

APPENDIX 10 – POST CLOSURE CARE PLAN

EXHIBIT 12 – DRAWINGS

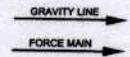
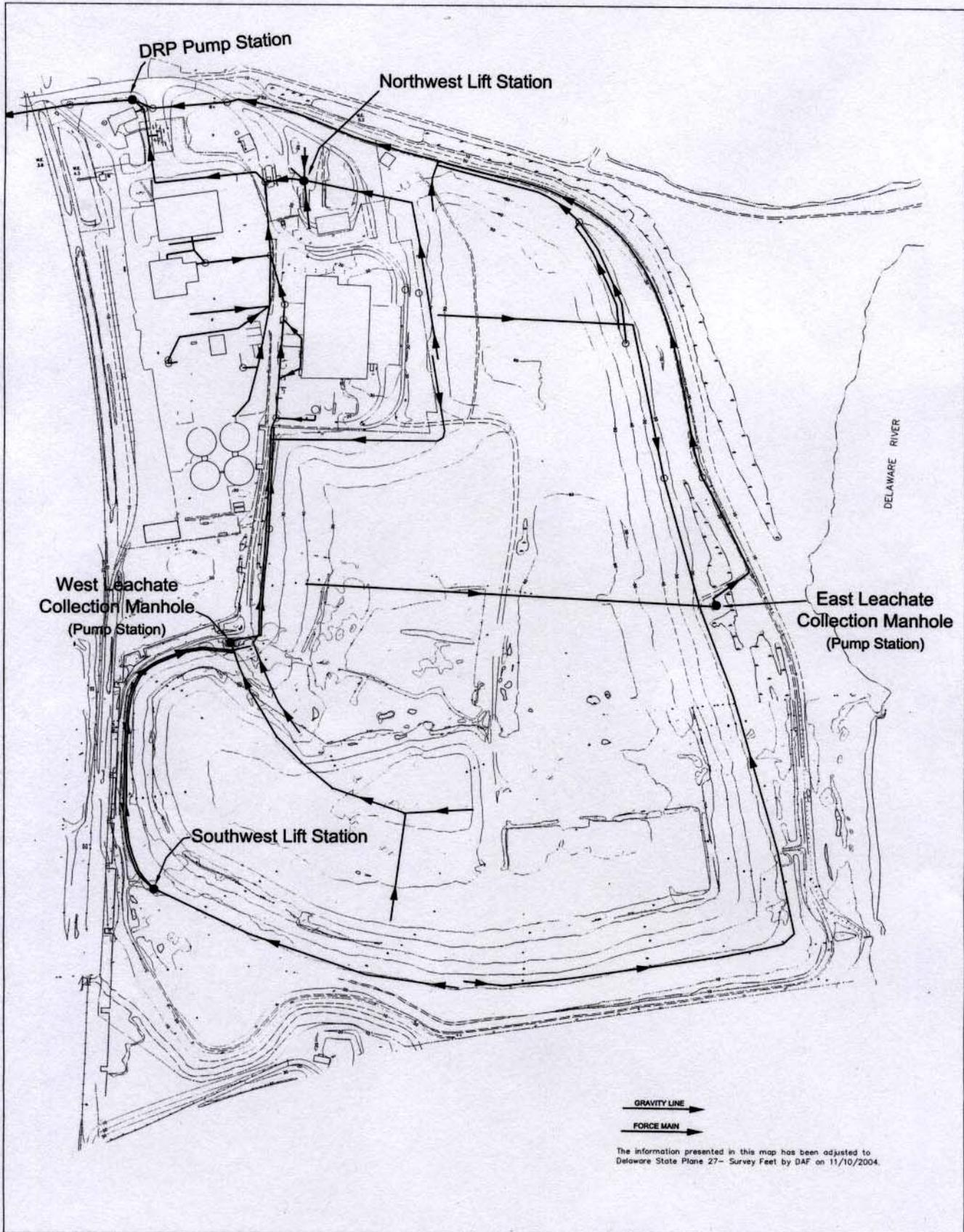
The following is the list of Drawings included in this EXHIBIT 12:

- Attachment 1 - Pigeon Point Leachate Collection System and Sewer Connections (1 of 1)
- Attachment 2 - Pigeon Point Landfill Gas Collection and Solar Flare System (1 of 1)
- Attachment 3 - Pigeon Point Landfill Geotechnical Monitoring System (1 of 1)
- Attachment 4 - Pigeon Point Landfill Groundwater Monitoring System (1 of 1)
- Attachment 5 - Contouring Plan Addendum and Final Erosion and Sediment Control Plans (sheets 1-10)
- Attachment 6 - Contouring Plan – December 1999 (sheets C1 – C14)

EXHIBIT 12

Attachment 1

PIGEON POINT LEACHATE COLLECTION SYSTEM AND SEWER CONNECTIONS



The information presented in this map has been adjusted to Delaware State Plane 27 - Survey Feet by DAF on 11/10/2004.

Photogrammetry By:
 Axis GeoSpatial, LLC
 8600 Brooks Drive
 Easton, MD 21601
 Tel: 410-822-1441
 Fax: 410-822-6225
 Photography Flown: 6-28-05

AND
 L. ROBERT KIMBALL & ASSOCIATES, INC.,
 EBENSBURG PA.
 SCALE 1" = 100' CONTOUR INTERVAL 2'
 DATE OF PHOTOGRAPHY JUNE 23, 1996
 REVISED FROM PHOTOGRAPHY DATED
 MARCH 28, 2002, MARCH 22, 2004

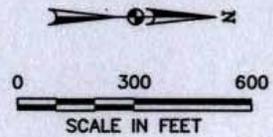
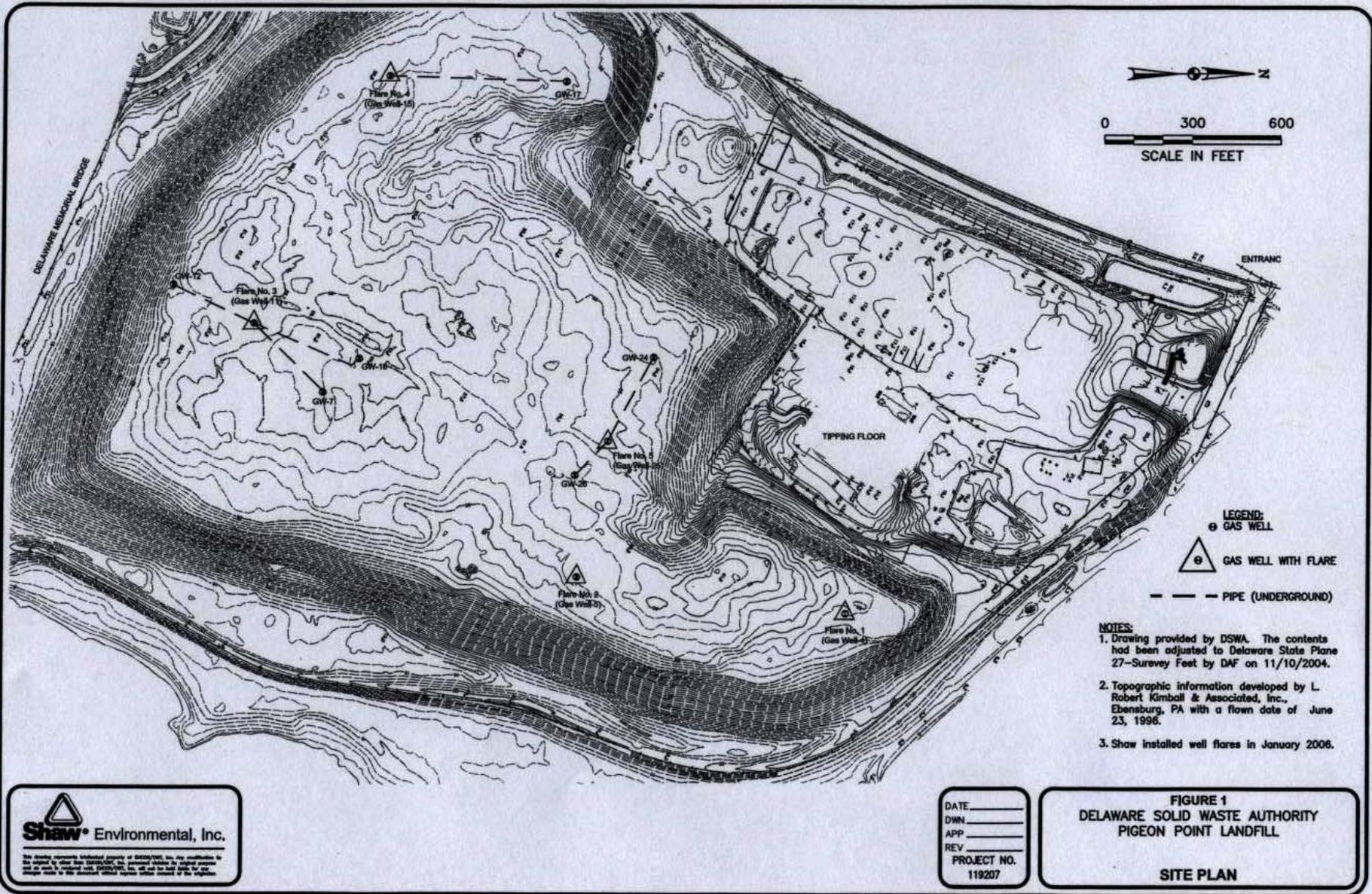
Note: Dashed contours and hatched spot elevations indicate accuracy may be reduced by shadows and dense vegetation. Please field check prior to engineering.
 Accuracy's of photometric features within approximate area polygons may be reduced due to shadows and dense vegetation.

 DELAWARE SOLID WASTE AUTHORITY 1128 SOUTH BRADFORD STREET DOVER, DELAWARE		TITLE Pigeon Point Leachate Collection System And Sewer Connections	
		DATE 6/28/05	SITE LOCATION Pigeon Point Landfill (PPL)
SCALE 1"=100'-0"	AUTHORED BY Robert Kimball	DRAWN BY DAF	APPROVED BY

EXHIBIT 12

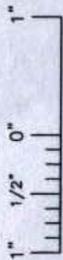
Attachment 2

PIGEON POINT LANDFILL GAS COLLECTION AND SOLAR FLARE SYSTEM



- LEGEND:**
- ⊕ GAS WELL
 - ⊕ GAS WELL WITH FLARE
 - PIPE (UNDERGROUND)

- NOTES:**
1. Drawing provided by DSWA. The contents had been adjusted to Delaware State Plane 27-Survey Feet by DAF on 11/10/2004.
 2. Topographic information developed by L. Robert Kimball & Associated, Inc., Ebensburg, PA with a flown date of June 23, 1996.
 3. Show installed well flares in January 2006.



Shaw Environmental, Inc.

This drawing represents intellectual property of SHAW/ENV, Inc. Any modification to the original by other than SHAW/ENV, Inc. personnel without its written approval and all work is conducted with SHAW/ENV, Inc. staff and for their clients for their clients only. No other work is permitted without written approval of the signatory.

DATE	_____
DWN	_____
APP	_____
REV	_____
PROJECT NO.	119207

FIGURE 1
DELAWARE SOLID WASTE AUTHORITY
PIGEON POINT LANDFILL

SITE PLAN

EXHIBIT 12

Attachment 3

**PIGEON POINT LANDFILL
GEOTECHNICAL MONITORING SYSTEM**

APPENDIX 10 – POST CLOSURE CARE PLAN

EXHIBIT 12 – DRAWINGS

Attachment 3 – Pigeon Point Landfill Geotechnical Monitoring System

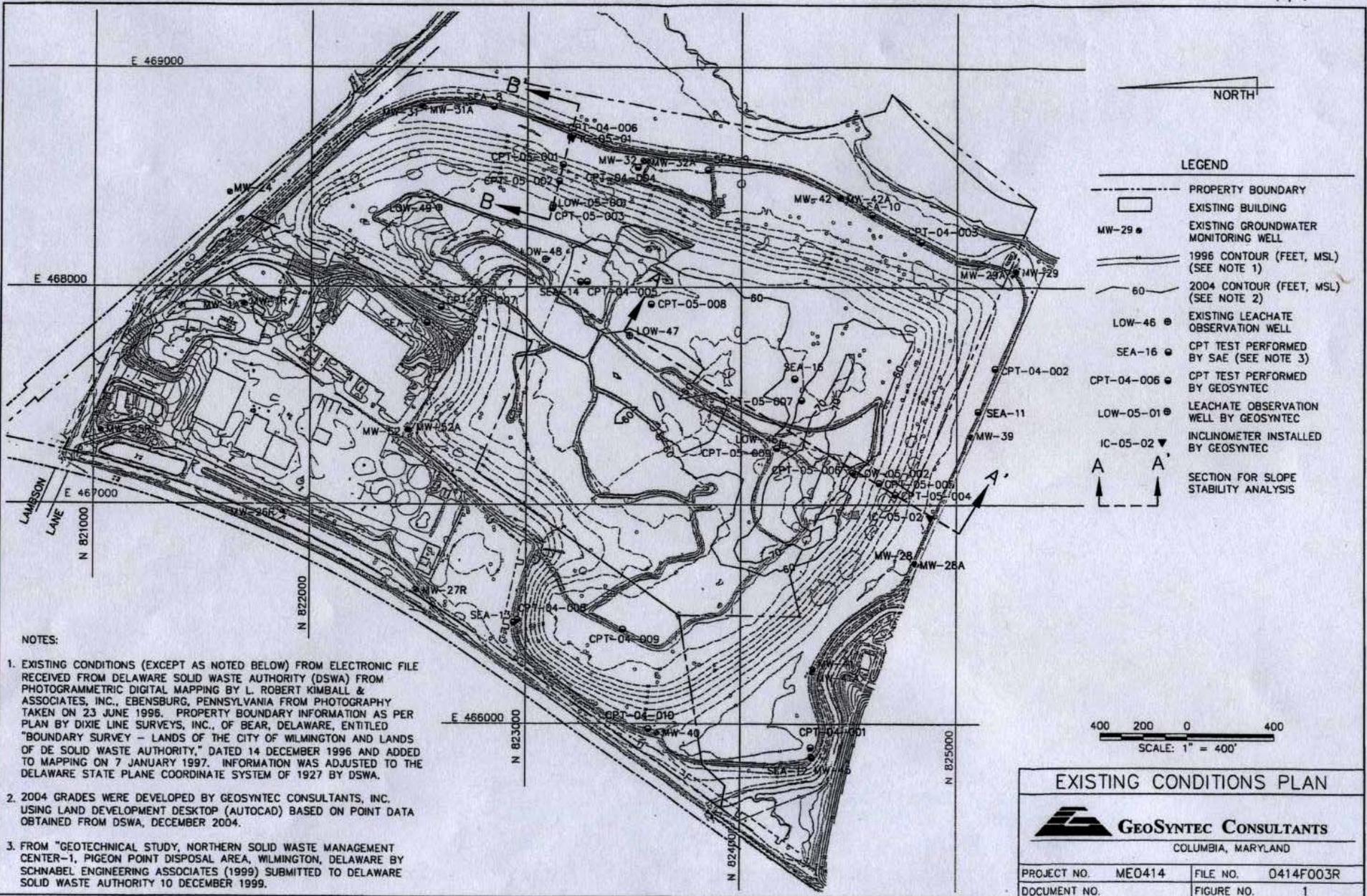
The attached drawing entitled “Existing Conditions Plan” prepared by GeoSyntec Consultants shows the geotechnical monitoring system for the Pigeon Point Landfill.

