INSTALL SOIL STABILIZATION MATTING	
STA. 100+80 TO 101+15, LT. (GRASS CHANNEL NO. 2)	170 S.Y.
STA. 101+11 TO 101+41.5, LT. (GRASS CHANNEL NO. 1)	198 S.Y.
STA. 100+80 TO, RT. TO 104+85, LT. (GRASS CHANNEL NO. 3&5)	1130 S.Y.
STA. 100+54.5, RT. TO 105+26, LT. (GRASS CHANNEL NO. 4)	550 S.Y.
STA. 101+64 TO 102+01, LT.	70 S.Y.
STA. 104+34 TO 104+80, LT.	80 S.Y.

INSTALL CLASS I RIPRAP OUTLET PROTECTION (19" DEPTH) (SEE RIPRAP CONTROL TABLE)	
STA. 100+27 TO 100+76, LT.	85 S.Y.

INSTALL TURFGRASS SOD	
STA. 101+86 TO 104+51, LT. (BIO-SWALE)	380 S.Y.
STA. 100+14 TO 100+55.5, RT.	110 S.Y.

INSTALL TRENCH DRAIN (SEE PLAN AND DETAIL, SHEET CO-3)	
STA. 101+65.9 TO 102+00.9, 58' LT.	35 L.F.
STA. 101+65.9 TO 102+00.9, 87' LT.	35 L.F.

CONSTRUCTION BIO-SWALE SECTION	
STA. 102+07.5 TO 104+44.5, 117.5' LT. (SEE DETAILS, SHEET CO-4)	237 L.F.

INSTALL HARDWOOD MULCH (BIO-SWALE) 3" DEPTH	
STA. 104+45 TO 102+08, LT.	18 C.Y.

DIVERSION BERM/SWALE CONSTRUCTION TO REPLACE GRASS CHANNEL NO.4

GRASS CHANNEL NOT CONSTRUCTED

NOTE: FOR REPAIR OF EQUIPMENT ACCESS ROAD DISTURBANCE SEE GRAVEL PAVING REPAIR SECTION ON SHEET CO-2

LEGEND

- HOT MIX ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- SOIL STABILIZATION MATTING
- MULCH
- TURFGRASS SOD
- CLASS I RIPRAP/GABION WEIR
- BORING LOCATION

BSB-1

SITE ANALYSIS DATA

1. TAX MAP: 10 & 16
2. PARCEL NO'S: 54, 253, 220 & 11
3. ELECTION DISTRICT: 3
4. ZONING: PEC
5. AREA OF PROJECT: 3.04 AC.
6. AREA OF WETALNDS: 0.0 AC.
7. AREA OF WETLAND BUFFER: 0.0 AC.
8. AREA OF FLOODPLAIN: 0.0 AC.
9. AREA OF STREAM BUFFER: 0.0 AC.
10. AREA OF STEEP SLOPES: 0.0 AC. (SITE PREVIOUSLY MASS GRADED)
11. AREA OF FOREST: 0.0 AC.
12. AREA OF DISTURBANCE: 3.04 AC.
13. AREA OF NEW IMPERVIOUS: 0.87 AC.
14. AREA OF REDEVELOPMENT: 0.02 AC.
15. AREA OF IMPERVIOUS REMOVED: 0.0 AC.
16. SITE HAS BEEN PREVIOUSLY MASS GRADED. ORIGINAL SOILS IN AREA ARE CHESTER, HYDROLOGIC CLASS B. BASED ON THE 1968 SOIL SURVEY FOR HOWARD COUNTY.

PLAN

SCALE: 1" = 30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3.29.12
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4-02-12
DIRECTOR	DATE 4/6/12

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 3/15/12
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES	DATE 3/15/12

CHARLES S. NOLAN, P.E. — DATE 3/14/12

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS ARE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15212, EXPIRATION DATE: 12/24/2012."

