

SECCRA Community Landfill

Earthwork CELL 8a

SECCRA Community Landfill

219 Street Rd

West Grove, PA 19390

ADDENDUM No. 1

April 4, 2022

- A. Addendum No. 1** is issued as part of the Contract Document, to inform and/or specify changes, which take precedence over information contained in the original Contract Documents. Unless otherwise specifically noted or specified hereinafter, or shown on drawings or schedules accompanying this Addendum, all work required by this Addendum shall conform to the applicable provisions of the Contract Documents. **It shall be the responsibility of the Respondent to include in their proposal any cost implications of this Addendum. All Respondents are to indicate on the form of proposal submitted by them, acknowledgement of receipt and compliance with the contents of this Addendum No. 1.**
- B.** Any provision in any of the Contract Documents, which may be in conflict or be inconsistent with the contents of this Addendum, shall be void to the extent of such conflict or inconsistency.
- C.** The following clarifications/answers are provided in response to questions provided by potential bidders:
- C.1.** The Owner will provide for survey needs, with 3 business day notice.
 - C.2.** The Contractor is to understand that there will be traffic active in the work area and said traffic will always have the right of way over the Contractor. This may slow production while working in these areas.
 - C.3.** There will be no extra payment for lack of coordination or weather.
 - C.4.** Included in this Addendum is a list of contractors that attended the Supply and Install Geosynthetics Cell 8a mandatory prebid meeting.
 - C.5.** Included in this Addendum is a list of contractors that attended the Earthwork Cell 8a mandatory prebid meeting.
 - C.6.** Due to the Owner needing to access the new cell for operational issues, the Liquidated Damages have been raised to \$2,500 per calendar day after 180 calendar days.
- D.** Remove and replace the following:
- D.1.** Remove Section 5.2 (3 pages) dated 3/5/22, replace with Section 5.2 (3 pages) dated 3/31/22
 - D.2.** Remove Section Division 01000 (7 pages) dated 3/5/22, replace with Division 01000 (7 pages) dated 3/31/22
 - D.3.** Remove Section 06000 (5 pages) dated 3/5/22, replace with Section 06000 (5 pages) dated 3/29/22
 - D.4.** Remove Section 06100 (7 pages) dated 3/5/22, replace with Section 06100 (7 pages) dated 3/31/22

- D.5.** Remove Section 9.2 (8 pages) dated 3/5/22, replace with Section 9.2 (8 pages) dated 3/31/22
- D.6.** Remove Section 9.9 (4 pages) dated 3/5/22, replace with Section 9.9 (4 pages) dated 3/31/22
- D.7.** Remove Drawing Roman-171E001A dated 7/27/21, replace with Drawing Roman-171E001A dated 4/4/22
- D.8.** Remove Drawing Roman-171E001F dated 2/07/21, replace with Drawing Roman-171E001A dated 4/4/22 (ENTIRE SET ATTACHED FOR EASE OF KEEPING SET TOGETHER)

END ADDENDUM NO. 1

SIGN-IN SHEET * PLEASE WRITE CLEARLY

Project: Supply and Install Geosynthetics Cell 8a

Meeting Date: 3/16/2022

Facilitator: Alan Roman, Roman Consulting, Inc.

(610) 587-9240 romanconsultinginc@gmail.com

Name	Title	Company	Phone	Fax	E-Mail
CURT SNYDER	QA	ROMAN CONSULTING	610-587-2624		forromancon@aol.com
Tim Caffee	ALCO	ALCO	609 468 4084		TIME@ALCOINCUSA.COM
CHRIS WAGNER	ALCO	ALCO	215 370 1511		chrisw@alcoinc.usa.com
THAVONE DARANIKONE	Supervisor	GCS	262-490-1916		+ daranikone@globalcontainment.com thavone@globalcontainment.com
Nick Batechko	CCI	Cherango Contracting	(607) 741-2210		nbatechko@cherangocontracting.com
Steve Burn	Site Manager	SECCRA			Steve@seccra.org

SIGN-IN SHEET * PLEASE WRITE CLEARLY

Project: Earthwork Cell 8a

Meeting Date: 3/28/22

Facilitator: Alan Roman, Roman Consulting, Inc.

(610) 587-9240 romanconsultinginc@gmail.com

Name	Title	Company	Phone	Fax	E-Mail
Steve Burn	Site Manager	SECCA			
Brad Jerzi	PM	Berg	484-269-7294		brad@bergconst.com
Lisa Whitehead	Est.	Berg			Lwhiteh@bergconst.com
Steve Heise	Estimator	Allan Myers	410-879-3655		Steve.Heise@allanmyers.com
Brant Callahan	PM	Heredon Group	717-649-8565		bcallagher@heredongroup.com
Vince Mica	Estimator	Ruby	717 815 6925		Vvince@rubyconst.com
Justin Ranieri	Sr. Estimator	Kinsley Construction	717-815-6920		Jranieri@kinsleyconstruction.com
Booth Halloran	COO	American Exploration @MPC company	215-280-6227		bhalloran@americanexploration.net
Curt Sumpster	COA	RCI	610-587-2621		forroman@rci.com

SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY

5.2 GENERAL REQUIREMENTS

No verbal instructions or information to bidders will be binding. The specifications will be considered clear and complete unless written attention is called to any apparent discrepancies or incompleteness thereof before the opening of bids. Should any such written notices be received by SECCRA, these notices will be answered in the form of addenda and issued to all bidders. These addenda shall then be a part of these specifications. All questions regarding the bid should be directed to bids@seccra.org.

Submitted and signed bids will be deemed as conclusive evidence of complete examination of specifications. The making of a bid is an acceptance of the terms and conditions contained in the specifications and the attachments thereto.

Bid Forms are provided in these specifications. These forms must be used in submitting the bid. All pages of the form must be completely filled out and the whole signed by the bidder.

Each bid must be enclosed in a sealed envelope, clearly marked on the outside "SEALED BID: [EARTHWORK Cell 8a.](#)" No Bid may be withdrawn for a period of 60 days after the Bid opening.

As these "Bid Notice", "Instructions to Bidders", "General Conditions", "Technical Specifications", "Check List", and "Bid Form" all refer to each other and together constitute a whole, they must all be returned bound together as when delivered to the Bidder. NO BIDS WILL BE ACCEPTED UNLESS SUBMITTED ON THESE FORMS FURNISHED HEREIN. All bids must be sealed, marked, and delivered in accordance with instructions of these specifications.

Any bidder or bidders finding any discrepancy in or omission from the specifications, or left in doubt as to their meaning, shall notify SECCRA for clarification. Such notification will not obligate SECCRA to change the specifications. SECCRA will notify all bidders, in writing, by addendum, duly issued, of any interpretations made of these specifications or instructions.

Bidders must comply with all the conditions, provisions, and specifications herein and which are hereby made part of the contract.

PAYMENT

Payment will be made within thirty (30) days of receipt of invoice in duplicate and inspection and acceptance by SECCRA.

OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as provided below. Progress payments will be based on the percent of supplied onsite components. A retainage of each payment will be held by OWNER, as described in the Agreement.

SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY

Within five (5) days after the Effective Date of the Agreement, the Contractor shall submit to the Owner: an estimated progress schedule indicating the starting and completion dates of the various stages of work; a preliminary schedule of such Shop Drawings submissions as may be required; and a preliminary schedule of values for all of the Work in sufficient detail to serve as the basis of progress payments during construction.

All progress payments shall be on the basis of the progress of the Work measured by the schedule of values. At least ten days before submission of the first Application for Payment, a conference to be attended by Contractor, Owner and such others as the Owner shall specify, will be held to finalize the preliminary schedule of values submitted by the Contractor. The finalized schedule of values shall be acceptable to Owner as to form and substance. Final payment will be made after inspection and approval of the litter fence by OWNER and ENGINEER.

OPENING OF BIDS

At the time and place fixed for the opening of bids, the Authority will cause to be opened publicly and read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present in person or by representative.

EVALUATION OF BIDS

The Bid evaluation will be on Total Cost and the Contractor experience completing similar projects. The Contractor shall provide evidence of similar work for SECCRA's review.

SAFETY

Contractor is required to provide all O.S.H.A. safety related-devices for the safety of all contractor and non-contractor related personnel. These include signs, barricades, ventilation, etc., as necessary.

RESTROOM

A portable restroom is available beside the access road to the landfill. Contractor must provide additional portable restroom(s) at the job site if applicable.

PERSONNEL

A foreman or supervisor must be on site when contractor or subcontractor personnel are

performing work. SECCRA's reserves the right to request replacement of any of the Contractors employees, in SECCRA's sole opinion, for the betterment of the Project. Replacement shall take place within 24hours of request.

WORK HOURS

The Contactor is allowed to work Monday to Saturday 7:00 am to 5:00 pm, other hours may be approved by the owner, with 24 hour notice.

DIVISION 01000**GENERAL REQUIREMENTS****1.1 CONSTRUCTION DOCUMENTS**

The construction documents include all applicable drawings and specifications within these Contract Documents. The intent of these documents is to have the CONTRACTOR include in his price all items to completely finish the work. Any aspects of the Work which are not clearly defined by these specifications shall be governed by the rules of the best prevailing practice in the area of the Work for that class of Work as determined by the ENGINEER.

1.2 PROJECT AREA

1.2.1 The limits of disturbance for the Earthwork and Erosion & Sediment Control associated with preparation of the Phase 8A expansion are indicated on the Drawings. All surveys related to this project shall be performed by a professional land surveyor licensed in the Commonwealth of Pennsylvania at the expense of the OWNER. Any discrepancies between the staked locations and the locations or alignments indicated on the drawings are to be brought to the attention of the OWNER AND/OR CONSTRUCTION MANAGER prior to proceeding with construction. Any survey needs from the OWNER, require 3 work days notice.

1.2.2 The features shown on the contract drawings may be offset from the designated location by the CONTRACTOR to avoid surface or subsurface obstructions or impractical working conditions, provided, however, that approval is first obtained from the OWNER AND/OR CONSTRUCTION MANAGER.

1.3 REFERENCES

Bid Form

1.4 MEASUREMENT AND PAYMENT**A. GENERAL CONDITIONS****1. Pay Item 1100 - Bonds:**

This item is priced at a lump sum and is to cover the CONTRACTOR'S expense of completely bonding the Work as described within the Contract Documents.

2. Pay Item 1200 – Mobilization/Demobilization:

Priced at a lump sum and is to cover the cost to mobilize and demobilize to/from the site all equipment(s), construction crew(s) and general site needs (i.e., portable toilets) to completely accomplish the Work as described within the Contract Documents.

3. Pay Item 1300 – Coordination:

Priced as a lump sum and is to cover the cost to coordinate with Liner Contractor or other weather related issues. Coordination may include establishing responsibilities for the removal of stormwater accumulated in work areas. There will be no additional payment, nor will a time extension be allowed for work delayed by

lack of coordination. *The Contractor is to include all costs for providing roadway acceptable to the Owner, access through the cell for the Owner, customers, public or other contractors.*

B. EARTHWORK

4. Pay Item 2100 –Excavation:

Excavation (cut) is priced per cubic yard of soil removed to achieve proposed grades as detailed in the Contract Documents. The price includes excavation, loading and hauling of all excavated material from other onsite areas. Quantity measurements for this item shall exclude excavation and hauling of material from a designated stockpile area, excavation associated with the sediment trap removal, and excavation associated with the channel construction. Clearing will be performed by SECCRA. Grubbing shall be incidental to Pay Item 2100. Removal and stockpiling of material from existing haul roads is incidental to excavation. The stockpiling of material in the designated areas at the Landfill, as directed by the CONSTRUCTION MANGER. This Item, will not be used if excavation is covered in Item 2120.

5. Pay Item 2110 – Remove Sediment Trap:

Sediment Trap removal is priced on a lump sum basis. The price includes removal of sediment trap features including baffles, outlet structures, inlet pipes and roadway pipes shown to be removed on Roman171E001A sheet 1 of 6, riprap, etc. Saturated soils shall be removed and stockpiled at locations specified by OWNER. Saturated soil material may be used by the Landfill as daily cover, if approved by OWNER.

6. Pay Item 2120 – Fill Material:

Fill Material is priced per cubic yard of soil placed as to achieve proposed grades as detailed in the Contract Documents. The price includes excavation, loading, hauling, conditioning, and placing the material. Any cost, which may be incurred to condition the soil, will be the responsibility of the CONTRACTOR. Fill material from to be supplied by SECCRA, from a stockpile. Item 2100 shall not be used, if excavation is under this Item. Rework of initial (existing) lift shall be considered incidental to this item. ALL material shall be removed from Cell 8a before using other stockpiled material.

The specific requirements for borrow material to be used for fill are outlined in Division 06000, PART 2- MATERIALS.

7. Pay Item 2130 – Subbase (Supply and Install):

Subbase is priced per square yard of subbase placed over the areas shown on the contract drawings. The price includes excavation, loading, hauling, conditioning and placing the subbase. Any cost, which may be incurred to condition or amend the subbase, will be the responsibility of the CONTRACTOR. The CONTRACTOR shall haul all materials to and from the working area unless otherwise specified.

Subbase shall be sourced off site by CONTRACTOR. Subbase must be approved by the CONSTRUCTION MANAGER. Subbase material shall meet the specific requirements outlined in Division 06000, PART 2- MATERIALS.

8. Pay Item 2140 – Expose Existing Liner System:

The Contract Unit Price per linear foot for this item shall be payment in full for all materials, labor, equipment, and incidentals required to expose and clean (broom clean) the existing liner system in Phase 7 for tie-in of the new geosynthetics. Contractor will expose a minimum continuous width as shown in the construction drawings.

9. Pay Item 2150 – Liner System Anchor Trench Excavation and Backfill:

The Contract Unit Price per linear foot for this item shall be payment in full for all materials, labor, equipment, and incidentals required to excavate, maintain, and backfill the liner system anchor trench along the top of the perimeter berm. Anchor trench will be constructed to the dimensions depicted in the construction drawings. Contractor will be responsible for maintenance and dewatering of the trench until a time that the trench can be backfilled. Backfill shall meet the minimum requirements outlined in the Technical Specifications.

10. Pay Item 2160 – SCREEN Protective Cover Soil:

Protective Cover Soil is priced per square yard of protective cover soil placed over the areas shown on the contract drawings. The price includes excavation, loading, screening, and stockpiling protective cover soil. Protective cover soil material will be supplied by SECCRA from a stockpile.

Protective cover soil material shall meet the specific requirements outlined in Division 06000, PART 2- MATERIALS.

11. Pay Item 2161 – Protective Cover Soil Placement:

Protective Cover Soil is priced per square yard of protective cover soil placed over the areas shown on the contract drawings. The price included loading, hauling, conditioning, and placing the protective cover soil. Any cost, which may be incurred to condition or amend the protective cover soil, will be the responsibility of the CONTRACTOR. The CONTRACTOR shall haul all materials to and from the stockpile area unless otherwise specified.

12. Pay Item 2170 – Leachate Collection Layer AASHTO #57:

The installation of AASHTO #57 stone for the Leachate Collection Layer shall be priced per square yards installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance. Additional aggregate placement required for the installation of the leachate collection pipes will be incidental to this pay item. AASHTO #57 aggregate material will be supplied by SECCRA. At a rate of 1,000 ton per day (24 hours). Contractor may choose to stockpile stone at it's expense.

The leachate collection layer shall meet the specific requirements outlined in Division 06000, PART 2- MATERIALS.

13. Pay Item 2180 – Stormwater Diversion Berms:

The installation of the Stormwater Diversion Berms using AASHTO #57 material shall be priced per linear foot of berm installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance. Additional aggregate placement required for the installation of the leachate collection pipes will be incidental to this pay item. AASHTO #57 aggregate material will be supplied by SECCRA. At a rate of 1,000 ton per day (24 hours). Contractor may choose to stockpile stone at it's expense.

14. Pay Item 2200 – Intercell Berm Removal:

Priced at a lump sum and is to cover the cost to remove a portion of the existing intercell berm separating Phases 7 and 8A. Item includes removal, hauling, and disposal of liner material in accordance with the CQA Plan and construction drawings. Item also includes excavation, hauling, and stockpiling of protective cover soil material in accordance with the CQA Plan and construction drawings.

15. Pay Item 2210 – Landfill Perimeter Berm Amendment:

The installation of the 2' high perimeter berm amendment shall be priced per linear foot of berm installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance. CONTRACTOR shall excavate the existing soils, clean off the existing liner system, and form a 2' high berm to allow the liner installer to install a liner flap as shown in the Contract Drawings. Once the liner flap is installed, the CONTRACTOR will replace the soil without damaging the underlying liner.

16. Pay Item 2300 – HDPE Leachate Collection Pipe (6" Diameter):

The installation of 6" diameter HDPE pipe is priced per linear foot installed and is inclusive of all labor, equipment and materials to perform the work & inclusive of continual maintenance throughout the duration of the contract. Incidental work under this pay item includes welding, excavation, stone bedding, backfill, and all other work and materials necessary to complete the installation of the pipe crossing as detailed on the Contract Drawings. Any necessary repair or replacement of the 6" HDPE leachate collection pipe shall be at the CONTRACTOR's expense. All piping and fittings will be supplied by SECCRA with 3 days notice. Stockpile location will be someplace on the Landfill site.

17. Pay Item 2400 – 12" Thick Layer Modified 2A Stone for Access Roads:

The installation of a 12" thick layer of modified 2A stone for perimeter berm and cell access roads shall be priced per square yards installed and is inclusive of all labor, equipment and materials to perform the work & inclusive of continual maintenance. Material covered under this pay item shall include geotextile fabric (Class 4, Type C). SECCRA will supply the Modified 2A stone material, with 3 days notice.

18. Pay Item 2500 – Paving for Access Road:

The installation of a 6" thick layer of pavement for access road shall be priced per square yards installed and is inclusive of all labor, equipment and materials to perform

the work & inclusive of continual maintenance. The 6" total thickness shall consist of a 4" basecourse and a 2" top coat. Bituminous mixes supplied under this portion of the work shall be obtained from a single source that is a Penn DOT approved plant. Changing the mix supplier during the course of the work must be approved in advance by the OWNER. This work is expected to be completed toward the end of the project at a time approved by the OWNER.

19. Pay Item 2600 – Curb for Access Road:

The installation of access road curb shall be priced per linear feet installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance. The 18" total thickness shall consist of an 8" reveal and 10" footer. Quantity does not include the area of the Type C inlet tops.

20. Pay Item 2700 – Guide Rail for Access Road:

The installation of a Guide Rail for access road shall be priced per linear foot installed and is inclusive of all labor, equipment, and materials to perform the work. Bid Item includes tie-in to existing guide rail and installation of bullnose end treatment.

21. Pay Item 2800 – Duct Bank:

The installation of a Duct Bank for utility conduits shall be priced per linear foot installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance throughout the duration of the contract. Incidental work under this pay item includes excavation, stone bedding, watertight connections, woven geotextile, backfill, compaction, and all other work and materials necessary to complete the installation of the duct bank as detailed on the Contract Drawings. All piping and fittings will be supplied by CONTRACTOR. Any necessary repair or replacement of the duct bank piping shall be at the CONTRACTOR's expense.

C. EROSION CONTROL

22. Pay Item 3100 –Silt Sock:

The installation of Silt Sock shall be priced per linear feet installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance.

23. Pay Item 3300 – Channel C-3:

The installation of the permanent Channel C-3 be priced per linear foot installed and is inclusive of all labor, equipment, and materials including geotextile fabric (Class 4, Type C) to perform the work & inclusive of continual maintenance as indicated by the detailed sequence of construction on the Contract Drawings. The Excavation that is required to construct permanent Channel C-3 will be paid for under Item 2100. SECCRA will supply the R-3 riprap lining material, with 3 days notice.

24. Pay Item 3310 – Channel TC-2:

The installation of the temporary Channel TC-2 be priced per linear foot installed

and is inclusive of all labor, equipment, and materials including erosion control matting and seeding to perform the work & inclusive of continual maintenance as indicated by the detailed sequence of construction on the Contract Drawings. The Excavation that is required to construct temporary channel TC-2 will be paid for under Item 2100.

25. Pay Item 3320 – Channel C-1A:

The installation of the permanent Channel C-1A be priced per linear foot installed and is inclusive of all labor, equipment, and materials including geotextile fabric (Class 4, Type C) to perform the work & inclusive of continual maintenance as indicated by the detailed sequence of construction on the Contract Drawings. The Excavation that is required to construct permanent Channel C-1A will be paid for under Item 2100. SECCRA will supply the R-5 riprap lining material, with 3 days notice.

26. Pay Item 3400 - Erosion Control and Seeding:

Erosion Control and Seeding is priced on a lump sum basis. CONTRACTOR is responsible for the seeding, fertilizing, and mulching of any disturbed areas to meet or exceed 95% grass cover. This task shall consist of the minimum requirements: seeding, mulching and fertilizer to provide a dense vegetative growth. CONTRACTOR must also verify proper erosion control measures are in place during construction and to optimize reseeding efforts.

27. Pay Item 3500 – 2'x4' Catch Basins:

The installation of 2'x4' catch basins is priced per unit installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance throughout the duration of the contract. Incidental work under this pay item includes excavation, stone bedding, watertight connections, woven geotextile, backfill, compaction, and all other work and materials necessary to complete the installation of the piping as detailed on the Contract Drawings. Type C inlet top.

28. Pay Item 3510 – 4'x4' Catch Basins:

The installation of 4'x4' catch basins is priced per unit installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance throughout the duration of the contract. Incidental work under this pay item includes excavation, stone bedding, watertight connections, woven geotextile, backfill, compaction, and all other work and materials necessary to complete the installation of the piping as detailed on the Contract Drawings. Type C inlet top.

29. Pay Item 3600 – HDPE PIPE (42" Diameter):

The installation of 42" diameter HDPE pipe (water tight type) is priced per linear foot installed and is inclusive of all labor, equipment, and materials to perform the work & inclusive of continual maintenance throughout the duration of the contract. Incidental work under this pay item includes excavation, stone bedding, watertight connections, woven geotextile, backfill, compaction, flared end sections and all other work and materials necessary to complete the installation of the piping as detailed on the Contract Drawings. All piping and fittings will be supplied by SECCRA. Any

necessary repair or replacement of the 42" HDPE storm pipe shall be at the CONTRACTOR's expense.