Two inclinometers are show as:

IC-05-02	in Section A-A’ and
IC-05-01	in Section B-B’

Two leachate observation wells are shown as:

LOW-05-002	in Section A-A’ and
LOW-05-001	in Section B-B’



LEGEND

- PROPERTY BOUNDARY
- EXISTING BUILDING
- MW-29 ● EXISTING GROUNDWATER MONITORING WELL
- 1996 CONTOUR (FEET, MSL) (SEE NOTE 1)
- 60 2004 CONTOUR (FEET, MSL) (SEE NOTE 2)
- LOW-46 ● EXISTING LEACHATE OBSERVATION WELL
- SEA-16 ● CPT TEST PERFORMED BY SAE (SEE NOTE 3)
- CPT-04-002 ● CPT TEST PERFORMED BY GEOSYNTEC
- CPT-04-006 ● CPT TEST PERFORMED BY GEOSYNTEC
- LOW-05-01 ● LEACHATE OBSERVATION WELL BY GEOSYNTEC
- IC-05-02 ▽ INCLINOMETER INSTALLED BY GEOSYNTEC
- SECTION FOR SLOPE STABILITY ANALYSIS

- NOTES:**
1. EXISTING CONDITIONS (EXCEPT AS NOTED BELOW) FROM ELECTRONIC FILE RECEIVED FROM DELAWARE SOLID WASTE AUTHORITY (DSWA) FROM PHOTOGRAMMETRIC DIGITAL MAPPING BY L. ROBERT KIMBALL & ASSOCIATES, INC., EBENSBURG, PENNSYLVANIA FROM PHOTOGRAPHY TAKEN ON 23 JUNE 1996. PROPERTY BOUNDARY INFORMATION AS PER PLAN BY DIXIE LINE SURVEYS, INC., OF BEAR, DELAWARE, ENTITLED "BOUNDARY SURVEY - LANDS OF THE CITY OF WILMINGTON AND LANDS OF DE SOLID WASTE AUTHORITY," DATED 14 DECEMBER 1996 AND ADDED TO MAPPING ON 7 JANUARY 1997. INFORMATION WAS ADJUSTED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM OF 1927 BY DSWA.
 2. 2004 GRADES WERE DEVELOPED BY GEOSYNTEC CONSULTANTS, INC. USING LAND DEVELOPMENT DESKTOP (AUTOCAD) BASED ON POINT DATA OBTAINED FROM DSWA, DECEMBER 2004.
 3. FROM "GEOTECHNICAL STUDY, NORTHERN SOLID WASTE MANAGEMENT CENTER-1, PIGEON POINT DISPOSAL AREA, WILMINGTON, DELAWARE BY SCHNABEL ENGINEERING ASSOCIATES (1999) SUBMITTED TO DELAWARE SOLID WASTE AUTHORITY 10 DECEMBER 1999.

400 200 0 400
SCALE: 1" = 400'

EXISTING CONDITIONS PLAN

GEO SYNTEC CONSULTANTS
COLUMBIA, MARYLAND

PROJECT NO. ME0414	FILE NO. 0414F003R
DOCUMENT NO.	FIGURE NO. 1

F:\cadd\pigeon pt\0414F003R.dwg, 11, 3/22/2005 12:16:19 PM, geosyn consultants, grd

EXHIBIT 12

Attachment 4

**PIGEON POINT LANDFILL
GROUNDWATER MONITORING SYSTEM**

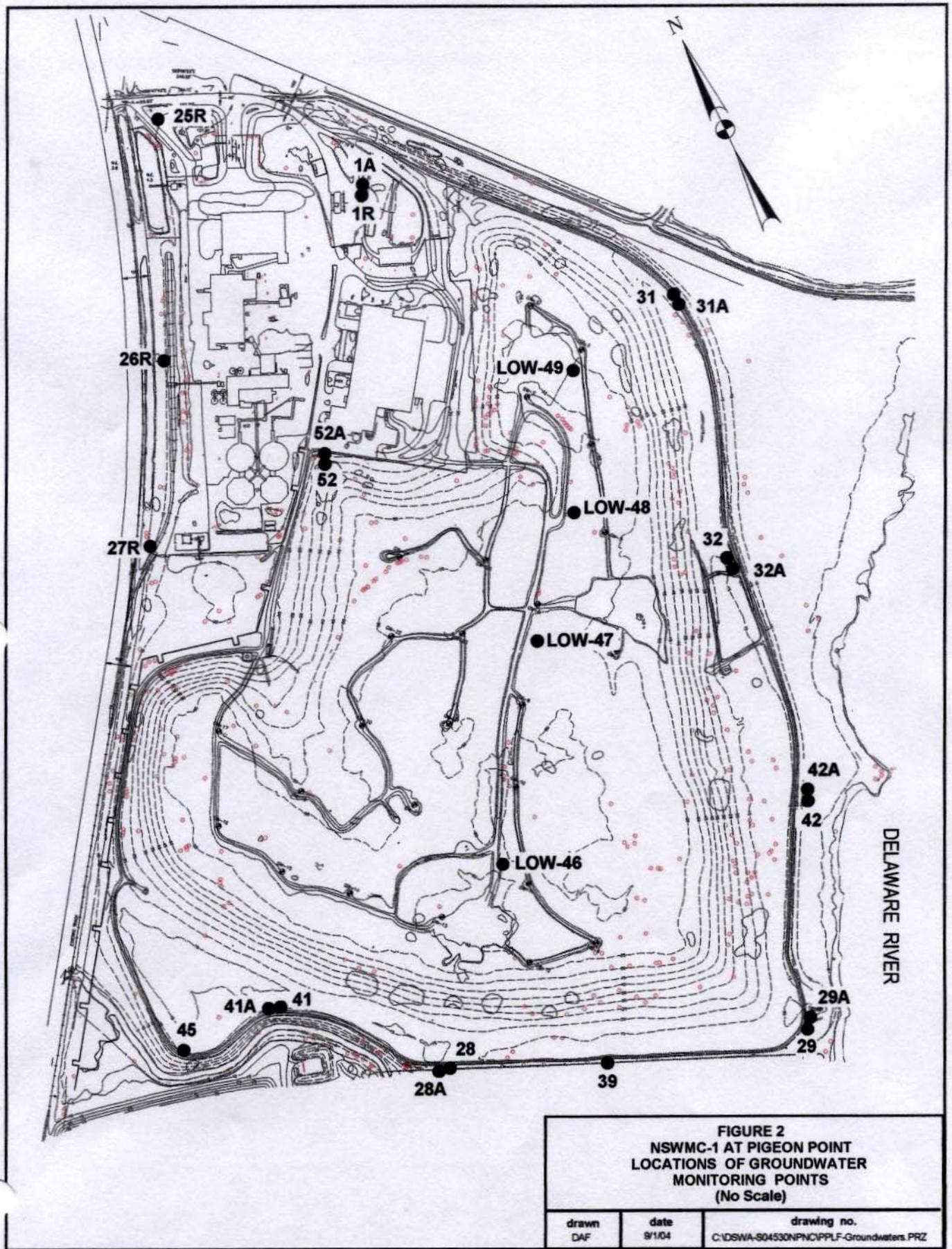


EXHIBIT 12

Attachment 5

CONTOURING PLAN ADDENDUM AND FINAL EROSION AND SEDIMENT CONTROL PLANS

CONTOURING PLAN ADDENDUM AND FINAL EROSION AND SEDIMENT CONTROL PLANS

DELAWARE SOLID WASTE AUTHORITY
 NORTHERN SOLID WASTE MANAGEMENT CENTER-1
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

MARCH 2001



INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE	LATEST REVISION
1	COVER SHEET	6/26/01
2	SITE PLAN – EXISTING TOPOGRAPHY	3/1/01
3	FINAL SURFACE DRAINAGE PLAN (ADDENDUM)	6/26/01
4	SEDIMENT BASIN GRADING PLANS	6/26/01
5	SWALE GRADING PLAN	5/16/01
6	EROSION AND SEDIMENT CONTROL – PHASE 1	3/1/01
7	EROSION AND SEDIMENT CONTROL – PHASE 2–A	3/1/01
8	SEDIMENT BASIN DETAILS	6/26/01
9	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5/16/01
10	EROSION AND SEDIMENT CONTROL DETAILS	6/26/01

PREPARED BY:

OWNER'S CERTIFICATION

I CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN. DSWA ACCEPTS RESPONSIBILITY FOR LONG-TERM MAINTENANCE OF THE SEDIMENT BASINS.

SCHNABEL ENGINEERING ASSOCIATES, INC.
 510 EAST GAY STREET
 WEST CHESTER, PENNSYLVANIA 19380
 PHONE: 610-696-6066

SIGNATURE _____ DATE _____
 NAME (PRINT) _____

OWNER
 Delaware Solid Waste Authority
 1101 Lambson Lane
 New Castle, DE 19720
 302-739-5361

PROJECT:
 CONTOURING PLAN ADDENDUM AND FINAL
 EROSION AND SEDIMENT CONTROL PLANS
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

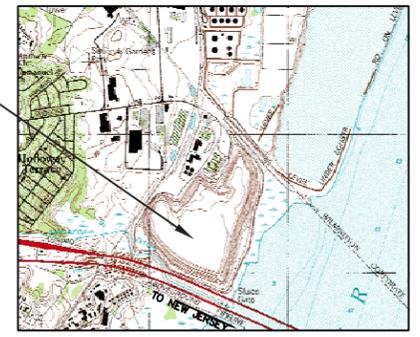
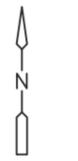
REV.	DESCRIPTION	DATE
2	REVISED PER DNREC COMMENTS	6/26/01

DESIGNED BY: JPH/CMK
 DRAWN BY: CMK
 CHECKED BY: CJM
 CARMELO J. MONTANA, P.E.
 DATE: _____
 DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE: COVER SHEET

 510 East Gay Street
 West Chester, PA 19380
 Phone: 610-696-6066
 © Schnabel Engineering Associates, Inc. 2000
 SCALE: NONE DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 1 OF 10

PHOTOGRAMMETRIC DIGITAL MAPPING BY
L. ROBERT KIMBALL & ASSOCIATES, INC.,
EBENSBURG PA.
PROPERTY BOUNDARY INFORMATION AS PER
PLAN BY DIXIE LINE SURVEYS, INC. OF BEAR, DE,
ENTITLED "BOUNDARY SURVEY - LANDS OF THE
CITY OF WILMINGTON AND LANDS OF DE SOLID
WASTE AUTHORITY" DATED DEC. 14, 1998, AND
ADDED TO MAPPING ON JAN. 7, 1997.
DATE OF PHOTOGRAPHY JUNE 23, 1998
SCALE 1" = 200' CONTOUR INTERVAL 1'



VICINITY MAP
SCALE: 1"=2000'

- NOTES:
1. THE WETLAND LIMITS WERE DEVELOPED FROM THE US DEPARTMENT OF INTERIOR'S NATIONAL WETLANDS INVENTORY MAP FOR WILMINGTON, DE (SOUTH) DATED 1977.
 2. THE SOILS IN THE CONTRIBUTING DRAINAGE AREAS CONSIST OF MADE LAND (MA). THIS INFORMATION IS BASED ON REVIEW OF THE NEW CASTLE COUNTY, DELAWARE SOIL SURVEY AND SITE OBSERVATIONS.



LEGEND

- 70 --- EXISTING INDEX CONTOUR
- --- EXISTING INTERMEDIATE CONTOUR
- --- RAILROAD PROPERTY LINE
- --- PROPERTY LINE
- ~ ~ ~ VEGETATION
- GW-23⊙ GAS WELL
- ⊙LOW-48 LEACHATE OBSERVATION WELL
- MH MANHOLE
- --- WETLANDS DELINEATION
- --- 100-YR FLOOD LIMITS

OWNER
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1101 Lambson Lane
New Castle, DE 19720
302-739-5361

PROJECT:
CONTOURING PLAN ADDENDUM AND FINAL
EROSION AND SEDIMENT CONTROL PLANS
PIGEON POINT LANDFILL
WILMINGTON, DELAWARE

DESIGNED BY: JPH/CMK
DRAWN BY: CMK
CHECKED BY: CJM

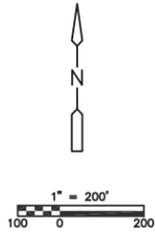
SHEET TITLE:
SITE PLAN - EXISTING TOPOGRAPHY

CARMELO J. MONTANA, P.E.

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West Chester, PA 19380
Phone: 610-696-6066
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REV.	DESCRIPTION	DATE

DATE: _____
DELAWARE PROFESSIONAL ENGINEER NUMBER
10176



NOTES TO THE CONTRACTOR:

1. This sheet contains modifications to the surface drainage plan presented on Sheet C-11 "Final Closure Contours" by Camp Dresser & McKee, December 1999.
2. Permanent riprap-lined channels will be used in lieu of the permanent HDPE downdrains. Cap runoff will be directed to two sediment ponds via diversion berms, grassed channels, and riprap-lined channels.

GENERAL NOTES:

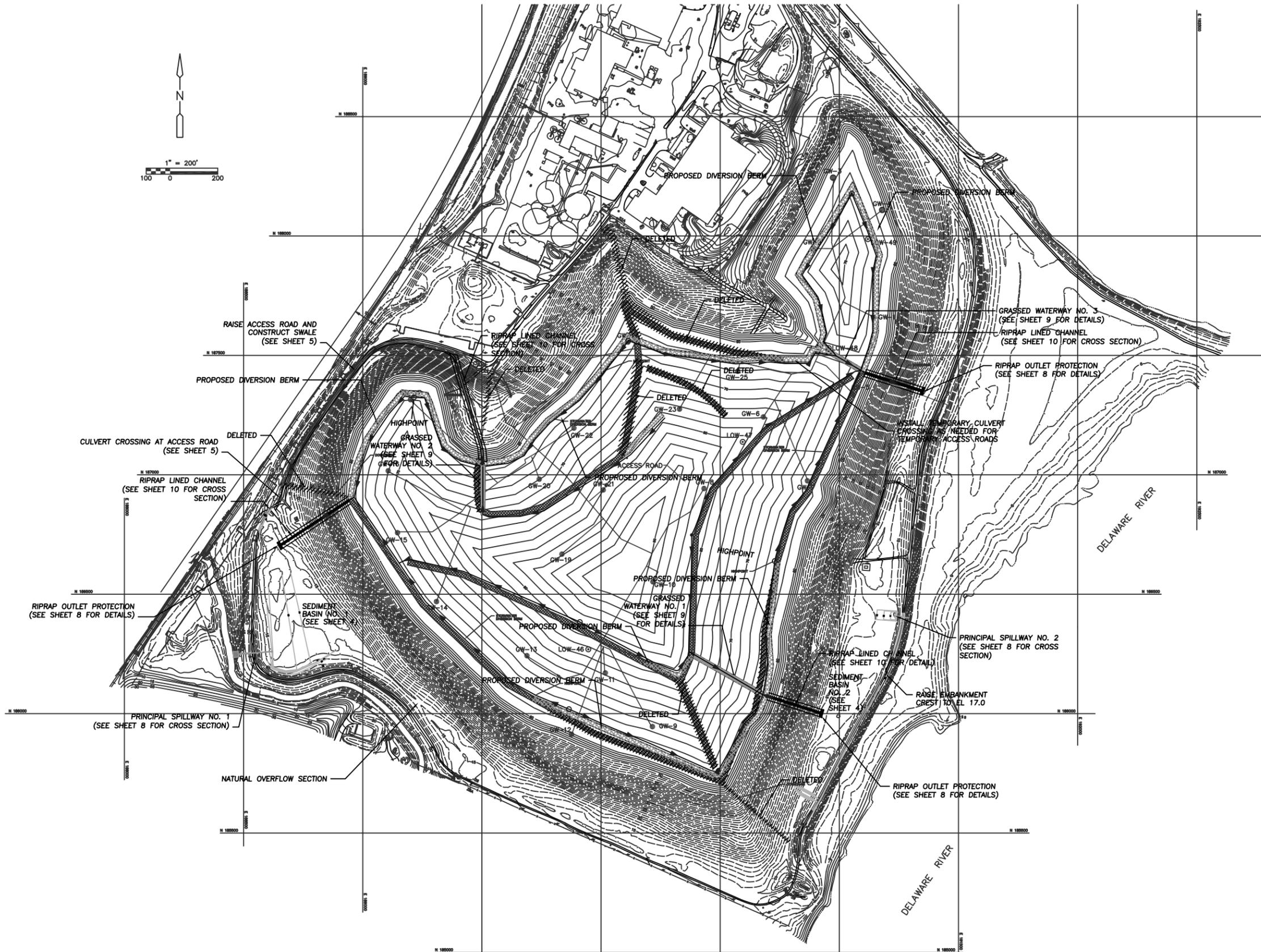
1. No construction of utilities is proposed.
2. The total borrow material required for erosion and sediment control structures for Phase 1 and 2-A is 4250 cubic yards.
3. The required borrow material for the stormwater diversion berms is 19,350 cubic yards.

GENERAL SEQUENCE OF CONSTRUCTION:

1. Notify DNREC (Donald Carey, 302-739-4411) at least 5 days prior to preconstruction conference and 5 days prior to the commencement of land disturbing activity.
2. Clearing and grubbing of Sediment Basin Nos. 1 and 2.
3. Construction of Sediment Basin Nos. 1 and 2.
4. Clearing and grubbing of Drainage Swale that discharges into Basin No. 1.
5. Construction of Drainage Swale that discharges into Basin No. 1.
6. Clearing and grubbing of Phase 1 area.
7. Construction of sediment control structures on top of landfill and riprap lined channels for Phase 1.
8. Installation of silt fence along base of proposed slopes for Phase 1.
9. Construction of Phase 1.
10. Permanent seeding and stabilization of Phase 1.
11. Clearing and Grubbing for Phase 2-A.
12. Construction of Temporary Downdrain and Temporary Earth Diversion Berm for Phase 2-A.
13. Installation of Silt Fence along base of proposed slopes for Phase 2-A.
14. Construction of Phase 2-A.
15. Permanent Seeding and stabilization of Phase 2-A.