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3851 Fax: (410) 995-1363

DES: GWF				
DRN: JRW				
CHK:				
DATE: MARCH 2012	BY	NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

600' SCALE MAP NO. 16 BLOCK NO. 8

GENERAL NOTES – NON-RESIDENTIAL SITE DEVELOPMENT PLAN

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK
3. IF REQUIRED FOR THIS PROJECT, TRAFFIC DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
4. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY HOWARD COUNTY, DATED DECEMBER 2008.
5. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINANCE SYSTEM. CONTROL FOR THIS PROJECT IS PROVIDED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS FIELD MONUMENTATION.
6. STORMWATER MANAGEMENT (ESD) MEASURES ARE PROVIDED THROUGH THE USE OF A BIO-SWALE, CISTERN AND GRASS CHANNELS. MANAGEMENT OF THE 10 YR. 24-HOUR STORM HAS BEEN PROVIDED UNDER SDP-97-128.
7. EXISTING UTILITIES ARE BASED ON "AS-BUILT" DRAWINGS.
8. THERE IS NO FLOODPLAIN ON THIS SITE.
9. THERE IS NO WETLANDS ON THIS SITE.
10. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
11. THERE ARE NO DESIGN MANUAL WAIVERS PLANNED FOR THIS PROJECT IN REGARDS TO ENVIRONMENTAL DISTURBANCES.
12. FOREST CONSERVATION OBLIGATIONS HAVE BEEN PREVIOUSLY ADDRESSED BY SDP-97-128, ALPHA RIDGE LANDFILL.

INSTALL HOT MIX ASPHALT CURB DIVERSION (HO. CO. DETAIL R-3.03)	
STA. 101+65.9 40' LT. TO 102+00, 30' LT.	36 L.F.

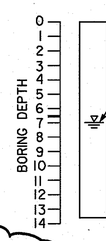
INSTALL GABION WEIR (BIO-SWALE) (SEE DETAILS, SHEET CO-4)	
STA. 100+94, 128' LT.	2 C.Y.
STA. 104+41.5, 131.5' LT.	2 C.Y.

CONSTRUCT HOT MIX ASPHALT PAVEMENT SECTION	
(SEE PAVEMENT SECTION DETAIL, SHEET CO-2)	36,293 S.F.

CONSTRUCT CONCRETE PAVEMENT SECTION	
(SEE PAVEMENT SECTION LOCATION PLAN & DETAIL, SHEET CO-2)	420 S.F.

RIPRAP CONTROL TABLE		
CONTROL POINT	STA.	OFFSET
①	100+27.3	39.7' LT.
②	100+26.1	29.2' LT.
③	100+28.1	18.4' LT.
④	100+37.8	10.9' LT.
⑤	100+46.5	10.2' LT.
⑥	100+62.3	13.5' LT.
⑦	100+76.6	21.3' LT.

AS-BUILT INFORMATION SHOWN REFLECT FIELD CONDITION CHANGES AS APPROVED BY THE DEVELOPMENT ENGINEERING DIVISION (DED) BY EMAIL DATED July 18, 2013.



LOCATION: N 597,291.0
E 1,337,736.0

BORING DUG 11/8/12

BSB-1 BORING LOG

PURPOSE STATEMENT

THE PURPOSE OF THIS REVISION TO SDP-97-128 IS TO INCORPORATE THE CONSTRUCTION OF THE AERATED STATIC PILE COMPOST FACILITY ON THE GROUNDS OF THE ALPHA RIDGE LANDFILL.

SUBDIVISION NAME	LOT /PARCEL	
ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	54, 253, 220, 11	
LIBER /FOLIO 10-94/606 16-878/215 10-691/314	ZONE PEC	TAX /ZONE MAP 10 & 16
WATER CODE PRIVATE, EXISTING	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY
CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