30. Pay Item 4000 – Contingency Allowance

The Contractor is to include a stipulated sum/price for use upon the Owner's instruction Funds will be drawn from this item only by Change Order with proper authorizations. At closeout of Contract, funds remaining in this Item will be credited to the Owner by Change Oder.

1.5 PIPES, CABLES, AND UNDERGROUND STRUCTURES

It shall be the CONTRACTOR's responsibility to ascertain the location of all pipes, cables and underground structures in the area of the contractor's operation, and to employ the necessary precautions to avoid them during earthwork, haul road construction and installation of erosion and sediment controls or other work associated with the contract. It shall be the CONTRACTORS responsibility to use Pennsylvania One Call System before any work begins.

If it is established that the work associated with this contract will cause interference with an underground facility or structure, the CONTRACTOR shall so advise the OWNER AND/OR CONSTRUCTION MANAGER. At his discretion, the OWNER AND/OR CONSTRUCTION MANAGER may designate a new location or authorize omission.

1.6 PROTECTION OF WORK, PERSONS AND PROPERTY

The CONTRACTOR shall provide and maintain any barricades, lights or other safety devices necessitated by hazardous conditions, required by local authority, or deemed necessary by the OWNER AND/OR CONSTRUCTION MANAGER representative.

1.7 PERMITS

All permits and licenses, relative to CONTRACTOR's equipment and work shall be obtained by CONTRACTOR at his expense including all costs for detailed Engineering, engineering stamps, drawings, testing, certifications, or other items necessary to secure said licenses and permits. This excludes environmental permits (e.g., NPDES Discharge Permit or Air Pollution Permit) and site-specific permits (e.g. local).

1.8 WATER ENCOUNTERED IN WORK

CONTRACTOR shall notify OWNER if any water is encountered during excavation or other earthwork activities. No water shall be discharged to surface ditches. Excessive amounts of water (enough to significantly hamper normal construction operations) encountered during excavation activities is to be handled as directed by the OWNER AND/OR CONSTRUCTION MANAGER. This does not apply to surface conditions or surface waters that are allowed to enter open excavations.

1.9 AUTHORIZED REPRESENTATIVE OF THE OWNER

"Authorized Representative of the OWNER" shall mean the following individual, who has the authority to execute a Change Order on behalf of the OWNER:

John Robbins, Chairman of the Board of Directors
c/o Scott Mengle, General Manager
219 Street Road,
West Grove, PA 19390

E-Mail: Scott@seccra.org
Phone: (610) 869-2452
Fax: (610) 869-8064

1.10 ENGINEER

ENGINEER shall mean the following individual, whom shall be the technical representative of the OWNER:

Patrick Wozinski, P.E.
BAI Group
366 Walker Drive, Suite 300
State College, PA 16801
E-Mail: pwozinski@baigroupllc.com
Phone: (814) 238-2060
Fax: (814) 238-7123

1.11 CONSTRUCTION MANAGER

CONSTRUCTION MANAGER shall mean the following individual, whom shall be representative of the OWNER:

Alan Roman
Roman Consulting, Inc.
P.O. Box 106
Oley, PA 19547
E-Mail: roman543@aol.com
Phone: (610) 587-9240

1.12 GENERAL SAFETY CONSIDERATIONS

- A.** Workers shall be advised of the presence of methane or hydrogen sulfide gas emanating from the natural decomposition of refuse buried at or near the job site and take precautions to ensure the safety of workers and the public.
- B.** Workers shall not be allowed to work alone at any time in an excavation. Work parties of at least two shall be mandatory, with one worker outside of trench. Access to the open trench shall be via ladders spaced no further than 25 feet apart at a minimum (or as required by OSHA). Trenches shall be benched to prevent possible caving in on workers.
- C.** No arc welding shall be permitted in trenches, enclosed areas, or over refuse filled areas unless performed over ground mats or in areas of the site approved by the Safety Monitor and Construction Manager.
- D.** Workmen shall not be permitted to enter excavations where there is an oxygen deficiency (oxygen levels below 19.5% by volume) or a combustible mixture of methane (methane levels between 5 and 15% by volume) without taking precautionary measures.
- E.** All trenches shall be covered or completed at the end of each work day.

- F. All boreholes shall be completed at the end of each work day.
- G. Smoking shall be prohibited in or near open excavations and in the vicinity of pipe-laying activities. Smoking is prohibited anywhere onsite except in designated areas.
- H. Fire extinguishers shall be available and rated at least A, B and C and are at least 10-pound size.
- I. Landfill gas (LFG) is comprised of approximately equal portions of carbon dioxide (CO₂) and methane (CH₄) with other trace constituents. It is a product formed by the anaerobic decomposition of refuse. Methane gas is the primary component of natural gas, and is combustible when the methane concentration in air is between 5 and 15 percent by volume. The 5 percent level is called the lower explosive limit (LEL). Below 5 percent, there is insufficient methane for combustion. Above 15 percent, called the upper explosive limit (UEL), there is insufficient oxygen for combustion. However, it is important to note that a concentration of methane above 15 percent is considered at least as dangerous as a concentration between 5 and 15 percent, because as the methane dilutes with air, it will pass through the explosive range. When gas concentrations are low, it is common to express methane concentration as a percentage of the LEL. For example, 100 percent LEL is 5 percent methane in air, and 50 percent LEL is 2.5 percent methane in air. Because the decomposition of buried refuse typically produces methane at concentrations ranging from 40 to 55 percent, methane will always pass through the combustible range as it vents to the atmosphere and dilutes with air. Methane is lighter than air, and will rise in the absence of typical barriers. LFG, being a mixture of methane and carbon dioxide, may be heavier than or lighter than air depending on the specific mixture. LFG may escape from the refuse, both vertically through the landfill cover, and laterally through surrounding soils. LFG moves in response to the pressure buildup within the landfill and through diffusion in the absence of a pressure differential. Diffusive movement nearly always produces explosive range concentrations of methane.

CONTRACTOR shall cease construction activities or operations when any concentration of methane at or above 10% LEL is present.

1.13 PRECAUTIONS WHEN WORKING ON REFUSE LANDFILLS

- A. Workers shall avoid contact with exposed refuse where possible. Irritants or hazardous materials may be present.
- B. Workers shall not leave open wells or excavations unattended. Open boreholes and excavations must be covered to prevent accidental entry. Wells must be barricaded, flagged, and protected sufficiently to prevent entry of dirt and run off water.
- C. The CONTRACTOR shall provide such equipment and medical facilities as are necessary to supply basic first aid to anyone who may be injured in connection with the Work. In an event immediate removal and/or hospitalization of site personnel is required the CONTRACTOR shall contact 911.

- D.** The OWNER AND/OR CONSTRUCTION MANAGER may stop the Work if in his sole judgment safety laws, or safe work practices are not being observed; provided, however, that none of the foregoing shall relieve the CONTRACTOR from being fully responsible and liable for meeting all safety laws and safe work practices in connection with the Work nor should the failure of such persons to stop the Work be construed to mean that all safety laws and safe work practices are being met. Notwithstanding the above, the CONTRACTOR is solely responsible for the compliance with safety laws and maintaining safe work practices.

END OF DIVISION 01000

DIVISION 06000**EARTHWORK AND EROSION & SEDIMENT CONTROL****PART 1 - GENERAL****1.1 SCOPE OF WORK**

This section shall cover the labor and equipment required for the performance of the work required of the CONTRACTOR to accomplish the work items contained in this contract including but not limited to:

- A.** Mobilize crew, supplies, and equipment necessary to adequately perform the Work. The OWNER will furnish no equipment, personnel, supplies, or materials unless otherwise negotiated or stipulated in the Contract Documents.
- B.** It will be the responsibility of the CONTRACTOR to provide adequate access, including benches and roads for all work items required to accomplish all of the Work. After construction activities have been completed, the CONTRACTOR will remove all roads it has provided. It will be the responsibility of the CONTRACTOR to restore all areas it has disturbed to original or better conditions. CONTRACTOR is to provide continuous OWNER approved access to vehicles through the construction area, including, but not limited to tractor trailers and hauling vehicles.
- C.** Install perimeter erosion and sediment controls including channels, culvert, and silt sock per the Contract Drawings prior to earth disturbance. Stormwater may only flow to OWNER approved areas.
- D.** Prepare work area by grubbing areas to be disturbed. Topsoil shall be removed from areas to be disturbed and stockpiled in a location designated by the OWNER and/or CONSTRUCTION MANGER for reuse.
- E.** Perform bulk grading per the Contract Drawings. Material that is excavated in cut areas to obtain proposed grades shall be stockpiled and sorted for reuse. The sorting of material shall be by the definitions within these specifications and at the discretion of the OWNER and/or CONSTRUCTION MANAGER. Fill material may be obtained from on-site borrow areas as shown on the Contract Drawings. All grading shall be performed to promote positive drainage and to prevent water ponding. Install proposed storm pipes as shown on the Contract Drawings. Restore disturbed areas to original or better conditions and reseed.
- F.** Excavate material for existing haul roads to be removed and stockpile in the designated area.
- G.** Reseeding specifications may be site specific and will be specified by the OWNER. However, the minimum requirements shall consist of: proper ground preparation, discing/drilling of seed, fertilizing, and mulching the construction areas. CONTRACTOR shall also ensure proper erosion control measures are in place to maintain the integrity of the side slopes and reseeded areas. CONTRACTOR responsible for transportation and placement of material.

- H. When all disturbed areas are stabilized, remove the temporary erosion and sediment controls. Restore the permanent fencing that was temporarily removed at the beginning of the project.
- I. All bid prices shall include normal delay time in the quoted unit prices to cover any equipment failures, bad weather, and other variables which are natural, normal, and beyond the control of the OWNER. Typical weather conditions during a specified construction period will be referenced per historical data per the United States Weather Service.
- J. The CONTRACTOR shall furnish all labor and materials required to complete the project as shown in the Drawings.
- K. Demobilize field crews and equipment from the site.

1.2 JOB CONDITIONS

Prior to all Work, CONTRACTOR shall become thoroughly familiar with the site, the site conditions, and all portions of the Work falling within this Document. CONTRACTOR shall contact utility owners and request location and staking of utilities prior to construction commencement.

PART 2- MATERIALS

CONTRACTOR shall submit manufacturer's literature and specifications to the OWNER AND/OR CONSTRUCTION MANAGER per Division 5000 for approval for each product proposed for use in this project. Meeting the specifications on the drawings and in this Document does not relieve the CONTRACTOR of this responsibility. OWNER shall have the right to reject any material supplied by the CONTRACTOR prior to said approval. All products must conform to the following minimum criteria prior to submittal. All products shall be of a new and good quality. CONTRACTOR shall be required to unload, inventory, and be responsible for all items supplied by the OWNER.

A. Fill Material

Fill material refers to the material sourced on-site to achieve proposed grades per the contract drawings. Fill material used to achieve proposed grades shall be on-site borrow material as approved by the CONSTRUCTION MANAGER. The borrow material shall be free of debris, foreign objects, roots, organics and other materials considered deleterious by the CONSTRUCTION MANAGER. The common borrow material shall have a maximum coarse fragment particle size of 6 inches.

Substandard materials shall be segregated and stockpiled at a location designated by the CONSTRUCTION MANAGER.

B. Subbase

Subbase soil shall consist of relatively homogeneous, fine-grained cohesive soils which are free of debris, rock, organic and frozen materials, foreign objects, excessive silt, or

other deleterious matter. The subbase shall be compacted with proper equipment, configuration, and weight to achieve compaction requirements. A total compacted 2-foot layer is required. The subbase shall have a maximum permeability of 1×10^{-7} cm/sec. A soil bentonite mixture may be utilized if the permeability and compaction requirements are met. Refer to Division 06100 and these bid documents or Section 7 of the attached CQA Plan for additional specifications.

C. Protective Cover Soil

Protective cover soil is placed directly upon the primary liner geomembrane as a component of the leachate collection system, stormwater diversion berm, or upon the liner as a phase separation berm. Protective cover material shall be free of debris, rocks greater than 0.5-inches, organic or frozen materials, and other foreign objects. Refer to Division 06200 of these bid documents and Section 7 of the attached CQA Plan for additional specifications.

D. Leachate Collection Layer AASHTO #57

The leachate collection layer stone shall allow liquids to flow freely and provide a stable, smooth layer that is free of foreign or organic materials and prevents any damage to the underlying geosynthetics. The aggregate shall be AASHTO #57, clean, non-carbonate, and rounded to subangular stone. The material shall be relatively self-compacting, with minimum in-place permeability of 1×10^{-2} cm/sec and shall meet ASTM D2434 standard. Refer to Division 06300 of these bid documents and Section 8 of the attached CQA Plan for additional specifications.

E. Erosion Control Matting

Erosion Control Matting shall be type ES-1 by East Coat Erosion Blanket, LLC, or approved equal. Erosion Control Matting shall be placed on the areas indicated and detailed on the Contract Drawings. The CONTRACTOR shall follow the manufacturer's recommendations for installation of the Erosion Control Matting.

F. Modified 2A Stone

Modified 2A Stone for the proposed haul roads shall be installed as detailed on the Contract Drawings. Modified 2A Stone shall meet the requirements of Pennsylvania Department of Transportation, Publication 408, Section 703 - Aggregates.

G. Geotextile - Class 4, Type C

Geotextile beneath the proposed haul roads shall be installed as detailed on the Contract Drawings. Class 4, Type C Geotextile shall meet the requirements of Pennsylvania Department of Transportation, Publication 408, Section 735 - Geotextiles.

H. 24" Silt Sock

Silt Sock shall be installed as indicated and detailed on the Contract Drawings. The CONTRACTOR shall monitor and maintain the Silt Sock throughout the duration of the project. The CONTRACTOR shall inspect the Silt Sock and other Erosion and Sediment Controls periodically and following each rain event. Silt Sock shall be repaired or clean out sediment as needed or directed by OWNER.

I. Seeding

Seeding of disturbed areas shall be performed per the vegetative stabilization requirements indicated on the Contract Drawings. Seed shall include but may not be limited to temporarily and permanently fertilizing, seeding, mulching, and applying soil amendments to all disturbed surfaces of the Work area, according to the Contract Documents.

J. HDPE Pipe

HDPE Leachate Collection Pipe shall be installed as indicated and detailed on the Contract Drawings. All HDPE pipes shall meet the requirements of the CQA Plan.

K. Storm Pipe

Storm Pipe shall be installed as indicated and detailed on the Contract Drawings. All storm pipes shall be ADS N-12 with watertight bell and spigot fittings, or equivalent, as approved by Engineer.

L. Catch Basins

Catch Basins shall be constructed of reinforced precast concrete in accordance with ASTM C 478 with gaskets in accordance with ASTM C 923. Catch Basins shall be PennDOT Type C inlet top and installed as indicated and detailed on the Contract Drawings.

M. Asphalt

Bituminous mixes supplied for this project shall be obtained from a single source that is a Penn DOT approved plant. Changing the mix supplier during the course of the work must be approved in advance by the OWNER. The 4" base course layer shall be Superpave HMA 25.0mm. The 2" top coat layer shall be Superpave HMA 19.0mm. Placement and compaction shall be performed in accordance with PennDOT Publication 408.

N. Curb

The access road curb shall be installed as indicated and detailed on the Contract Drawings. The curb shall have a total height of 18" with a reveal height of 8" above the

road surface. All curbs shall meet the requirements of Pennsylvania Department of Transportation, Publication 408, Section 630 – Plain Concrete Curb.

O. Guide Rail

Guide Rail shall be installed as indicated and detailed on the Contract Drawings. The guide rail shall be tied into the existing guide rail on the access road and end with a bullnose end treatment at the location shown on the Contract Drawings. All guide railing shall meet the requirements of Pennsylvania Department of Transportation, Publication 72M, and Publication 408, Section 620 – Guide Rail.

P. PVC Pipe/Conduit

PVC Pipe/Conduit shall be installed as indicated and detailed on the Contract Drawings. The PVC Pipe/Conduit and fittings shall be schedule 40, UV protected.

PART 3- EXECUTION

The following section describes the manner in which all work described in this contract is to be completed. Any deviation from the following activities as defined or as described elsewhere in the Contract Documents or the Drawings will be the basis for removal of defective work and/or non-payment at the discretion of the OWNER's representative.

- A.** Fill material cannot be placed during unfavorable weather conditions or during periods of precipitation. Fill material cannot be placed on top of frozen material, standing water, or saturated unstable soil conditions. If standing water is present, it shall be removed by the CONTRACTOR at no additional cost to the OWNER. Frozen materials shall not be used for fill material. The CONTRACTOR shall place the fill material to the grades, slopes, and elevations shown on the details on the Contract Drawings and as specified in this Section.
- B.** Fill material shall be compacted to a minimum density of 95 percent of the modified maximum dry density as determined per ASTM D6938/1557.
- C.** Fill shall be compacted immediately after placement, using suitable soil compaction equipment to achieve the required compaction specification. Pad-foot and/or drum roller compaction equipment, with vibratory capability, shall be used during placement of fill material.
- D.** All CONTRACTORS shall conform to the Department of Labor and Industry Adopted Permanent Rules relating to Occupational Safety and Health Standards including but not limited to Parts 5205.1000 through 5207.09300.

END OF DIVISION 06000

DIVISION 06100**SUBBASE****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. The CONTRACTOR shall furnish all labor, materials, tools, supervision, transportation and equipment necessary to supply, haul, place, grade, and compact Subbase soil necessary and incidental to accommodate lines, grades, and thicknesses shown on the Drawings.
- B. The CONTRACTOR shall closely coordinate the Work of this Section with the Liner Contractor to avoid either producing too much completed Subbase such that it cannot be rapidly covered by the secondary geomembrane, or conversely producing too little completed Subbase such that the Liner Contractor must suspend his work.

1.02 REFERENCES

- A. The CONTRACTOR shall be aware of the activities outlined in the Construction Quality Assurance (CQA) Plan (attached) and account for these CQA activities in the construction schedule.
- B. Latest version of American Society for Testing and Materials (ASTM) Standards:
 - 1. ASTM D422, Standard Method for Particle-Size Analysis of Soils.
 - 2. ASTM D698, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using a 5.5 Pound Rammer and 12-inch Drop.
 - 5. ASTM D4318, Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 - 6. ASTM D5084, Standard Test Method for Hydraulic Conductivity of Soils Using a Flexible-Wall Permeameter.
 - 7. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.03 SUBMITTALS

- A. The CONTRACTOR will provide the following information and test results to the OWNER a minimum of 7 days prior to the start of construction of the Subbase layer.
 - 1. The moisture/density window for the proposed Subbase material.

- B. The CONTRACTOR shall notify the OWNER and Construction Quality Assurance (CQA) Consultant a minimum of 7 days prior to starting construction of the Subbase layer. The notice shall state the equipment to be used, the date and time that placement operations will start, and the name of the person in the field who will be in charge of the construction of the Subbase layer.
- C. If work is to be interrupted for reasons other than inclement weather, the CONTRACTOR shall notify the OWNER a minimum of 24 hours prior to interruption.

1.05 CONSTRUCTION QUALITY ASSURANCE

- A. The construction of the Subbase layer shall be monitored by the CQA Consultant. The CONTRACTOR shall discuss CQA testing and results with the CQA Site Manager. The CONTRACTOR shall be completely familiar with the pass/fail status of each area of the Subbase layer.
- B. The CONTRACTOR shall be aware of the activities outlined in the CQA Plan (provided in Exhibit B) and account for these CQA activities in the construction schedule.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All laboratory testing to evaluate the suitability or conformance of soil materials for the Subbase shall be carried out in accordance with the test methods indicated in Part 1.02 of this Section. These tests shall be performed by the OWNER and/or the CQA Consultant at no expense to the CONTRACTOR.
- B. Subbase soil shall consist of relatively homogeneous, fine-grained cohesive soils which are free of debris, rock, organic and frozen materials, foreign objects, excessive silt, or other deleterious matter. Subbase material in contact with the geosynthetics shall have 100 percent of the soil particles by weight pass the $\frac{3}{4}$ -inch sieve. Refer to Table 7-2 of the attached CQA Plan for additional specifications.
- C. Subbase soil will be supplied by the CONTRACTOR. The CONTRACTOR shall haul and place Subbase soils in a stockpile segregated from other soils, at a location identified by OWNER. Alternatively, Subbase material may be directly incorporated into areas requiring Subbase, if conditions and timing allow.
- D. Any material that is found by the CQA Consultant not complying with the project specifications shall be removed from the Work area by the CONTRACTOR at no extra cost to the OWNER. Any material in the stockpile that is determined by the CQA Consultant to not comply with the Project Specifications shall be removed by the CONTRACTOR and placed in a reject pile.

- E. The Subbase shall have an in-situ (i.e., after compaction) hydraulic conductivity less than 1.0×10^{-7} cm/sec at minimum 95 percent Standard Proctor maximum dry density as measured in the laboratory in accordance with ASTM D5084.
- F. Soil testing will be provided by the CONTRACTOR.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prior to implementing any work of this Section, the CONTRACTOR shall carefully inspect the already installed Work of all other Sections and verify that all such Work is complete to the point where the installation of this Section may properly commence without adverse impact.
- B. The CONTRACTOR shall inspect the surface of the prepared Subgrade prior to placement of any Subbase soil. Soft or wet soils, standing water, oversized rocks or other deleterious materials shall be removed and replaced with Structural Fill. Subgrade shall be scarified prior to placement of the subbase layer.

3.02 SUBBASE PLACEMENT

- A. The CONTRACTOR shall construct the Subbase to the grades, slopes, and elevations shown on the Drawings and as specified in this Section.
- B. The CONTRACTOR may be required to water and mix the Subbase material at the stockpile prior to placement in order to meet the required moisture content for compaction. If moisture conditioning is necessary, to the extent possible it shall be performed at the stockpile.
- C. Place Subbase in lifts not to exceed 8 inches (loose) in thickness. Hand compacted subbase, including that which is done by manually directed tampers, shall be placed in lifts not to exceed 6 inches in loose thickness. Each lift of subbase shall be compacted with multiple passes of a smooth drum compactor, sufficient in size and weight to achieve the required compaction specifications. A total compacted thickness of 2 feet is required.
- D. The moisture content of the Subbase material shall be within the acceptable range as established on the construction moisture/density window during the entire time when the compactor is working the soil. If, in the opinion of the CQA Consultant, the soil is too dry for proper compaction, the CONTRACTOR shall disk the soil, spray the soil with a sufficient quantity of clean water to bring the soil to the required moisture content, redisk the soil, and then recompact. Surficial spraying of the previously compacted surface will not be permitted.
- E. The daily work area will extend a distance no greater than necessary to maintain continuous operations.

