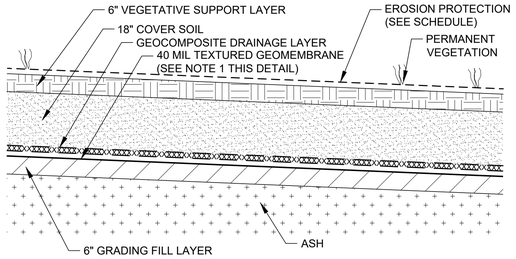
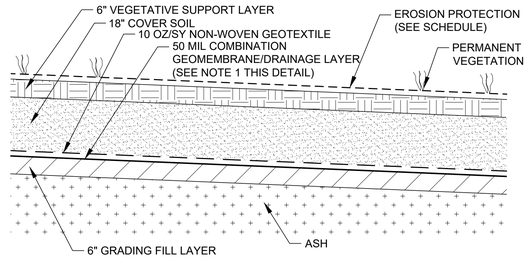


1 SCALE: 1" = 2' 1/05 TYPICAL FINAL COVER SYSTEM (PRIMARY)

NOTES:
1. 40 MIL TEXTURED GEOMEMBRANE TO BE HDPE OR LLDPE.
2. THE FINAL COVER SYSTEM CONFIGURATIONS ARE INTERCHANGEABLE. FINAL CONFIGURATION TO BE DETERMINED AT TIME OF CONSTRUCTION.



1 SCALE: 1" = 2' 1A/05 TYPICAL FINAL COVER SYSTEM (ALTERNATES)

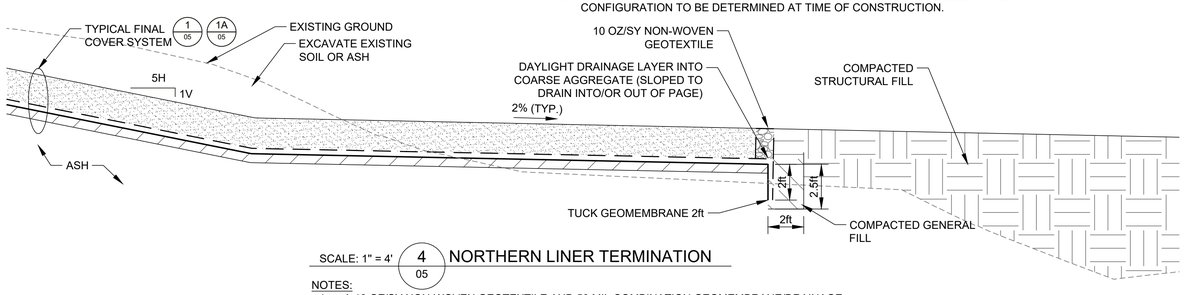
NOTES:
1. TWO ALTERNATE FINAL COVER OPTIONS ARE PROPOSED. PROPOSED ALTERNATE OPTION NO. 1 UTILIZES A 50-MIL LLDPE OR HDPE SUPER GRIPNET® COMBINATION GEOMEMBRANE/DRAINAGE LAYER. PROPOSED ALTERNATE OPTION NO. 2 UTILIZES A 50-MIL HDPE OR LLDPE MICRODRAIN® COMBINATION GEOMEMBRANE/DRAINAGE LAYER.
2. THE FINAL COVER SYSTEM CONFIGURATIONS ARE INTERCHANGEABLE. FINAL CONFIGURATION TO BE DETERMINED AT TIME OF CONSTRUCTION.

EROSION PROTECTION SCHEDULE

LOCATION	EROSION PROTECTION TYPE	LINING TYPE	DETAIL
PERIMETER SWALE	STABILIZED MATTING - CHANNEL	ECB (2)	SEE DETAIL 1 OF DRAWING 9
VERTICAL CHANNELS	STABILIZED MATTING - CHANNEL	TRM (1)	SEE DETAIL 1 OF DRAWING 9
4H:1V SLOPES	STABILIZED MATTING - SLOPES	TRM (1)	SEE DETAIL 2 OF DRAWING 9
5H:1V SLOPES	STABILIZED MATTING - SLOPES	ECB (2)	SEE DETAIL 2 OF DRAWING 9
6H:1V SLOPES	STABILIZED MATTING - SLOPES	ECB (2)	SEE DETAIL 2 OF DRAWING 9
7H:1V SLOPES	STABILIZED MATTING - SLOPES	ECB (2)	SEE DETAIL 2 OF DRAWING 9
4% SLOPES	STABILIZED MATTING - SLOPES	ECB (2)	SEE DETAIL 2 OF DRAWING 9
2% SLOPES	STABILIZED MATTING - SLOPES	ECB (2)	SEE DETAIL 2 OF DRAWING 9

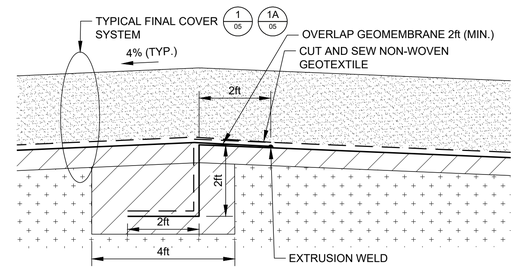
(1) TRM = TURF REINFORCEMENT MATTING (P300 BY NORTH AMERICAN GREEN OR APPROVED EQUAL)

(2) ECB = EROSION CONTROL BLANKET (SC150 BY NORTH AMERICAN GREEN OR APPROVED EQUAL)



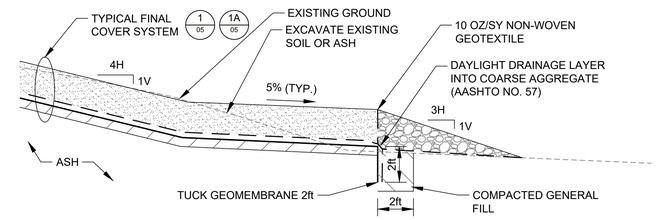
SCALE: 1" = 4' 4/05 NORTHERN LINER TERMINATION

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



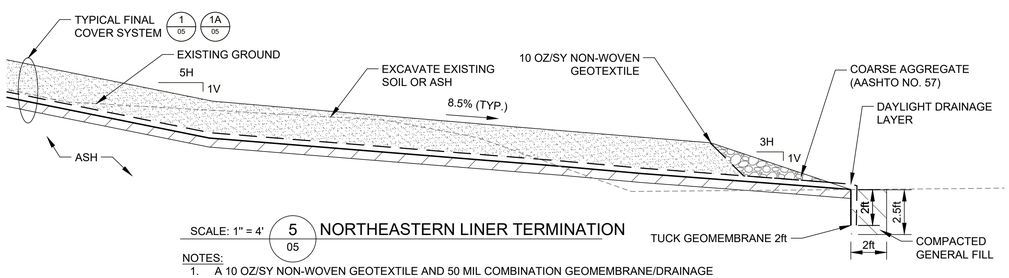
SCALE: 1" = 2' 2/05 PLATEAU ANCHOR TRENCH