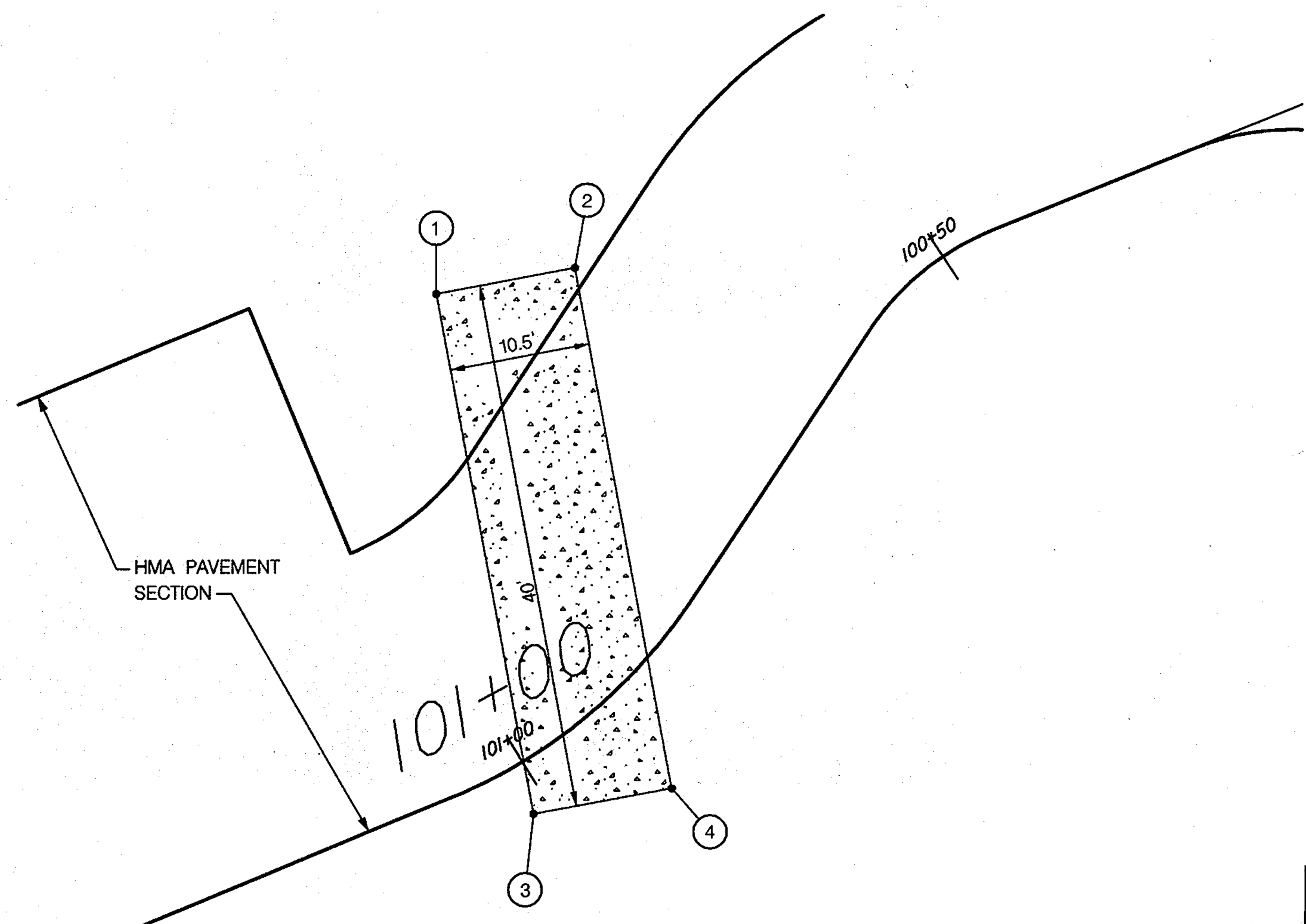
SHEET CO-1 OF 9 TOTAL OF 98

As-Built - Aug. 14, 2013 SDP-97-128

CONCRETE PAVEMENT SECTION DATA			
POINT	STATION	OFFSET	ELEVATION
1	100+73.41	28.77' RT.	515.50
2	100+66.08	21.11' RT.	515.60
3	101+22.00	3.83' LT.	514.72
4	100+92.87	8.29' LT.	514.50