LEGEND

- 70 EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- 70 PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- N 185998.76 E 190725.12 CONTROL POINT
- TEMPORARY ACCESS ROAD
- DELETED ITEM
- DIVERSION BERM AS SHOWN ON CDM DRAWINGS
- REVISED DIVERSION BERM LOCATION
- GRASSED WATERWAY
- RIPRAP LINED CHANNEL
- FLOW LINE
- HIGH POINT



OWNER
 Delaware Solid Waste Authority
 1101 Lambson Lane
 New Castle, DE 19720
 302-739-5361

PROJECT:
 CONTOURING PLAN ADDENDUM AND FINAL
 EROSION AND SEDIMENT CONTROL PLANS
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

REV.	DESCRIPTION	DATE
2	REVISED PER DNREC COMMENTS	6/26/01

DESIGNED BY: JPH/CMK
 DRAWN BY: CMK
 CHECKED BY: C.M.
 CARMELO J. MONTANA, P.E.
 DATE: _____
 DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE:
 FINAL SURFACE DRAINAGE PLAN (ADDENDUM)

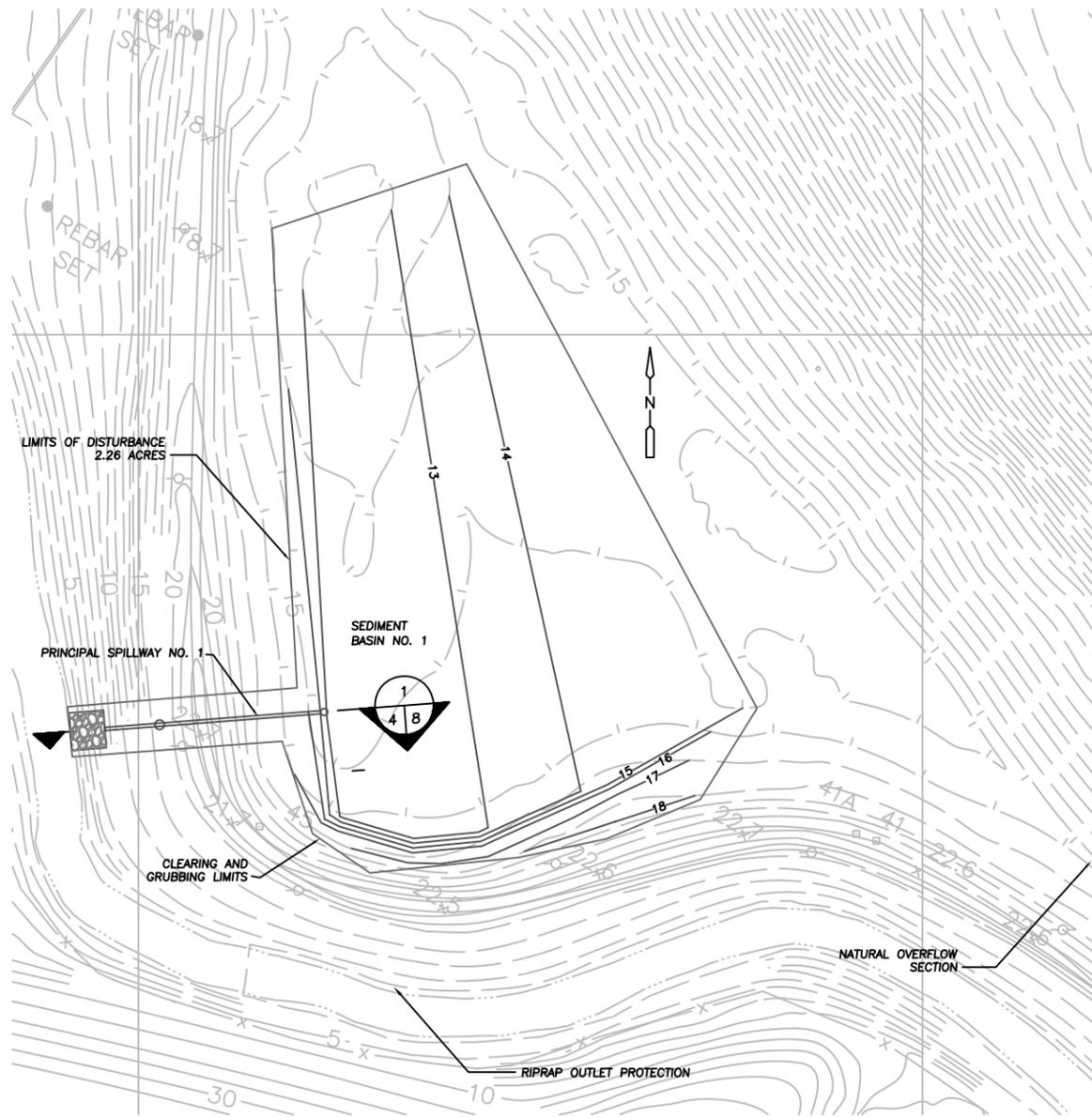
Schnabel Engineering
 510 East Gay Street
 West Chester, PA 19380
 Phone: 610-696-6066
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SCALE: 1"=200' DATE: 3-1-01 JOB NO: 985176.05 SHEET: 3 OF 10

SEDIMENT BASIN SUMMARY AND CLEANOUT REQUIREMENTS

SEDIMENT BASIN #	DRAINAGE AREA (AC)	STORAGE REQ. (CF)	STORAGE PROVIDED (CF)	SPILLWAY CREST EL.	MIN. TOP OF BERM EL.	CLEANOUT LEVEL (DEPTH BELOW RISER CREST)
ST-1	36.1	130,600	130,600	15.2	17.1	1'
ST-2	63.2	228,663	233,091	14.7	17.0	3'

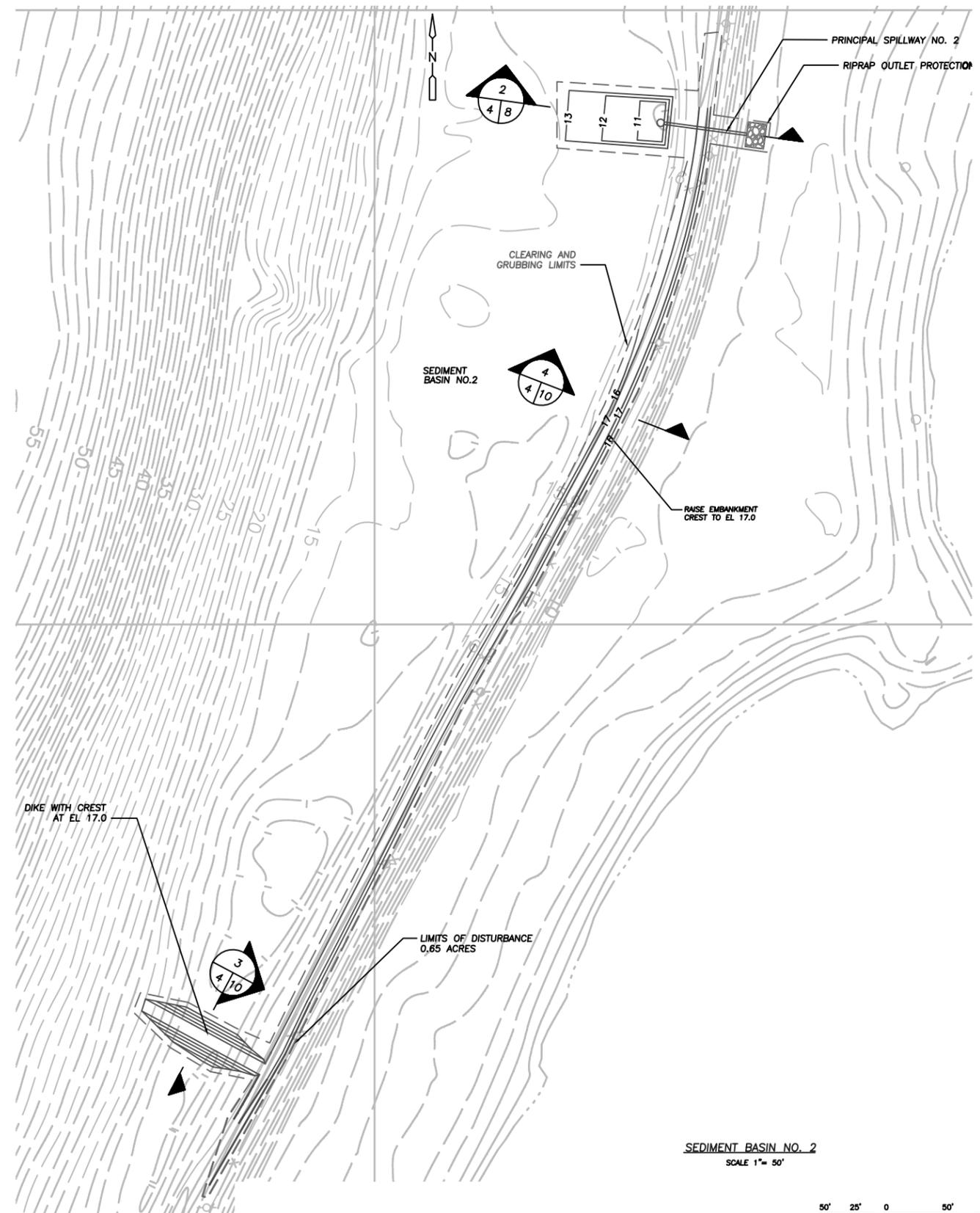
SEE SHEET 5 FOR DRAINAGE SWALE PLAN AND DETAILS



SEDIMENT BASIN NO. 1
SCALE 1" = 50'

LEGEND

- 17 — PROPOSED GRADING
- - - 15 - - - EXISTING 5 FT CONTOURS
- - - 1 FT CONTOURS



SEDIMENT BASIN NO. 2
SCALE 1" = 50'



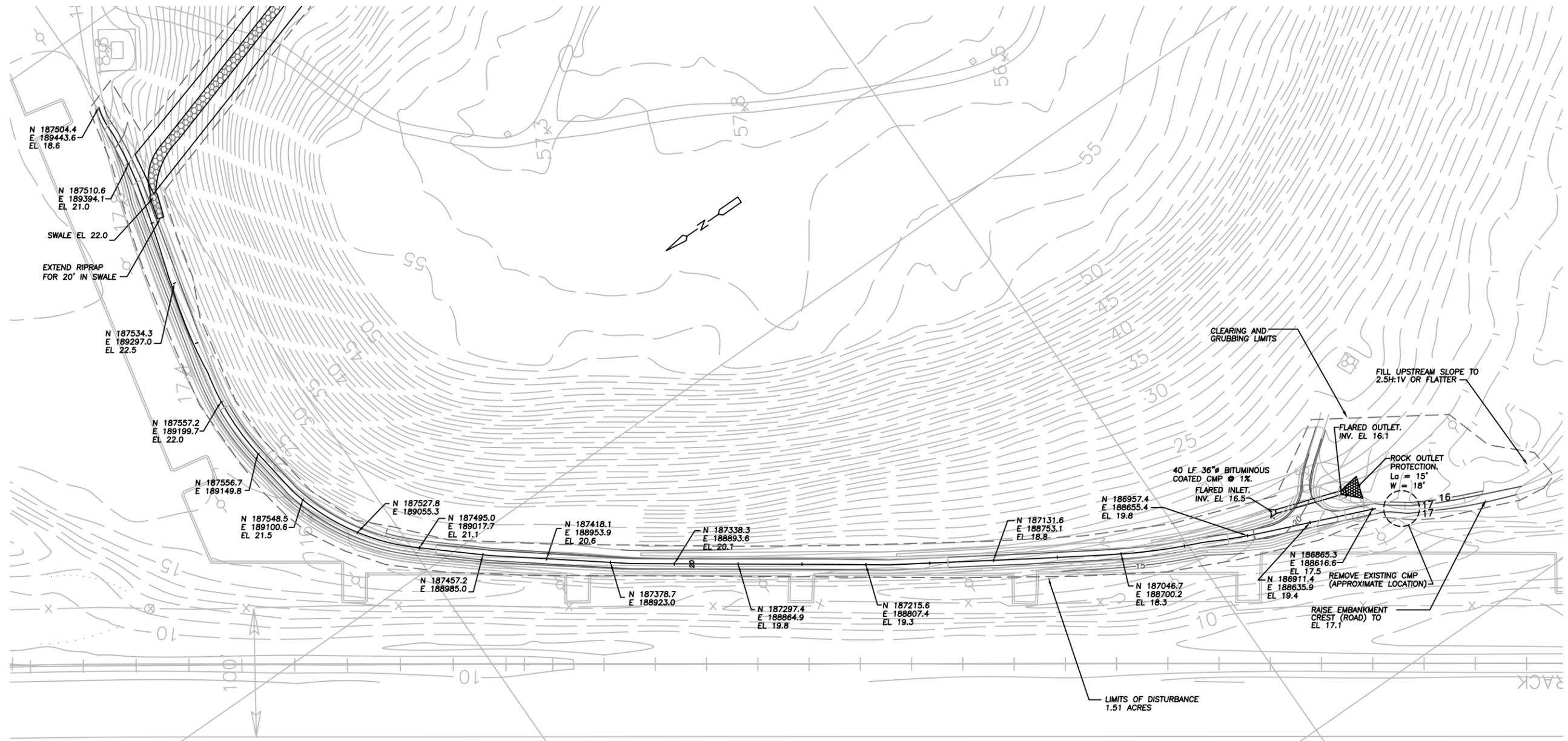
OWNER
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302-739-5361

PROJECT:
CONTOURING PLAN ADDENDUM AND FINAL
EROSION AND SEDIMENT CONTROL PLANS
PIGEON POINT LANDFILL
WILMINGTON, DELAWARE

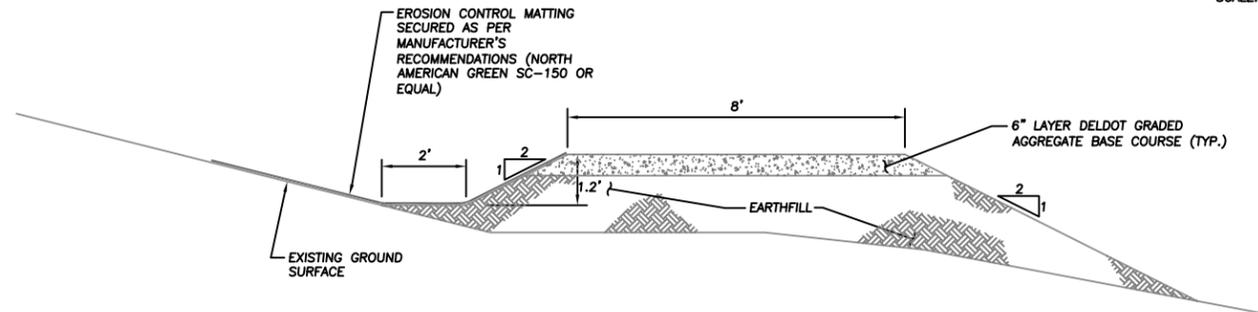
REV.	DESCRIPTION	DATE
2	REVISED PER DNREC COMMENTS	6/26/01

DESIGNED BY: JPH/CHK
DRAWN BY: CHK
CHECKED BY: CJM
CARMELLO J. MONTANA, P.E.
DATE:
DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE:
SEDIMENT BASIN GRADING PLANS
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West Chester, PA 19380
Phone: 610-696-6066
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SCALE: 1" = 50' DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 4 OF 10



ROAD AND SWALE MODIFICATIONS - PLAN
SCALE: 1" = 40'



TYPICAL SECTION THROUGH ROAD AND SWALE
SCALE: 1" = 2'

NOTE:
BOTH SWALE AND ROAD TO BE GRADED AT 0.5% EXCEPT IN AREA OF CULVERT CROSSING WHERE ROAD IS RAISED TO PERMIT CULVERT PLACEMENT (THESE DIMENSIONS NOT APPLICABLE AT CULVERT).