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



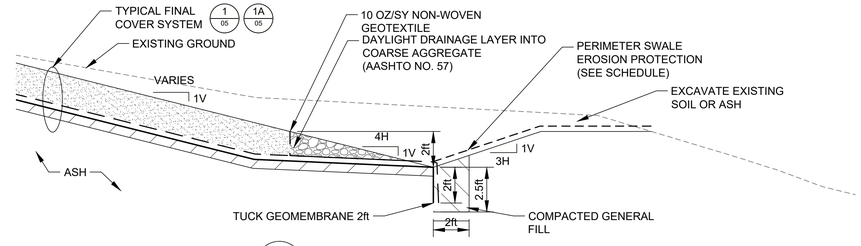
SCALE: 1" = 4' 3/05 SOUTHERN LINER TERMINATION

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



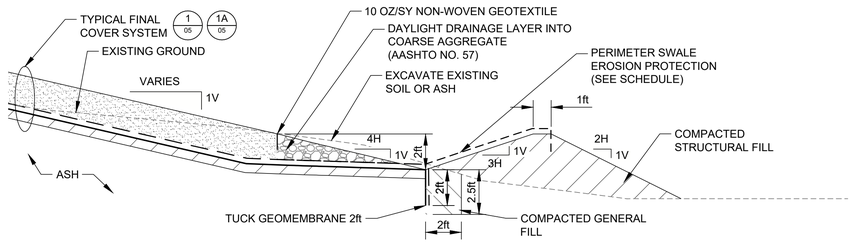
SCALE: 1" = 4' 5/05 NORTHEASTERN LINER TERMINATION

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



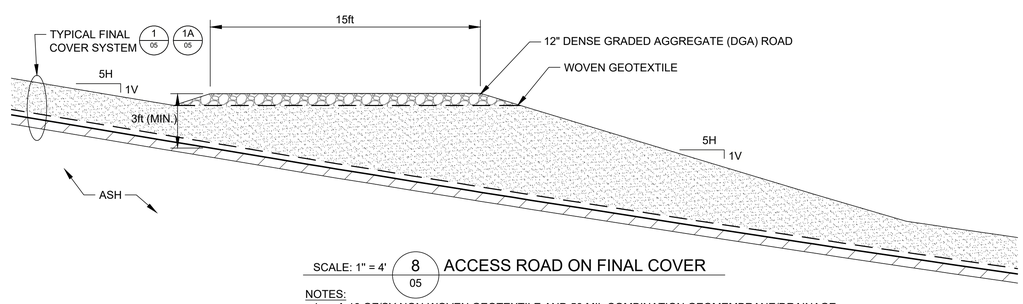
SCALE: 1" = 4' 6/05 WESTERN PERIMETER SWALE/LINER TERMINATION

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



SCALE: 1" = 4' 7/05 EASTERN PERIMETER SWALE/LINER TERMINATION

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



SCALE: 1" = 4' 8/05 ACCESS ROAD ON FINAL COVER

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
1	2020-03-31	REVISED DETAILS 1 AND 1A IN RESPONSE TO DNREC COMMENTS	JPG	AM	JPG	PAW
0	2020-01-03	ISSUED FOR PERMIT	CHC	CHC	JPG	PAW

SEAL

3/31/2020

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GOLDER
NJ Authorization #24GA28029100

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USA
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PROJECT
EDGE MOOR SITE II ASH LANDFILL CLOSURE

TITLE
FINAL COVER SYSTEM DETAILS (SHEET 1 OF 2)

PROJECT NO.	CONTROL	REV.	of	DRAWING
19129265	A005	1		05

Path: \\brsato\Complex\Data\Pepco_Holdings\Edgemoor\19129265 - Edge Moor Ash Closure\A\Active\ | File Name: 19129265A005 - Details.dwg | Last Edited By: amorales Date: 2020-03-27 Time:1:59:52 PM | Printed By: AMorales Date: 2020-03-27 Time:2:01:10 PM
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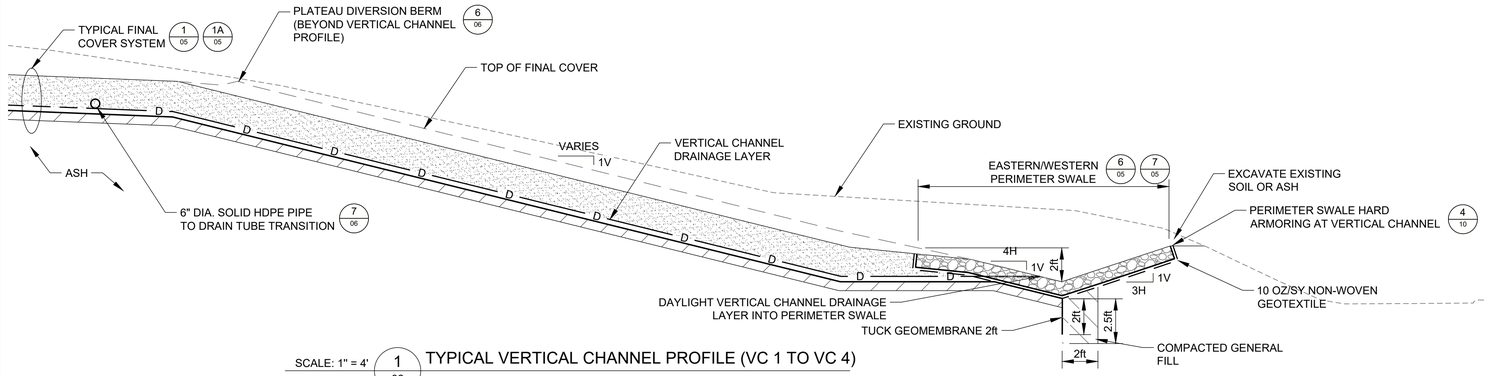
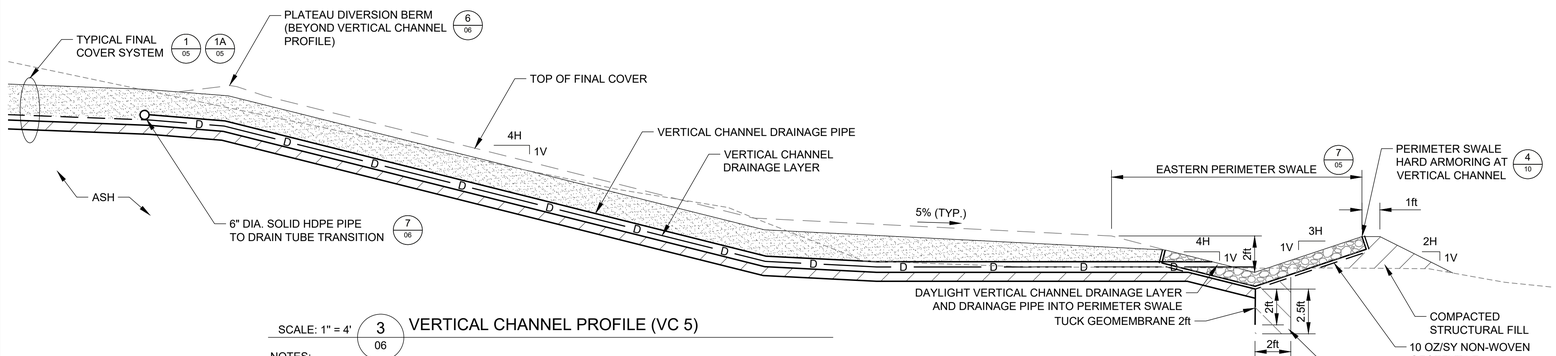