- F. Frozen or thawing Subbase material shall not be placed, spread or compacted.
- G. Subbase material shall not be placed, spread, or compacted while the subgrade is frozen or thawing, during unfavorable weather conditions, or during periods of heavy precipitation.
- H. Hand compaction at the proper moisture content shall be used in all locations around penetrations, corners, appurtenances, etc., in order to achieve the specified dry density and moisture content. Care shall be taken to protect piping, geomembranes and other structures. Damage to any materials or work caused by hand compaction shall be repaired by the CONTRACTOR at no additional cost to OWNER.
- I. The finished Subbase surface shall be made smooth and free from ruts or indentations with multiple passes of a smooth-drum compactor. This operation should be undertaken at the end of every working day and/or at the completion of the compaction operations in that area. The area shall be left in a manner that will promote surface water runoff and minimize moisture penetration.
- J. CONTRACTOR shall remove all stone larger than $\frac{3}{4}$ " in size from the surface and repair all divots prior to geosynthetic placement. Hand-picking of subbase should be expected. The CONTRACTOR shall, at a minimum, supply laborers to hand pick oversized particles during placement and compaction activities. At a minimum, Laborers shall be supplied at the rate of 1 laborer per 400 tons of material placed during a 10 hour period. CONTRACTOR shall be responsible for maintaining the required number of laborers during all placement and compaction activities. A rock hound may be utilized to remove these partially embedded stones from the surface. The CONTRACTOR shall provide laborers as necessary if a rock hound is used. CONTRACTOR may not place subbase material unless the required number of laborers are present and picking/removing oversized and deleterious materials. This requirement may be lessened or lifted if it is demonstrated that the amount of oversized material in the subbase is less than anticipated.
- K. After completion of a segment of Subbase, but before installation of the secondary geomembrane liner, the top of the Subbase will be surveyed by the CQA Surveyor to ensure that: (i) the specified 24.0-inch minimum thickness of the Subbase has been achieved; and (ii) the top of the Subbase achieves the grades specified on the Drawings. Survey tolerance shall be within 0.15 feet above specified grade shown on the drawings. At no point shall the depth of subbase be less than 24.0 inches. Deficient areas shall be corrected by the CONTRACTOR at no additional charge to the OWNER.

3.03 FIELD QUALITY CONTROL AND TESTING

- A. Frequency:

1. The frequency of quality control testing is outlined below. The CONTRACTOR shall take this testing frequency into account in planning the construction schedule.
 - a. The minimum testing frequencies for material evaluation and construction quality evaluation are presented in Table 7-2 of the CQA Plan.
 - b. Sampling locations shall be selected by the CQA Consultant. If necessary, the location of routine in-place moisture content and dry density tests shall be determined using a non-biased sampling plan.
 - c. A special testing frequency shall be used at the discretion of the OWNER and/or the CQA Consultant when visual observations of the construction performance indicate a potential problem. Additional testing for specified areas shall be considered when:
 1. The lift thickness is greater than specified.
 2. The Subbase is at improper and/or variable moisture content.
 3. The degree of compaction is doubtful.
 4. The particle size distribution and/or maximum particle size has changed or is of doubtful quality.
 - d. During construction, the frequency of testing may also be increased in the following situations:
 1. Adverse weather conditions.
 2. Breakdown of equipment.
 3. At the start and finish of grading.
 4. If the material fails to meet specifications.

B. Perforations

1. Perforations in the Subbase shall be filled. This work will be undertaken by the CQA Consultant. Perforations shall include, but not be limited to the following:
 - a. Nuclear density test probe locations.
 - b. Hydraulic conductivity sampling locations.

2. Perforations in the Subbase shall be backfilled with bentonite and compacted to achieve a hydraulic conductivity less than 1.0×10^{-7} cm/sec.

C. Defective Areas

1. If a defective area is discovered in the Subbase, the CQA Consultant shall immediately determine the extent and nature of the defect. If the defect is indicated by an unsatisfactory test result, the CQA Consultant shall determine the extent of the defective area by additional tests, observations, a review of records, or other means that the CQA Consultant deems appropriate. If the defect is related to adverse site conditions, such as overly wet soils or surface desiccation, the CQA Consultant shall define the limits and nature of the defect.
2. After determining the extent and nature of a defect, the CQA Consultant shall notify the CONTRACTOR and the OWNER and schedule appropriate retests when the work deficiency has been corrected.
3. The CONTRACTOR shall correct the deficiency to the satisfaction of the CQA Consultant and the OWNER. The costs of the correction shall be borne by the CONTRACTOR.
4. All retests recommended and performed by the CQA Consultant must verify that the defect has been corrected before any additional work is performed by the CONTRACTOR in the area of the deficiency. The CQA Consultant shall also verify that all installation requirements are met and that all submittals are provided.

3.04 PRODUCT PROTECTION

- A. The CONTRACTOR shall use all means necessary to protect all prior work, including all materials and completed work of other Sections.
- B. In the event of damage, the CONTRACTOR shall immediately make all repairs and replacements necessary to the approval of the CQA Consultant and at no additional cost to the OWNER.

3.05 SELECT SUBBASE SURFACE PREPARATION FOR SECONDARY GEOMEMBRANE INSTALLATION

- A. The CONTRACTOR shall provide a firm, smooth, and uniform Subbase surface, free of excessive moisture, abrupt changes in grade, cracking, coarse fragments, clay clods, vegetation, and other deleterious debris prior to geomembrane installation by others. This surface will be inspected by the CQA Consultant and Liner Contractor. All requested repairs shall immediately be made by the CONTRACTOR. If requested by the CQA Consultant, the CONTRACTOR shall be prepared to hand pick the Subbase surface to remove oversize or coarse fragment or other conditions determined to be deficient by the CQA Consultant.

- B. Areas identified as deficient due to desiccation shall be repaired in accordance with Paragraph 3.02.D of this Section.

END OF SECTION 06100

FORM OF AGREEMENT

This Agreement is dated as of the _____ day of _____ in the year 20__ by and between SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY (SECCRA) (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

The Work is generally described as follows:

EARTHWORK Cell 8a

The Project for which the Work under the Contract Documents is required is generally described as follows:

The work consists of furnishing all labor, equipment, supervision, materials, and services necessary to complete the EARTHWORK Cell 8a, as indicated in the Bid Specification, for the SECCRA Community Landfill.

Article 2. OWNER'S REPRESENTATIVE

2.1 The "Authorized Representative of the Owner" shall mean the following individual, who has the authority to execute the Contract or Change Order on behalf of the Owner:

John Robbins, Chairman of the Board of Directors
c/o Scott Mengle, General Manger
219 Street Rd
West Grove, PA 19390

2.2 The Project will be managed on a day by day basis by the CONSTRUCTION MANAGER (Roman Consulting, Inc.). Contact Mr. Alan Roman, (610) 587-9240.

Article 3. ENGINEER

2.3 The Project was designed by BAI Group, 366 Walker Drive, Suite 300 State College, PA 16801.
Contact Mr. Pat Wozinski, PE, Project Manager; pwozinski@baigroupllc.com, (814) 238-2060.

Article 4. CONTRACT TIME

4.1 The contract time for this project shall be 180 calendar days from the notice to

proceed. The contractor shall assume normal weather delays in the project schedule.

4.2 The Work shall be completed as described in CONTRACTOR's bid.

4.3 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial losses if each item of work is not completed within the times as specified in paragraph 4.1 above or any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize what delays, expenses and difficulties would be involved in proving in a court of law or in an arbitration proceeding the actual losses suffered by OWNER if the work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One Thousand Dollars (\$2,500.00) for each calendar day that expires after the time specified in paragraph 4.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER Two Thousand Five Hundred Dollars (\$2,500.00) for each calendar day that expires after the time specified in paragraph 4.1 for completion and readiness of final payment.

Article 5. CONTRACT PRICE

5.1 CONTRACTOR agrees to perform and furnish all the Work in the Contract Documents in accordance with all terms and conditions of the Contract Documents for the total

Contract Price of \$_____.

Article 6. PER UNIT COST OF CHANGE ORDER WORK

6.1 In the event that a Change Order is placed by the OWNER in accordance with the terms of Article 10 of the General Conditions, such Change Order shall be completed for the unit prices denoted in Section 9.9 of the Bid Specification, Bid Form, which is incorporated into this contract by reference herewith.

Article 7. NON-PER UNIT COST OF CHANGE ORDER WORK

7.1 In the event that a Change Order entails Work or Materials not specified elsewhere, such work shall be completed at the Cost of Work as determined in accordance with paragraphs 11.4 and 11.5 of the General Conditions **plus a 10 (ten) percent** Contractor's fixed fee.

Article 8. IDENTIFICATION OF SUBCONTRACTORS

8.1 Whenever any portion of the Work is to be performed for CONTRACTOR by Subcontractors, CONTRACTOR shall have identified in writing, given to OWNER prior to the Notice of Award, those portions of the Work that he proposes to subcontract, and after the Notice

of Award may only subcontract other portions of the Work with OWNER'S written consent.

Article 9. CLEANUP

9.1 CONTRACTOR shall at all times during performance of the Work, and upon the completion thereof, remove from Owner's premises and the vicinity thereof and properly dispose of all debris and rubbish caused by CONTRACTOR'S operations. Upon completion of the Work, CONTRACTOR shall leave OWNER'S premises and the vicinity thereof clean and ready for use. Should OWNER request CONTRACTOR to perform such cleanup at any time or from time to time during the progress of the Work, CONTRACTOR shall promptly comply with such request. All cleanup by CONTRACTOR shall be performed in a manner satisfactory to OWNER. In the event CONTRACTOR does not perform cleanup in accordance with the foregoing, the OWNER may perform the cleanup on behalf of CONTRACTOR and at the expense of CONTRACTOR after giving advance notice to CONTRACTOR. CONTRACTOR shall promptly pay OWNER its costs of performing cleanup on behalf of CONTRACTOR.

9.2 Upon completion of the Work, CONTRACTOR shall promptly remove from OWNER'S premises all of CONTRACTOR'S equipment, material, scaffolding, temporary buildings, and like items, leaving the premises and the vicinity clean and ready for use. In the event CONTRACTOR shall fail to effect such removal within seven (7) calendar days after written notice from OWNER to so remove, OWNER shall have the right without further notice to CONTRACTOR to remove such items at the risk and expense of CONTRACTOR and to store such items at a place of OWNER'S choosing on behalf of CONTRACTOR and at CONTRACTOR'S risk and expense. Owner shall promptly notify CONTRACTOR of said place of storage. CONTRACTOR shall promptly pay to OWNER all costs to OWNER of said removal and storage.

Article 10. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. OWNER will process Applications for Payment as provided in the General Conditions.

10.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as provided below. All progress payments shall be on the basis of the progress of the Work measured by the schedule of values established in paragraph 2.9 of the General Conditions or, in the event there is no schedule of values, as provided in the General Requirements.

10.1.1 Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as OWNER shall determine or OWNER may withhold in accordance with paragraph 14.7 of the General Conditions.

OWNER may retain ten percent (10%) of the amount of all progress payments due until fifty percent (50%) of the Work has been completed. When the Contract is fifty percent (50%)

completed, the CONTRACTOR may apply for a reduction in retainage. At that time, one-half (½) of the amount retained by OWNER shall be returned to CONTRACTOR provided that OWNER approves the Application for Payment, that the CONTRACTOR is making satisfactory progress and there is no specific cause for greater withholding. OWNER, after fifty percent (50%) of the Work has been completed, may retain five percent (5%) of the remaining progress payments. After substantial completion, OWNER may retain one and one-half (1½) times such amount as is required to complete any, then required, uncompleted items as certified by OWNER.

10.1.2 Upon Substantial Completion, payment will be made in an amount sufficient to increase total payments to CONTRACTOR to 100% of the Contract Price, less such amounts as OWNER shall determine, or OWNER may withhold, in accordance with paragraph 14.7 of General Conditions.

10.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as provided in said paragraph 14.13.

Article 11. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

11.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, the Work, the site, the locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or the furnishing of the Work.

11.2 CONTRACTOR has correlated the results of all such observations, examination, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

11.3 CONTRACTOR has given OWNER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.

Article 12. ACCOUNTING RECORDS.

CONTRACTOR shall check all materials, equipment and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement. These accounting methods shall be satisfactory to OWNER. OWNER shall be afforded access to all CONTRACTOR'S records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to the Cost of the Work and Contractor's Fee. CONTRACTOR shall preserve all such documents for a period of three years after the final payment by OWNER.

Article 13. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 13.1 This Agreement (plus General Conditions).
- 13.2 Exhibits to this Agreement.
- 13.3 Performance and Payment Bonds.
- 13.4 Notice of Award.
- 13.5 Bid Bond.
- 13.6 Instructions to Bidders.
- 13.7 Bid Notice.
- 13.8 Checklist.
- 13.9 Bid Form.
- 13.10 Construction Performance Bond
- 13.11 Construction Payment Bond
- 13.12 Certificate of Insurance
- 13.13 Stipulation Against Liens
- 13.14 Insured Claim Waiver
- 13.15 Notice to Proceed
- 13.16 Standard General Conditions of the Construction Contract.
- 13.17 Supplementary Conditions (attached to General Conditions and labeled “SC –1”)
- 13.18 Specifications that consist of multiple divisions and bound herewith, as listed in the table of contents thereof.
- 13.19 Engineering drawings included with bid package.
- 13.20 Prevailing Wage Determination.
- 13.21 All addenda _____ to _____.

- 13.22 Documentation submitted by CONTRACTOR prior to Notice of Award (pages ___ to___ , inclusive).
- 13.23 The following which may be delivered or issued after the Effective Date of the Agreement and which are not attached hereto: All written amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraphs 3.4 and 3.5 of the General Conditions.
- 13.24 The documents listed in paragraphs 13.2 et. seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 13. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.4 and 3.5 of the General Conditions.

Article 14. MISCELLANEOUS

14.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings as indicated in such General Conditions.

14.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on the other party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law) and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

14.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representative to the other party hereto, in respect of all covenants, agreements and obligations contained in the Contract Documents.

Article 15. PUBLICITY

The CONTRACTOR shall not make news releases or issue other advertising pertaining to the Project Work or the Contract Document without first obtaining the written approval of OWNER. This includes, but not limited to use of photographs or narrative on social media. Any photographs taking during the project shall only be used for documentation of the project, all other uses shall have sole approval of the Owner.

Article 16. OWNERSHIP AND USE OF DRAWINGS

All drawings, technical documents, and data prepared or developed by the CONTRACTOR and furnished to the OWNER in performance of this Agreement and the Contract Document shall be the property of the OWNER and may be used by OWNER without restriction.

Article 17. COMMUNICATIONS

17.1 All communications pursuant to or in connection with the Contract Document shall be made by first class mail, e-mail or facsimile (fax) in accordance with the provisions of this Article set forth below.

17.2 Insurance: All Certificates of Insurance and other insurance communications required by this Agreement shall be addressed to OWNER'S Office address.

17.3 Data Requirements: All data requirements pursuant to this Agreement shall be addressed to OWNER'S Office address marked Attn: CONSTRUCTION MANAGER.

17.4 Reports: All schedules and reports required by this Agreement shall be addressed to OWNER'S Office address marked Attn: CONSTRUCTION MANAGER.

17.5 Pricing and Take-off: All correspondence regarding pricing and take-off shall be addressed to OWNER'S Office address marked Attn: Secretary with a copy to be addressed to the CONSTRUCTION MANAGER

17.6 Invoices: All invoices shall be transmitted in two (2) copies addressed to OWNER's Office address marked Attn: CONSTRUCTION MANAGER.

ARTICLE 18. LAWS AND REGULATIONS

18.1 The CONTRACTOR shall comply strictly with all local, municipal, state, federal and governmental laws, orders, codes and regulations applicable to the CONTRACTOR'S operations in the performance of the Work hereunder.

18.2 The CONTRACTOR shall not under any circumstances apply to or enter into negotiations with any governmental authority or agency for the acceptance of variations from or revisions to environmental, safety or health, or air, water or noise pollution laws or regulations relating to the Contract Document or to the performance thereof without the owner's prior written approval.

ARTICLE 19. PUBLIC CONTRACTING REQUIREMENTS

19.1 CONTRACTOR shall comply with the following laws: (1) Antitid Rigging Act, 73 P.S. §1611 et seq. and sign the accompanying affidavit, (2) the Labor and Public Works Act, 43 P.S. §151 et seq. and sign the accompanying affidavit, (3) Steel Products Procurement Act, 73 P.S. §18881 et seq., (4) Prevailing Wage Act, and (5) the Adverse Interest Act.

19.2 The CONTRACTOR shall see that there is included in every trade/subcontract that trade/subcontractors strictly comply with all state, federal and governmental laws, orders, codes and regulations applicable to trade/subcontracts, including but not limited to (1) the Antitid Rigging Act, 73 P.S. §1611 et seq.; (2) the Labor and Public Works Act, 43 P.S. §151 et

seq.; (3) Steel Products Procurement Act, 73 P.S. §18881 et seq., (4) Prevailing Wage Act, 43 P.S. §1651 et seq. and (5) the Adverse Interest Act.

19.3 All trade/subcontractor contracts shall be in writing and shall require signed affidavits in accordance with the Antbid Rigging Act, Labor and Public Works Act, Steel Products Procurement Act.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and by CONTRACTOR.

This Agreement will be effective on upon signing of both parties, 20__.

OWNER: SOUTHEASTERN CHESTER
COUNTY REFUSE AUTHORITY

CONTRACTOR: _____

BY: _____

BY: _____

(CORPORATE SEAL)

(CORPORATE SEAL)

ATTEST _____

ATTEST _____

Address for giving notices

Address for giving notices

License No.: _____

Agent for services in process:

(If CONTRACTOR is a corporation, attach evidence of authority to sign.)

BID FORM

For: [EARTHWORK Cell 8a](#)

SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY
219 Street Road
West Grove, PA 19390

Attention: Mr. Scott Mengle

Gentlemen:

In conformity with the specifications as prepared by Southeastern Chester County Refuse Authority, 219 Street Road, West Grove, Pennsylvania 19390 and after an examination of these Bid Documents, the undersigned submits this bid.

It is hereby certified that the undersigned is (are) the only person(s) interested in this bid as principal or officer, and that this proposal is made without collusion with any person, firm or corporation. The undersigned further guarantees that, if awarded a contract, the bidder will furnish and deliver all materials and perform all labor, tools, tests, and services required to execute, in an expeditious, substantial and workmanlike manner, the requirements of and in accordance with the specifications, to the complete satisfaction and acceptance of SECCRA.

It is understood that SECCRA reserves the right to reject any or all bids, or parts thereof, or items therein and to waive technicalities. It is further understood that competency and responsibility of bidders will receive consideration before the award of the contract.

Bidder submits this bid with the understanding that the materials and/or services will be delivered on or before the date stated in this proposal and that the time for the delivery of the materials and/or services shall be considered as of the essence of this contract. It is further understood, however, that any extension of time, regardless of cause, beyond the agreed date, must be requested by letter from the supplier and any extension must be granted by letter from SECCRA prior to same becoming effective.

The Bidder agrees not to assign this bid or any rights or interests thereunder without the written consent of SECCRA.

The undersigned acknowledges receipt of the following addenda, and the cost, if any, of such revisions has been included in the bid sum:

ADDENDUM NO. _____ DATED _____

ADDENDUM NO. _____ DATED _____

BID FORM (continued)

The undersigned Bidder proposes and agrees, if this Bid is accepted, to perform and furnish all the Work as specified in the Bidding Documents within the Contract Times indicated in this Bid and in accordance with all other terms and conditions of the Bidding Documents for the prices written below:

Project: EARTHWORK Cell 8a

Item No.	Description See Section 6.1 for detail	Unit Type	Units	Cost per unit	Bid price
1100	Bonds	1	Ea.		
1200	Mob/Demob/Field General Conditions, etc.	1	Ea.		
1300	Coordination	1	Ea.		
2100	Excavation	35,000	C.Y.		
2110	Remove Sediment Trap	1	L.S.		
2120	Fill Material	28,800	C.Y.		
2130	Subbase	31,150	S.Y.		
2140	Expose Existing Liner System	1,000	L.F.		
2150	Liner System Anchor Trench Excavation and Backfill	1,650	L.F.		
2160	Protective Cover Soil Screen	31,150	S.Y.		
	Protective Cover Soil Placement	31,150	S.Y.		
2170	Leachate Collection Layer AASHTO #57	31,150	S.Y.		
2180	Stormwater Diversion Berm	1,850	L.F.		
2200	Intercell Berm Removal	1	L.S.		
2210	Landfill Perimeter Berm Amendment	250	L.F.		
2300	HDPE Leachate Collection Pipe (6" Diameter)	2,750	L.F.		
2400	12" Thick Layer Modified 2A Stone for Access Roads	4,200	S.Y.		
2500	Paving for Access Road	7,300	S.Y.		
2600	Curb for Access Road	1,500	L.F.		
2700	Guide Rail for Access Road	1,300	L.F.		
2800	Duct Bank	1,500	L.F.		
3100	Silt Sock	2,500	L.F.		
3300	Channel C-3	300	L.F.		
3310	Channel TC-2	450	L.F.		
3320	Channel C-1A	325	L.F.		
3400	Erosion Control and Seeding	1	L.S.		
3500	2'x4' Catch Basin	6	E.A.		
3510	4'x4' Catch Basin	3	E.A.		
3600	HDPE Pipe (42" Diameter)	1,600	L.F.		
4000	Contingency	1	L.S.	35,000.00	35,000.00
			TOTAL BID		

Contract time shall be 180 calendar days from Notice to Proceed.

Firm Name _____
Contact Person _____
Address _____
Telephone _____
Authorized Signature(s) _____

Print

Print

EQUIPMENT RATES

Project Name: EARTHWORK Cell 8a

The following Equipment Rates shall be used to adjust the actual value of the subcontract and as a basis for any additional work. These Equipment Rates shall include all normal routine maintenance (labor & materials), fuel, taxes, insurances, overhead and profit.