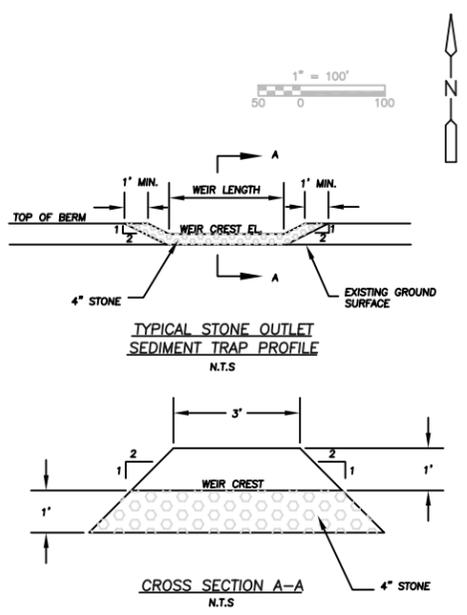
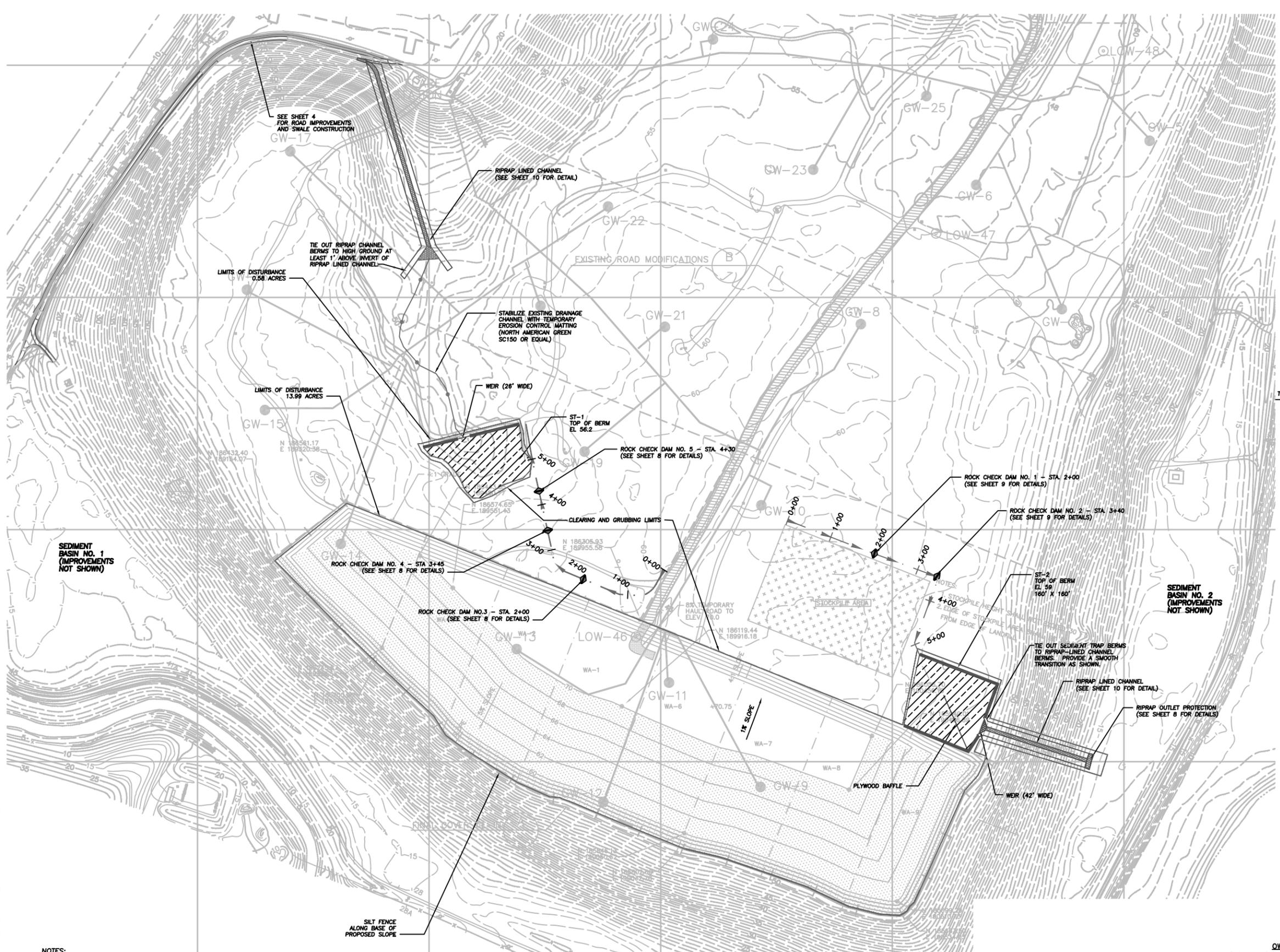
OWNER
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New Castle, DE 19720
302-739-5361

PROJECT:
CONTOURING PLAN ADDENDUM AND FINAL EROSION AND SEDIMENT CONTROL PLANS
PIGEON POINT LANDFILL
WILMINGTON, DELAWARE

REV.	DESCRIPTION	DATE

DESIGNED BY: JPH/CMK
DRAWN BY: CMK
CHECKED BY: CMK
CARMELLO J. MONTANA, P.E.
DATE: _____
DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE: SWALE GRADING PLAN
Schnabel Engineering 510 East Gay Street
West Chester, PA 19380
Phone: 610-696-6066
© Schnabel Engineering Associates, Inc. 2000
SCALE: 1"=40' DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 5 OF 10



TRAP #	TYPE	DRAINAGE AREA (AC)	STORAGE REQ. (CF)	STORAGE PROVIDED (CF)	WEIR CREST EL.	WEIR LENGTH (FT)	TOP OF BERM EL.	CLEANOUT LEVEL (DEPTH BELOW WEIR)
ST-1	STONE OUTLET	6.5	23,400	24,000	55.2	26	56.2	1'
ST-2	STONE OUTLET	10.5	37,800	38,000	58	42	59	1'

- LEGEND**
- EXISTING INDEX CONTOUR
 - EXISTING INTERMEDIATE CONTOUR
 - PROPOSED INDEX CONTOUR
 - PROPOSED INTERMEDIATE CONTOUR
 - PHASE BOUNDARY
 - EXTENT OF OPERATIONS
 - SUBPHASE BOUNDARY
 - GW-13 GAS WELL
 - LOW-46 LEACHATE OBSERVATION WELL
 - CONTROL POINT
 - CURRENT PHASE
 - FINAL COVER ELEVATION
 - ACCESS ROAD
 - TEMPORARY HAUL ROAD
 - TEMPORARY DIVERSION BERM
 - STABILIZED CHANNEL
 - SEDIMENT TRAP
 - SILT FENCE
 - ROCK CHECK DAM

NOTES:

- This sheet contains modifications to the temporary and permanent surface drainage system presented on Sheet C-3 "Phase 1 Contours" by Camp Dresser & McKee, December 1999.
- See Sheet 9 for sediment and erosion control approach (narrative) and general notes.
- Sediment and erosion control measures shall be constructed prior to any fill placement.

OWNER
 Delaware Solid Waste Authority
 1101 Lambson Lane
 New Castle, DE 19720
 302-739-5361

PROJECT:
 CONTOURING PLAN ADDENDUM AND FINAL
 EROSION AND SEDIMENT CONTROL PLANS
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

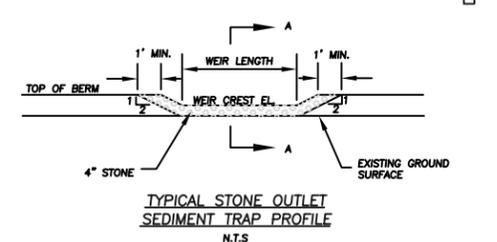
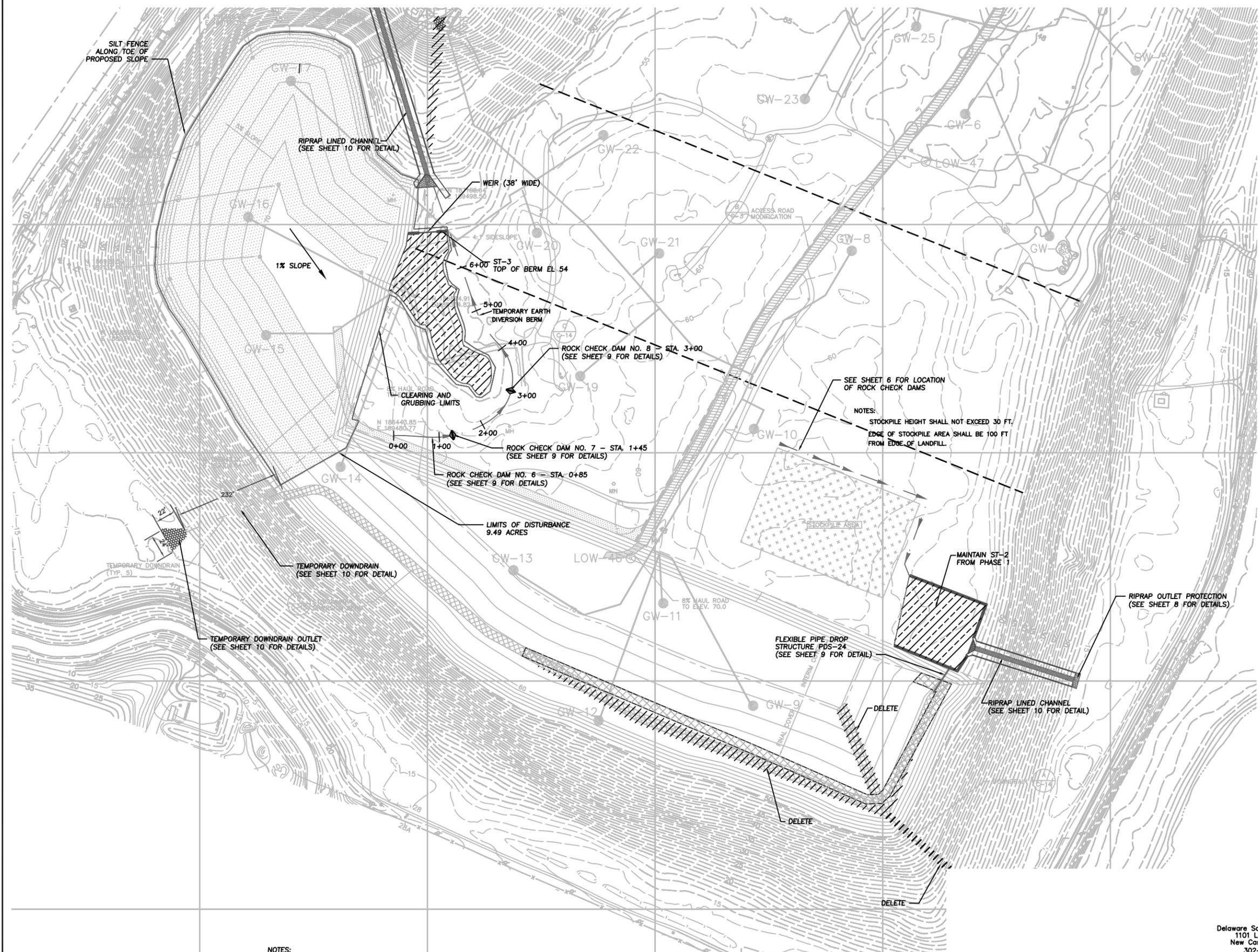
REV.	DESCRIPTION	DATE

DESIGNED BY: JPH/CMK
 DRAWN BY: CMK
 CHECKED BY: CJM
CARMELO J. MONTANA, P.E.
 DATE: _____
 DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE:
 EROSION & SEDIMENT CONTROL - PHASE 1

Schnabel Engineering
 510 East Gay Street
 West Chester, PA 19380
 Phone: 610-696-6066
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SCALE: 1"=100' DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 6 OF 10



TRAP #	TYPE	DRAINAGE AREA (AC)	STORAGE REQ. (CF)	STORAGE PROVIDED (CF)	WEIR CREST EL.	WEIR LENGTH (FT)	TOP OF BERM EL.	CLEANOUT LEVEL (DEPTH BELOW WEIR)
ST-3	STONE OUTLET	9.5	34,200	37,000	53	38	54	0.8'

- LEGEND**
- 70 --- EXISTING INDEX CONTOUR
 - 70 --- EXISTING INTERMEDIATE CONTOUR
 - 70 --- PROPOSED INDEX CONTOUR
 - 70 --- PROPOSED INTERMEDIATE CONTOUR
 - - - - - PHASE BOUNDARY
 - - - - - EXTENT OF OPERATIONS
 - GW-13 GAS WELL
 - LOW-46 LEACHATE OBSERVATION WELL
 - MH MANHOLE
 - N 185998.76 E 190725.12 CONTROL POINT
 - CURRENT PHASE
 - FINAL COVER ELEVATION
 - ACCESS ROAD
 - TEMPORARY HAUL ROAD
 - STORMWATER DIVERSION BERM
 - TEMPORARY DIVERSION BERM
 - SEDIMENT TRAP
 - SILT FENCE
 - ROCK CHECK DAM

NOTES:

- This sheet contains modifications to the temporary and permanent surface drainage system presented on Sheet C-4 "Phase 2-A Contours" by Camp Dresser & McKee, December 1999.
- See Sheet 8 for sediment and erosion control approach (narrative) and general notes.
- Sediment and erosion control measures shall be constructed prior to any fill placement.

REV.	DESCRIPTION	DATE

DESIGNED BY: JPH/CMK
 DRAWN BY: CMK
 CHECKED BY: CJM

CARMELO J. MONTANA, P.E.

DATE: _____
 DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

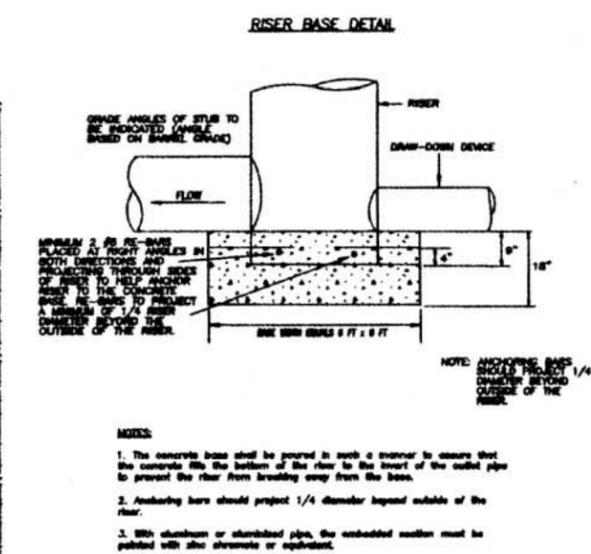
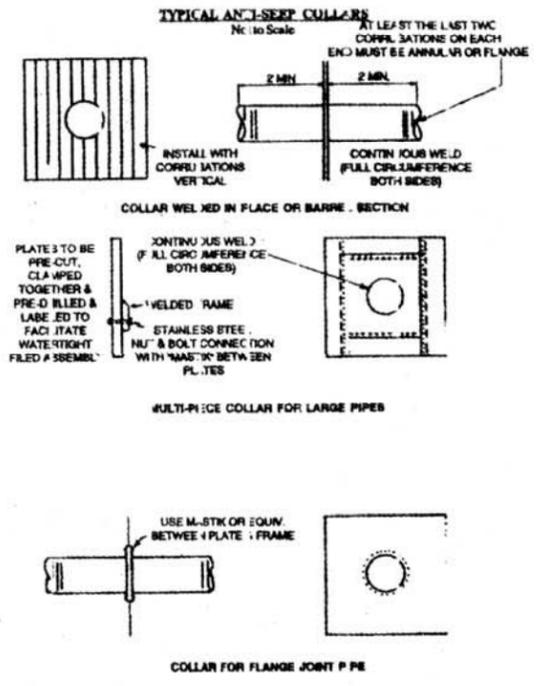
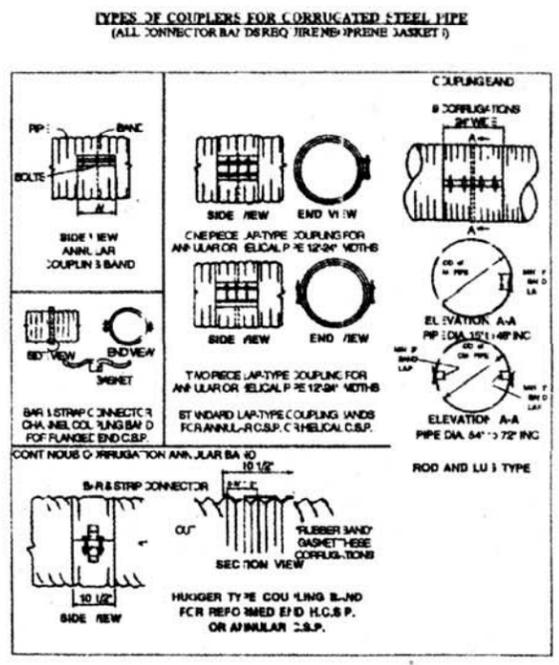
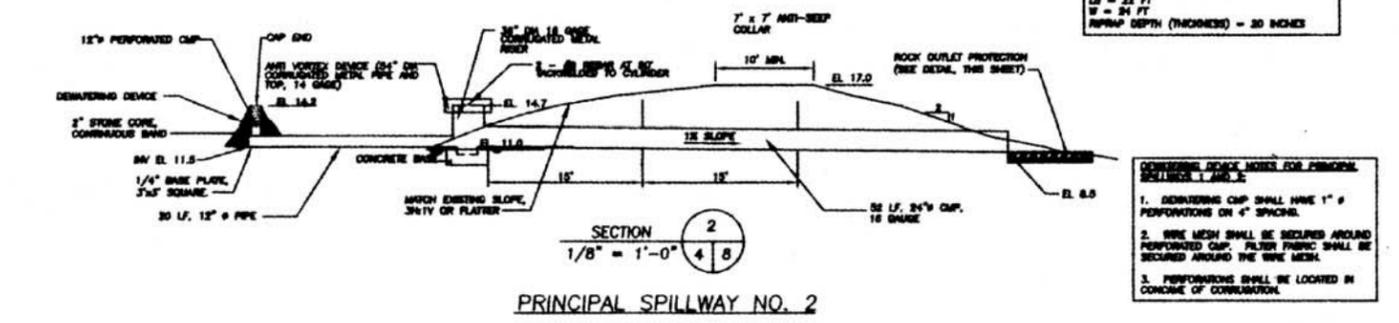
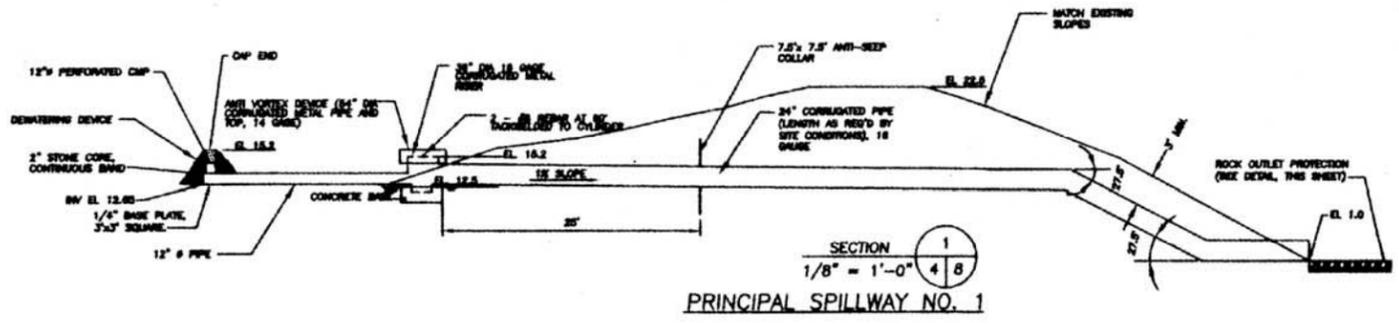
OWNER
 Delaware Solid Waste Authority
 1101 Lambson Lane
 New Castle, DE 19720
 302-739-5361