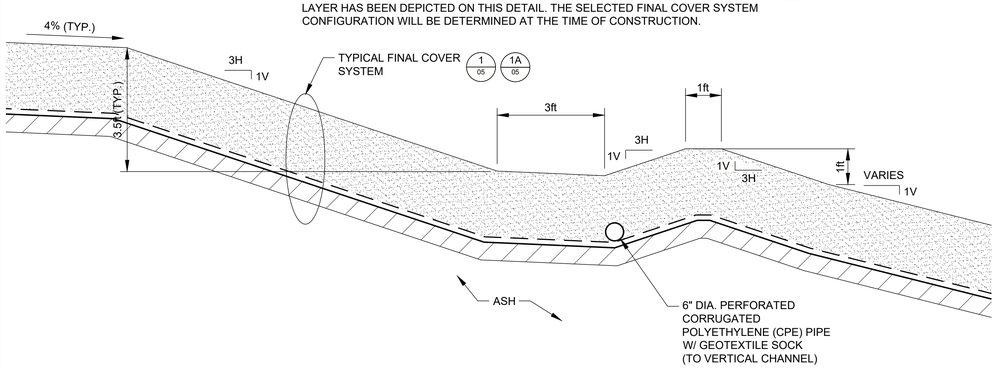
SCALE: 1" = 4' 1/06 TYPICAL VERTICAL CHANNEL PROFILE (VC 1 TO VC 4)

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



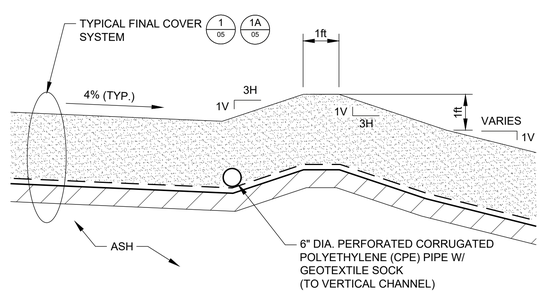
SCALE: 1" = 4' 3/06 VERTICAL CHANNEL PROFILE (VC 5)

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



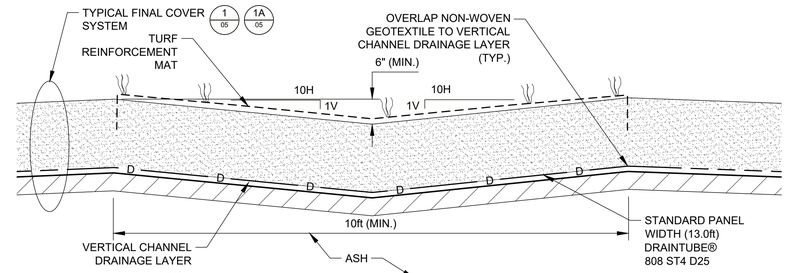
SCALE: 1" = 2' 5/06 PLATEAU DIVERSION BERM CHANNEL

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



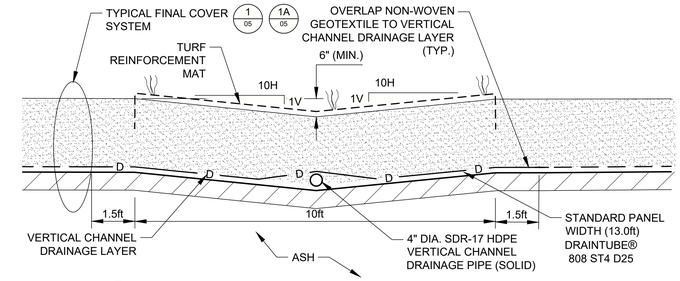
SCALE: 1" = 2' 6/06 PLATEAU DIVERSION BERM

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



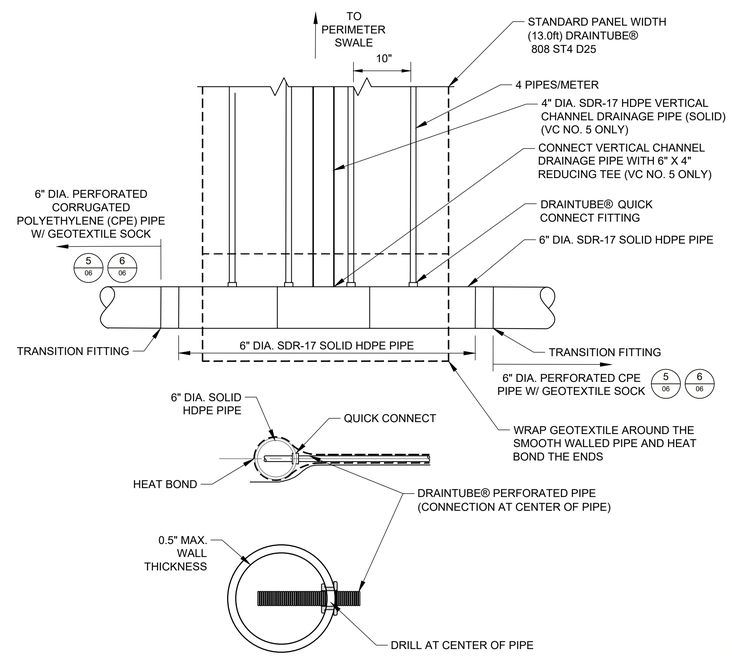
SCALE: 1" = 2' 2/06 TYPICAL VERTICAL CHANNEL SECTION (VC 1 TO VC 4)

NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



SCALE: 1" = 2' 4/06 VERTICAL CHANNEL SECTION (VC 5)

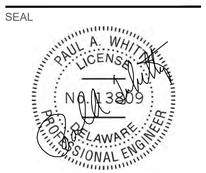
NOTES:
1. A 10 OZ/SY NON-WOVEN GEOTEXTILE AND 50 MIL COMBINATION GEOMEMBRANE/DRAINAGE LAYER HAS BEEN DEPICTED ON THIS DETAIL. THE SELECTED FINAL COVER SYSTEM CONFIGURATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.



SCALE: N.T.S. 7/06 SOLID HDPE PIPE TO DRAINTUBE® TRANSITION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2020-01-03		CHC	CHC	JPG	PAW

SEAL



2020-01-03

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PROJECT
EDGE MOOR SITE II ASH LANDFILL CLOSURE

TITLE
FINAL COVER SYSTEM DETAILS (SHEET 2 OF 2)

PROJECT NO.	CONTROL	REV.	of	DRAWING
19129265	A005	0		06

Path: \\bristol\Complex\Data\Pepco_Holdings\Edgemoor\19129265 - Edge Moor Ash Closure\AAcAive\ | File Name: 19129265A005 - Details.dwg | Last Edited By: chchan Date: 2020-01-03 Time:10:55:47 AM | Printed By: CHChan Date: 2020-01-03 Time:11:55:55 AM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D
0 1in

STABILIZATION NOTE

1. GRADED OR CLEARED AREAS SUBJECT TO EROSION FOR A PERIOD OF 14 DAYS OR MORE MUST RECEIVE TEMPORARY STABILIZATION IN ACCORDANCE WITH THE REQUIREMENTS OF THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK. IF THE AREA IN QUESTION HAS ACHIEVED FINAL GRADES AND IS READY FOR STABILIZATION, PERMANENT STABILIZATION SHOULD BE INSTALLED WITHIN 14 DAYS.