DESCRIPTION	(\$) Hourly Rate	(\$) Daily Rate	(\$) Weekly Rate	(\$) Monthly Rate
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
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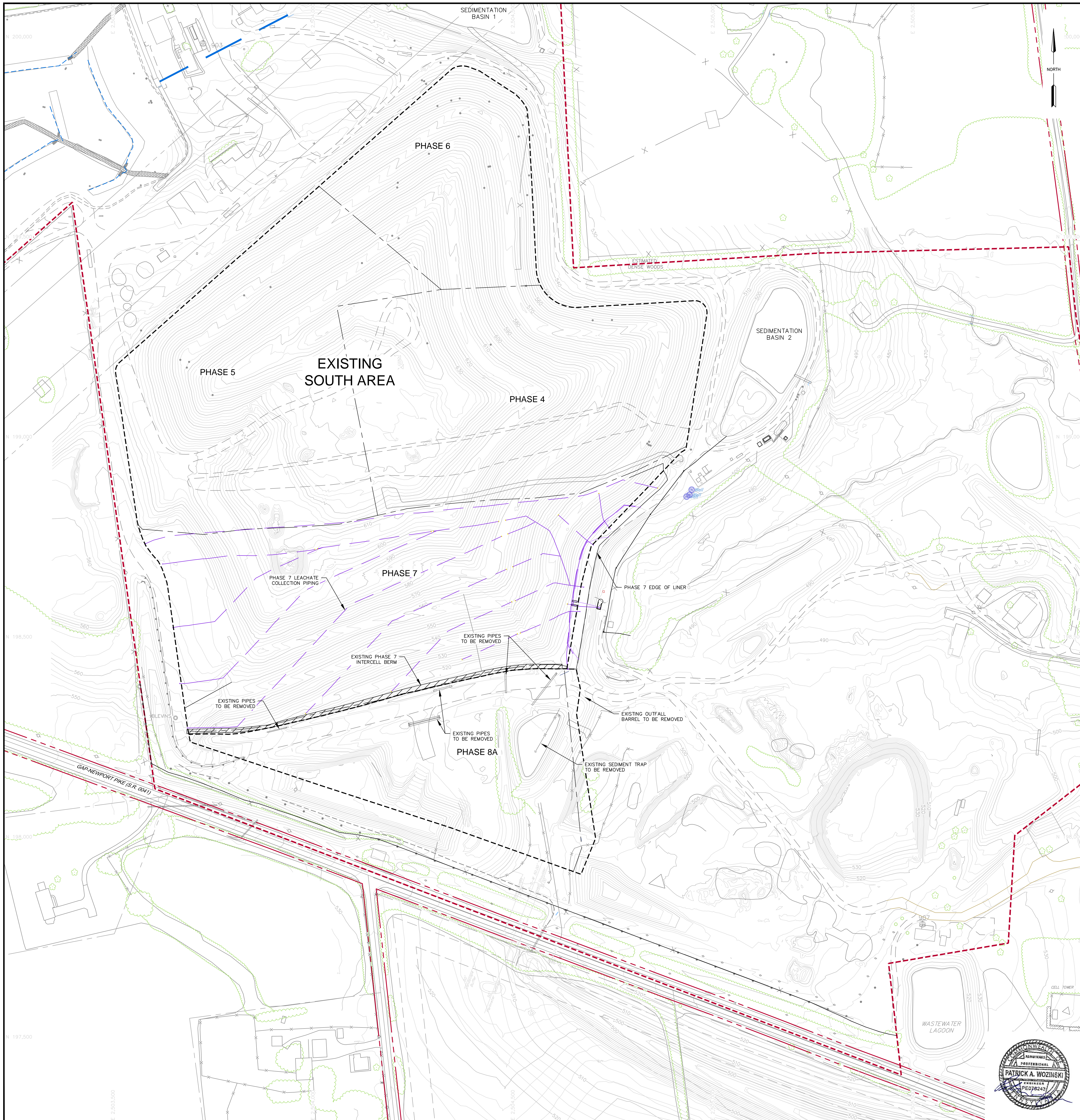
MATERIAL SUPPLIERS

Project Name: EARTHWORK Cell 8a

SUBCONTRACTOR LIST

Please list below all material suppliers who will be supplying more than two thousand dollars (\$2,000.00) of material to this project. Failure to furnish this information will affect payment under this contract.

<u>Name/Address</u>	<u>Telephone</u>	<u>Material Supplied</u>	<u>Value</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____

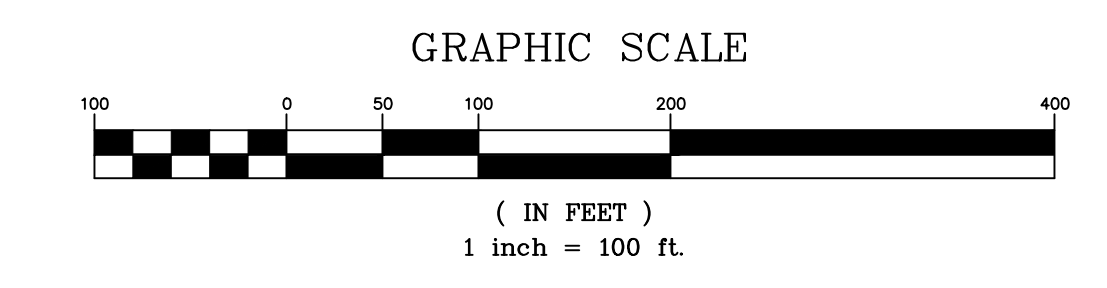


GENERAL BASEMAP NOTES

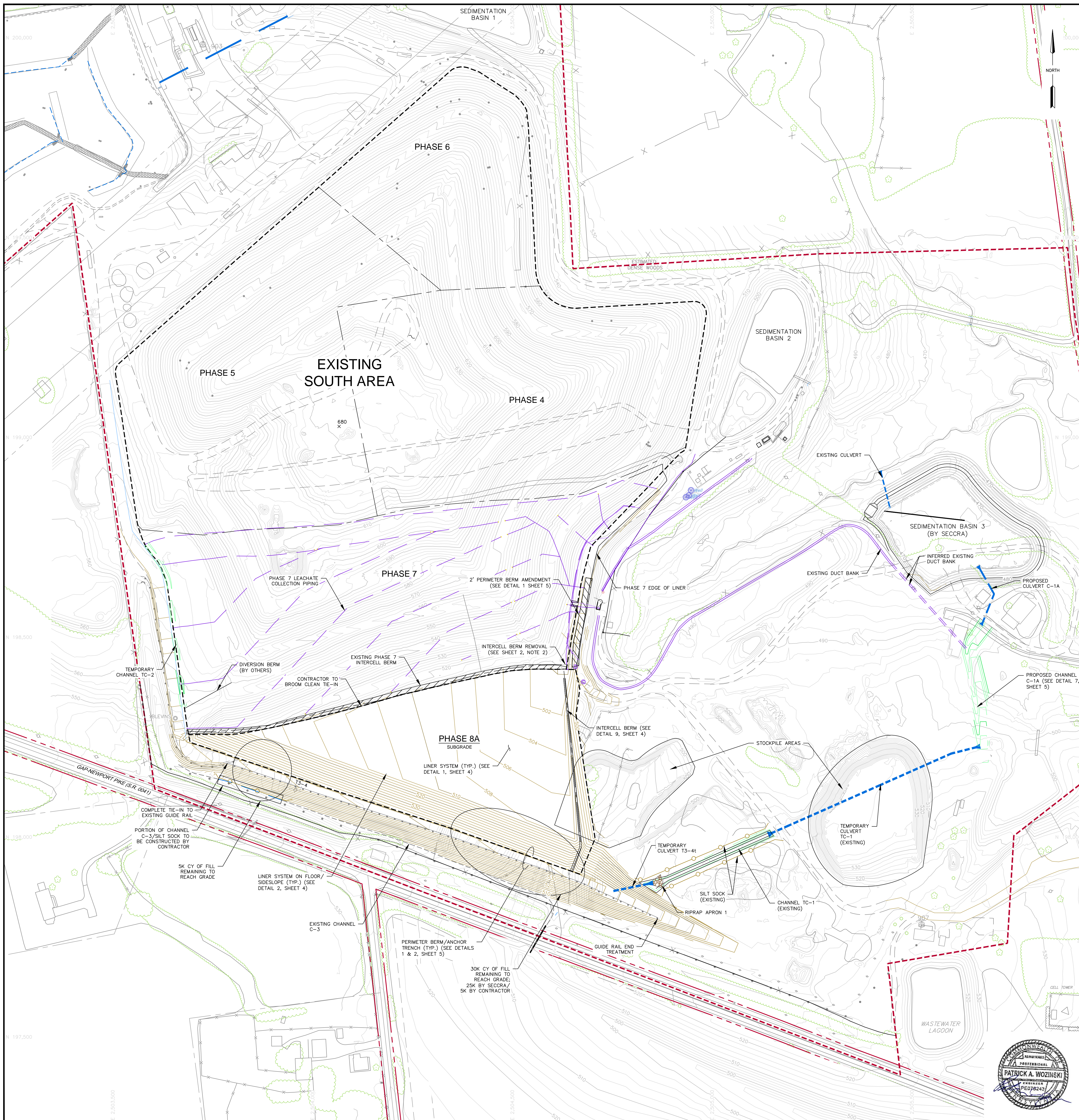
1. TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON DECEMBER 2020 BY COOPER AERIAL SURVEYS CO. PHOENIX, AZ. FOR IMPACTED AREA AROUND THE LANDFILL. TOPOGRAPHY OUTSIDE THE PROPERTY BOUNDARY WAS COMPILED DECEMBER 31, 2014 BY LAND & MAPPING SERVICES, CLEARFIELD, PA.
2. HORIZONTAL REFERENCE DATUM CODE: NAD 1983 STATE PLANE PENNSYLVANIA SOUTH; AND VERTICAL ALTITUDE DATUM NAME: NGVD 1929.

GENERAL BASEMAP LEGEND

	PROPERTY BOUNDARY
	PERMIT BOUNDARY
	PECO RIGHT OF WAY
	EXISTING CONTOURS (C.1. = 2'/10') (SEE BASEMAP NOTE 1)
	TREELINE/BRUSHLINE
	ROADS
	CHAIN LINK FENCE
	EXISTING MONITORING WELL
	PHASE DIVISION LINE
	PERMITTED DISPOSAL BOUNDARY (APPROXIMATE)
	EXISTING GROUND WATER MONITORING POINT (ABANDONED)



	<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> </thead> <tbody> <tr> <td>4/04/2022</td> <td>MODIFIED EXISTING PIPE ALIGNMENT</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS		4/04/2022	MODIFIED EXISTING PIPE ALIGNMENT							<table border="1"> <tr> <td>DATE:</td> <td>7/27/2021</td> </tr> <tr> <td>DRAWN BY:</td> <td>RWS</td> </tr> <tr> <td>CHECKED:</td> <td>PW</td> </tr> <tr> <td>BAI DRAWING NO:</td> <td>ROMAN-171E001A R1</td> </tr> <tr> <td>SHEET NO.</td> <td>1 OF 6</td> </tr> </table>	DATE:	7/27/2021	DRAWN BY:	RWS	CHECKED:	PW	BAI DRAWING NO:	ROMAN-171E001A R1	SHEET NO.	1 OF 6
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<p>State College Office (814) 238-2060</p>	<p>Delaware Valley Office (610) 495-5585</p>																					



GENERAL BASEMAP NOTES

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GENERAL BASEMAP LEGEND

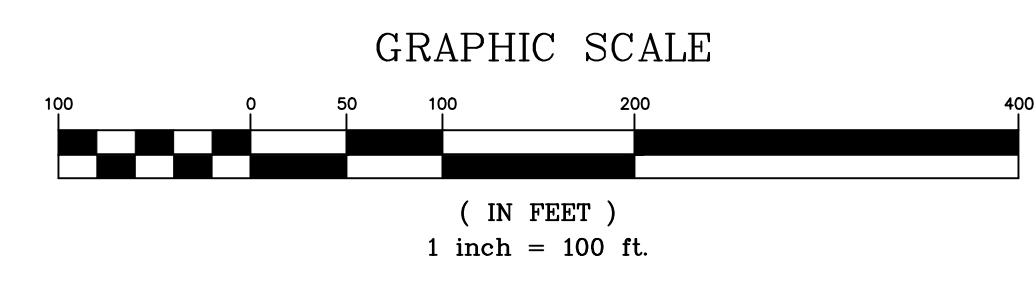
- PROPERTY BOUNDARY
- - - PERMIT BOUNDARY
- - - PECO RIGHT OF WAY
- EXISTING CONTOURS (C.1. = 2'/10') (SEE BASEMAP NOTE 1)
- TREE LINE/BRUSHLINE
- ROADS
- CHAIN LINK FENCE
- MP-20
- EXISTING MONITORING WELL

PHASE DEVELOPMENT NOTES

1. CONSTRUCTION SOILS AND AGGREGATES WILL BE STOCKPILED AT THE LOCATIONS DEPICTED BY OWNER. CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN SLOPES.
2. APPROXIMATELY 25' OF THE EXISTING INTERCELL BEAM WILL BE REMOVED TO PROMOTE POSITIVE DRAINAGE. ALL LAYERS OF THE LINER SYSTEM WILL THEN BE REPAIRED.
3. SUBGRADE ELEVATIONS AND STRUCTURAL FILL PLACEMENT SHALL BE ESTABLISHED ON FIRM, SUITABLE CONDITIONS. UNSTABLE MATERIALS SUCH AS SPOIL, YIELDING OR PUMPING SOILS, VOIDS, LIMESTONE, AND ASSOCIATED CLAYS OR MUD, OR ORGANIC MATERIALS SHALL BE REMOVED.
4. LIMESTONE AND SIMILAR CARBONATE ROCK MATERIALS MAY NOT BE USED FOR STRUCTURAL FILL WITHIN THE LINED DISPOSAL AREA.
5. SUBGRADE ELEVATIONS SHALL BE WITHIN -0.20' TO 0.00' OF DESIGN GRADES. CONTRACTOR SHALL ESTABLISH A SURVEY GRID WITH 25' CENTERS TO VERIFY GRADES HAVE BEEN ACHIEVED WITHIN TOLERANCES. CONTRACTOR SHALL CORRECT ANY DEFICIENCIES AT NO COST TO OWNER.
6. SUBBASE SOIL SHALL HAVE A MINIMUM THICKNESS OF 24 INCHES.
7. PROTECTIVE COVER SOILS SHALL HAVE A MINIMUM THICKNESS OF 18 INCHES.
8. LEACHATE COLLECTION ZONE AGGREGATE SHALL HAVE A MINIMUM THICKNESS OF 6".
9. A ROAD GUIDE RAIL OR EQUIVALENT SHALL BE CONSTRUCTED ALONG PERIMETER BERM AND OTHER AREAS AT LOCATIONS REQUIRED BY APPLICABLE REGULATIONS.

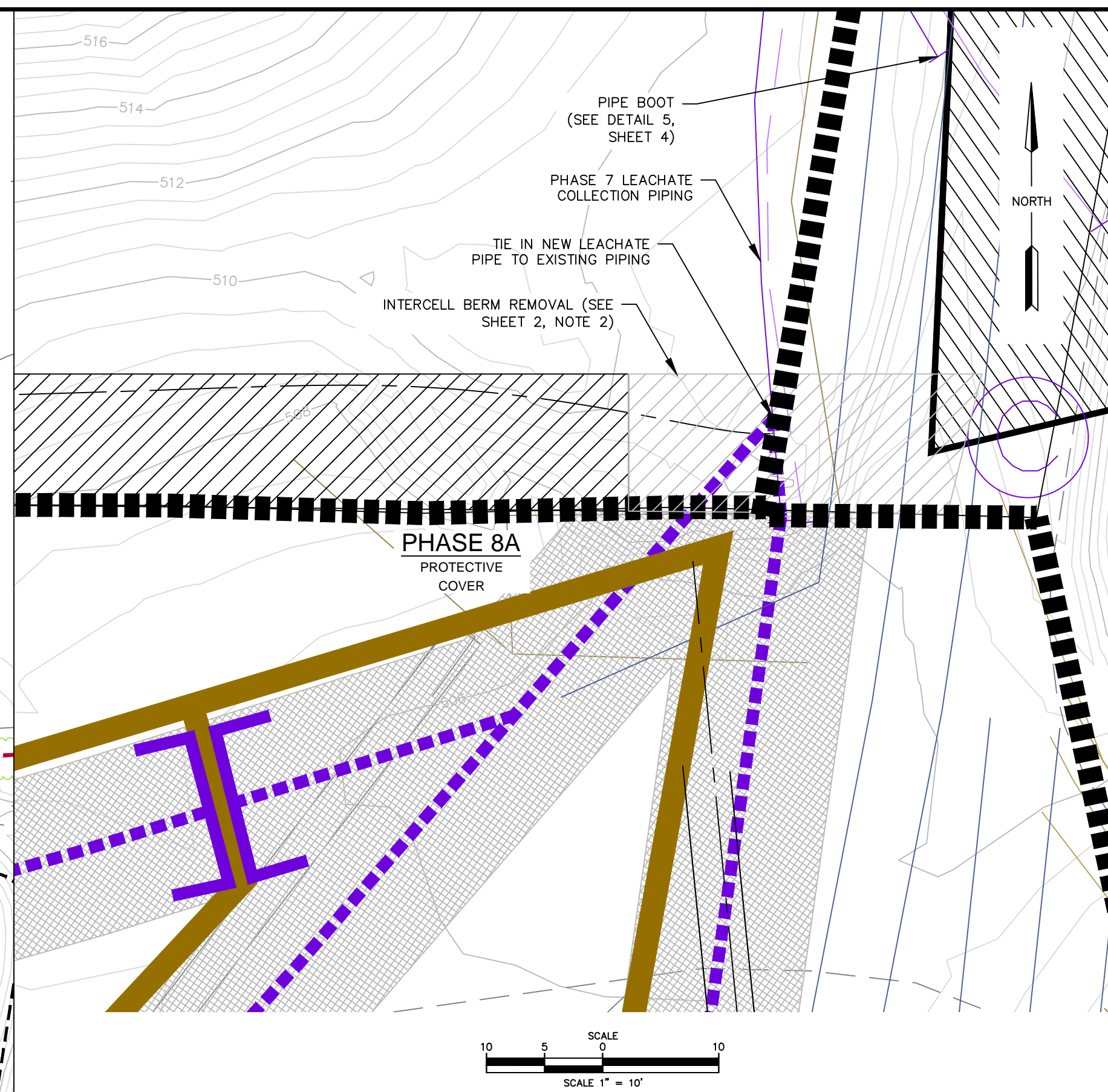
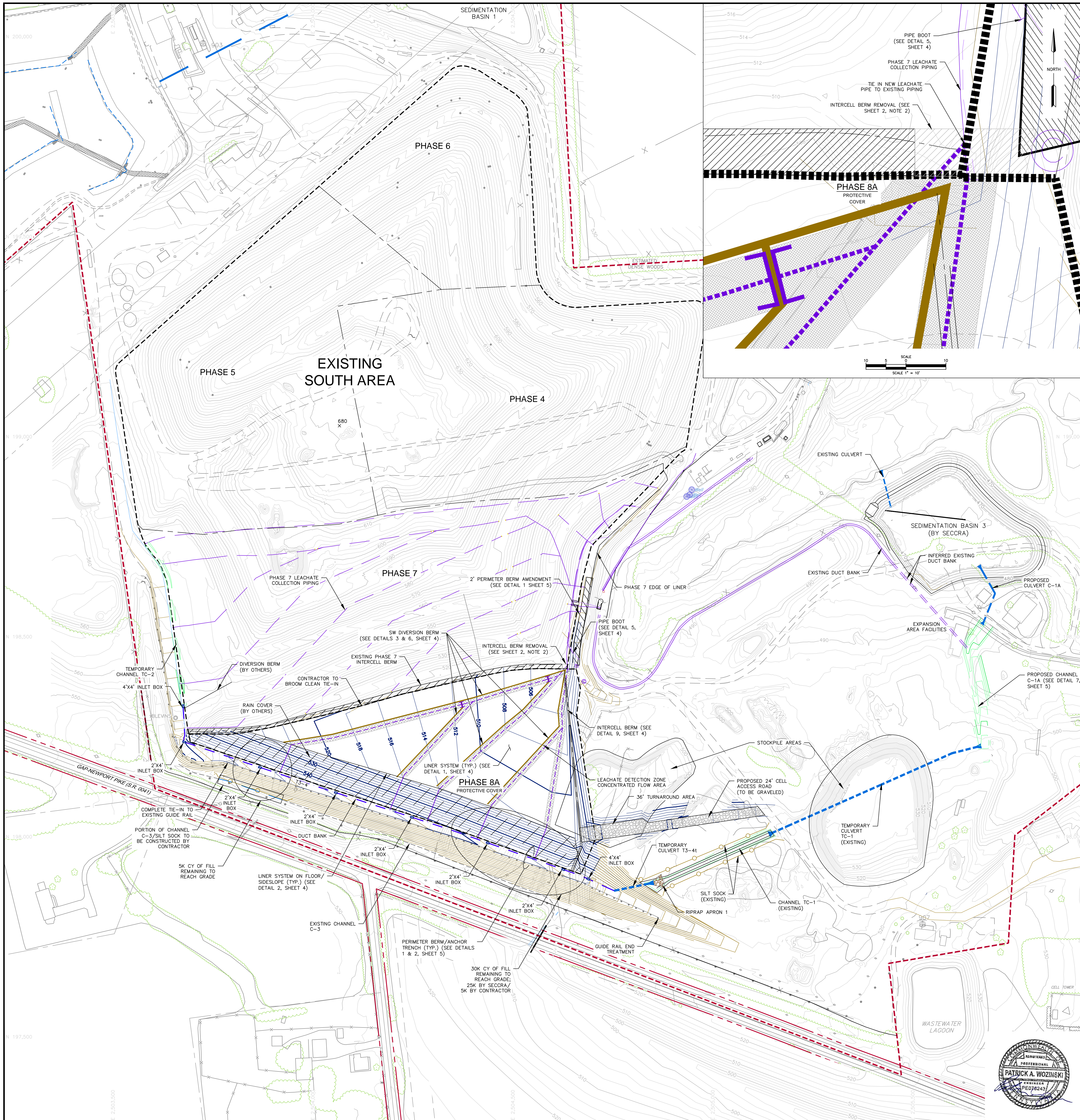
PHASE DEVELOPMENT LEGEND