PROJECT:
 CONTOURING PLAN ADDENDUM AND FINAL
 EROSION AND SEDIMENT CONTROL PLANS
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

SHEET TITLE:
 EROSION & SEDIMENT CONTROL-PHASE 2-A

Schnabel Engineering
 510 East Gay Street
 West Chester, PA 19380
 Phone: 610-696-6066
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SCALE: 1"=100' DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 7 OF 10



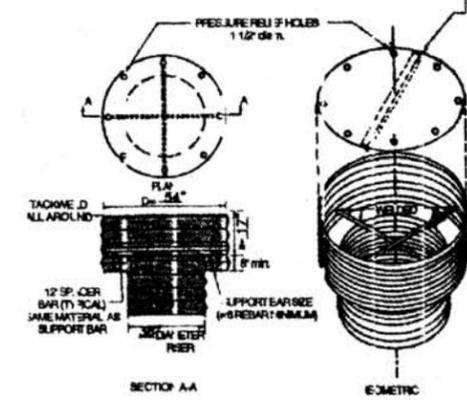
Top stiffener (if required) is $\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{4}$ angle welded to top of riser and perpendicular to corrugations (NOT REQUIRED)

Top is $\frac{1}{2}$ gage corrugated metal or $\frac{1}{8}$ steel plate. Pressure relief holes are to be provided, if ends of corrugations are left in by open ends corrugated pipe is welded to cylinder.

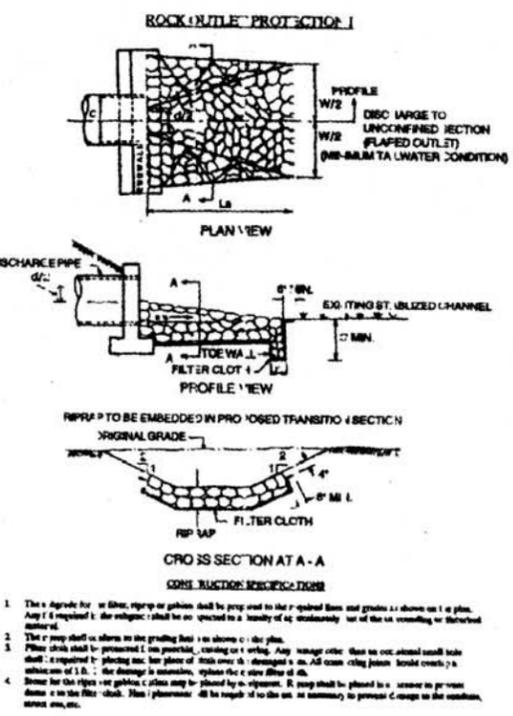
Cylinder is $\frac{1}{4}$ gage corrugated metal pipe or fabricated from $\frac{1}{8}$ steel plate.

Notes:

- The cylinder must be fully fastened to the top of the riser.
- Support bars are welded to the top of the riser or attached by straps bolted to top of riser.



Under no circumstances shall the discipline (and versa) on section 1 and be acceptable for use in any other and control or structure as suggested structure.



ROCK OUTLET PROTECTION FOR RIPRAP LINED CHANNELS

RIPPRAP OUTLET PROTECTION FOR RIPRAP LINED CHANNELS (UNLESS OTHERWISE INDICATED ON PLAN VIEW) SHALL BE CONSTRUCTED IN GENERAL ACCORDANCE TO OUTLET PROTECTION FOR PIPES (SHOWN ABOVE). OUTLET PROTECTION FOR ALL RIPRAP LINED CHANNELS SHALL BE CONSTRUCTED TO THE FOLLOWING CRITERIA:

MATERIAL: DELDOT R-5 OR EQUAL
 L_o = 15 FT
 W = 20 FT
 RIPRAP DEPTH (THICKNESS) = 20 INCHES

PRINCIPAL SPILLWAY REQUIREMENTS

- All corrugated metal pipe for the principal spillway system shall be bituminous coated and conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.
- Coupling bands, anti-seep collars, end sections, etc., must be of the same material as the pipe.
- All connections must be watertight. The drain pipe or barrel connection to the riser shall be welded all around. Anti-seep collars shall be watertight to the pipe.
- The pipe shall be firmly and uniformly bedded throughout its entire length. Where soft or spongy or otherwise unstable soil is encountered, it shall be removed and replaced with properly compacted fill.

EARTHWORK REQUIREMENTS

- Affected areas shall be stripped to remove vegetation and other unsuitable materials or shall be excavated as specified. Topsoil shall be stockpiled for reuse.
- Excavation side slopes for installation of the pipe shall be no steeper than 2H:1V. After placement of the pipe, earth foundation surfaces shall be graded to remove surface irregularities and shall be scarified parallel to the axis of the fill to a minimum depth of six inches. The moisture content of the loosened materials shall be between minus one percent and plus two percent of the optimum moisture content at the time of the first placement of fill material on the foundation. The surface materials of the foundation shall be compacted and bonded with the first layer of earthfill as specified for subsequent layers of earthfill.
- Earthfill materials shall be obtained from required excavations, or if required, from approved off-site sources. Earthfill shall be classified as SM, SC, CL, SW, SP, or ML according to the Unified Soil Classification System, USCS, (ASTM D2487). The selection, blending, routing and disposition of materials in the various fills shall be subject to review by the Engineer. Fill materials shall contain no sod, brush, roots or other perishable materials. Rock particles larger than 3 inches shall be removed prior to compaction of the fill. It shall be placed with a moisture content between optimum and four percent above and compacted to 95 percent of maximum dry density as determined by the Standard Proctor Compaction Test ASTM D698. Fill lifts shall not exceed 8 inches prior to compaction.
- Fill beneath and adjacent to pipe shall be placed in four-inch lifts and compacted to the same required density as the surrounding fill. Fill shall be placed in a manner which will prevent damage to the pipe and will allow it to assume the loads from the fill gradually and uniformly. The height of the fill adjacent to the pipe shall be increased at approximately the same rate on both sides.

OWNER
 Delaware Solid Waste Authority
 1101 Lombard Lane
 New Castle, DE 19720
 302-739-5361

PROJECT
 CONTOURING PLAN ADDENDUM AND FINAL
 EROSION AND SEDIMENT CONTROL PLANS
 PIGEON POINT LANDFILL
 WILMINGTON, DELAWARE

DESIGNED BY: JPM/DMK	DRAWN BY: DMK	CHECKED BY: DMK	SHEET TITLE: SEDIMENT BASIN DETAILS
CARMELLO J. MONTANA, P.E.			Schaebel Engineering 510 East Gay Street West Chester, PA 19380 Phone: 610-696-6066
DATE: DELAWARE PROFESSIONAL ENGINEER NUMBER 1074			SCALE: NONE DATE: 3-1-01 JOB NO.: 00179.00 SHEET: 6 OF 10

REV.	DESCRIPTION	DATE

NARRATIVE

1. Sediment and erosion control during cap construction consists of a redundant system that attempts to maximize the quantity of sediment retained on the cap, but also directs all runoff ultimately to sediment ponds.
2. Cap Construction below EL 60: Fill shall initially be placed along the outer perimeter of the landfill during each phase of construction. Runoff from the active fill surface below about EL 60 will be allowed to pass as sheet flow down the outboard slope of the landfill. The existing vegetation will serve as a filter strip for primary sediment removal, with flow subsequently passing directly into the sediment basins at the toe of the landfill.
3. Cap Construction above EL 60: When the landfill cap has reached about EL 60, the fill surface should be directed inward to the landfill at about a one percent slope. Runoff from the active surface shall be directed to sediment traps by means of temporary diversion dikes.
4. The sediment traps presented on the Contract Drawings deviate somewhat from standard sediment trap design as described in the Delaware Erosion and Sediment Control Handbook (Handbook). Given that it is desirable to avoid excavation into the existing cap while also minimizing infiltration into the landfill, the sediment traps consist of berm-enclosed areas. The full height of the weirs are comprised of stone to encourage drainage through the trap and subsequent conveyance down the rock chutes to the sediment basins.
5. Stabilization of the finished outboard slopes by topsoil and seeding shall be performed according to the schedule and requirements for Seeding.
6. Stable outlets from the edge of the cap to the sediment basins will be provided by rock lined waterways designed in accordance with the Handbook. Riprap size for the chutes was also checked against the latest recommendations of the USDA ARS.

SEEDING NOTES

All permanent seeding shall be between the dates of 2/1 - 4/30 or 8/15 - 10/31 in accordance with the "Standards and Specifications for Vegetative Stabilization with Permanent Seeding" (Standard) contained in the Delaware Erosion and Sediment Control Handbook for Development. One seeding mixture and rate shall be selected from Mixtures 1 - 8 in Table PS 1 of the Standard, and shall be used throughout the project unless otherwise approved by the Owner.

All temporary seeding shall be in accordance with the "Standard and Specifications for Vegetative Stabilization with Temporary Seeding" contained in the Delaware Erosion and Sediment Control Handbook for Development.

Following soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within 14 calendar days as to the surface of all perimeter sediment controls, soil stockpiles, and all other disturbed or graded areas on the project site.

Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land disturbing activity and shall be made functional before upslope land disturbance takes place.

Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

GENERAL E & S NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and of the "Delaware Erosion and Sediment Control Handbook For Development" published by the Delaware Department of Natural Resources and Environmental Control (DNREC).

ES-2: DNREC, Sediment and Stormwater Management Program must be notified in writing five (5) days prior to commencing construction. Failure to do so constitutes a violation of the approved sediment and stormwater management plan.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including but not limited to off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the DNREC.

ES-6: If the approved plan needs to be modified, additional sediment and stormwater control measures may be required as deemed necessary by the DNREC.

ES-7: Review and/or approval of the Sediment and Stormwater Management Plan shall not relieve the contractor from his or her responsibilities for compliance with the requirements of the Sediment and Stormwater Regulations, nor shall it relieve the contractor from errors or omissions in the approved plan.

ES-8: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

ES-9: During dewatering operations, water will be pumped into an approved filtering device.

ES-10: The contractor shall inspect all erosion and sediment control measures weekly and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain effectiveness of the erosion control devices shall be made immediately.

ES-11: Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by (vehicular) tracking onto paved surfaces. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner.

ES-12: All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program administrator. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

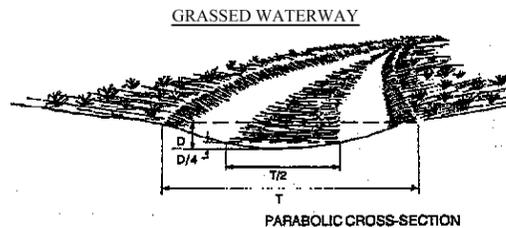
ES-13: Grassed waterways shall be stabilized with temporary erosion control matting (North American Green SC 150 or equal).

ES-14: Temporary access culverts shall be used where haul roads cross existing or proposed drainage paths.

ES-15: Layout for Stormwater Diversion Berms shall be as follows: Beginning at the discharge point (typically riprap lined channel), layout berm at a slope of 0.4 % across the cap in the general locations indicated on the Plans. Temporary erosion control matting shall be used to stabilize the created flow channel to a depth of about one ft (width of about 20 ft).

ES-16: Dust control shall be accomplished as necessary by sprinkling water over disturbed surfaces until the surface is wet. As an alternative dust control measure for the fill material on the landfill cap, tillage of the soil surface may be performed. The tillage shall scarify the soil surface and shall begin on the windward side of the site.

GRASSED WATERWAY	TYPE	TOP WIDTH (T)	DEPTH (D)
NO. 1	PARABOLIC	22 FT	0.65 FT
NO. 2	PARABOLIC	22 FT	0.65 FT
NO. 3	PARABOLIC	12 FT	1.2 FT



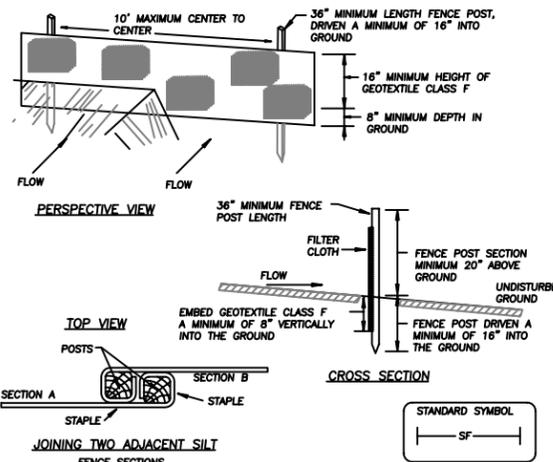
GRASSED WATERWAY

PARABOLIC CROSS-SECTION

CONSTRUCTION SPECIFICATIONS

1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the waterway.
2. The waterway shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of bank projections or other irregularities which will impede normal flow.
3. Fills shall be compacted as needed to prevent unequal settlement that would cause damage to the waterway.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the waterway.
5. Stabilize grassed waterways with erosion control matting (North American Green SC-150 or equal) secured as per the manufacturer's recommendations.

SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in. (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in. (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

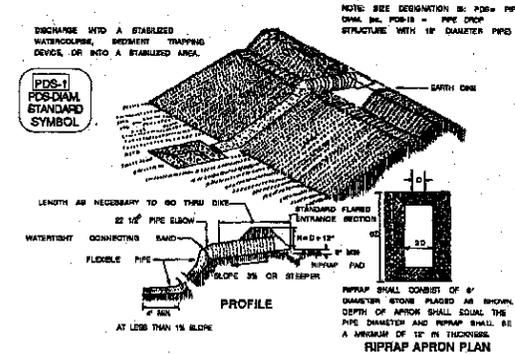
SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	80 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

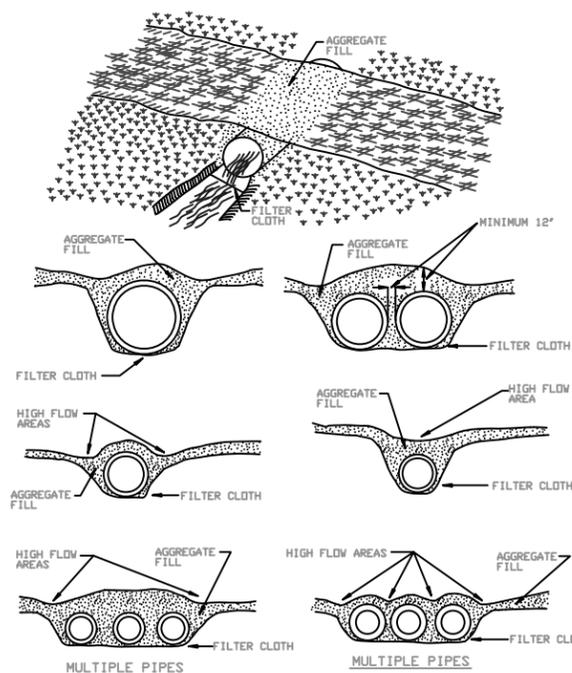
PIPE DROP STRUCTURE (FLEXIBLE)
(NOT TO SCALE)



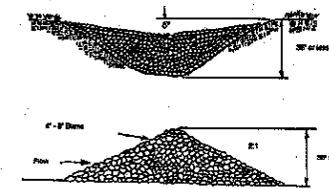
Construction Specifications

1. The inlet pipe shall have a slope of 2% or steeper.
 2. The top of the earth dike over the inlet pipe and those dikes carrying water to the pipe shall be at least 1' higher at all points than the top of the inlet pipe. Earth dike side slopes shall be 2:1.
 3. The inlet pipe shall be corrugated metal pipe with watertight connecting bands.
 4. The flexible tubing shall be the same diameter as the inlet pipe and shall be constructed of a double material with hold-down grooves spaced 10' on centers.
 5. The flexible tubing shall be securely fastened to the corrugated metal pipe with metal strapping or watertight connecting collars.
 6. The flexible tubing shall be securely anchored to the slope by staking at the grooves provided.
1. A riprap apron shall be provided at the outlet. This shall consist of 6" diameter stone placed as shown on Standard Drawing.
2. The soil around and under the inlet pipe and entrance section shall be hand tamped in 4" increments to the top of the earth dike.
3. Follow-up inspection and any needed maintenance shall be performed after each storm.
- MAXIMUM DRAINAGE AREA: 8 ACRES
- NOT REQUIRED - DISCHARGES INTO RIPRAP LINED CHANNEL

TEMPORARY ACCESS CULVERT



ROCK CHECK DAM



SPACING BETWEEN CHECK DAMS

L = The channel width at the crest of the dam
A and B are at equal elevation

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in the Standards and Specifications for Earth Dike, Temporary Swale, Perimeter Dike, Swale, or Diversion.
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.
4. The maximum height of the check dam at the center of the weir must not exceed three (3) 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.

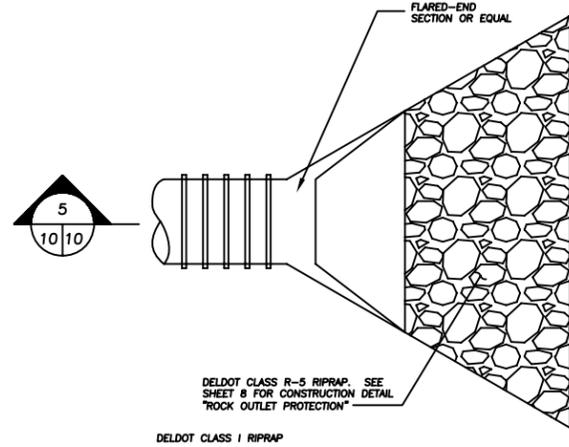
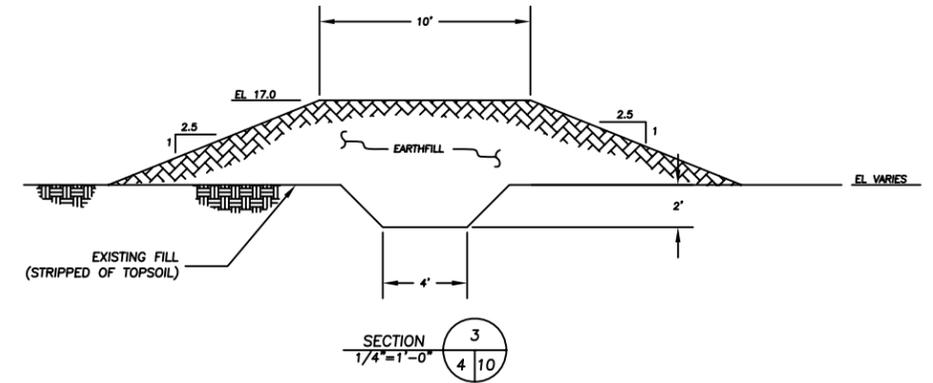
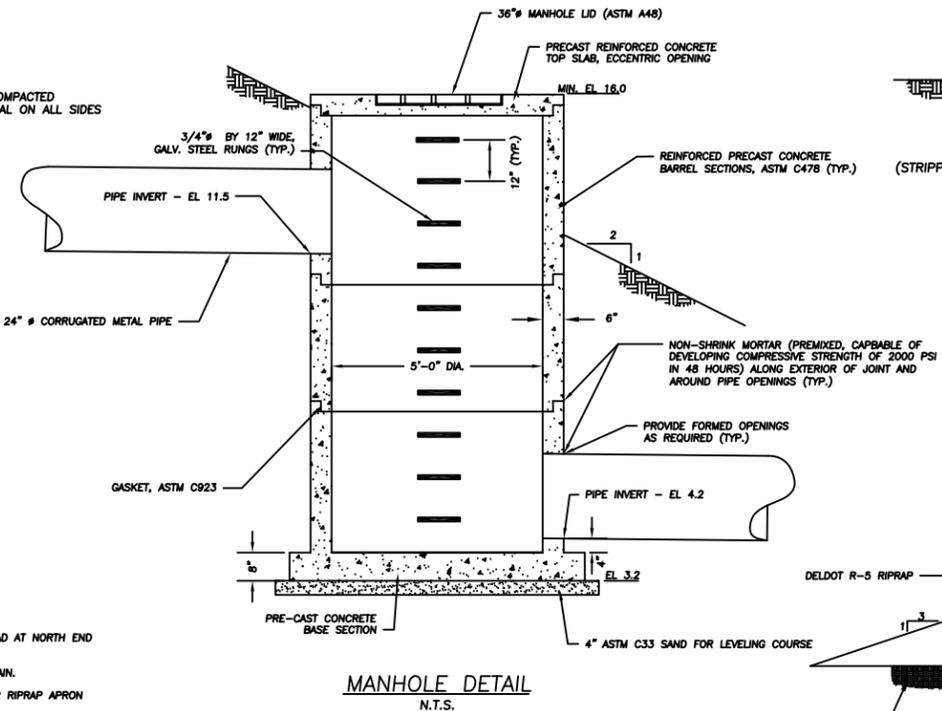
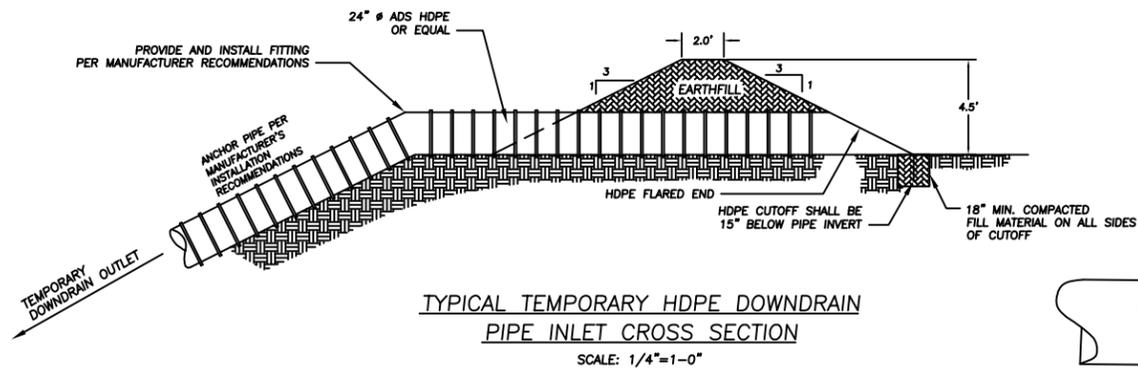
OWNER
Delaware Solid Waste Authority
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PIGEON POINT LANDFILL
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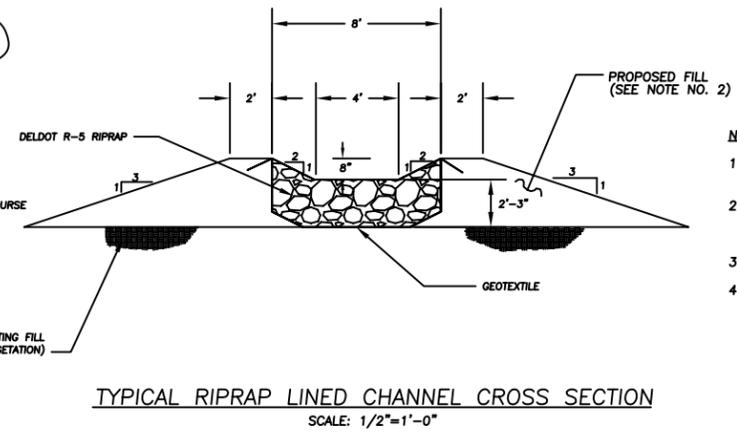
DESIGNED BY: JPH/CMK
DRAWN BY: CMK
CHECKED BY: CJM
DATE: _____
CARMELLO J. MONTANA, P.E.
DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

SHEET TITLE:
E & S CONTROL NOTES & DETAILS
Schnabel Engineering
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West Chester, PA 19380
Phone: 610-696-6066
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SCALE: NONE DATE: 3-1-01 JOB NO.: 985176.05 SHEET: 9 OF 10

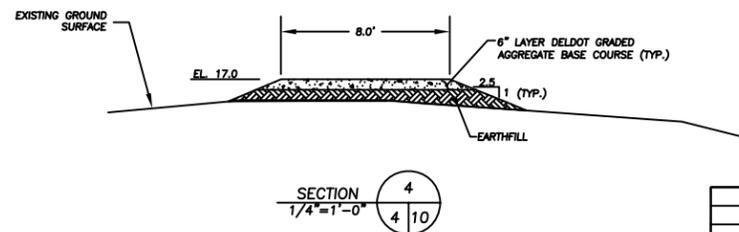
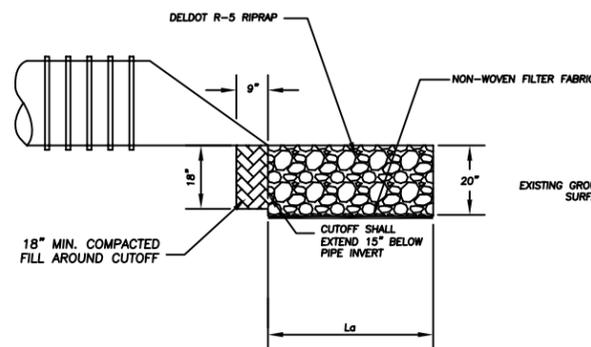
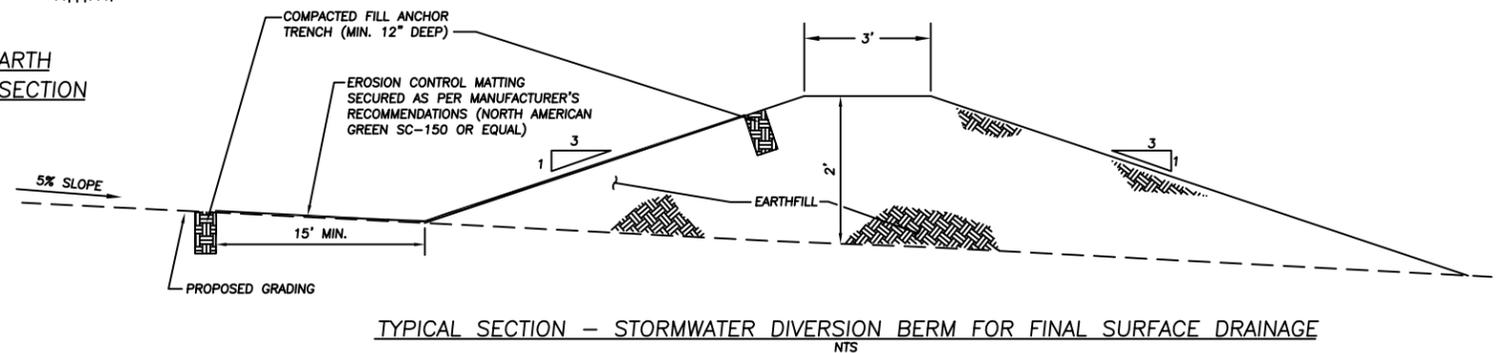
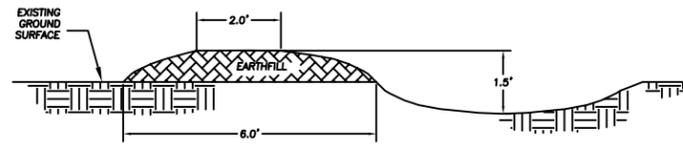
REV.	DESCRIPTION	DATE



- APPLIES TO:**
- 36" # PIPE BENEATH ACCESS ROAD AT NORTH END OF SEDIMENT BASIN NO. 1.
 - TEMPORARY 24" # HDPE DOWNDRAIN.
- SEE PLAN OR SECTION VIEWS FOR RIPRAP APRON DIMENSIONS.



- NOTES:**
- PROVIDE AND INSTALL RIPRAP AS SPECIFIED IN DELDOT SECTION 712.
 - PROPOSED FILL SHALL CONSIST OF COMPACTED STRUCTURAL FILL OR STABILIZED SLUDGE.
 - DO NOT EXCAVATE INTO EXISTING FILL.
 - RIPRAP-LINED CHANNEL SHALL FOLLOW GRADE OF EXISTING SLOPE.



REV.	DESCRIPTION	DATE
2	REVISED PER DNREC COMMENTS	6/26/01

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JPH/CMK	CMK	CJM

CARMELO J. MONTANA, P.E.

DATE: _____

DELAWARE PROFESSIONAL ENGINEER NUMBER 10176

OWNER
Delaware Solid Waste Authority
1101 Lambson Lane
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EROSION AND SEDIMENT CONTROL DETAILS

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SCALE: SHOWN | DATE: 3-1-01 | JOB NO.: 985176.05 | SHEET: 10 OF 10

EXHIBIT 12

Attachment 6

CONTOURING PLAN – DECEMBER 1999

APPENDIX F CONTOURING PLAN

DELAWARE SOLID WASTE AUTHORITY
NORTHERN SOLID WASTE MANAGEMENT CENTER-1
PIGEON POINT LANDFILL
NEW CASTLE, DELAWARE

DECEMBER 1999



INDEX OF DRAWINGS

C-1	EXISTING SITE CONDITIONS
C-2	SITE DEVELOPMENT
C-3	PHASE 1 CONTOURS
C-4	PHASE 2-A CONTOURS
C-5	PHASE 2-B CONTOURS
C-6	PHASE 2-C CONTOURS
C-7	PHASE 3-A CONTOURS
C-8	PHASE 3-B CONTOURS
C-9	PHASE 4 CONTOURS
C-10	PHASE 5 CONTOURS
C-11	FINAL CLOSURE CONTOURS
C-12	CROSS SECTIONS
C-13	CROSS SECTIONS
C-14	STORMWATER CONTROL DETAILS

CAMP DRESSER & McKEE
ANNANDALE, VIRGINIA

PROJECT NUMBER: 10959-24685

consulting
engineering
construction
operations

CDM

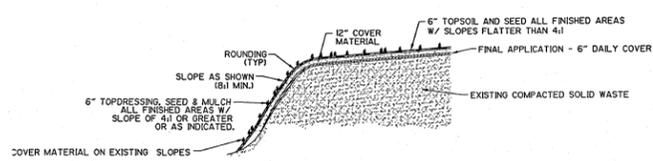
Camp Dresser & McKee Inc.

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DEC 20 1999



LEGEND

	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	RAILROAD PROPERTY LINE
	PROPERTY LINE
	VEGETATION
	GW-23
	LOW-48
	MH
	GAS WELL
	LEACHATE OBSERVATION WELL
	MANHOLE



TYPICAL GRADING SECTION FOR EXISTING FINAL COVER
DETAIL A
 NOT TO SCALE

PHOTOGRAMMETRIC DIGITAL MAPPING BY L. ROBERT KIMBALL & ASSOCIATES, INC., EBENSBURG PA.
 PROPERTY BOUNDARY INFORMATION AS PER PLAN BY ODELL LINE SURVEYS, INC., OF BEAR, DE, ENTITLED "BOUNDARY SURVEY - LANDS OF THE CITY OF WILMINGTON AND LANDS OF THE SOLID WASTE AUTHORITY" DATED DEC. 14, 1996, AND ADDED TO MAPPING ON JAN. 7, 1997.
 DATE OF PHOTOGRAPHY JUNE 23, 1996
 SCALE 1" = 100' CONTOUR INTERVAL 1'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

CDM Camp Dresser & McKee
 100 Little River Turnpike, Suite 600 West
 Alexandria, Virginia 22304
 Tel: (703) 642-9500 Fax: (703) 642-0539

DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
PIGEON POINT LANDFILL

EXISTING CONDITIONS

PROJECT NO. 10959-24685
 FILE NAME: C-1.dwg
 SHEET NO. **C-1**



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	118,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
- TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 - COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.