Standard Detail & Specifications
Vegetative Stabilization

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES

Mix #	Species[6]	Seeding Rate		Optimum Seeding Dates [1] O = Optimum Planting Period; A = Acceptable Planting Period							Planting Depth[3]
				Coastal Plain			Piedmont			All	
	Certified Seed	lb/Ac[5]	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.4.3** Sheet 1 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES

Mix No.	Seeding Mixtures: Certified Seed[2]	Seeding Rate[3]		Optimum Seeding Dates [2] O = Optimum Planting Period; A = Acceptable Planting Period							Remarks
				Coastal Plain			Piedmont			All[4]	
	Well Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
1	Tall Fescue	140	3.2	A	O	A	A	O	A		Add 100 lbs./ac Winter Rye. Good erosion control mix. Tolerant of low fertility soils
	Weeping Lovegrass	10	0.23								Lovegrass very difficult to mow; Germinates only in hot weather
2	Deertongue	30	0.69	A	O	A	A	O	A		Add 100 lbs./ac Winter Rye. Good erosion control mix. Tolerant of low fertility soils
	Sheep Fescue	30	0.69								
	Common Lespedeza[5] Inoculated	15	0.35								Good wildlife cover and food
3	Tall Fescue (Turf-type) **or**	50	1.15	O	A	O	O	A	O		Add 100 lbs./ac. Winter Rye. Good erosion control mix
	Strong Creeping Red Fescue **or**	50	1.15								Tall Fescue for droughty conditions. Creeping Red Fescue for heavy shade. Flatpea to suppress woody vegetation.
	Perennial Ryegrass	50	1.15								
	plus Flatpea[5]	15	0.34								
4	Strong Creeping Red Fescue	100	2.3	O	A	O	O	A	O		Add 100 lbs./ac. Winter Rye. Suitable waterway mix. Canada Bluegrass more drought tolerant. Use Redtop for increased drought tolerance.
	Kentucky Bluegrass	20	1.61								
	Perennial Ryegrass **or**	15	0.35								
	Redtop	5	0.11								
	plus White Clover[5]	3	0.07								
5	Switchgrass[5] **or**	10	0.23		O			O			Native warm-season mixture. Tolerant of low fertility soils. Drought tolerant. Poor shade tolerance. N-fertilizer discouraged - weeds
	Coastal Panicgrass	10	0.23								
	Big Bluestem	5	0.11								
	Little Bluestem	5	0.11								
	Indian Grass	5	0.11								
6	Tall Fescue (turf-type) (Blend of 3 cultivars)	150	3.5	O	A	O	O	A	O		Managed filter strip for nutrient uptake.
7	Tall Fescue	150	3.5	O	A	O	O	A	O		Three cultivars of Kentucky Bluegrass. Traffic tolerant.
	Ky. Bluegrass (Blend)	20	0.46								
	Perennial Ryegrass	20	0.46								
8	Big Bluestem[5]	10	0.23	O	A		O	A	O		All species are native. Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill. Creeping Red Fescue will provide erosion protection while the warm season grasses get established.
	Indian Grass[5]	10	0.23								
	Little Bluestem[5]	8	0.18								
	Creeping Red Fescue **plus one of:**	30	0.69								
	Partridge Pea	5	0.11								
	Bush Clover	3	0.07								
	Wild Indigo	3	0.07								
	Showy Tick-Trefoil	2	0.05								

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.4.3** Sheet 2 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES (cont.)

Mix No.	Seeding Mixtures: Certified Seed[2]	Seeding Rate[3]		Optimum Seeding Dates [2] O = Optimum Planting Period; A = Acceptable Planting Period							Remarks
				Coastal Plain			Piedmont			All[4]	
	Poorly Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
9	Redtop	75	1.72	O	A	O	O	A	O	Add 100 lbs./ac Winter Rye	Quick stabilization of disturbed sites and waterways
	Creeping Bentgrass	35	0.8								
	Sheep Fescue	30	0.69								
	Rough Bluegrass	45	1								
10	Reed Canarygrass[6]	10	0.23	A		O	A		O		Good erosion control, wildlife cover and wetland revegetation.
	Residential Lawns										
11	Tall Fescue	100	2.3	O	A	O	O	A	O		High value, high maintenance, light traffic, irrigation necessary. Well drained soils, full sun.
	Perennial Ryegrass	25	0.57								
	Kentucky Bluegrass Blend	30	0.69								
12	Tall Fescue	100	2.3	O	A	O	O	A	O		Moderate value, low maintenance, traffic tolerant
	Perennial Ryegrass	25	0.57								
	Sheep Fescue	25	0.57								
13	Creeping Red Fescue	50	1.15	O	A	O	O	A	O		Shade tolerant, moderate traffic tolerance, moderate maintenance.
	Chewings Fescue	50	1.15								
	Rough Bluegrass	20	0.4								
	Kentucky Bluegrass	20	0.4								
14	Creeping Red Fescue	50	1.15	O	A	O	O	A	O		Shade tolerant, moisture tolerant.
	Rough Bluegrass **or**	90	2.1								
	Chewings Fescue										
15	K-31 Tall Fescue	150	3.5	O	A	O	O	A	O		Monoculture, but performs well alone in lawns. Discouraged.

1. When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%.
2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require adjustment to reflect local conditions.
3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.
4. Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
5. All leguminous seed must be inoculated.
6. Warm season grass mix and Reed Canary Grass cannot be mowed more than 4 times per year.
7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.4.3** Sheet 3 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

Construction Notes:

1. Site Preparation
   a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
   b. Final grading and shaping is not necessary for temporary seedings.
2. Seedbed Preparation

   It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.
3. Soil Amendments
   a. Lime - Apply liming materials based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
   b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.
4. Seeding
   a. For **temporary stabilization**, select a mixture from **Sheet 1 .** For a **permanent stabilization**, select a mixture from **Sheet 2** or **Sheet 3** depending on the conditions. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
   b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
   c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.
5. Mulching

   All mulching shall be done in accordance with detail **DE-ESC-3.4.5**.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.4.3** Sheet 4 of 4 Effective FEB 2019

1 / 07 VEGETATIVE STABILIZATION

Standard Detail & Specifications
Mulching

1. Materials and Amounts

a. *Straw* - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds (two bales) per 1,000 square feet. Mulch materials shall be relatively free of weeds and shall be free of noxious weeds such as; thistles, Johnsongrass, and quackgrass. Spread mulch uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 70-90 pounds (two bales) of mulch in each section.

b. *Wood chips* - Apply at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet when available and when feasible. These are particularly well suited for utility and road rights-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (200 pounds of 10-10-10 or 66 pounds of 30-0-0 per acre).

c. *Hydraulically applied mulch* -The following conditions apply to hydraulically applied mulch:
   i. Definitions:
      a. Wood fiber mulch shall consist of specially prepared wood that has been processed to a uniform state, is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment, and consists of a minimum of 70% virgin or recycled wood fiber combined with 30% paper fiber and additives.
      b. Blended fiber mulch shall consist of any hydraulic mulch that contains greater than 30% paper fiber. The paper component must consist of specially prepared paper that has been processed to a uniform fibrous state and is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
      c. A bonded fiber matrix (BFM) consists of long strand, specially prepared wood fibers that have been processed to a uniform state held together by a water resistant bonding agent. BFMs shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers to enhance performance.
      d. Refer to **Figure 3.4.5a** for conditions and limitations of use for each of the above categories of hydraulic mulch.
   ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to assure material performance. Field mixing of the mulch components is acceptable, but must be done per manufacturers recommendations to ensure the proper results.
   iii. Hydraulic mulches shall be applied with a viable seed and at manufacturer's recommended rates. Increased rates may be necessary based on site conditions.
   iv. Hydraulically applied mulches and additives shall be mixed according to manufacturers recommendations.
   iv. Materials within this category shall only be used when hydraulically applied mulch has been specified for use on the approved Sediment and Stormwater Plan, or supplemental approval from the plan approval agency has been obtained in writing for a specific area.