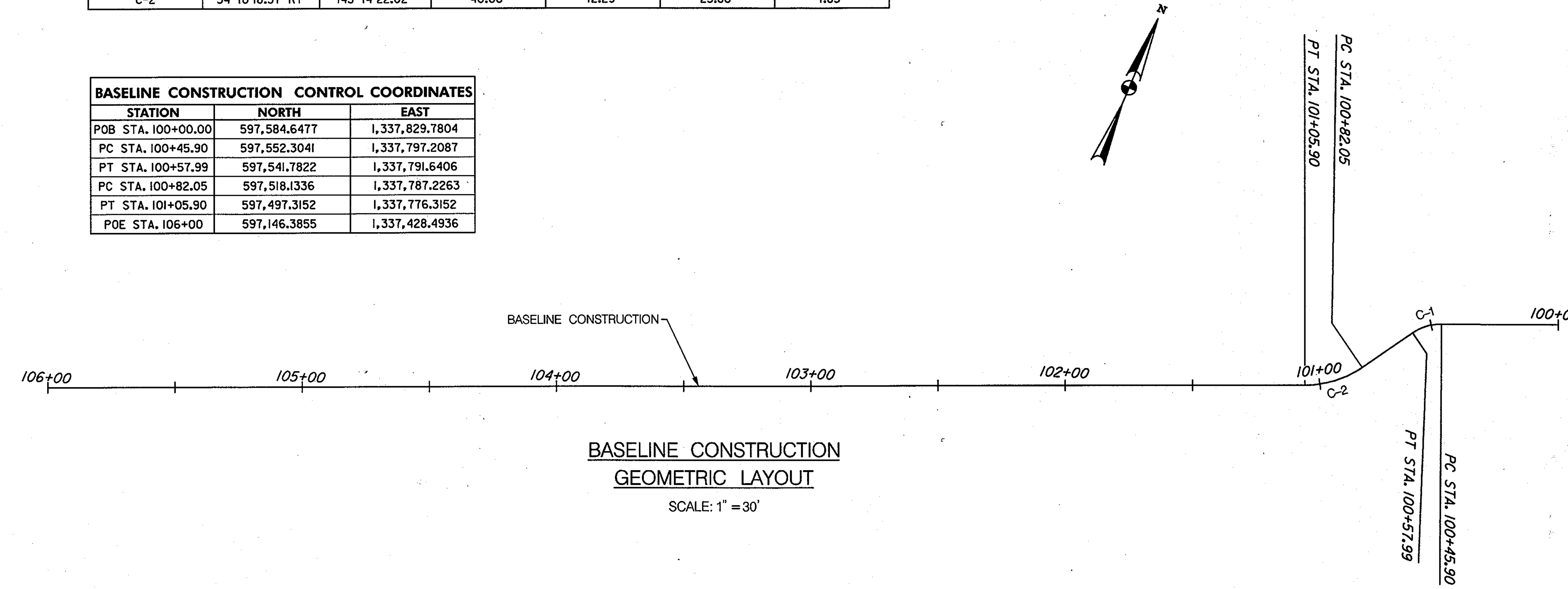
BASELINE CONSTRUCTION CURVE DATA						
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
C-1	34°37'40.56" LT	286°28'44.03"	20.00'	6.23'	12.09'	0.95'
C-2	34°10'18.37" RT	143°14'22.02"	40.00'	12.29'	23.86'	1.85'

BASELINE CONSTRUCTION CONTROL COORDINATES		
STATION	NORTH	EAST
POB STA. 100+00.00	597,584.6477	1,337,829.7804
PC STA. 100+45.90	597,552.3041	1,337,797.2087
PT STA. 100+57.99	597,541.7822	1,337,791.6406
PC STA. 100+82.05	597,518.1336	1,337,787.2263
PT STA. 101+05.90	597,497.3152	1,337,776.3152
POE STA. 106+00	597,146.3855	1,337,428.4936



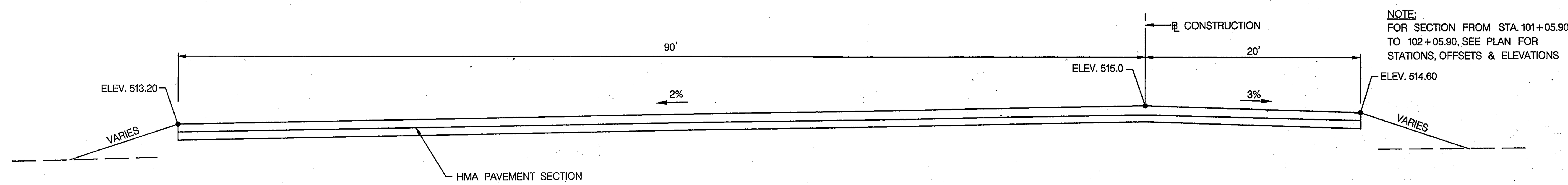
CONCRETE PAVEMENT SECTION LOCATION PLAN

SCALE: 1" =10'



BASELINE CONSTRUCTION GEOMETRIC LAYOUT

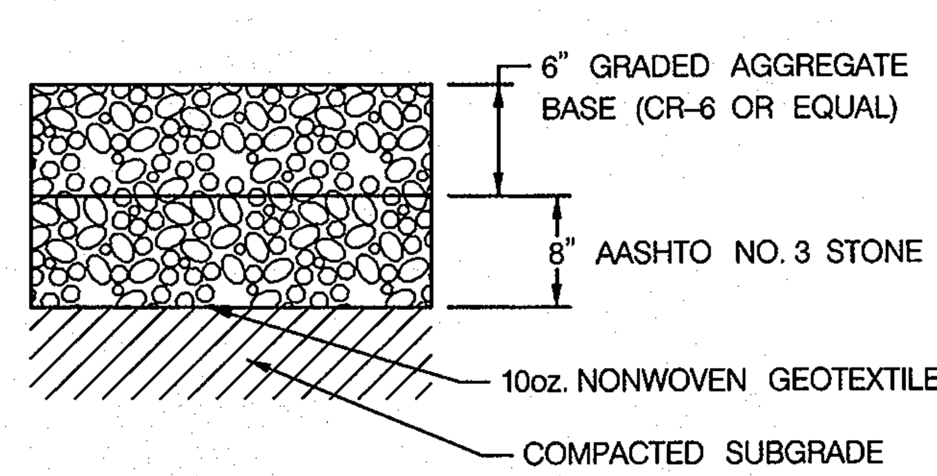
SCALE: 1" =30'