- PHASE DIVISION LINE
- - - PERMITTED DISPOSAL BOUNDARY (APPROXIMATE)
- PROPOSED SUBGRADE CONTOUR (C.1. = 2'/10')
- STORMWATER CULVERT
- PROPOSED TOE CULVERT
- PROPOSED CHANNEL CENTERLINE
- EXISTING GROUND WATER MONITORING POINT (ABANDONED)
- GUIDE RAIL



	REVISIONS	
	DATE: 7/27/2021	DRAWN BY: RWS
SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY		CHECKED: PW
SECCRA COMMUNITY LANDFILL PHASE 8A CONSTRUCTION		BAI DRAWING NO: ROMAN-171E001B
LONDON GROVE TOWNSHIP CHESTER COUNTY PENNSYLVANIA		SHEET NO. 2 OF 6
State College Office (814) 238-2060	Delaware Valley Office (610) 495-5585	





GENERAL BASEMAP NOTES

1. TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON DECEMBER 2020 BY COOPER AERIAL SURVEYS CO. PHOENIX, AZ. FOR IMPACTED AREA AROUND THE LANDFILL. TOPOGRAPHY OUTSIDE THE PROPERTY BOUNDARY WAS COMPILED DECEMBER 31, 2014 BY LAND & MAPPING SERVICES, CLEARFIELD, PA.
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GENERAL BASEMAP LEGEND

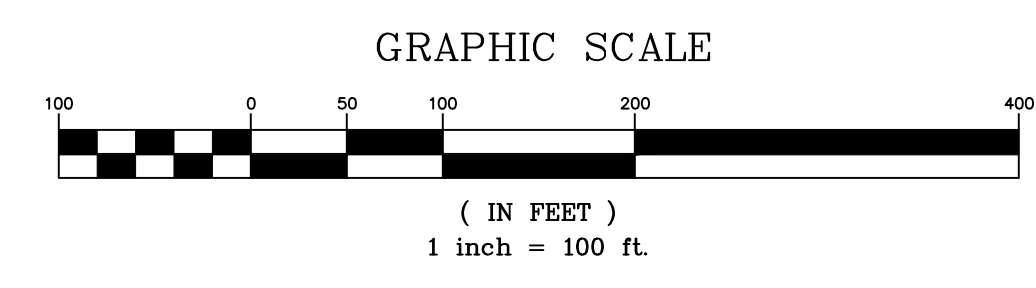
- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- PECO RIGHT OF WAY
- EXISTING CONTOURS (C.I. = 2'/10')
- TREELINE/BRUSHLINE
- ROADS
- CHAIN LINK FENCE
- MP-20 EXISTING MONITORING WELL

PHASE DEVELOPMENT NOTES

1. TWO LAYERS OF GEOCOMPOSITE SHALL BE USED IN INDICATED AREAS OF CONCENTRATED FLOW IN THE DETECTION ZONE. THE MINIMUM WIDTH OF THIS AREA IS 14 FT. A LAYER OF SINGLE-SIDED GEOCOMPOSITE MAY BE USED AS THE SECOND LAYER. IN THIS CASE GEOCOMPOSITE SHALL BE ORIENTED SUCH THAT THE OVERLAPPING TEXTURED GEOMEMBRANE IS IN CONTACT WITH THE GEOTEXTILE COMPONENT OF A GEOCOMPOSITE.
2. CONSTRUCTION SOILS AND AGGREGATES WILL BE STOCKPILED AT THE LOCATIONS DEPICTED BY OWNER. CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN SLOPES.
3. SUBGRADE ELEVATIONS AND STRUCTURAL FILL PLACEMENT SHALL BE ESTABLISHED ON FIRM, SUITABLE CONDITIONS. UNSTABLE MATERIALS SUCH AS SPOIL, YIELDING OR PUMPING SOILS, VOIDS, LIMESTONE, AND ASSOCIATED CLAYS OR MUD, OR ORGANIC MATERIALS SHALL BE REMOVED.
4. LIMESTONE AND SIMILAR CARBONATE ROCK MATERIALS MAY NOT BE USED FOR STRUCTURAL FILL WITHIN THE LINED DISPOSAL AREA.
5. SUBGRADE ELEVATIONS SHALL BE WITHIN -0.20' TO 0.00' OF DESIGN GRADES. CONTRACTOR SHALL ESTABLISH A SURVEY GRID WITH 25' CENTERS TO VERIFY GRADES HAVE BEEN ACHIEVED WITHIN TOLERANCES. CONTRACTOR SHALL CORRECT ANY DEFICIENCIES AT NO COST TO OWNER.
6. SUBBASE SOIL SHALL HAVE A MINIMUM THICKNESS OF 24 INCHES.
7. PROTECTIVE COVER SOILS SHALL HAVE A MINIMUM THICKNESS OF 18 INCHES.
8. LEACHATE COLLECTION ZONE AGGREGATE SHALL HAVE A MINIMUM THICKNESS OF 6".
9. A ROAD GUIDE RAIL SHALL BE CONSTRUCTED ALONG PERMETER BERM.

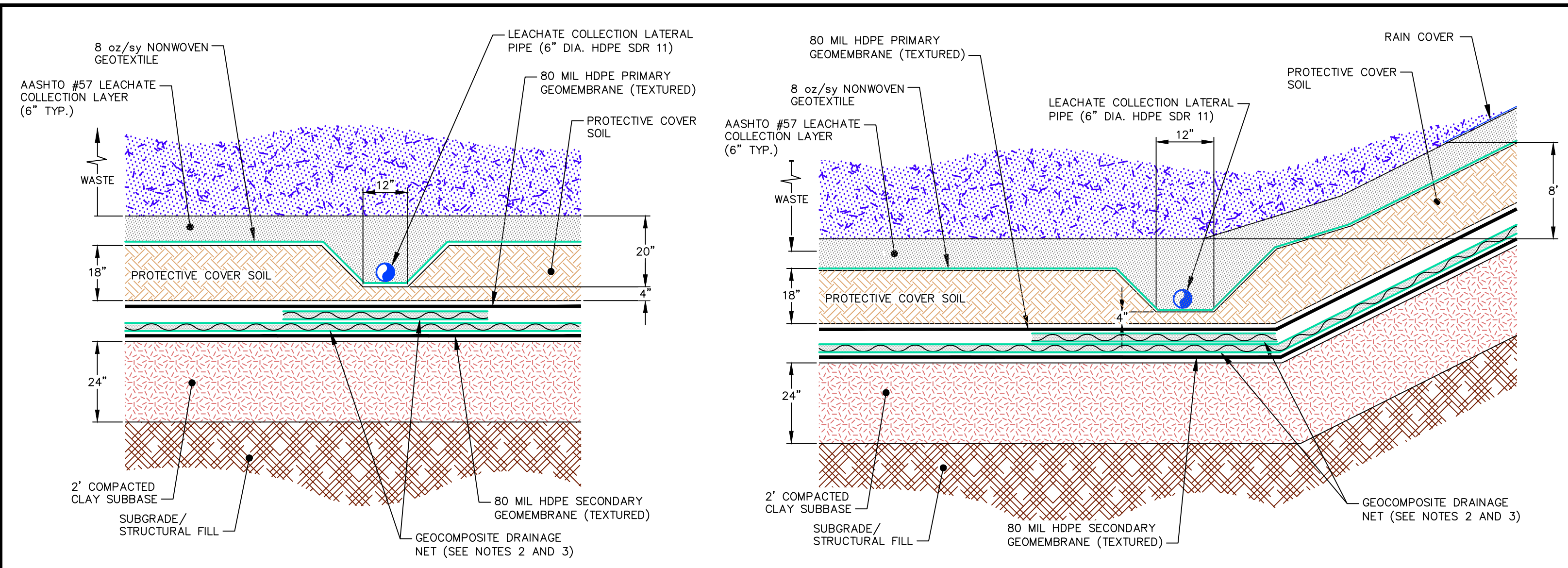
PHASE DEVELOPMENT LEGEND

- PHASE DIVISION LINE
- PERMITTED DISPOSAL BOUNDARY (APPROXIMATE)
- 510 PROPOSED PROTECTIVE COVER CONTOUR (C.I. = 2'/10')
- STORMWATER CULVERT
- PROPOSED TOE CULVERT
- PROPOSED CHANNEL CENTERLINE
- BLEVELNS EXISTING GROUND WATER MONITORING POINT (ABANDONED)
- GUIDE RAIL



	REVISIONS	
	SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY SECCRA COMMUNITY LANDFILL PHASE 8A CONSTRUCTION	
	LONDON GROVE TOWNSHIP CHESTER COUNTY PENNSYLVANIA PHASE 8A DEVELOPMENT PLAN PROTECTIVE COVER	
	State College Office (814) 238-2060	Delaware Valley Office (610) 495-5585



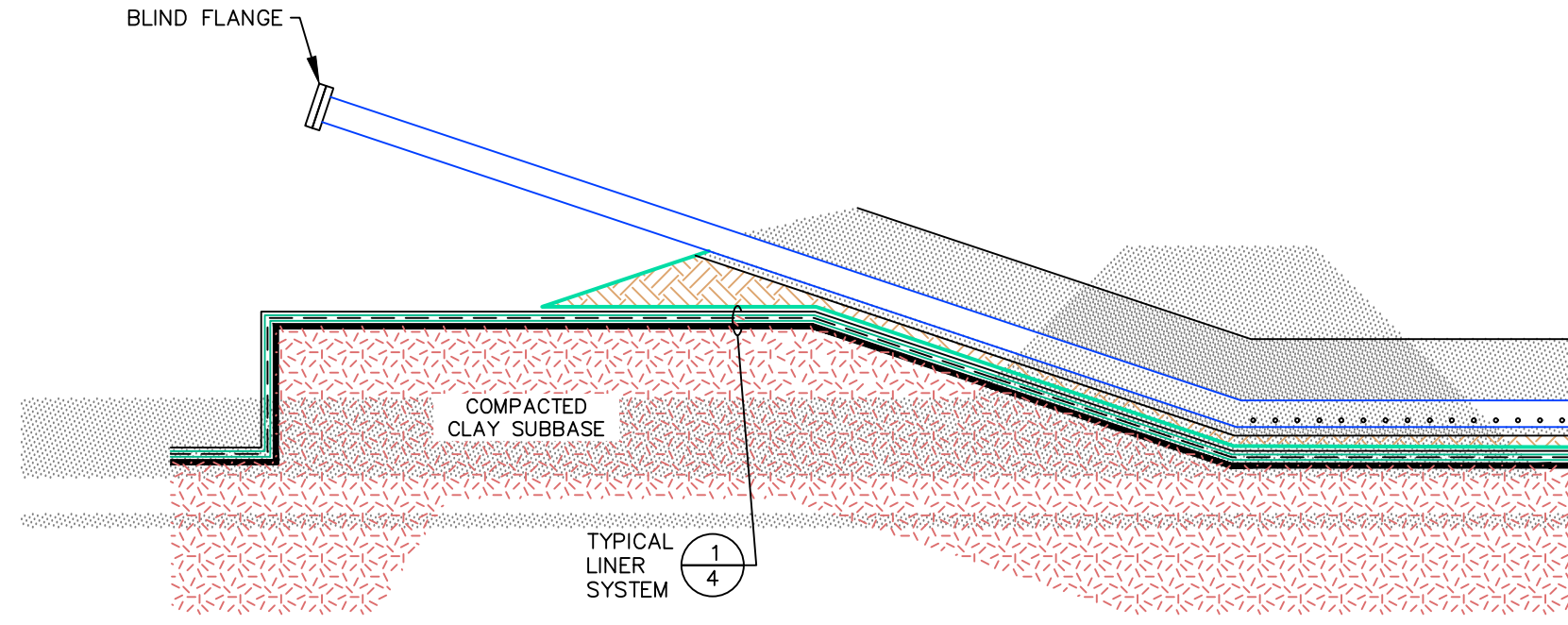


NOTES FOR DETAILS 1 AND 2:
 1. SEE SHEET 1 FOR AREAS WHERE PERIMETER COLLECTION PIPING IS LOCATED. PIPING IS NOT REQUIRED AT THE TOE OF ALL SLOPES.
 2. GEOCOMPOSITE IS COMPRISED OF A MINIMUM 200 MIL GEONET CORE WITH 6 OZ/SY NONWOVEN GEOTEXTILE HEAT-BONDED TO BOTH SIDES. A THICKER CORE MAY BE REQUIRED TO ACHIEVE TRANSMISSIVITY REQUIREMENTS OF THE COA PLAN.

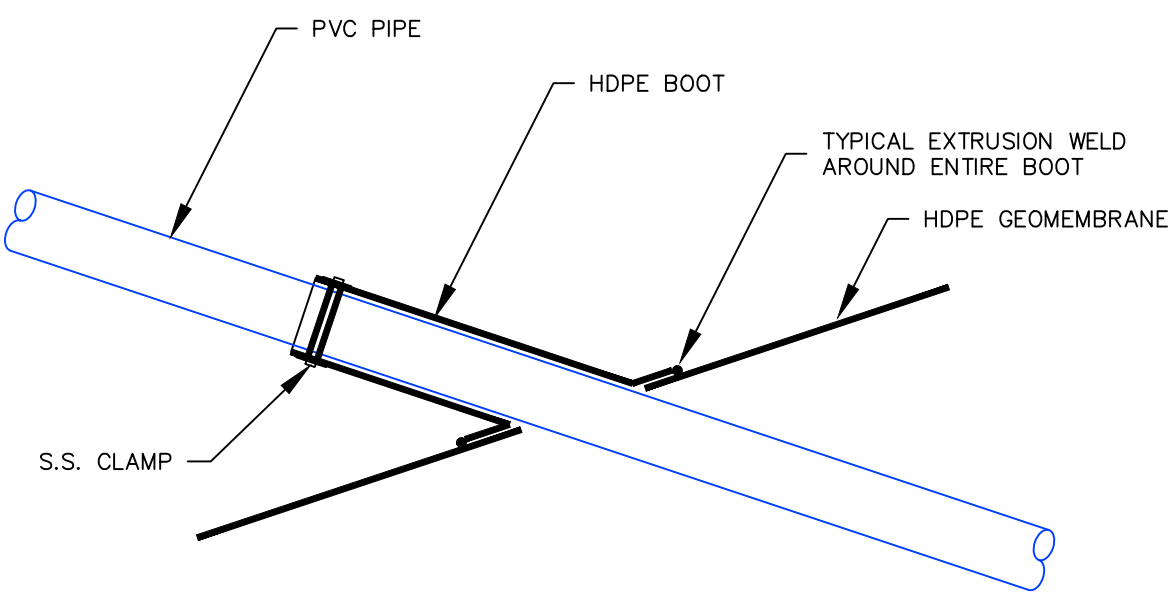
3. AREAS OF CONCENTRATED FLOW IN THE LEACHATE DETECTION ZONE WILL UTILIZE A 2ND LAYER OF DRAINAGE GEOCOMPOSITE. CONCENTRATED FLOW AREAS WILL BE ONE GEOCOMPOSITE ROLL WIDTH.

2 TYPICAL FLOOR/SIDE SLOPE LINER SYSTEM PROFILE WITH PERIMETER COLLECTION PIPING
 NOT TO SCALE

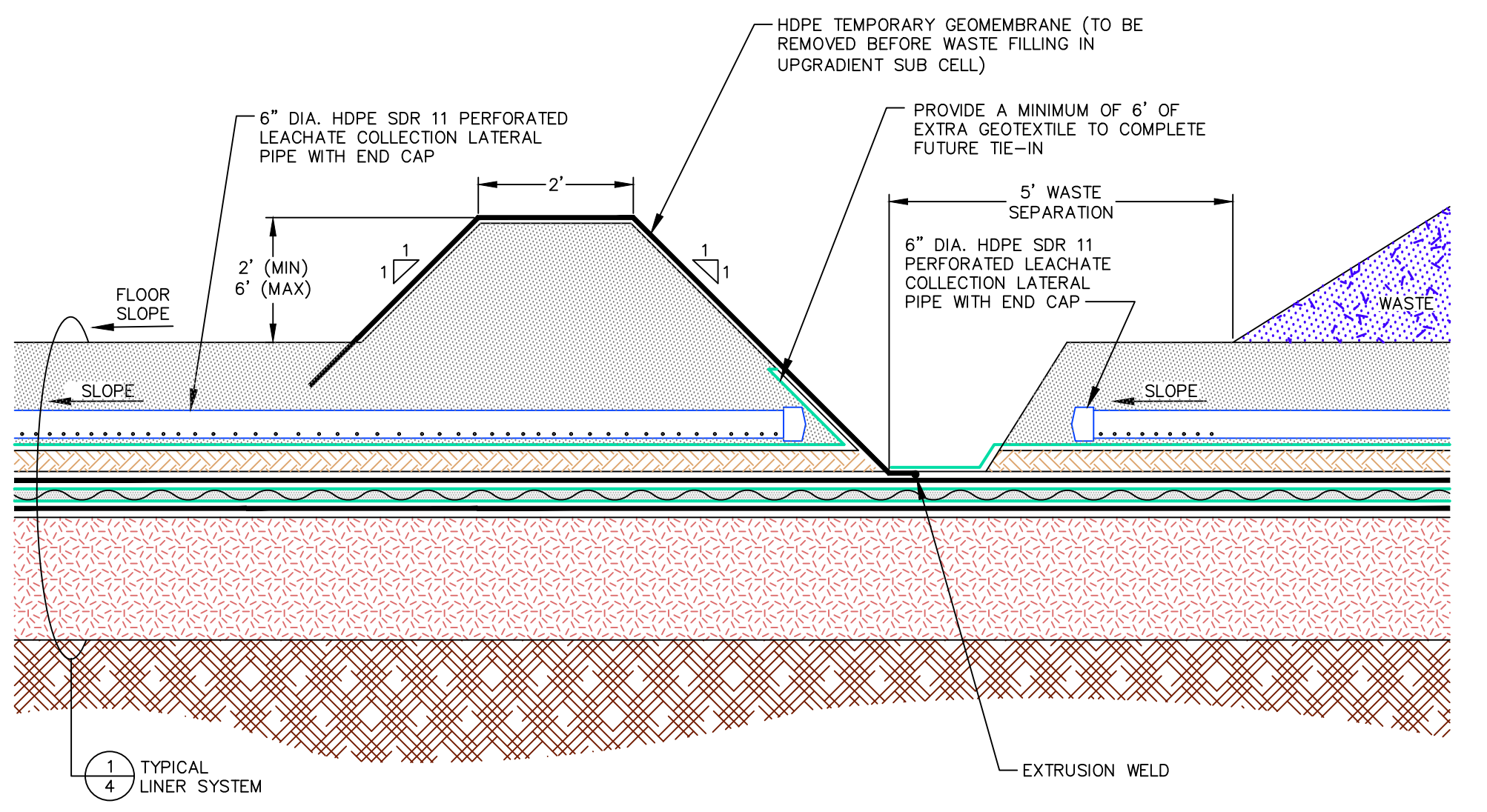
1 TYPICAL LINER SYSTEM PROFILE
 NOT TO SCALE