Source:	Symbol:	Detail No.
Delaware ESC Handbook & Filtrexx™ International		**DE-ESC-3.4.5** Sheet 1 of 3 Effective FEB 2019

Standard Detail & Specifications
Mulching

   v. Application:
      a. Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope.
      b. Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.
      c. During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic mulches may be applied in a one-step process where all components are mixed together in single-tank loads. It is recommended that the product be applied from opposing directions to achieve optimum soil coverage.
      d. During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the following two-step process is required:
         Step One– Mix and apply seed and soil amendments with a small amount of mulch for visual metering.
         Step Two – Mix and apply mulch at manufacturers recommended rates over freshly seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.
      e. Minimum curing temperature is 40° F (4° C). The best results and more rapid curing are achieved at temperatures exceeding 60° F (15° C). Curing times may be accelerated in high temperature, low humidity conditions on dry soils.
   vi. Recommended application rates are for informational purposes only. Conformance with this standard and specification shall be performance-based and requires **100% soil coverage**. Any areas with bare soil showing shall be top dressed until full coverage is achieved.

d. *Compost blanket (CB)* - Loosely applied with a pneumatic blower so that a 1" compost blanket uniformly covers the **soil with 100% coverage**. This application can be used with seed to promote germination by applying the approved seed mix directly into the loosely blown compost. The compost blanket performs best on slopes less than 2:1 and requires no mulch anchoring.

2. Anchoring mulch - Mulch must be anchored immediately to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost.

a. *Crimping* - A crimper is a tractor drawn implement designed to punch and anchor mulch into the top two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. On sloping land, crimping should be done on the contour whenever possible.
b. *Tracking* - Tracking is the process of cutting mulch (usually straw) into the soil using a bulldozer or other equipment that runs on cleated tracks. Tracking is used primarily on slopes 3:1 or sleeper and should be done up and down the slope with cleat marks running across the slope.
c. *Liquid mulch binders* - Applications of liquid mulch binders should be heavier at edges, in valleys, and at crests of banks and other areas where the mulch will be moved by wind or water. All other areas should have a uniform application of binder. The use of synthetic binders is the preferred method of mulch binding and should be applied at the rates recommended by the manufacturer.
d. *Paper fiber* - The fiber binder shall be applied at a net dry weight of 750 lbs/ac. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons.
e. *Nettings* - Synthetic or organic nettings may be used to secure straw mulch. Install and secure according to the manufacturers recommendations.

Source:	Symbol:	Detail No.
Delaware ESC Handbook & Filtrexx™ International		**DE-ESC-3.4.5** Sheet 2 of 3 Effective FEB 2019

Standard Detail & Specifications
Mulching

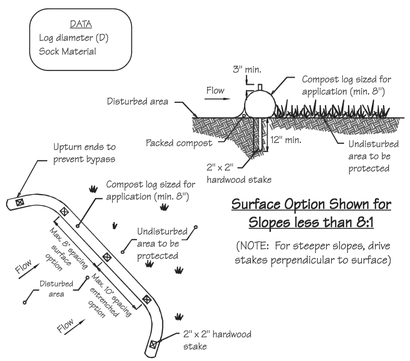
MULCHING MATERIAL SELECTION GUIDE

Percent Slope	Type of Mulch / App. Rate*	Dec. 1 to Feb. 28/29	March 1 to May 31	June 1 to Aug. 31	Sept. 1 to Nov. 30
Less than 2%	Bonded Fiber @ 2000 lbs/ac minimum	XXXX

Standard Detail & Specifications

Compost Filter Log

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK



Surface Option Shown for Slopes less than 8:1

(NOTE: For steeper slopes, drive stakes perpendicular to surface)

Plan

NOTE: Manufacturer's recommendations supersede any installation details shown for this practice

Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International	CFL	DE-ESC-3.1.7 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Compost Filter Log

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

Construction Notes:

1. Prior to installation, clear bedding area of obstructions including rocks or debris larger than 1 inch and fill in any sharp depression areas.
2. If socks are prepared on-site, fill the sock fabric using a pneumatic blower so that the logs are rigid and do not deform. Terminate at the desired length.
3. For trenched applications, excavate 2 to 4 inches below grade along the width and length of the compost filter log.
4. Install the compost filter logs perpendicular to the flow direction and parallel to the slope with the beginning and end of the installation pointing up the slope a minimum of 1 foot elevation difference. On sites where this is not possible, upturn at a minimum length of 10' at a 30 degree angle to prevent runoff bypass.
5. For untrenched applications, blow or hand pack soil, mulch, or compost on the upslope side of the log, filling the bottom void area.
6. Stake the filled log every 10 feet maximum through the center of the sock for trenched applications, or every 8 feet for untrenched. The stake shall be a 2" by 2" hardwood. It should extend 12" below grade and protrude at least 3" above the top of the sock. If located on a slope greater than 8:1, the stake shall be angled downslope at a 45 degree angle to prevent the force of the water from dislodging to log.
7. When the length of the compost filter log needed exceeds the available compost filter sock length, the next sock shall be overlapped a minimum of 12" before being filled, and a stake placed through both socks at the overlap.
8. Remove accumulated sediment when it has reached half of the effective height of the log.
9. Inspect weekly and after rain event. If sock is degrading or the sock is failing, vegetate to secure the compost, replace the log, or reinforce with an additional log. If the log has been crushed due to construction equipment, it can be "fluffed" back to its effective height. If the effective height can no longer be restored, the log shall be replaced or reinforced with an additional compost filter log.

Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International	CFL	DE-ESC-3.1.7 Sheet 2 of 2 Effective FEB 2019

1 / 08 COMPOST FILTER LOG

SEDIMENT TRAP SCHEDULE

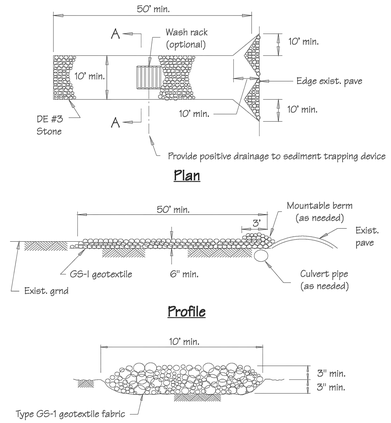
SEDIMENT TRAP	STORAGE VOLUME (CF)	LENGTH "L1" (FT)	LENGTH "L2" (FT)	DEPTH "D" (FT)*	HEIGHT "H" (FT)*	WEIR DIMENSIONS "Ww" (FT)	CONTRIBUTING DRAINAGE AREA (ACRE)
A/B	13684	115	120	4.5	5	0.5 X 30	3.801
C	13856	126	110	4.5	5	0.5 X 30	3.849
D	6235	156	40	4.5	5	0.5 X 30	1.732

* COMPOST FILTER LOG CONFIGURATION TO CONSTRUCT SEDIMENT TRAP MAY VARY AS LONG AS DEPTHS AND HEIGHTS ARE MAINTAINED.