NOTE:
FOR SECTION FROM STA. 101+05.90 TO 102+05.90, SEE PLAN FOR STATIONS, OFFSETS & ELEVATIONS

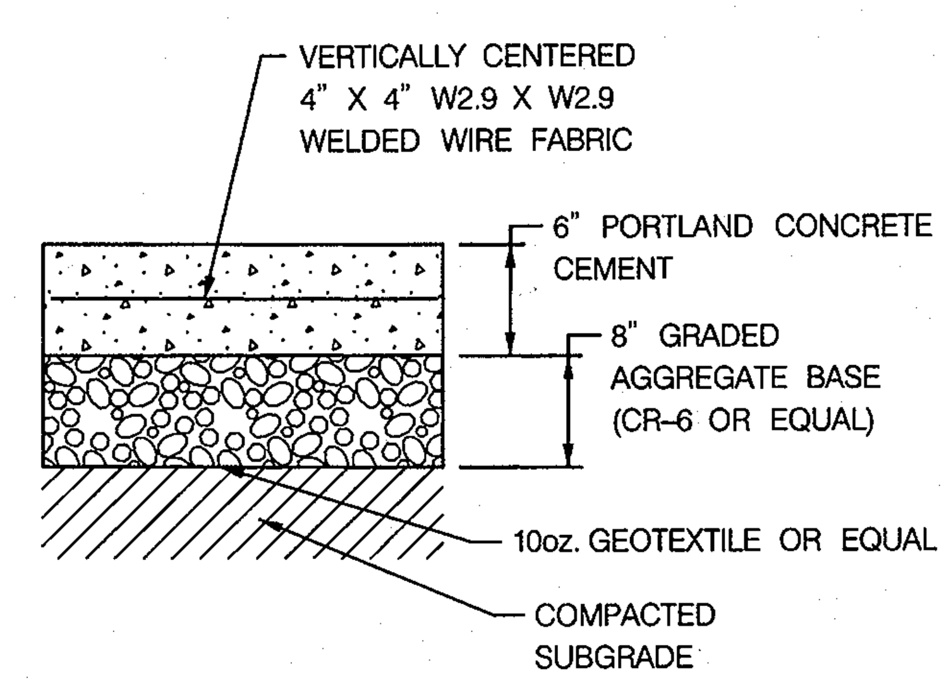
TYPICAL SECTION – FACILITY SLAB
STA. 102+05.90 TO STA. 104+50.90