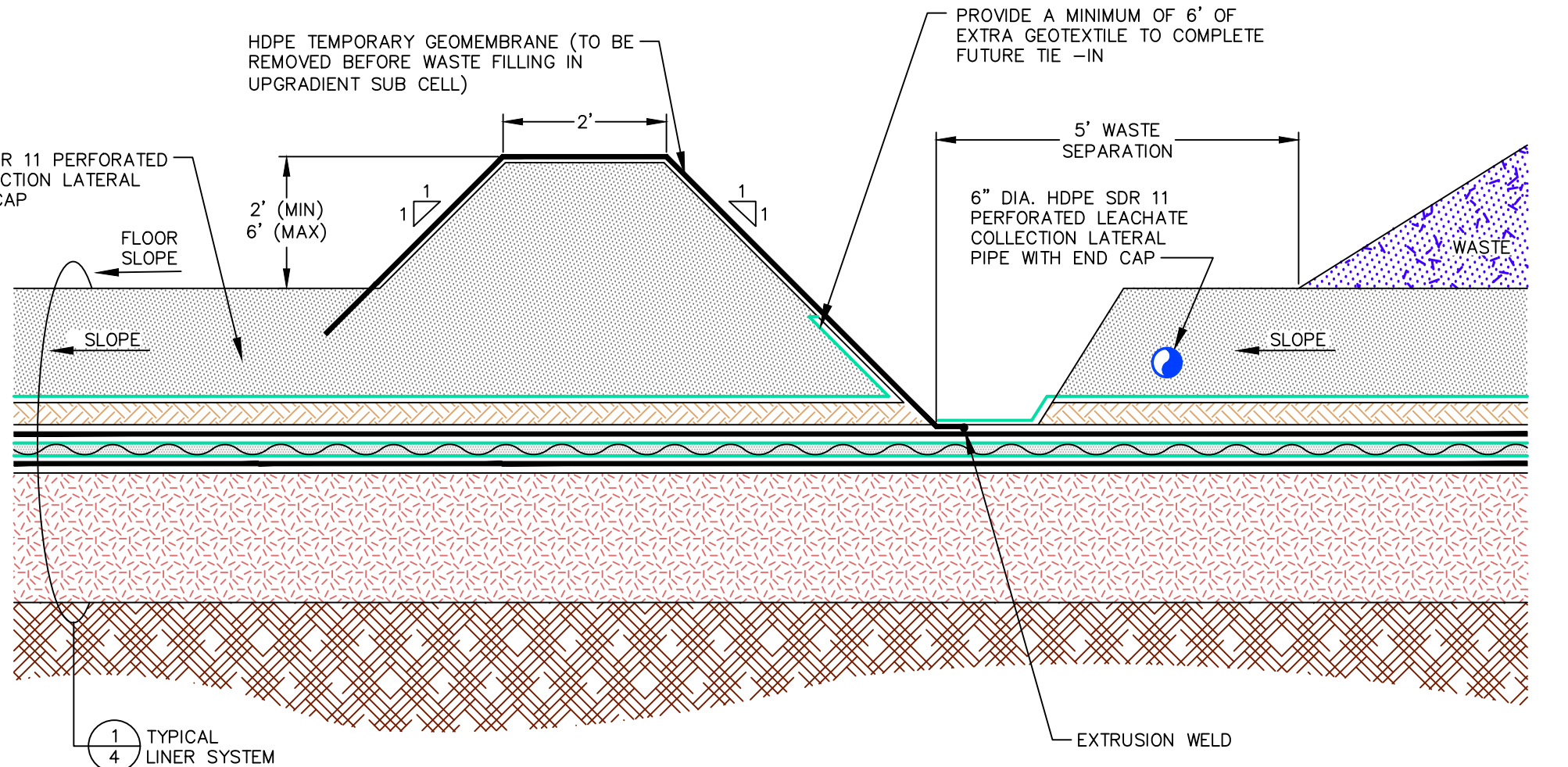
4 CLEAN OUT DETAIL
 NOT TO SCALE



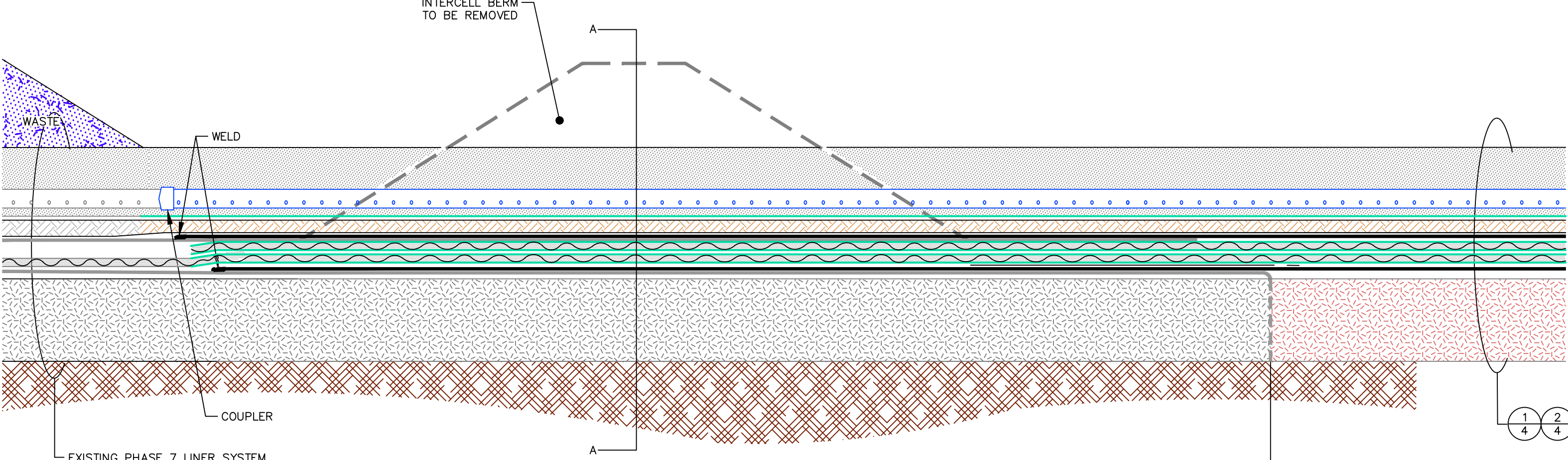
5 TYPICAL PIPE/GEOMEMBRANE BOOT DETAIL
 NOT TO SCALE



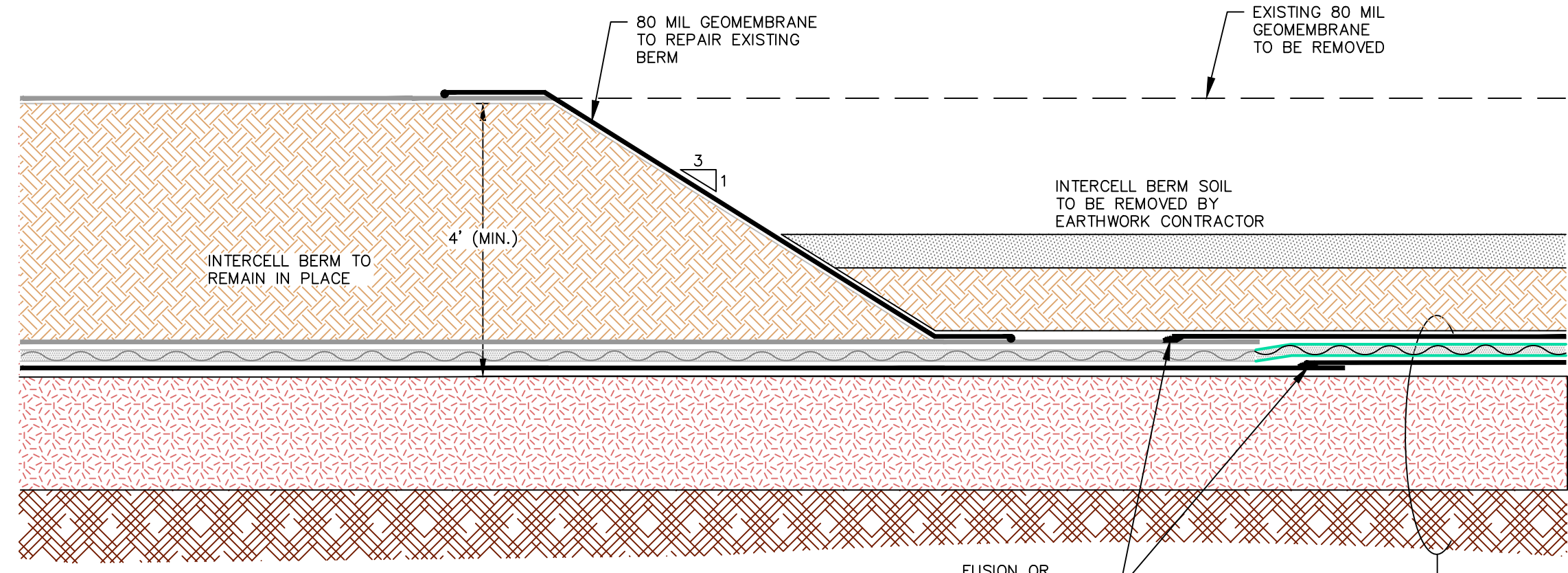
3 STORMWATER DIVERSION BERM AT PIPE INTERSECTION
 NOT TO SCALE



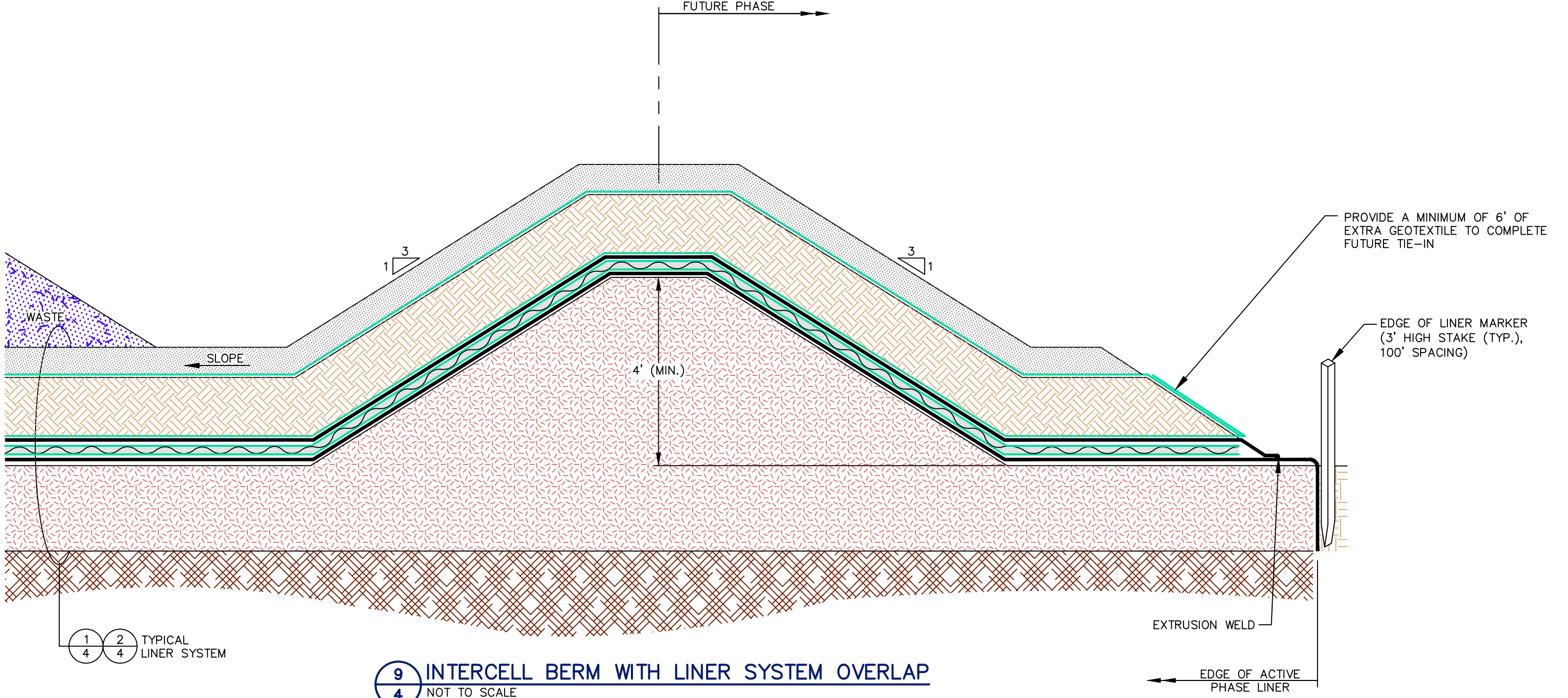
6 STORMWATER DIVERSION BERM
 NOT TO SCALE



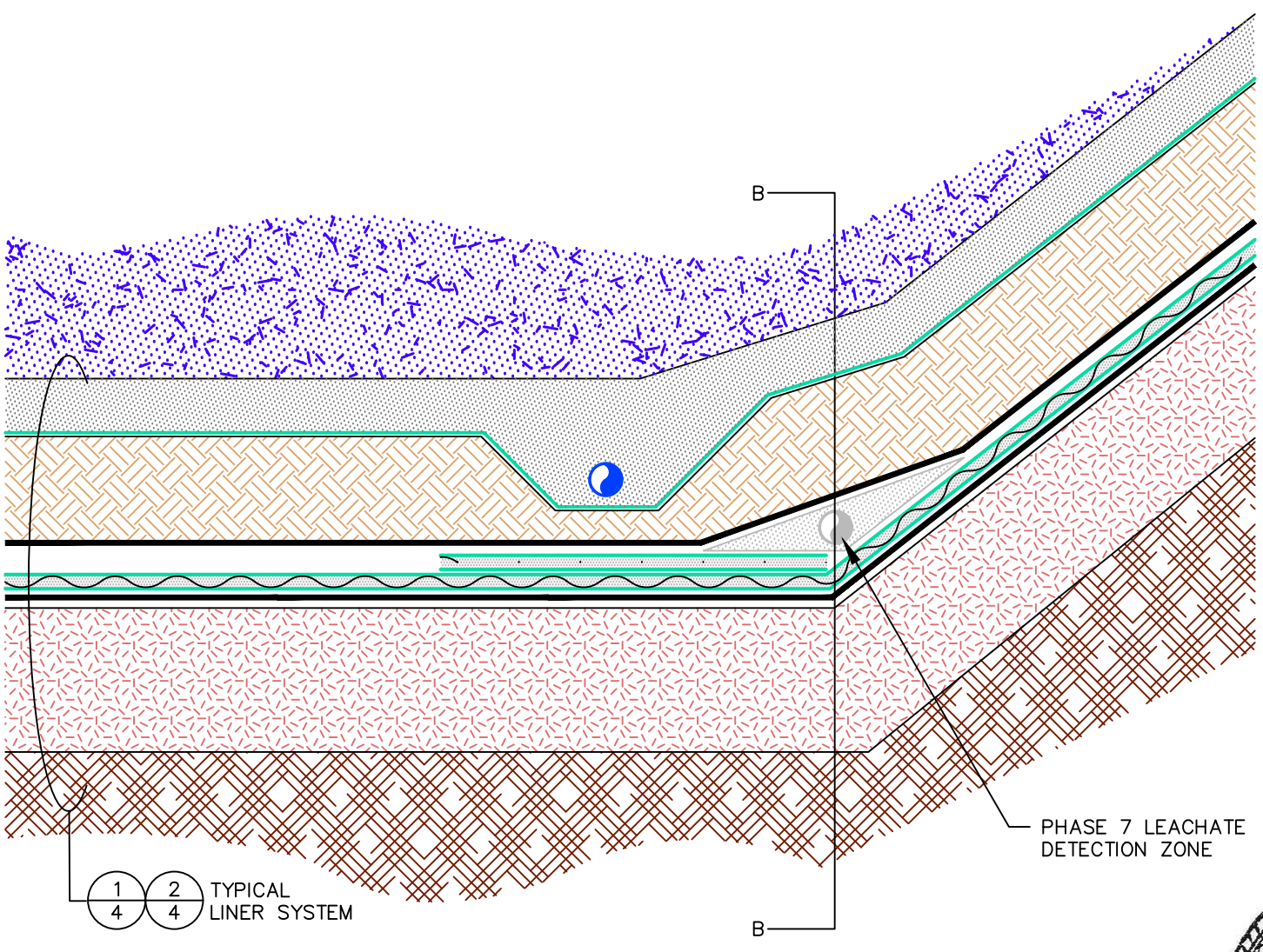
7 LINER CONTINUATION DETAIL WITH REMOVAL OF INTERCELL BERM
 NOT TO SCALE



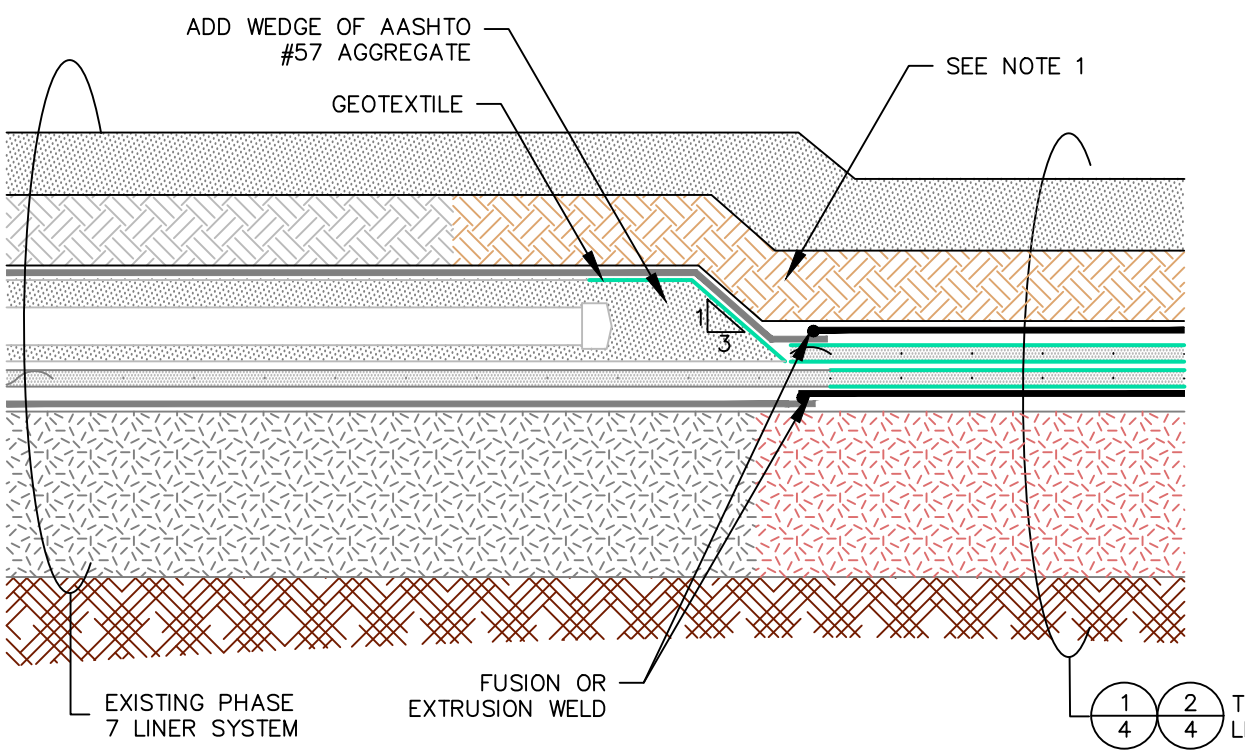
8 SECTION A-A' INTERCELL BERM REMOVAL AND TIE IN
 NOT TO SCALE



9 INTERCELL BERM WITH LINER SYSTEM OVERLAP
 NOT TO SCALE



10 LINER CONTINUATION DETAIL LINER TIE IN WITH PHASE 7
 NOT TO SCALE



11 SECTION B-B' LINER TIE IN WITH PHASE 7
 NOT TO SCALE

NOTES:
 1. EARTHWORK CONTRACTOR SHALL GRADE PROTECTIVE COVER SOIL TO PROVIDE POSITIVE DRAINAGE TO THE LEACHATE COLLECTION PIPE AS SHOWN IN DETAIL 3 OF THIS SHEET.

REVISIONS	

BAI GROUP

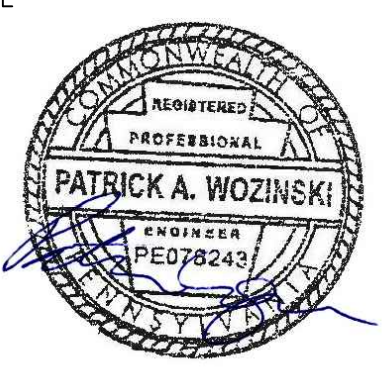
SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY
SECRA COMMUNITY LANDFILL
PHASE 8A CONSTRUCTION

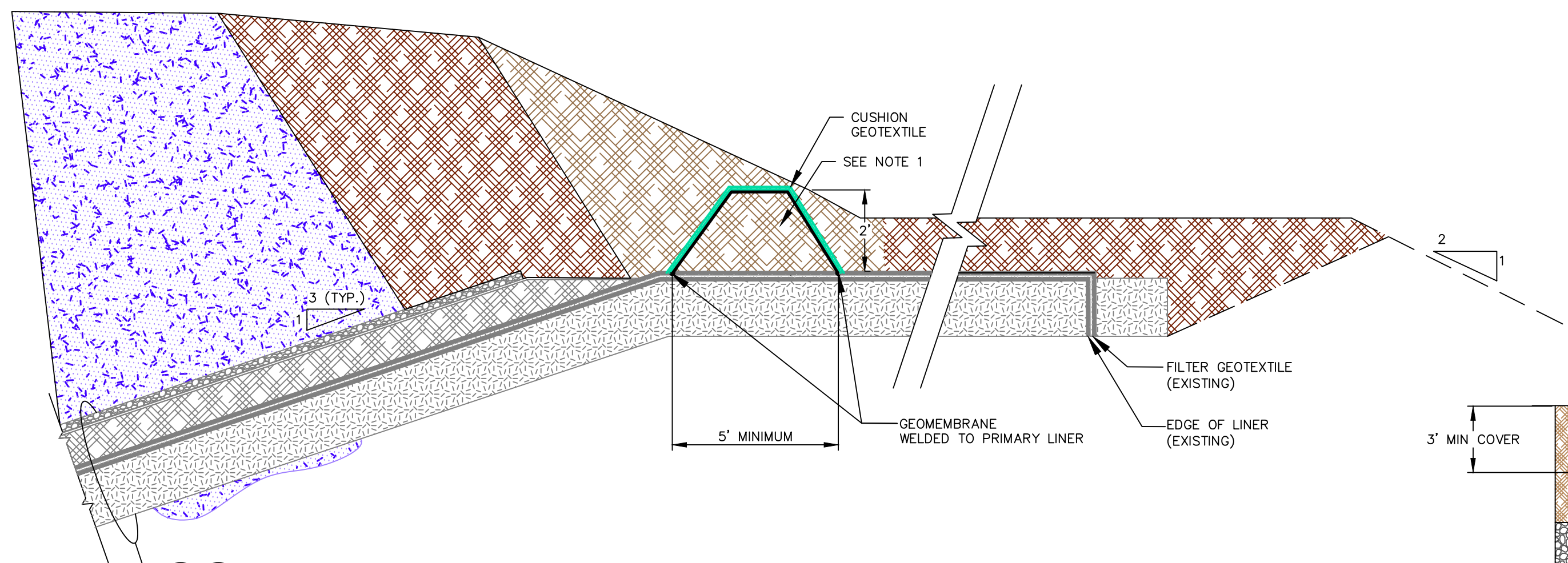
LONDON GROVE TOWNSHIP CHESTER COUNTY PENNSYLVANIA

LANDFILL LINER, BERM AND CAP DETAILS

State College Office (814) 238-2060 Delaware Valley Office (610) 495-5585

DATE: 7/27/2021
 DRAWN BY: RWS
 CHECKED: PW
 BAI DRAWING NO: ROMAN-171E001D
 SHEET NO. 4 OF 6

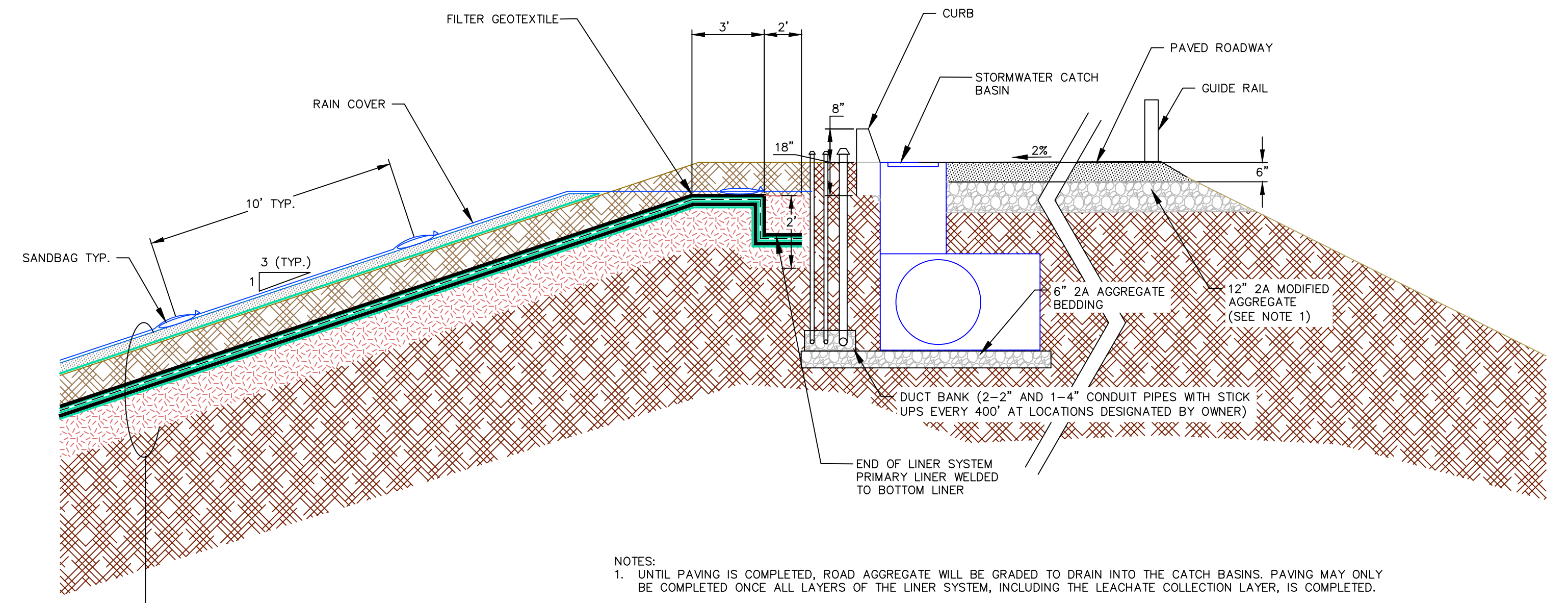




1 LANDFILL PERIMETER BERM AMENDMENT – PHASE 7
NOT TO SCALE

- NOTES:
- EARTHWORK CONTRACTOR SHALL EXCAVATE EXISTING SOILS AND FORM A 2' HIGH BERM TO ALLOW THE LINER INSTALLER TO INSTALL A LINER FLAP AS SHOWN. ONCE THE LINER FLAP IS INSTALLED, CONTRACTOR WILL REPLACE SOIL WITHOUT DAMAGING THE LINER.
 - EARTHWORK CONTRACTOR WILL REMOVE EXISTING SOIL AS PART OF BULK EXCAVATION. LINER INSTALLER WILL BE REQUIRED TO PROVIDE FINAL CLEANING OF THE LINER FOR INSTALLATION.