Standard Detail & Specifications

Stabilized Construct. Entrance

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK



Plan

Profile

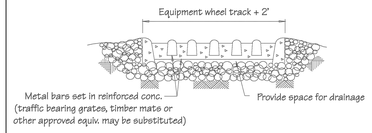
Section A-A (Std.)

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	DE-ESC-3.4.7 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Stabilized Construct. Entrance

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK



Section A-A (Opt.)

Construction Notes:

1. Stone size - Use DE #3 stone.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than size (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotexilie - Type GS-I; placed over the entire area prior to placing of stone.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Vehicle wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

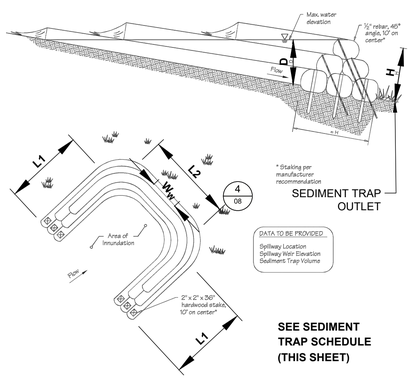
Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	DE-ESC-3.4.7 Sheet 2 of 2 Effective FEB 2019

2 / 08 STABILIZED CONSTRUCTION ENTRANCE

Standard Detail & Specifications

Compost Log Sediment Trap

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK



Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 1 of 3 Effective FEB 2019

Standard Detail & Specifications

Compost Log Sediment Trap

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

Construction Notes:

1. Compost log sediment traps should be placed on low grade or level contours to maximize runoff-sediment volume containment.
2. Compost logs are stacked so the horizontal base width is at least equivalent to the effective height (1H:1V); traps shall be installed so the effective height is at least 3 feet.
3. The volume of sediment storage shall be 3600 cubic feet per acre of drainage area.
4. Stakes shall be installed through the middle of the compost logs using 2 inches by 2 inches by 3 feet wooden hardwood stakes on 10 feet centers. Stakes shall be placed in a pyramid configuration perpendicular to compost logs where stakes cross at the apex of the compost log trap. Stakes shall be joined and secured with wire wrapping at apex using 16 gauge or multi-strand 20 gauge wire allowing 12 inches of stake above the compost log trap.
5. All base layers shall be staked on 5 feet centers; placed opposite the pyramid staking; where staking is present every 2.5 feet Half inch rebar may also be used when ground is frozen or extremely compacted. Staking depth for all soil types shall be a minimum 12 inches into native soil.
6. Concentrated flows, channels, or ditches directing flow into the trap shall employ energy flow dissipaters prior to flow contact with the trap compost logs or entry into the trap system. Dissipaters shall be placed at a minimum distance of 20 feet from the base course of the trap.
7. In order to prevent water flowing around the ends of the sediment trap, the ends of the trap must be constructed pointing upslope so the ends are at a minimum 1 feet higher elevation than the lowest point (mid-section) of the sediment trap. The mid-section of the sediment trap shall be the point of lowest elevation. A minimum of 10 linear feet per end each placed at a 30 degree angle is recommended.
8. The design engineer will determine the location of a controlled outfall which will also serve as the minimum freeboard location for the trap. Erosion control matting or appropriately sized riprap shall be installed under the first row of compost logs and extend from the trap a distance no less than 30 feet.
9. The compost log sediment trap must be reviewed on a regular basis to ensure that it is in a functional condition at all times. Remove the sediment at the base of the upslope side of the sediment trap when accumulation has reached one half (1/2) of the effective height of the trap.

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 2 of 3 Effective FEB 2019

Standard Detail & Specifications

Compost Log Sediment Trap

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

10. The compost medium in the logs will be dispersed on site once the upgrade disturbed area has been permanently stabilized and approval is granted by the local delegated agency to remove the trap. The compost medium may be dispersed with a loader, rake, bulldozer or similar device and may be incorporated into the soil as an amendment or left on the soil surface to aid in permanent seeding or landscaping. The compost log mesh netting must be extracted and disposed of properly. In the case where biodegradable mesh netting has been used, the netting may remain incorporated with the compost medium when being spread on site.

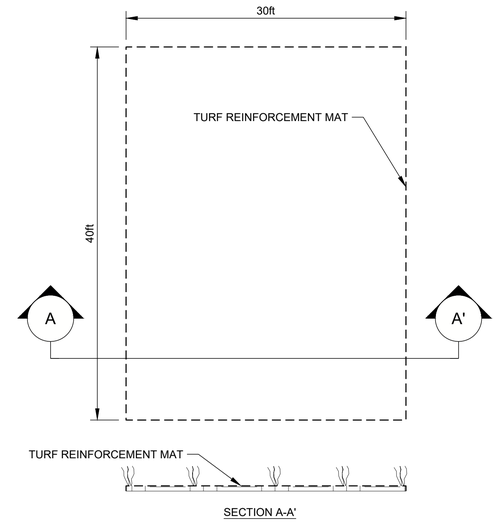
Materials

1. Stakes: 2" x 2" x 36" hardwood.
2. Compost media : See requirements in Standard Detail and Specifications for Compost Logs (DE-ES-3.1.7).
3. Filter sock: See requirements in Standard Detail and Specifications for Compost Logs (DE-ES-3.1.7).
4. Rebar: 1/2" nominal.

MAXIMUM DRAINAGE AREA: 5 ACRES

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 3 of 3 Effective FEB 2019

3 / 08 COMPOST LOG SEDIMENT TRAP



N.T.S. 4 / 08 SEDIMENT TRAP OUTLET

NOTES:
1. INSTALL UNDER BOTTOM FILTER LOGS IN SEDIMENT TRAP

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2020-01-03		JPG	AM	JPG	PAW

SEAL

PAUL A. WHITE LICENSED No. 13809 PROFESSIONAL ENGINEER DELAWARE

2020-01-03

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PROJECT
EDGE MOOR SITE II ASH LANDFILL CLOSURE

TITLE
EROSION & SEDIMENT CONTROL DETAILS (DRAWING 2 OF 3)

PROJECT NO.	CONTROL	REV.	of	DRAWING
19129265	A008	0		08

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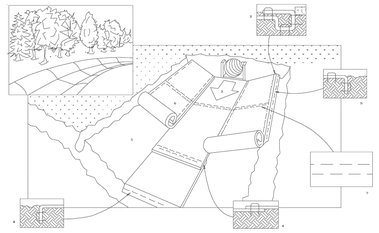
Standard Detail & Specifications

Stabilization Matting - Channel



Perspective

CRITICAL POINTS

A. Overlaps and seams
B. Projected waterline
C. Channel bottom/side slope vertices

Note: Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

Use manufacturer's recommendations for stapling patterns for channel installations.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 1 of 3 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Channel