NOT TO SCALE



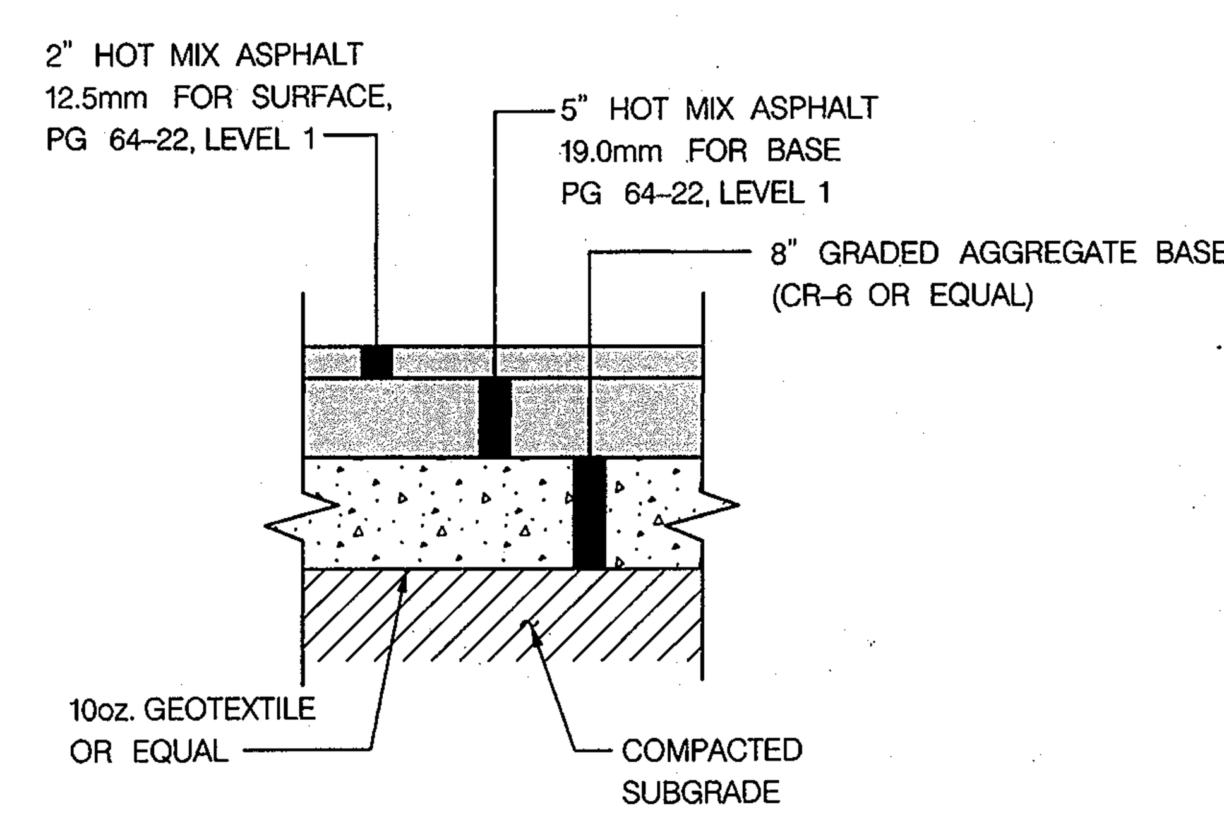
GRAVEL PAVING REPAIR SECTION DETAIL

NOT TO SCALE



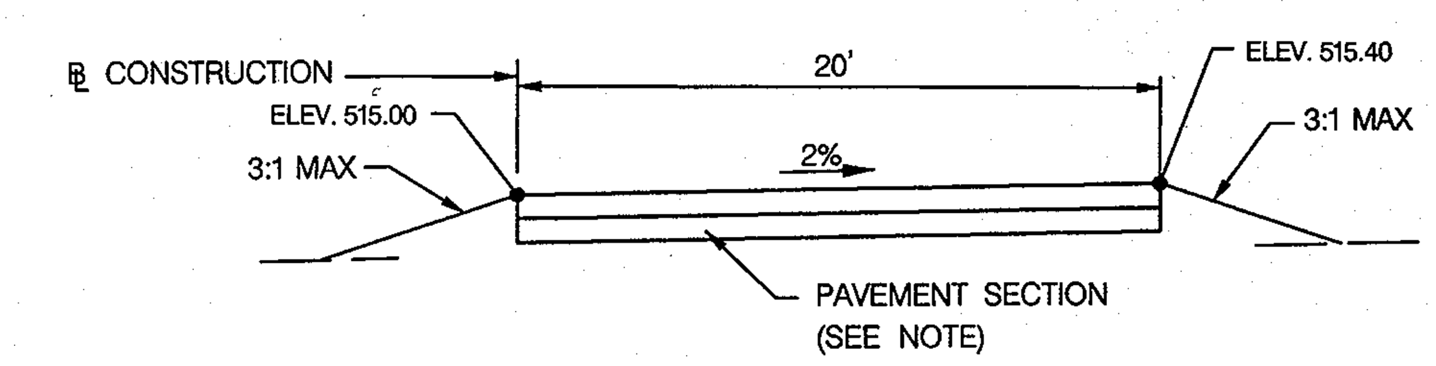
CONCRETE PAVEMENT SECTION DETAIL

NOT TO SCALE



HOT MIX ASPHALT PAVEMENT SECTION DETAIL

NOT TO SCALE



NOTE:
IN AREA WHERE LANDFILL HEAVY EQUIPMENT CROSSES ACCESS ROAD CONCRETE PAVEMENT SECTION WILL BE USED. SEE PLAN FOR LIMITS

TYPICAL SECTION – ACCESS ROAD
STA. 100+27.05 TO STA. 101+05.90

NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3-29-12

Kent Sheubrooks — CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-02-12

Marsha McLaughlin — DIRECTOR — DATE 4/4/12

(FOR PROFESSIONAL CERTIFICATION SEE SHEET CO-1)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Evelyn E. Tomlin — CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 3/15/12