LEGEND

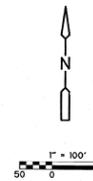
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PHASE BOUNDARY
	EXTENT OF OPERATIONS
	VEGETATION
	GW-23 GAS WELL
	GLOW-48 LEACHATE OBSERVATION WELL
	MH MANHOLE
	MAIN ACCESS ROAD TO FILL AREA
	GAS COLLECTION LINES

PHOTOGAMMETRIC DIGITAL MAPPING BY
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DATE OF PHOTOGRAPHY: JUNE 23, 1996
SCALE 1" = 100' CONTOUR INTERVAL 1'

DESIGNED BY: M. SANFORD DRAWN BY: J. KILLINGSWORTH SHEET CHECKED BY: M. SANFORD CROSS CHECKED BY: C. GABEL APPROVED BY: _____ DATE: DECEMBER 1999				CDM Camp Dresser & McKee <small>consulting engineering architecture</small> 750 Little Street, Suite 600 West Philadelphia, PA 19106-2703 Tel: (724) 642-5500 Fax: (724) 642-5539		DELAWARE SOLID WASTE AUTHORITY NEW CASTLE, DELAWARE CONTOURING PLAN NORTHERN SOLID WASTE MANAGEMENT CENTER - 1 PIGEON POINT LANDFILL		PROJECT NO. 10959-24685 FILE NAME: C-2.dwg SHEET NO. C-2	
REV. NO.	DATE	DRWN	CHKD	REMARKS					

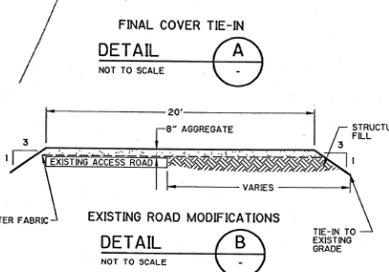
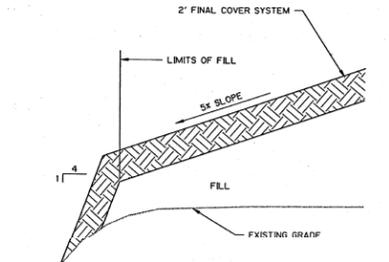
SITE DEVELOPMENT

N 188000



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	118,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	178,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

1. FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
2. TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
3. LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
4. PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.



- NOTES:
1. EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 2. COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 3. LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 4. PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	PHASE BOUNDARY
	EXTENT OF OPERATIONS
	SUBPHASE BOUNDARY
	GW-13 GAS WELL
	LOW-46 LEACHATE OBSERVATION WELL
	MH MANHOLE
	N 185998.76 E 190725.12 CONTROL POINT
	CURRENT PHASE FINAL COVER ELEVATION
	MODIFIED EXISTING ACCESS ROAD
	TEMPORARY HAUL ROAD
	TEMPORARY DOWNDRAIN



REV. NO.	DATE	DRWN	CHKD	REMARKS

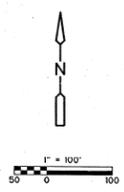
DESIGNED BY: M. SANFORD
 DRAIN BY: J. KILLINGSWORTH
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

CDM Camp Dresser & McKee
 707 Little River Turnpike, Suite 600 West
 Alexandria, Virginia 22304
 Tel: (703) 842-5500 Fax: (703) 642-0539

DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 1 CONTOURS

PROJECT NO. 10959-24685
 FILE NAME: C-3.dwg
 SHEET NO. **C-3**



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	118,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	186,299	212,047	221,157	1.4	4.3
3A	155,533	175,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
- TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd³ OR 87 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 - COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - PROPOSED CONTOURS IN SHADDED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADDED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PHASE BOUNDARY
- EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- MANHOLE
- INTERM COVER ELEVATION
- FINAL COVER ELEVATION
- TRANSITION FROM INTERMEDIATE TO FINAL COVER
- CONTROL POINT
- CURRENT PHASE
- FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- PERMANENT DOWNDRAIN
- TEMPORARY DOWNDRAIN

REV. NO.	DATE	DRWN	CHKD	REMARKS

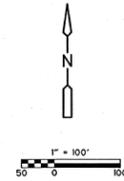
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINSWORTH
 SHEET CHECKED BY: M. SANFORD
 CROSS CHECKED BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

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 781 Little River Turnpike, Suite 600 West
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 2-A CONTOURS

PROJECT NO. 10959-24685
 FILE NAME: C-4.dwg
 SHEET NO. **C-4**



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	188,435	104,123	0.6	1.3
2B	216,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
- TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 - COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- 70 --- EXISTING INDEX CONTOUR
- --- EXISTING INTERMEDIATE CONTOUR
- 70 --- PROPOSED INDEX CONTOUR
- --- PROPOSED INTERMEDIATE CONTOUR
- - - - - PHASE BOUNDARY
- - - - - EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 ○ LEACHATE OBSERVATION WELL
- MH MANHOLE
- ↑ INTERM COVER ELEVATION
- ↓ FINAL COVER ELEVATION
- ↑ N 185998.76 E 190725.12 CONTROL POINT
- CURRENT PHASE FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- - - - - PERMANENT DOWNDRAIN
- - - - - TEMPORARY DOWNDRAIN

REV. NO.	DATE	DRWN	CHKD	REMARKS

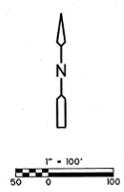
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 CHECKED BY: M. SANFORD
 APPROVED BY: C. GABEL
 DATE: DECEMBER 1999

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 Annapolis, Virginia 20703
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 2-B CONTOURS

PROJECT NO. 10959-24685
 FILE NAME: C-5.dwg
 SHEET NO. **C-5**



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	18,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,571	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
- TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 - COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- TO --- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TO --- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- - - - - PHASE BOUNDARY
- - - - - EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- MH MANHOLE
- INTERM COVER ELEVATION
- FINAL COVER ELEVATION
- CONTROL POINT
- CURRENT PHASE
- FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- PERMANENT DOWNDRAIN
- TEMPORARY DOWNDRAIN

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. SANFORD
 DRAWN BY: J. KELLINGSWORTH
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

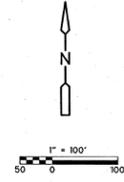
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 Alexandria, Virginia 22304
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 2-C CONTOURS

PROJECT NO. 10959-24688
 FILE NAME: C-8.dwg
 SHEET NO. **C-6**

N 188000



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	118,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

1. FILL VOLUME IN CUBIC YARDS IS FOR FRI MATERIAL ONLY (FINAL COVER EXCLUDED).
2. TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
3. LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
4. PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
1. EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 2. COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 3. LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 4. PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- 70 --- EXISTING INDEX CONTOUR
- --- EXISTING INTERMEDIATE CONTOUR
- 70 --- PROPOSED INDEX CONTOUR
- --- PROPOSED INTERMEDIATE CONTOUR
- - - - - PHASE BOUNDARY
- - - - - EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 ○ LEACHATE OBSERVATION WELL
- MH MANHOLE
- ↑ INTERIM COVER ELEVATION
- ↑ FINAL COVER ELEVATION
- ↑ N 185998.76 E 190725.12 CONTROL POINT
- CURRENT PHASE FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- - - - - PERMANENT DOWNDRAIN
- - - - - TEMPORARY DOWNDRAIN

REV. NO.	DATE	DRWN	CHKD	REMARKS

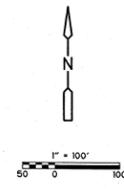
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHECKED BY: M. SANFORD
 CROSS CHECKED BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

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 703 Little River Turnpike, Suite 600 West
 Chesapeake, Virginia 23060
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 3-A CONTOURS

PROJECT NO. 10959-24688
 FILE NAME: C-7.dwg
 SHEET NO. **C-7**



CONTOUR OPERATION CAPACITY AND LIFESPAN				
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7
2A	88,653	118,435	104,123	0.6
2B	215,971	237,880	253,657	1.6
2C	188,299	212,047	221,057	1.4
3A	155,533	179,507	182,673	1.1
3B	193,643	210,423	222,735	1.4
4	292,458	347,279	343,491	2.1
5	66,741	94,426	78,387	0.5
TOTAL	1,292,715	1,539,781	1,518,294	9.4

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL UNLT IP FINAL LAYER EXCLUDED.
- TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
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 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- 70 --- EXISTING INDEX CONTOUR
- --- EXISTING INTERMEDIATE CONTOUR
- 70 --- PROPOSED INDEX CONTOUR
- --- PROPOSED INTERMEDIATE CONTOUR
- - - - - PHASE BOUNDARY
- - - - - EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- MH MANHOLE
- ↑ INTERM COVER ELEVATION
- ↑ FINAL COVER ELEVATION
- ↑ N 18598.76 E 190725.12 CONTROL POINT
- CURRENT PHASE FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- PERMANENT ACCESS ROAD
- PERMANENT DOWNDRAIN
- TEMPORARY DOWNDRAIN

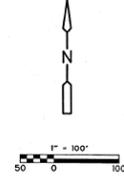
DESIGNED BY: M. SANFORD	DATE: DECEMBER 1999
DRAWN BY: J. KILLINGSWORTH	
CHECKED BY: M. SANFORD	
CROSS CHECKED BY: C. GABEL	
APPROVED BY:	

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 Alexandria, Virginia 22304
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 3-B CONTOURS

PROJECT NO.	10959-24685
FILE NAME	C-8.dwg
SHEET NO.	C-8



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	118,435	104,123	0.6	1.3
2B	215,971	237,880	253,697	1.6	2.9
2C	188,299	212,047	221,517	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
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- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
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- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 - COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 - PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.

LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PHASE BOUNDARY
- EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- MH MANHOLE
- INTERIM COVER ELEVATION
- FINAL COVER ELEVATION
- CONTROL POINT
- CURRENT PHASE FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- PERMANENT ACCESS ROAD
- PERMANENT DOWNDRAIN

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHECKED BY: M. SANFORD
 CROSS CHECKED BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

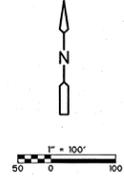
CDM Camp Dresser & McKee
 700 Little River Turnpike, Suite 600 West
 Alexandria, Virginia 22304
 Tel: (703) 642-5500 Fax: (703) 642-5539

DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

PHASE 5 CONTOURS

PROJECT NO. 10959-24695
 FILE NAME: C-10.dwg
 SHEET NO. **C-10**

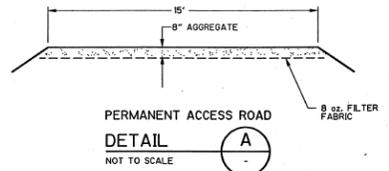
N 188000



CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	112,067	0.7	0.7
2A	88,653	18,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

1. FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
2. TONNAGE IS BASED UPON AN IN-PLACE DENSITY OF 2,349 lb/yd OR 87 lb/ft³.
3. LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
4. PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.

- NOTES:
1. EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
 2. COMPONENTS OF THE EXISTING GAS COLLECTION SYSTEM SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 3. LEACHATE OBSERVATION WELLS SHALL BE EXTENDED PRIOR TO PLACEMENT OF FILL MATERIAL.
 4. PROPOSED CONTOURS IN SHADED REGION OF THE CURRENT PHASE REPRESENT TOP OF FINAL COVER ELEVATION. PROPOSED CONTOURS OUTSIDE SHADED REGION OF THE CURRENT PHASE ARE NOT AT FINAL COVER ELEVATION.



LEGEND

- 70 --- EXISTING INDEX CONTOUR
- --- EXISTING INTERMEDIATE CONTOUR
- 70 --- PROPOSED INDEX CONTOUR
- --- PROPOSED INTERMEDIATE CONTOUR
- - - - - PHASE BOUNDARY
- - - - - EXTENT OF OPERATIONS
- GW-13 GAS WELL
- LOW-46 LEACHATE OBSERVATION WELL
- MH MANNHOLE
- INTERIM COVER ELEVATION
- FINAL COVER ELEVATION
- N 185998.76 E 190725.12 CONTROL POINT
- CURRENT PHASE FINAL COVER ELEVATION
- MODIFIED EXISTING ACCESS ROAD
- TEMPORARY HAUL ROAD
- STORMWATER DIVERSION BERM
- STORMWATER FLOW
- PERMANENT ACCESS ROAD
- PERMANENT DOWNDRAIN



REV. NO.	DATE	DRWN	CHKD	REMARKS

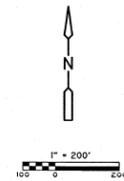
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHECKED BY: M. SANFORD
 CROSS CHECKED BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

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 701 Little River Turnpike, Suite 600 West
 Annandale, Virginia 22003
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
PIGEON POINT LANDFILL

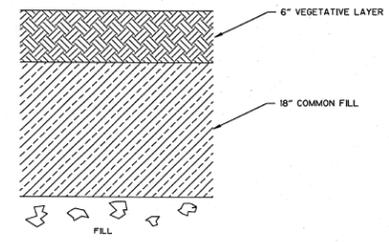
PHASE 4 CONTOURS

PROJECT NO. 10959-24685
 FILE NAME: C-9.dwg
 SHEET NO. **C-9**

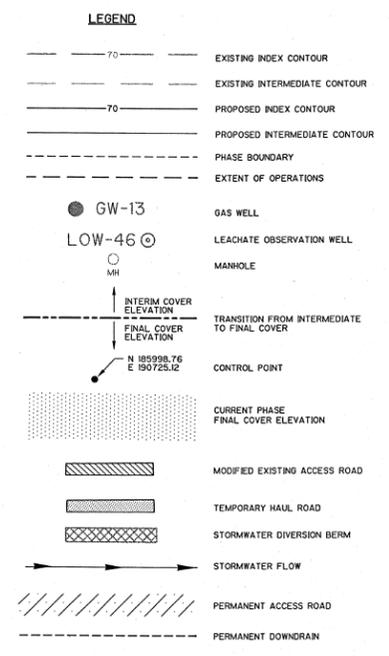


CONTOUR OPERATION CAPACITY AND LIFESPAN					
PHASE	FILL VOLUME (CUBIC YARDS)	TOTAL AIRSPACE VOLUME (CY)	TONNAGE	LIFE SPAN (YEARS)	CUMULATIVE LIFE SPAN (YEARS)
1	95,417	139,784	12,067	0.7	0.7
2A	88,653	18,435	104,123	0.6	1.3
2B	215,971	237,880	253,657	1.6	2.9
2C	188,299	212,047	221,157	1.4	4.3
3A	155,533	179,507	182,673	1.1	5.4
3B	189,643	210,423	222,735	1.4	6.8
4	292,458	347,279	343,491	2.1	8.9
5	66,741	94,426	78,387	0.5	9.4
TOTAL	1,292,715	1,539,781	1,518,294	9.4	

- FILL VOLUME IN CUBIC YARDS IS FOR FILL MATERIAL ONLY (FINAL COVER EXCLUDED).
- TONNAGE IS BASED UPON AN IN PLACE DENSITY OF 2.310 lb/cy OR 67 lb/ft³.
- LIFE SPAN IS BASED UPON AN ANNUAL FILL RATE OF 160,000 TONS.
- PROPOSED FINAL COVER THICKNESS WAS ASSUMED TO BE 2 FT.