2 PIPE CULVERT DETAIL
NOT TO SCALE



2 LANDFILL PERIMETER BERM DETAIL WITHOUT CAP – PHASES 8A-10A
NOT TO SCALE

- NOTES:
- UNTIL PAVING IS COMPLETED, ROAD AGGREGATE WILL BE GRADED TO DRAIN INTO THE CATCH BASINS. PAVING MAY ONLY BE COMPLETED ONCE ALL LAYERS OF THE LINER SYSTEM, INCLUDING THE LEACHATE COLLECTION LAYER, IS COMPLETED.

**TABLE 4.1
COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS**

MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY-DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	3/8"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

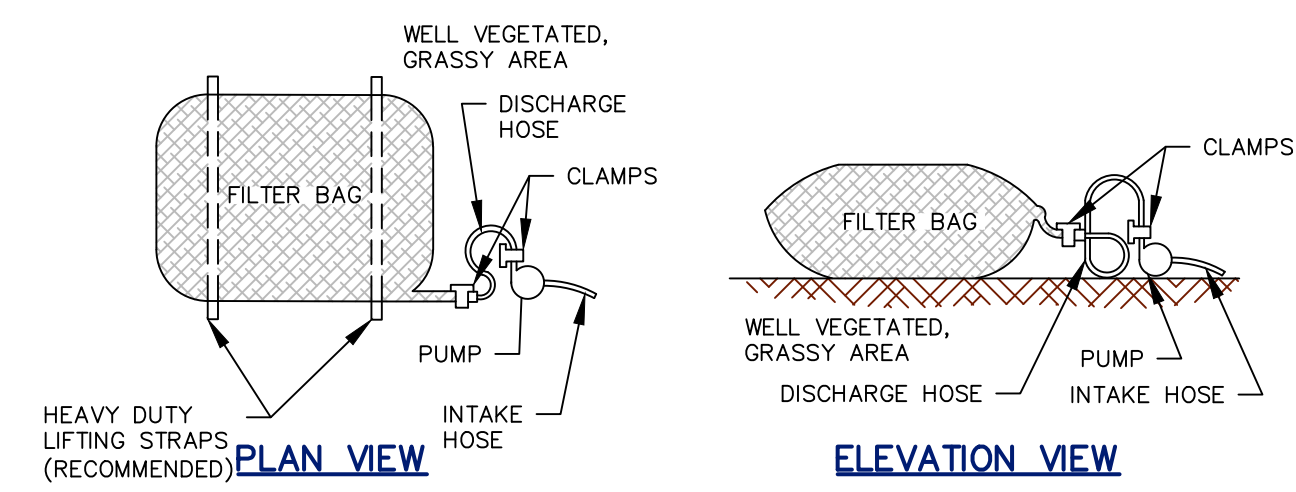
TWO-PLY SYSTEMS

INNER CONTAINMENT NETTING	HDPE BIAXIAL NET CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES
	3/4" x 3/4" MAX. APERTURE SIZE
OUTER FILTRATION MESH	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH)
	3/16" MAX. APERTURE SIZE

SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS.

COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	80% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
PH	5.5 - 8.0
MOISTURE CONTENT	35% - 55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

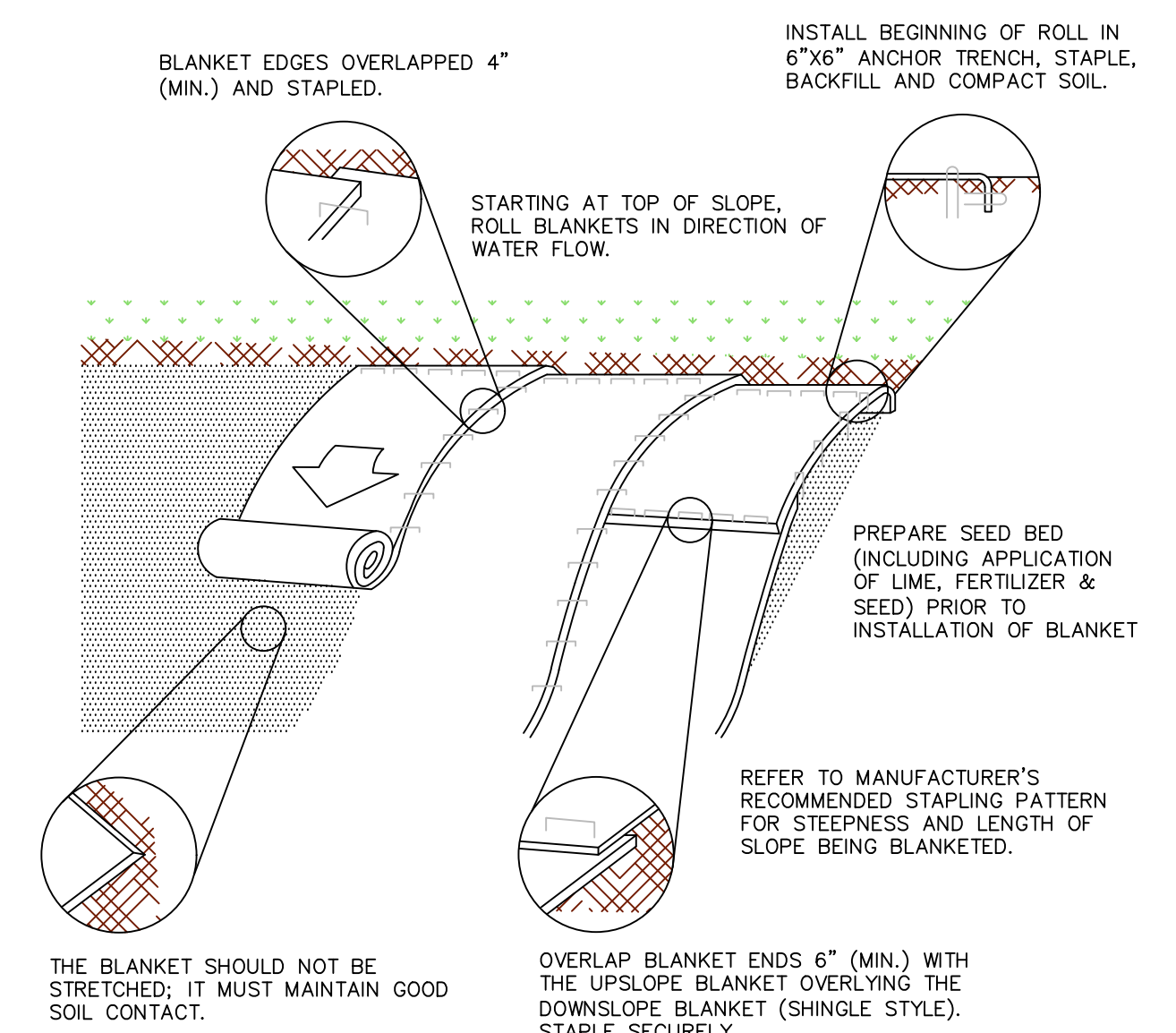


- NOTES:
- LOW-VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS MAY BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

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-4751	80 SIEVE

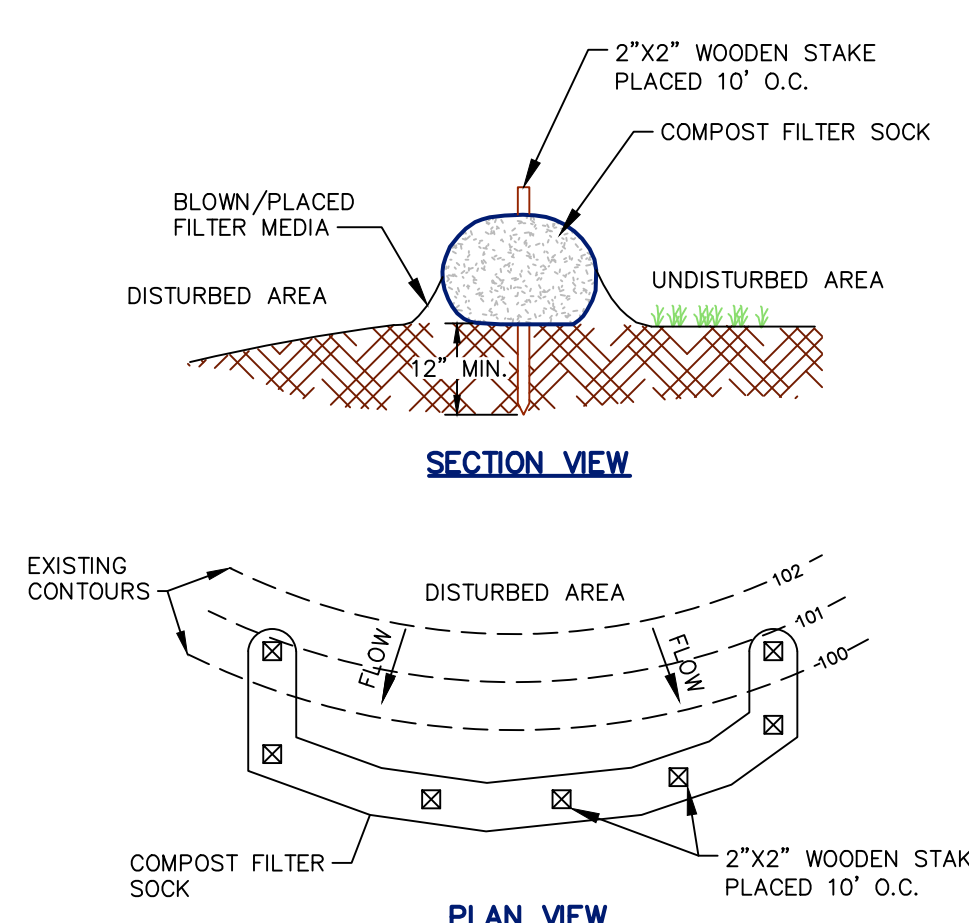
- A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE 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 NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON 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 PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
- NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHOULD 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 1/2 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.

**3 STANDARD CONSTRUCTION DETAIL #13-16
PUMPED WATER FILTER BAG**
NOT TO SCALE



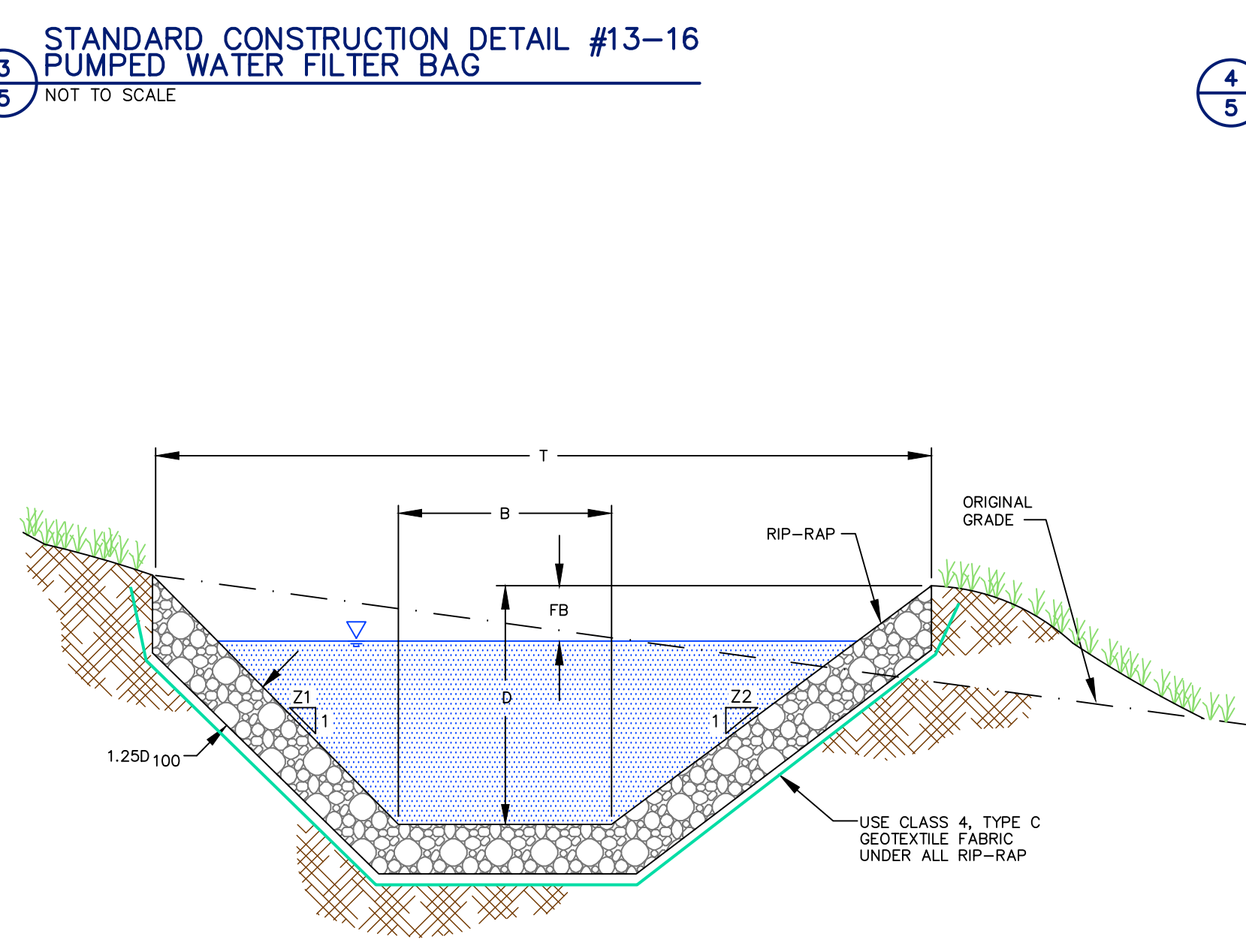
- NOTES:
- SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.
 - PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
 - SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
 - BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
 - STAPLING OF THE BLANKET SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

**4 STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION**
NOT TO SCALE



- NOTES:
- SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PADEP EROSION & SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL (MARCH 2012). COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2
 - COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE 4.2. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
 - TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
 - ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
 - SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
 - BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER SIX 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.

5 COMPOST FILTER SOCK
NOT TO SCALE



6 TRAPEZOIDAL ROCK-LINED CHANNEL
NOT TO SCALE

TRIANGULAR AND TRAPEZOIDAL CHANNEL SCHEDULE

CHANNEL ID.	ACRES DRAINED (acre)	GRADE (percent) (max) (min)	Q REQ'D (cfs)	Q' AVAIL (cfs)	V MAX (fps)	V (fps)	LINING	SIDE SLOPES (2:1/2:3)	B (ft)	FINAL DIMEN. (D' X T')	FREEBOARD FB (ft)	OUTLET STRUCTURE	
C-1A	44.8	8.0	4.0	123.5	131.1	11.5	7.3	R-5 RIPRAP	2/2	5.0	3.09 X 17.37	1.09	SED BASIN 3
C-3	2.89	3.3	2.0	12.9	14.0	6.5	4.6	R-3 RIPRAP	2/2	2.0	1.50 X 8.0	0.50	EXISTING CULVERT
TC-2	1.91	3.0	3.0	14.3	14.4	4.0	3.5	GRASS	2/2	4.0	1.25 X 9.0	0.50	TOE CULVERT T3-4

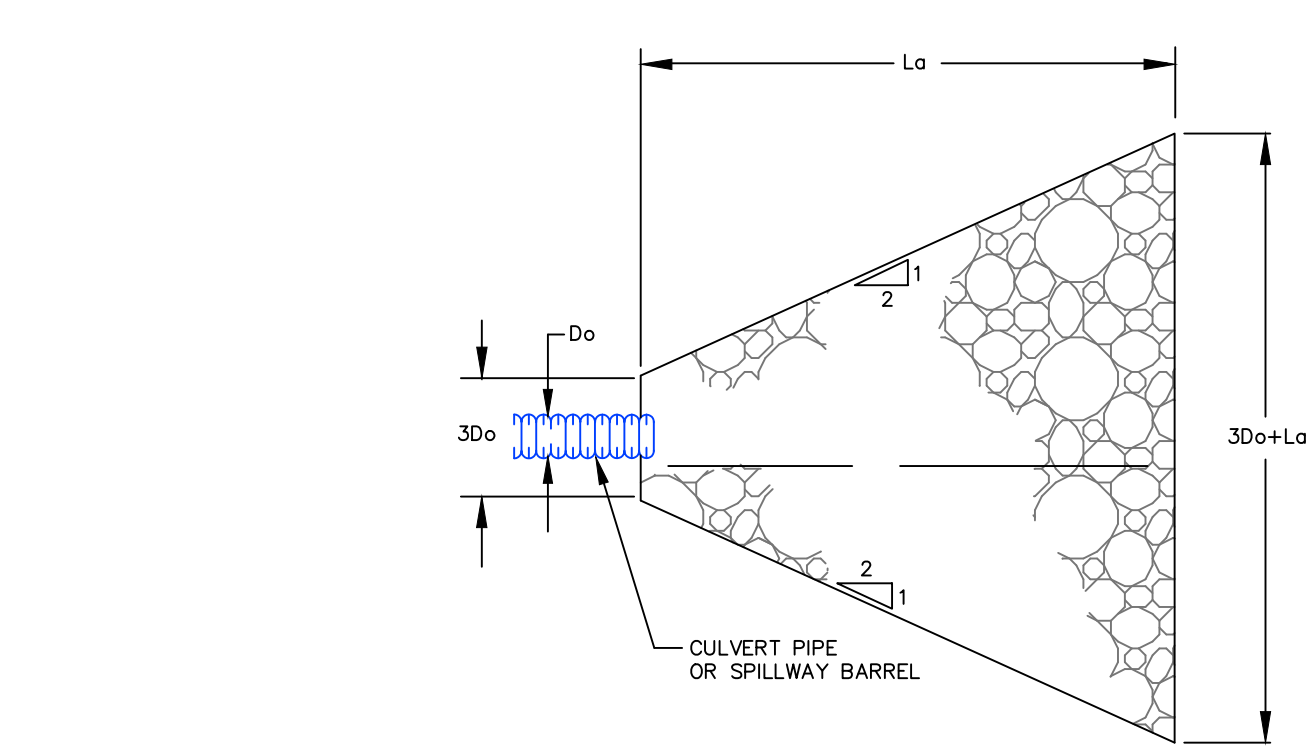
TOE CULVERT SCHEDULE

CULVERT	ACRES DRAINED (acre)	Q REQ'D (cfs)	Q' AVAIL (cfs)	MIN COVER (ft)	MIN SLOPE % (2:1)	LENGTH (ft)	NO. OF PIPES	CULVERT DIAMETER (in)	RECEIVING STRUCTURE
T3-4t	5.03	16.98	108.99	36	1.0	1200	1	42	T3-7

SCHEDULE OF CULVERT OPTIONS FOR CHANNELS

CHANNEL ID	MIN SLOPE %	CULVERT DIAMETER (IN.)
C1-A	2.0	1
T3-4t	3.0	1

- NOTES:
- SCHEDULE IS TO BE USED TO SELECT CULVERT SIZES AND NUMBER OF BARRELS TO BE USED WHEN A ROAD CROSSING IS USED ACROSS A CHANNEL.
 - BARRELS SHALL BE PLACED AT THE MINIMUM SLOPE INDICATED FOR THE CHANNEL.
 - AN ADDITIONAL 0.5' OF FREEBOARD SHALL BE PROVIDED IN THE CHANNEL ON THE INVERT SIDE OF THE CULVERT.