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone (410) 995-3651 Fax (410) 995-1363

STATE OF MARYLAND — [seal]

DES: GWF				
DRN: JRW				
CHK:				
DATE: MARCH 2012	BY	NO.	REVISION	DATE

MISCELLANEOUS DETAILS

600' SCALE MAP NO. 16 BLOCK NO. 8

SUBDIVISION NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT /PARCEL 54, 253, 220, 11	
LIBER /FOLIO 10-847/606 16-878/215 10-691/314	ZONE PEC	TAX /ZONE MAP 10 & 16
WATER CODE PRIVATE, EXISTING	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY

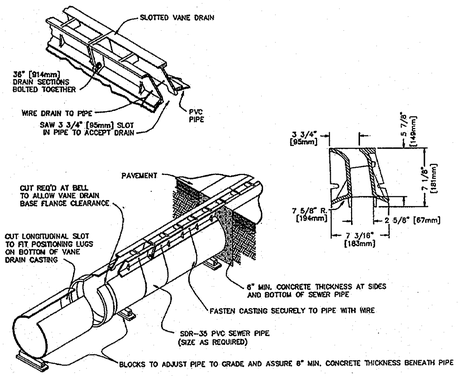
CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SDP-97-128

GRASS CHANNEL SCHEDULE

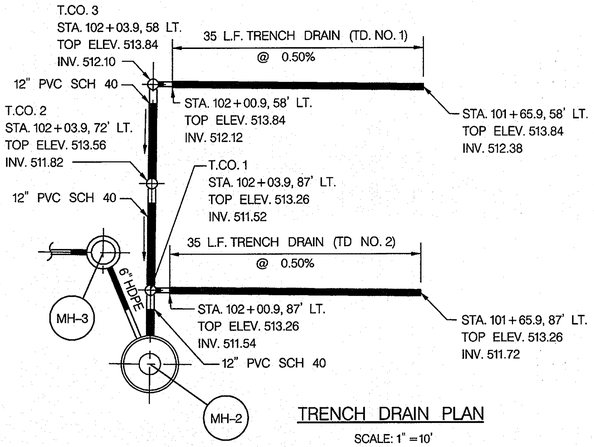
GRASS CHANNEL	BOTTOM WIDTH	SIDE SLOPES	Q_{10} (cfs)	V_{10} (cfs)	FLOW DEPTH (ft)	WIDTH OF SSM
NO. 1	7 ft	3:1	0.3	0.6	0.1	13'
NO. 2	4 ft	3:1	0.3	0.7	0.1	10'
NO. 3	12 ft	3:1 (MAX)	2.2	0.9	0.2	18'
NO. 4	4 ft	3:1	3.1	1.3	0.5	10'
NO. 5	12 ft	3:1 (MAX)	5.1	1.3	0.3	18'



TRENCH DRAIN DETAILS

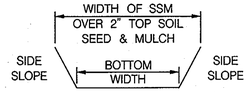
NOT TO SCALE

NOTES:
1. TRENCH DRAIN TO BE NEENAH FOUNDRY TYPE R-3599-A OR APPROVED EQUAL.
2. PIPE SIZE TO BE 12-INCH PVC SCH 40.



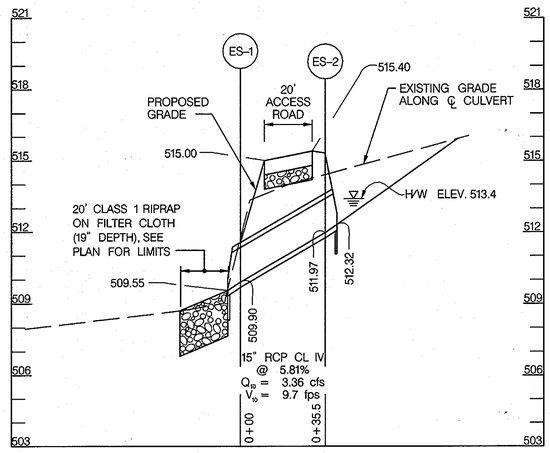
TRENCH DRAIN PLAN

SCALE: 1" = 10'



TYPICAL DITCH SECTION

NOT TO SCALE



CULVERT PROFILE ES-1 TO ES-2

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

DRAINAGE PIPE SCHEDULE

FROM STRUCT.	TO STRUCT.	SIZE (IN.)	TYPE	LENGTH (FT.)
MH-1	OUTFALL	6"	PVC SCH 40 *	97'
MH-1	BIO-SWALE	6"	PVC SCH 40 *	40'
BIO-SWALE	CO-1	6"	PERF. PVC SCH 40	35'
CO-1	CO-2	6"	PERF. PVC SCH 40	100'
CO-2	CO-3	6"	PERF. PVC SCH 40	100'
ES-1	ES-2	15"	RCCP CL IV	36'
MH-3	MH-2	6"	HDPE	30'

