUM TRUCK WILL BE ON-SITE TO GATHER AND REMOVE ALL DRILLING FLUIDS.
 - CAPTURE INADVERTENT RETURNS MAY BE RE-USED IN DRILLING OPERATION AND RE-CAPTURED IF DEEMED SUITABLE BY DRILLING OPERATOR.
 - IF AN INADVERTENT RETURN RESULTS IN POLLUTION TO THE WATERWAY OR WETLAND, CONTACT DEP IMMEDIATELY.
 - IF AN INADVERTENT RETURN OCCURS IN A LOCATION OUTSIDE THE COFFER DAM, ESTABLISH A NEW COFFER DAM AS REQUIRED TO CONTAIN AND/OR CAPTURE INADVERTENT RETURNS.



E & S PLAN

ANTHONY J. CARMASI
REGISTERED PROFESSIONAL ENGINEER
PE088879

AQUA PENNSYLVANIA, INCORPORATED
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010

**INADVERTENT RETURN RECIRCULATION PLAN:
LLOYD AVENUE PHASE II**

CALN TOWNSHIP, CHESTER COUNTY

NO	DATE	REVISION	INTL
3	05/13/2024	REVISED PER AQUA COMMENTS	AJC
2	05/07/2024	REVISED PER TOWNSHIP COMMENTS	AJC
1	04/26/2024	REVISED PER TOWNSHIP COMMENTS	AJC
0	04/22/2024	ISSUED FOR CONSTRUCTION	AJC
0	04/22/2024	DESIGN COMPLETION	AJC

DRAWN BY: GR CHK'D BY: JMM/AC EXT No: 20132-G
DATE: 5/13/2024 SCALE: N.T.S. PLATE: PP25
PROJECT No: 218.23 ACTIVITY No: 300001414
APPROVED: [Signature] **A - 67658** PPC 1

CM# 35314 WO# 300001414