- NOTES:
- EACH PHASE AREA SHALL BE CLEARED AND GRUBBED, AND TOPSOIL SHALL BE CLEARED AND STOCKPILED PRIOR TO INITIATING PLACEMENT OF FILL. EXISTING GAS COLLECTION SYSTEM COMPONENTS AND MONITORING WELLS/OBSERVATION POINTS SHALL BE CLEARLY MARKED AND PROTECTED DURING CLEARING AND GRUBBING ACTIVITIES.
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REV. NO.	DATE	DRWN	CHKD	REMARKS

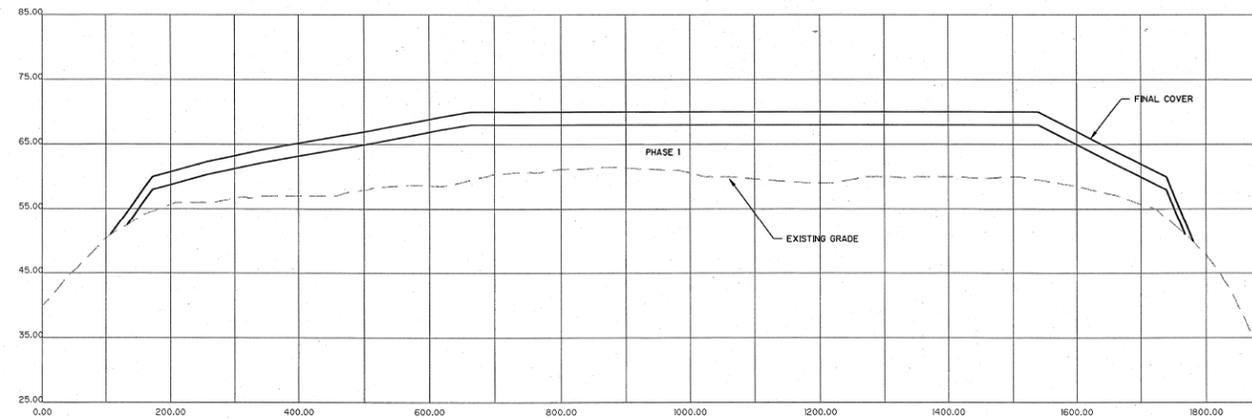
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

CDM Camp Dresser & McKee
 101 Little Street, Suite 600 West
 Jacksonville, Virginia 22103
 Tel: (703) 642-0000 Fax: (703) 642-0539

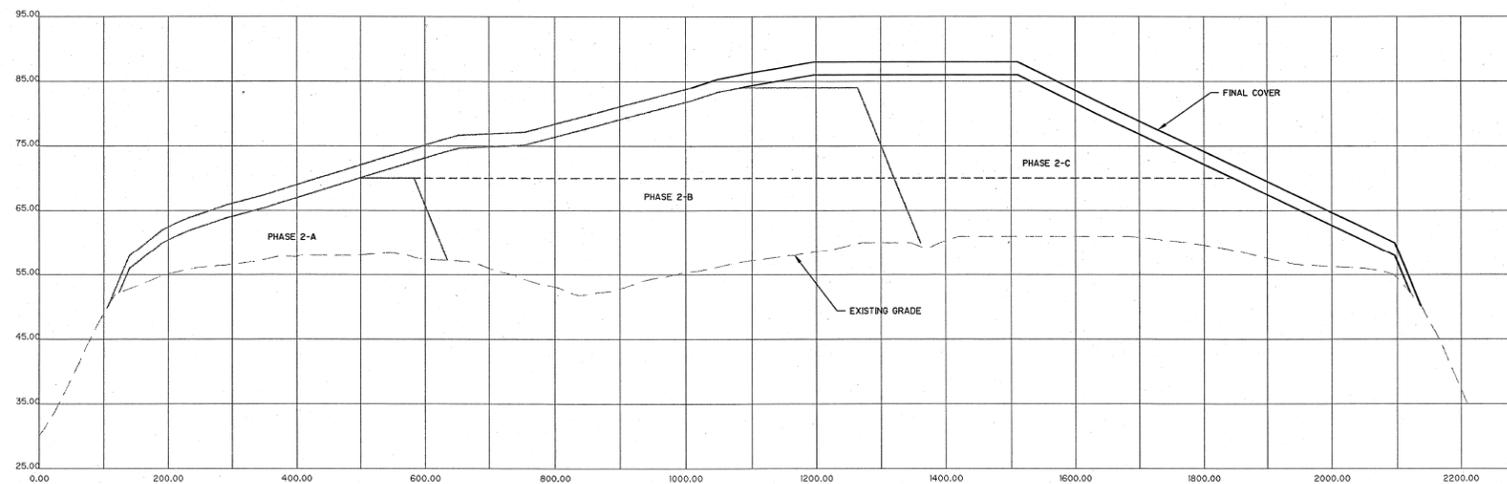
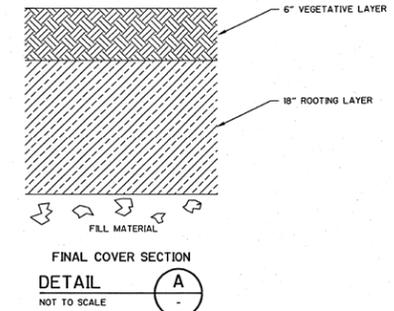
DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
PIGEON POINT LANDFILL

FINAL CLOSURE CONTOURS

PROJECT NO. 10599-24685
 FILE NAME: C-11.dwg
 SHEET NO. **C-11**



PHASE 1
SECTION 1
HORIZ. 1" = 100'
VERT. 1" = 10'



PHASE 2
SECTION 2
HORIZ. 1" = 100'
VERT. 1" = 10'

REV. NO.	DATE	DRWN	CHKD	REMARKS

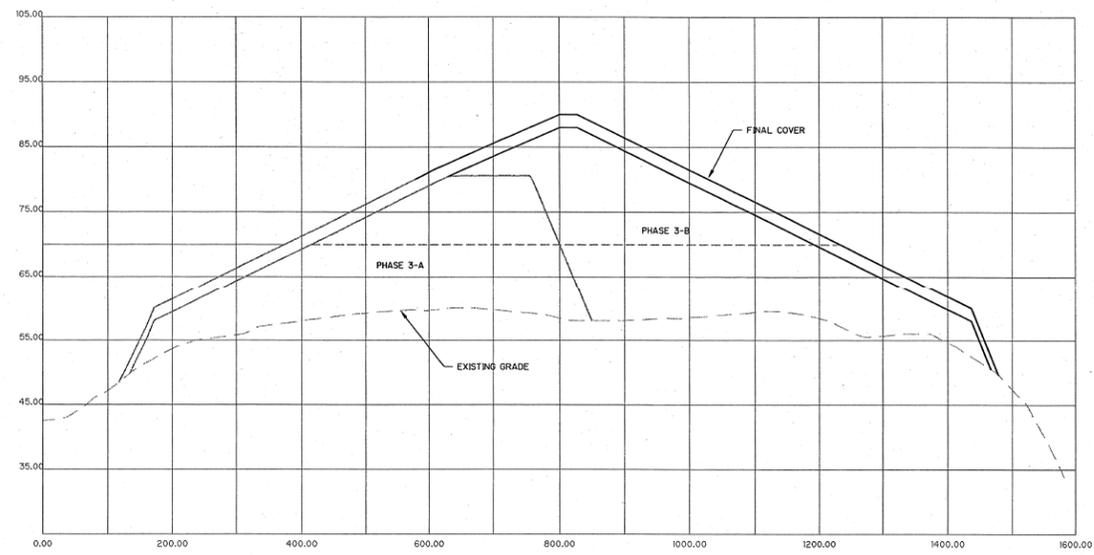
DESIGNED BY: M. SANFORD
 DRAWN BY: J. KILLINGSWORTH
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

CDM Camp Dresser & McKee
consulting
engineering
construction
operations
 700 Little Blue Turnpike, Suite 600 West
 Alexandria, Virginia 22304
 Tel: (703) 642-6000 Fax: (703) 642-6539

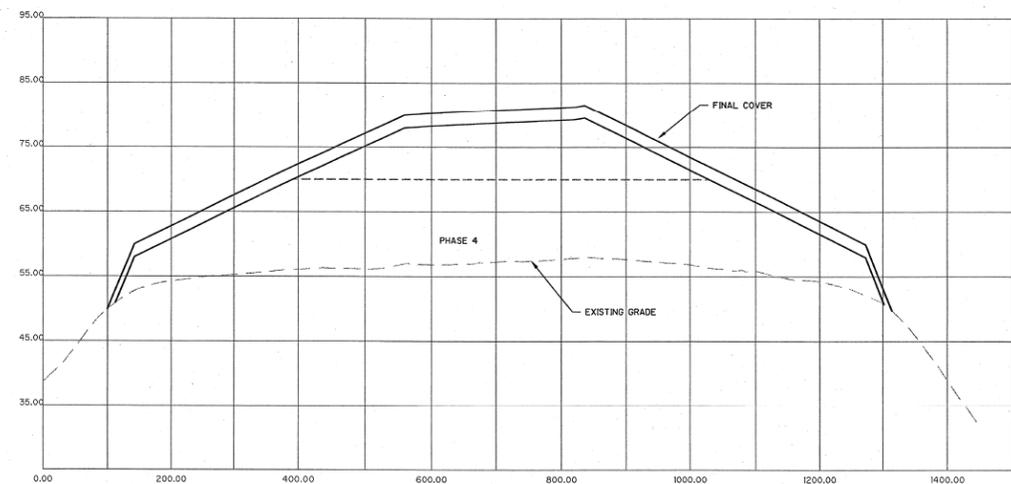
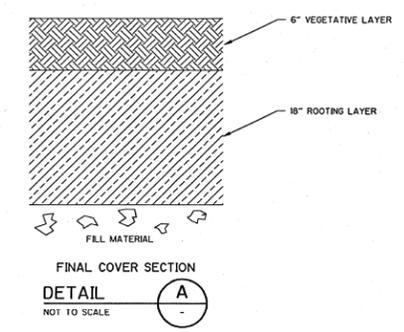
DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

CROSS SECTIONS

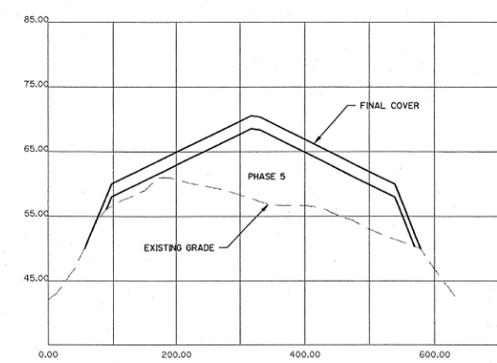
PROJECT NO. 10959-24685
 FILE NAME: C-12.dwg
 SHEET NO.
C-12



PHASE 3
SECTION 1
HORIZ: 1" = 100'
VERT: 1" = 10'
C-8



PHASE 4
SECTION 1
HORIZ: 1" = 100'
VERT: 1" = 10'
C-9



PHASE 5
SECTION 3
HORIZ: 1" = 100'
VERT: 1" = 10'
C-10

REV. NO.	DATE	DRWN	CHKD	REMARKS

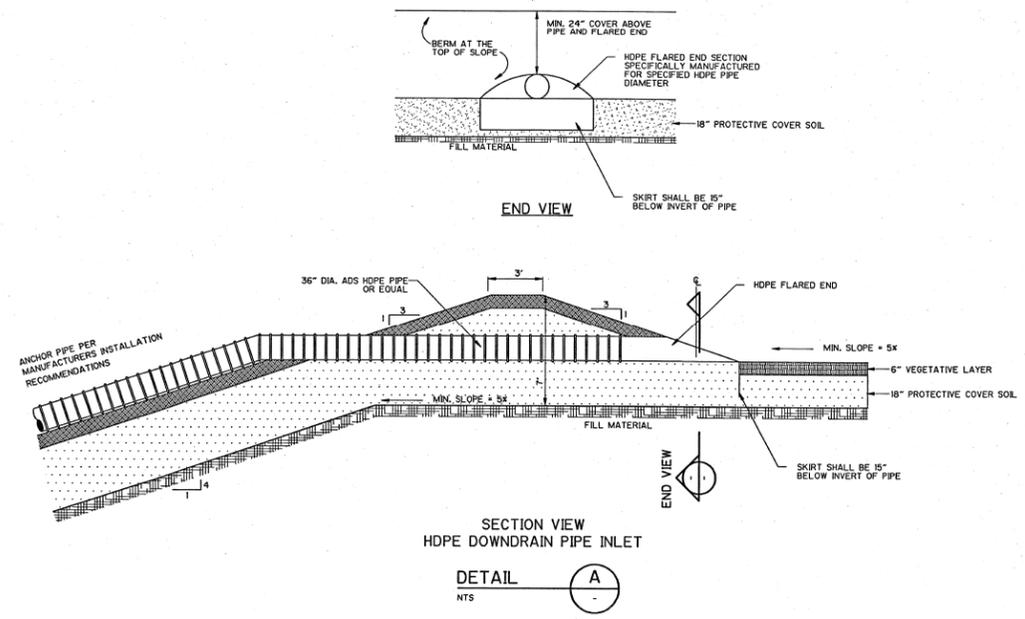
DESIGNED BY: M. SANFORD
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 APPROVED BY: _____
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 725 Little River Turnpike, Suite 600 West
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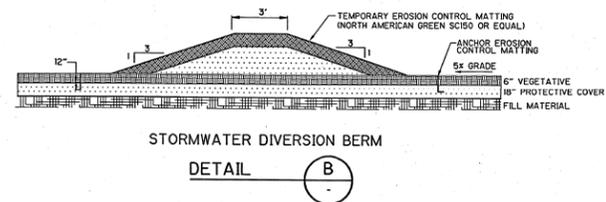
DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

CROSS SECTIONS

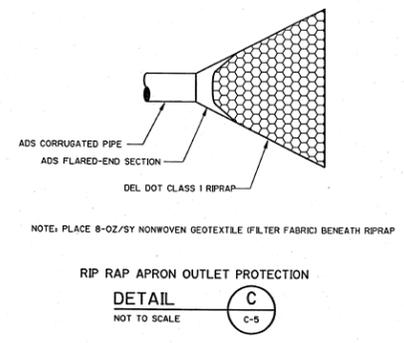
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 SHEET NO. **C-13**



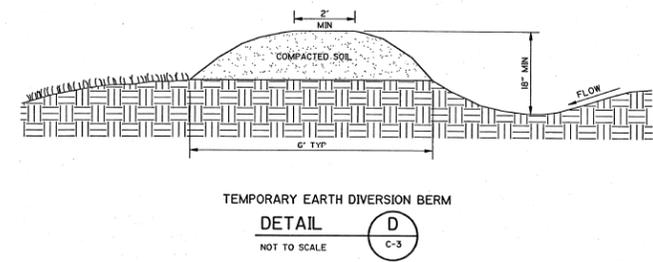
SECTION VIEW
HDPE DOWNDRAIN PIPE INLET
DETAIL A
NTS



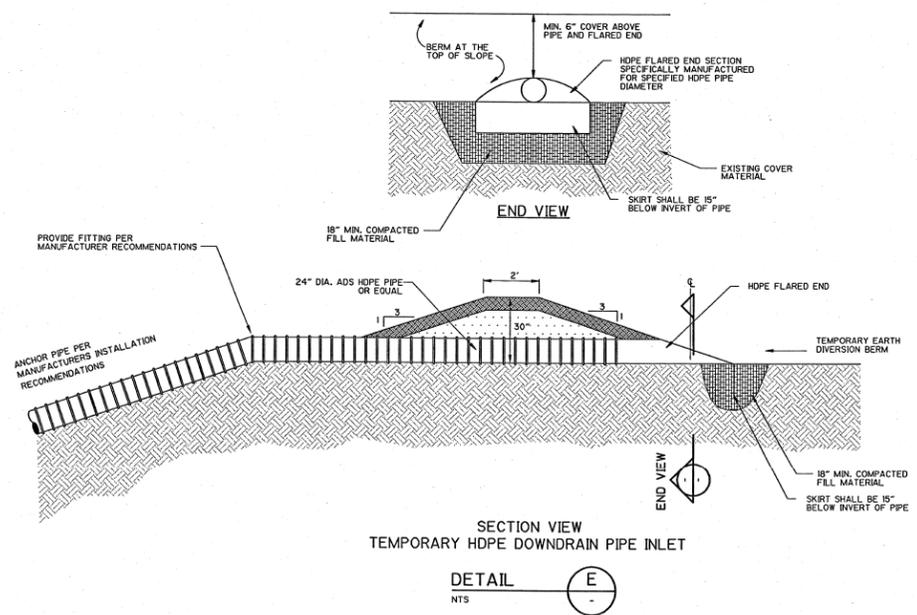
STORMWATER DIVERSION BERM
DETAIL B



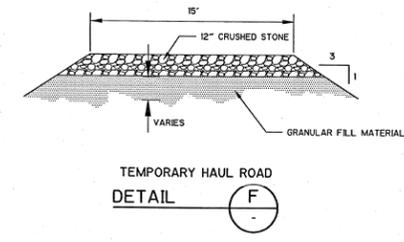
RIP RAP APRON OUTLET PROTECTION
DETAIL C
NOT TO SCALE
C-5



TEMPORARY EARTH DIVERSION BERM
DETAIL D
NOT TO SCALE
C-3



SECTION VIEW
TEMPORARY HDPE DOWNDRAIN PIPE INLET
DETAIL E
NTS



TEMPORARY HAUL ROAD
DETAIL F

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. SANFORD
 DRAWN BY: C. ALB
 SHEET CHK'D BY: M. SANFORD
 CROSS CHK'D BY: C. GABEL
 APPROVED BY: _____
 DATE: DECEMBER 1999

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 788 Little River Turnpike, Suite 600 West
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DELAWARE SOLID WASTE AUTHORITY
 NEW CASTLE, DELAWARE
CONTOURING PLAN
 NORTHERN SOLID WASTE MANAGEMENT CENTER - 1
 PIGEON POINT LANDFILL

STORMWATER CONTROL DETAILS

PROJECT NO. 10959-24685
 FILE NAME: C-14.dwg
 SHEET NO. **C-14**