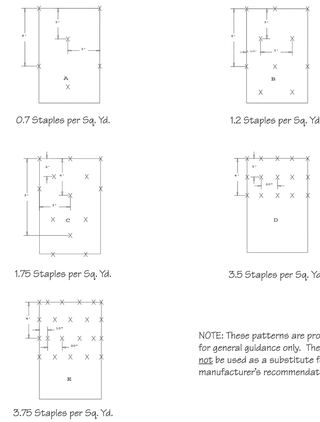
Construction Notes:

1. Prepare soil before installing matting, including application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact the trench after stapling.
3. Roll center mat in direction of water flow on bottom of channel.
4. Place mats end over end (shingle style) with a 6" overlap, use a double row of staggered staples 4" apart to secure mats.
5. Full Length edge of mats at top of side slopes must be anchored in 6" deep X 6" wide trench; backfill and compact the trench after stapling.
6. Mats on side slopes must be overlapped 4" over the center mat and stapled.
7. In high flow channel applications, a staple check slot is recommended at 30 to 40 foot intervals. Use a row of staples 4" apart over entire width of the channel. Place a second row 4" below the first row in a staggered pattern.
8. The terminal end of the mats must be anchored in a 6" X 6" wide trench. Backfill and compact the trench after stapling.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 2 of 3 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Channel



NOTE: These patterns are provided for general guidance only. They shall not be used as a substitute for manufacturer's recommendations.

Stapling Patterns

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 3 of 3 Effective FEB 2019

CHECK DAM SCHEDULE				
SEDIMENT TRAP	NUMBER OF CHECK DAMS	Y (FT)	L (FT)	S (FT/FT)
A/B	1	1	14	0.025
C	1	1	14	0.025
D	1	1	19.5	0.025

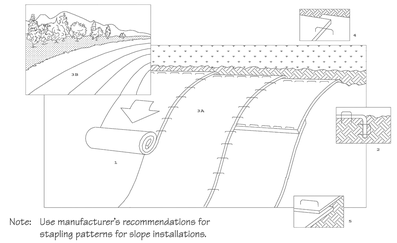
1 / 09 STABILIZED MATTING - CHANNEL

CHANNEL MATTING NOTE(S)

1. FOR PLATEAU DIVERSION AND PERIMETER SWALE STABILIZATION USE EROSION CONTROL BLANKET (ECB) SC150 BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
2. FOR VERTICAL CHANNELS, USE TURF REINFORCEMENT MAT (TRM) P300 BY NORTH AMERICAN GREEN OR APPROVED EQUAL.

Standard Detail & Specifications

Stabilization Matting - Slope



Note: Use manufacturer's recommendations for stapling patterns for slope installations.

Perspective

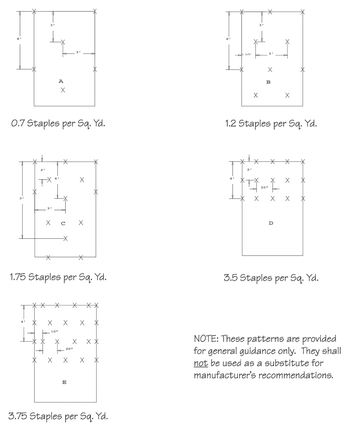
Construction Notes:

1. Prepare soil before installing matting, including application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact trench after stapling.
3. Roll the mats (A) down or (B) horizontally across the slope.
4. The edges of parrallel mats must be stapled with approx. 2" overlap.
5. When mats must be spliced down the slope, place mats end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Slope



NOTE: These patterns are provided for general guidance only. They shall not be used as a substitute for manufacturer's recommendations.

Stapling Patterns

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 2 of 2 Effective FEB 2019

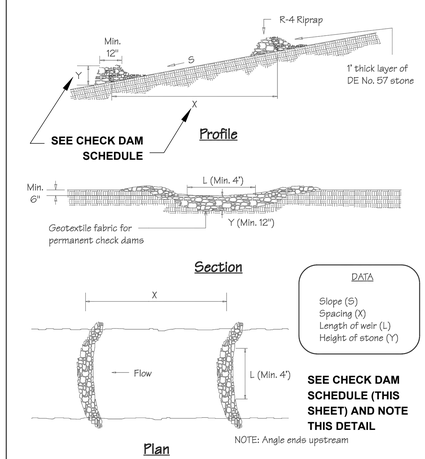
2 / 09 STABILIZED MATTING - SLOPE

SLOPE MATTING NOTE(S)

1. FOR 4H:1V SLOPES, USE TURF REINFORCEMENT MAT (TRM) P300 BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
2. FOR 5H:1V, 6H:1V, 7H:1V, 4%, AND 2% SLOPES, USE EROSION CONTROL BLANKET (ECB) SC150 BY NORTH AMERICAN GREEN OR APPROVED EQUAL.

Standard Detail & Specifications

Stone Check Dam



DATA

Slope (S)
Spacing (X)
Length of weir (L)
Height of stone (Y)

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SCD	DE-ESC-3.3.6.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Stone Check Dam

Construction Notes:

1. Swales and channels shall be prepared in accordance with the construction specifications described in the **Standards and Specifications for Temporary Berm**, **Temporary Swale**, **Vegetated Channel**, or **Diversions**.
2. The check dam shall be constructed of 4" to 8" riprap. The riprap shall be placed so that it completely covers the width of the channel.
3. The top of the check dam shall be constructed so that the center is approximately 6" lower than the outer edges, forming a weir that the water can flow across. The minimum length of weir shall be 4'.
4. The maximum height of the check dam at the center of the weir must not exceed two (2) feet.
5. Maximum spacing between dams should be the distance in the channel where the toe of the upstream dam is at the same elevation as the top of the downstream dam. (See **Standard & Specifications for Check Dams** for design chart.)

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SCD	DE-ESC-3.3.6.1 Sheet 2 of 2 Effective FEB 2019

3 / 09 STONE CHECK DAM

CHECK DAM NOTE(S)

1. INSTALL ONLY ONE (1) CHECK DAM A MINIMUM OF 20 FEET UPSTREAM OF THE COMPOST LOG SEDIMENT TRAP.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2020-01-03		JPG	AM	JPG	PAW

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2020-01-03

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PROJECT
EDGE MOOR SITE II ASH LANDFILL CLOSURE

TITLE
EROSION & SEDIMENT CONTROL DETAILS (DRAWING 3 OF 3)

PROJECT NO.	CONTROL	REV.	of	DRAWING
19129265	A008	0		09

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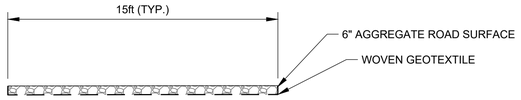
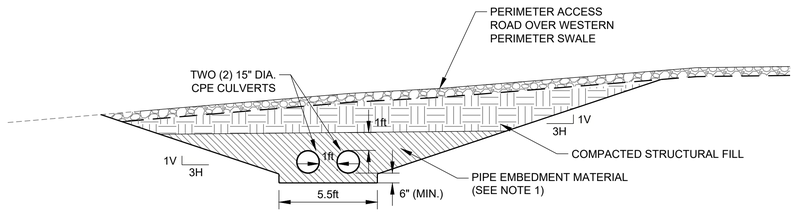
0 1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