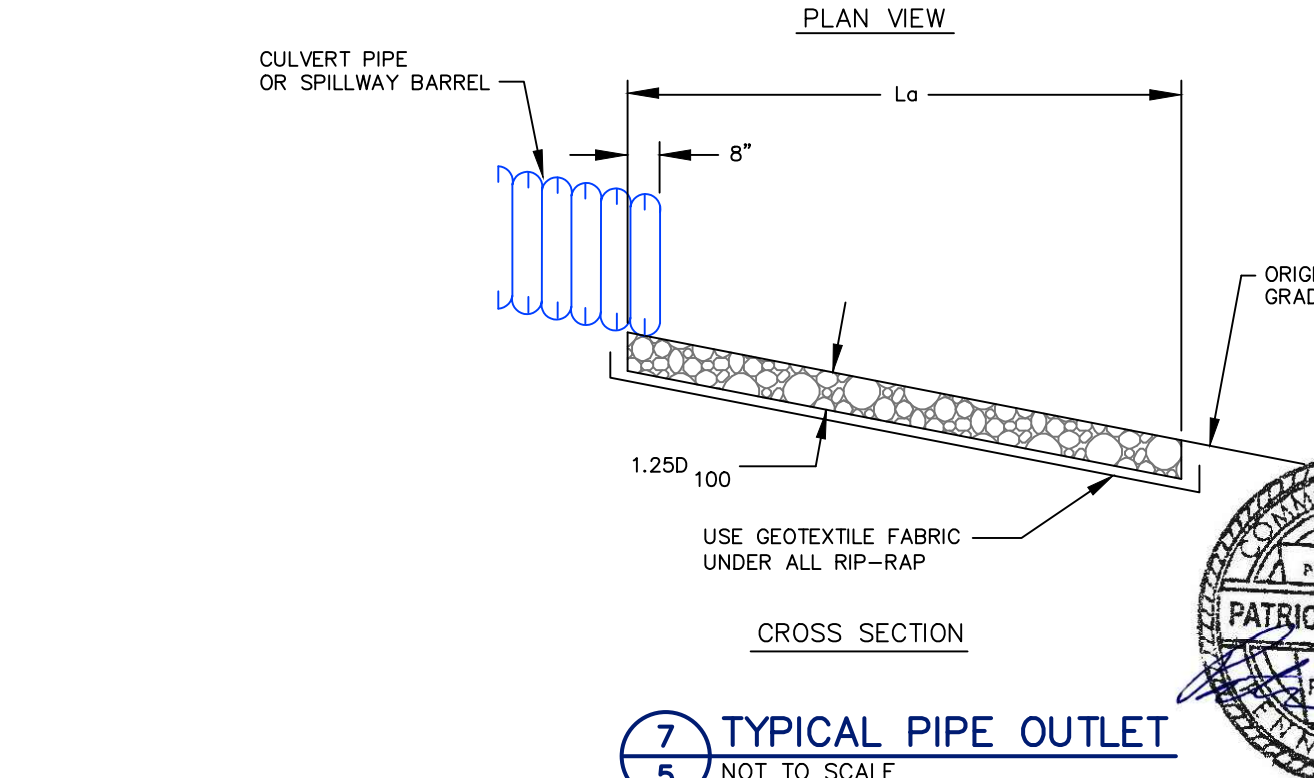


NSCA RIP-RAP GRADATIONS

NSCA NO.	MAX. D100 (in)	AVG. D50 (in)	MIN. D10 (in)	PERMISSIBLE VELOCITY (fps)
R-3	6	3	2	6.5
R-4	12	6	3	9.0
R-5	18	9	5	11.5
R-6	24	12	7	13.0

NOTE: UNIT WEIGHT OF ROCK SHALL BE APPROXIMATELY 165 pcf. ROCK RIP-RAP SHALL BE WELL-GRADED CRUSHED STONE COMPLYING WITH PennDOT 40B, SECTION 850.

APRON NO.	OUTLET NO.	PIPE DIA Do (IN)	INCOMING CHANNEL WIDTH	SIZE RIPRAP	THICKNESS (IN)	LENGTH (FT)	INITIAL WIDTH (FT)	TERMINAL WIDTH (FT)
1	T3-4t	42	N/A	R-6	30	32	10.5	42.5



7 TYPICAL PIPE OUTLET
NOT TO SCALE

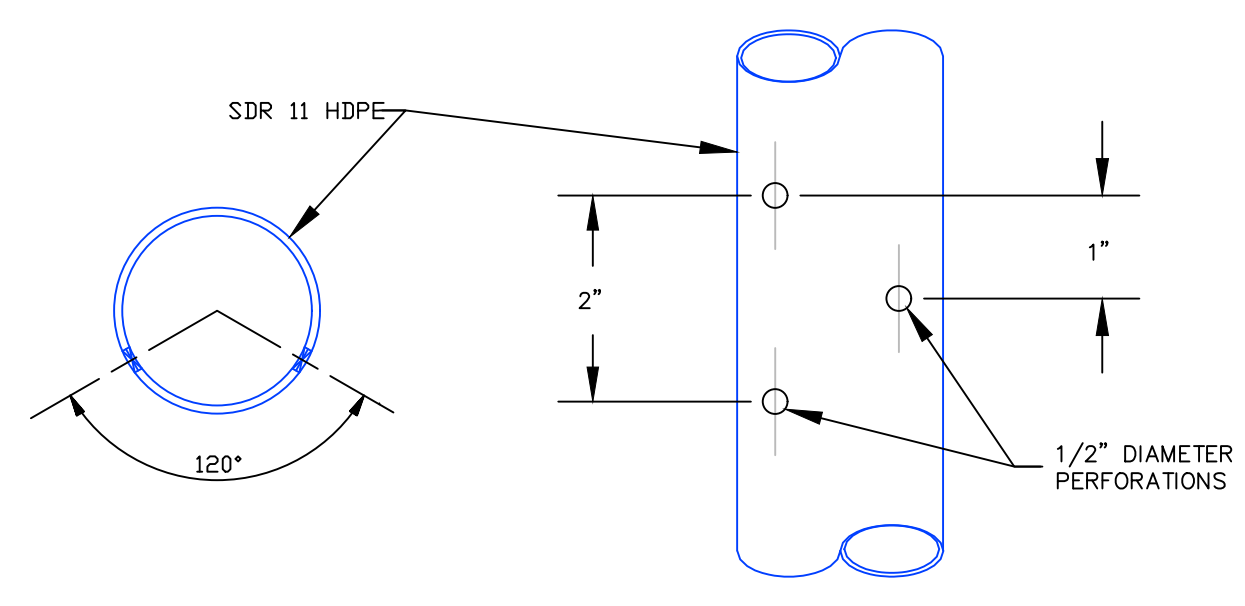
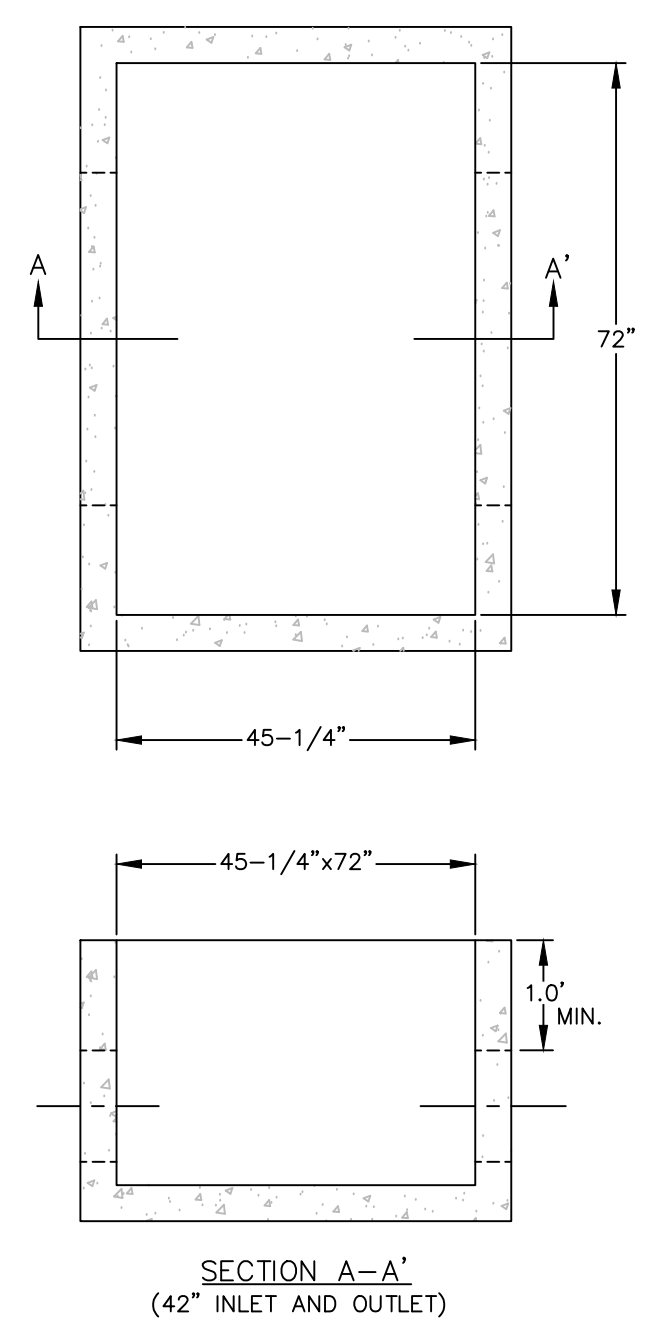
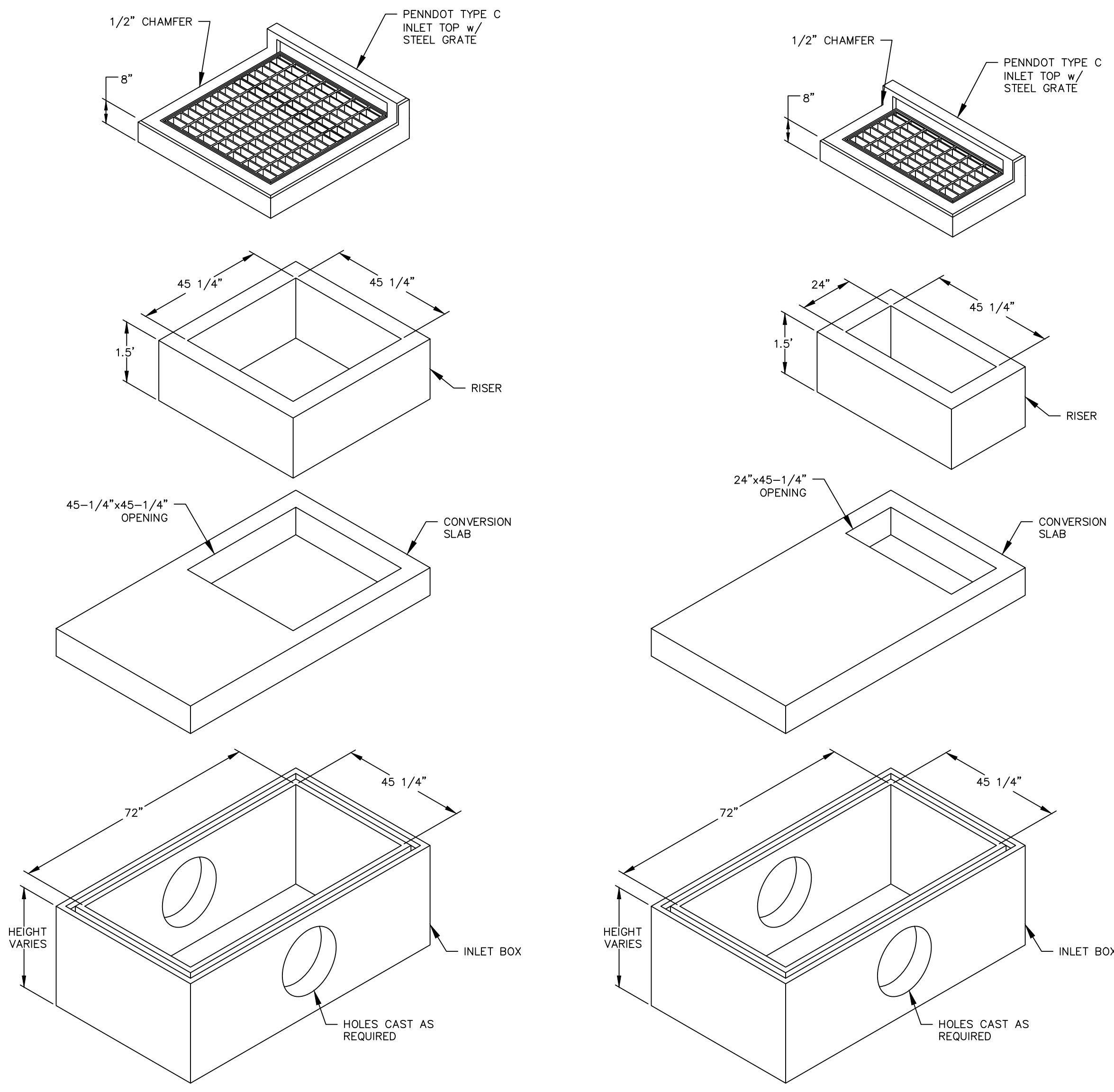
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NO.	DESCRIPTION	DATE

SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY
**SECCRA COMMUNITY LANDFILL
 PHASE 8A CONSTRUCTION**
 LONDON GROVE TOWNSHIP CHESTER COUNTY PENNSYLVANIA
BERM AND CAP DETAILS

DATE: 7/27/2021
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State College Office (814) 238-2060
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PIPING PERFORATION SCHEDULE

PIPE FUNCTION	PIPE DIAMETER	MINIMUM NUMBER OF PERFORATIONS PER FOOT	DIAMETER OF PERFORATIONS	HOLE SPACING
LEACHATE COLLECTION	6"	12 PERFORATIONS PER FOOT	1/2"	1"

2
6 NOT TO SCALE
TYPICAL LEACHATE COLLECTION PERFORATED PIPE

TABLE 11.4
Recommended Seed Mixtures

Mixture Number	Species	Seeding Rate - Pure Live Seed ¹	
		Most Sites	Adverse Sites
1 ²	Spring oats (spring), or	64	96
	Annual ryegrass (spring or fall), or	10	15
	Winter wheat (fall), or	90	120
	Winter rye (fall)	56	112
2 ³	Tall fescue, or	60	75
	Fine fescue, or	35	40
	Kentucky bluegrass, plus	25	30
	Redtop ⁴ , or	3	3
3	Perennial ryegrass	15	20
	Birdsfoot trefoil, plus	6	10
	Tall fescue	30	35
	Birdsfoot trefoil, plus	6	10
4	Reed canarygrass	10	15
	Crownvetch, plus	10	15
	Tall fescue, or	20	25
	Perennial ryegrass	20	25
5 ⁵	Crownvetch, plus	10	15
	Annual ryegrass	20	25
	Birdsfoot trefoil, plus	6	10
	Tall fescue	10	15
6 ^{5,8}	Tall fescue	20	30
	Flatpea, plus	20	30
	Tall fescue, or	20	30
	Perennial ryegrass	20	25
7 ⁸	Serecia lespedeza, plus	10	20
	Tall fescue, plus	20	25
	Redtop ⁴	3	3
	Tall fescue, plus	40	60
8	Fine fescue	10	15
	Deertongue, plus	15	20
	Birdsfoot trefoil	6	10
	Switchgrass, or	15	20
9 ⁶	Big Bluestem, plus	15	20
	Birdsfoot trefoil	6	10
	Orchardgrass, or	20	30
	Smooth bromegrass, plus	25	35
10	Birdsfoot trefoil	6	10
	Spring oats (spring), or	64	96
	Annual ryegrass (spring or fall), or	10	15
	Winter wheat (fall), or	90	120
11	Winter rye (fall)	56	112
	Tall fescue, or	60	75
	Fine fescue, or	35	40
	Kentucky bluegrass, plus	25	30
12 ⁷	Redtop ⁴ , or	3	3
	Perennial ryegrass	15	20
	Birdsfoot trefoil, plus	6	10
	Tall fescue	30	35
13	Birdsfoot trefoil	6	10

Penn State, "Erosion Control and Conservation Plantings on Noncropland"

1. PLS is the product of the percentage of pure seed times percentage germination divided by 100. For example, to secure the actual planting rate for switchgrass, divide 12 pounds PLS shown on the seed tag. Thus, if the PLS content of a given seed lot is 35%, divide 12 PLS by 0.35 to obtain 34.3 pounds of seed required to plant one acre. All mixtures in this table are shown in terms of PLS.
2. If high-quality seed is used, for most sites seed spring oats at a rate of 2 bushels per acre, winter wheat at 11.5 bushels per acre, and winter rye at 1 bushel per acre. If germination is below 90%, increase these suggested seeding rates by 0.5 bushel per acre.
3. This mixture is suitable for frequent mowing. Do not cut shorter than 4 inches.
4. Keep seeding rate to that recommended in table. These species have many seeds per pound and are very competitive. To seed small quantities of small seeds such as weeping lovegrass and reedtop, dilute with dry sawdust, sand, rice hulls, buckwheat hulls, etc.
5. Use for highway slopes and similar sites where the desired species after establishment is crownvetch.

3
6 NOT TO SCALE
RECOMMENDED SEED MIXTURES

PRECAST CONCRETE
45" x 45" INLET BOX w/ TYPE M INLET TOP

NOMINAL PIPE I.D., in.	RECOMMENDED MINIMUM HOLE DIAMETER, in.	MINIMUM DISTANCE PIPE INVERT TO STRUCTURE INVERT, in.
42	5.3	5.7

1
6 NOT TO SCALE
CATCH BASIN

- NOTES:
1. CUTOUTS SHALL BE CAST TO INSTALL THE MINIMUM ADS PIPE DIAMETER SPECIFIED AT A 12% SLOPE.
 2. CATCH BASINS NEED TO BE RATED TO WITHSTAND LOADED TRACTOR TRAILERS AND AT MINIMUM BE 4,000 PSI REINFORCED CONCRETE.
 3. CATCH BASINS WILL BE CONSTRUCTED IN ACCORDANCE WITH PENNDOT TYPE M.

PRECAST CONCRETE
24" x 45" INLET BOX w/ TYPE M INLET TOP

TABLE 11.5
Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Condition	Nurse Crop	Seed Mixture (Select one mixture)
Slopes and Banks (not mowed)		
Well-drained	1 plus	3, 5, 8, or 12 ¹
Variable drainage	1 plus	3 or 7
Slopes and Banks (mowed)		
Well-drained	1 plus	2 or 10
Slopes and Banks (grazed/hay)		
Well-drained	1 plus	2, 3, or 13
Gullies and Eroded Areas		
Well-drained	1 plus	3, 5, 7, or 12 ¹
Erosion Control Facilities (BMPs)		
Sod waterways, spillways, frequent water flow areas	1 plus	2, 3, or 4
Drainage ditches	1 plus	2, 3, or 4
Shallow, less than 3 feet deep	1 plus	2, 3, or 4
Deep, not mowed	1 plus	5 or 7
Along banks, dikes, levees, ditches, diversion channels, and occasional water flow areas	1 plus	5 or 7
Mowed areas	1 plus	2 or 3
Non-mowed areas	1 plus	5 or 7
For hay or silage on diversion channels and occasional water flow areas	1 plus	3 or 13
Highways		
Non-mowed areas	1 plus	5 or 6
Pure crownvetch ³	1 plus	5, 7, 8, 9, or 10
Well-drained	1 plus	3 or 7
Variable drained	1 plus	3 or 7
Poorly drained	1 plus	3 or 4
Areas mowed several times per year	1 plus	2, 3, or 10
Utility Right-of-way		
Well-drained	1 plus	5, 8, or 12 ¹
Variable drained	1 plus	3 or 7
Well-drained areas for grazing/hay	1 plus	2, 3, or 13
Effluent Disposal Areas		
Well-drained	1 plus	3 or 4
Sanitary Landfills		
Well-drained	1 plus	3, 5, 7, 11 ¹ , or 12 ¹
Surface mines		
Spills, mine wastes, fly ash, slag, settling basin	1 plus	3, 4, 5, 7, 8, 9, 11 ¹ , or 12 ¹
Residues and other severely disturbed areas (lime to soil test)	1 plus	3, 4, 5, 7, 8, 9, 11 ¹ , or 12 ¹
Severely disturbed areas for grazing/hay	1 plus	3 or 13

- Penn State, "Erosion Control and Conservation Plantings on Noncropland"
1. For seed mixtures 11 and 12, only use spring oats or weeping lovegrass (included in mix) as nurse crop.
 2. Contact the Pennsylvania Department of Transportation district roadside specialist for specific suggestions on treatment techniques and management practices.
 3. 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.

4
6 NOT TO SCALE
RECOMMENDED SEED MIXTURES

TEMPORARY SEEDING SUMMARY

SPECIES	% PURE LIVE SEED	APPLICATION RATE (LB/AC)	LIMING RATE	FERTILIZER	FERTILIZER RATE	MULCH TYPE	MULCH RATE
ANNUAL RYE	98%	140	2 TONS/AC	(10-10-10)	600#/ACRE	SMALL GRAIN STRAW	3.0 TONS/ACRE

PERMANENT STABILIZATION/SEEDING SCHEDULE

SPECIES	SEED MIXTURE (PENNDOT FORMULA B)		
	% MIX EACH	% PURE LIVE SEED	APPLICATION RATE
BARON KENTUCKY BLUEGRASS	50%	85%	80%
JAMESTOWN II CHEWINGS FESCUE	30%	97%	80%
PALMER II PERENNIAL RYEGRASS	20%	98%	90%

NOTE: EROSION BLANKETS (S407GR OR EQUIVALENT) SHALL BE INSTALLED ON PERMANENT SLOPES 3:1 OR STEEPER

- NOTES:
1. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES, DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIC RATES. DISTURBED AREAS WHICH ARE NOT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
 2. AREAS WHICH ARE TO BE TOP-SOILED 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 OF 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING, I.E., YARDS.

5
6 NOT TO SCALE
SOIL SEEDING SCHEDULE

REVISIONS		DATE:
4/04/2022	MODIFIED DETAIL 1/6	2/07/2022

SOUTHEASTERN CHESTER COUNTY REFUSE AUTHORITY
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PHASE 8A CONSTRUCTION
LONDON GROVE TOWNSHIP CHESTER COUNTY PENNSYLVANIA

CATCH BASIN DETAILS

State College Office (814) 238-2060 Delaware Valley Office (610) 495-5685

DRAWN BY: **RWS**
CHECKED: **PW**
BAI DRAWING NO: **ROMAN-171E001F R1**
SHEET NO: **6 OF 6**