SCALE: 1" = 4' (1/10) PERIMETER ACCESS ROAD



SECTION
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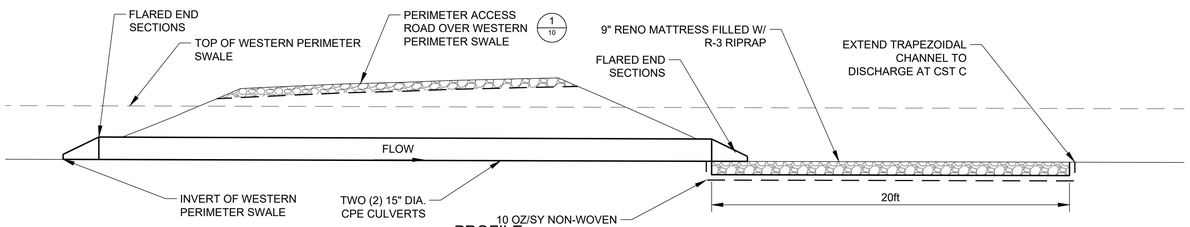

PROFILE
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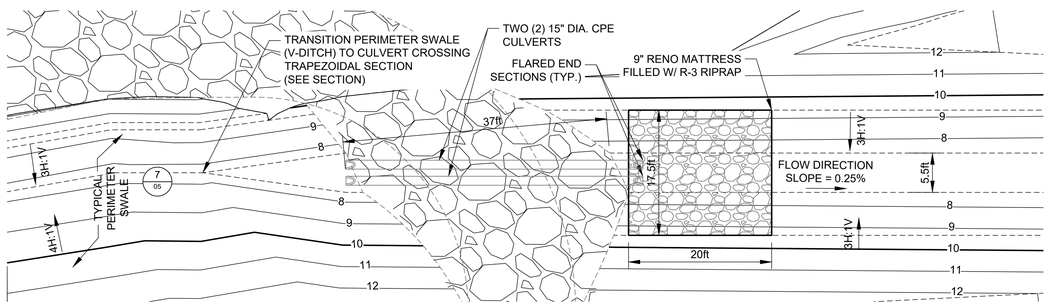
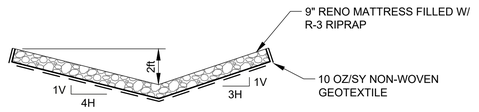


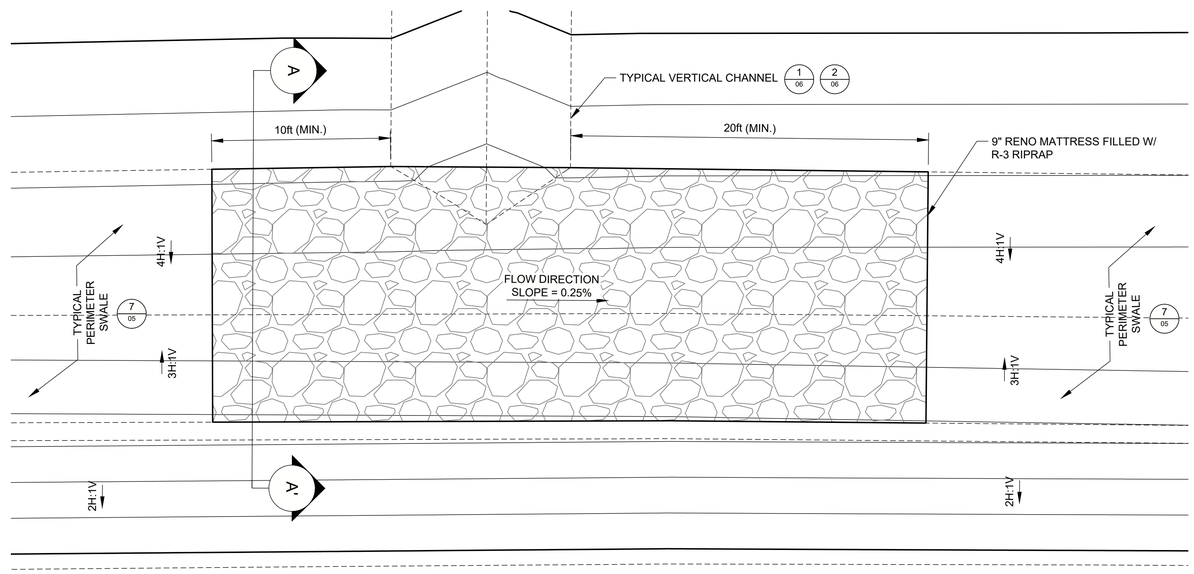
WESTERN PERIMETER SWALE ACCESS ROAD CROSSING
SCALE: 1" = 10' (2/10)

NOTES:

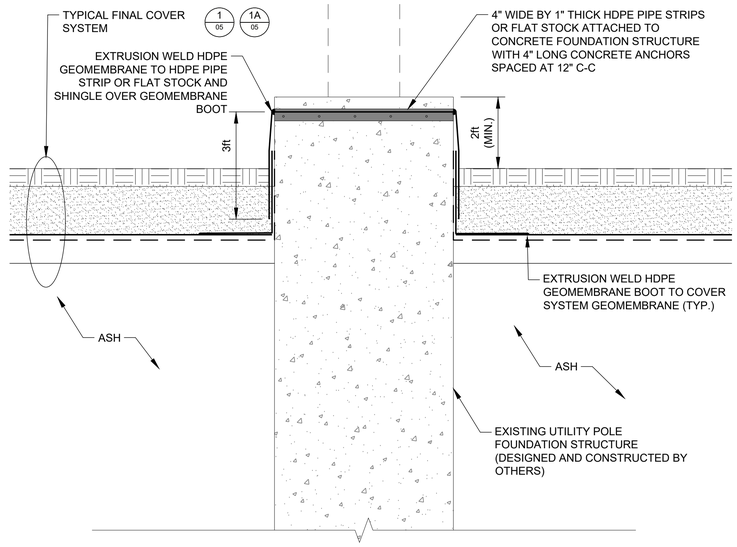
1. PIPE BEDDING, HAUNCHING / BACKFILL, AND INITIAL BACKFILL TO BE WELL GRADED GRANULAR PIPE EMBEDMENT MATERIAL WITH A MAXIMUM PARTICLE SIZE OF ONE-INCH. ALL PIPE EMBEDMENT MATERIALS TO BE COMPACTED IN MAXIMUM EIGHT-INCH LIFTS TO ACHIEVE AN IN-PLACE DENSITY OF 95% OF THE MAXIMUM DRY DENSITY (PER ASTM D698) OR 70% RELATIVE DENSITY.



SECTION A



PERIMETER SWALE HARD ARMORING AT VERTICAL CHANNEL
SCALE: 1" = 4' (4/10)



GEOMEMBRANE PENETRATION THROUGH UTILITY POLE FOUNDATION STRUCTURE
SCALE: 1" = 2' (3/10)

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2020-01-03		CHC	CHC	JPG	PAW

SEAL

2020-01-03

CLIENT
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PROJECT
EDGE MOOR SITE II ASH LANDFILL CLOSURE

TITLE
MISCELLANEOUS DETAILS

PROJECT NO.	CONTROL	REV.	of	DRAWING
19129265	A005	0		10

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0 1in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D