*SOLID PIPE

DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL.	STD. NO.
MH-1	PRECAST MANHOLE	STA. 101+69.01, 117' LT.	505.04	504.94	511.50	G - 5.12
ES-1	15" CONCRETE END SECTION	STA. 100+39.3, 10' LT.	509.90	509.55	——	D - 5.51
ES-2	15" CONCRETE END SECTION	STA. 100+30.8, 24' LT.	512.32	511.97	——	D - 5.51
CO-1	CLEAN OUT	STA. 102+43.3, 117.5' LT.	——	506.42	509.5	SEE DETAIL
CO-2	CLEAN OUT	STA. 103+43.3, 117.5' LT.	——	505.92	509.5	SEE DETAIL
CO-3	CLEAN OUT	STA. 104+43.3, 117.5' LT.	——	505.42	509.5	SEE DETAIL
CISTERN	SEE DETAIL	STA. 101+62.9, 100' LT.	——	——	512.0	SEE DETAIL
MH-2	72" DIA. PRECAST MANHOLE	STA. 102+03.9, 97.5' LT.	510.45 (6") 509.95 (12")	504.45 (1)	512.45	MD SHA STD. NO. MD 384.05
MH-3	POURED IN PLACE MANHOLE	STA. 102+10.75, 80.75' LT.	509.63	510.88	513.38	SEE DETAIL (2)

(1) BOTTOM OF MANHOLE ELEVATION & 4" PVC INV. OUT ELEVATION. MANHOLE MH-2 TO ALSO BE USED AS HOLDING / STORAGE FACILITY FOR TRENCH DRAIN / PROCESS WATER DRAINAGE SYSTEMS.

(2) INLET TO BE CAST IN PLACE AROUND PROCESS WATER HDPE SUMP LINER (TO BE SUPPLIED BY OTHERS).

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3.29.12

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-02-12

DIRECTOR — DATE 4/2/12

(FOR PROFFESSIONAL CERTIFICATION SEE SHEET CO-1)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 3/15/12

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3551 Fax: (410) 995-1383

STATE OF MARYLAND — JAMES R. WEBB — No. 15212 — REGISTERED PROFESSIONAL ENGINEER

DES: GWF	BY	NO.	REVISION	DATE
DRN: JRW				
CHK:				
DATE: MARCH 2012				

600' SCALE MAP NO. 16 BLOCK NO. 8

DRAINAGE DETAILS

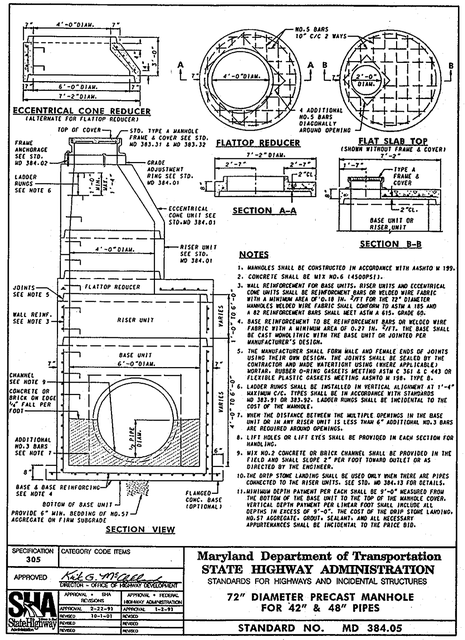
ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY

CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET CO-3 OF 9
TOTAL OF 98

SDP-97-128



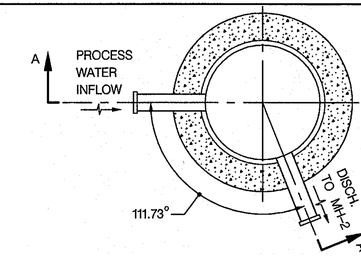
SPECIFICATION 305	CATEGORY CODE ITEMS
APPROVED Kirk G. Mallard, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	

APPROVAL - DATE	REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 5-23-91	REVISED	APPROVAL 5-3-93
REVISED 10-1-93	REVISED	
REVISED	REVISED	
REVISED	REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

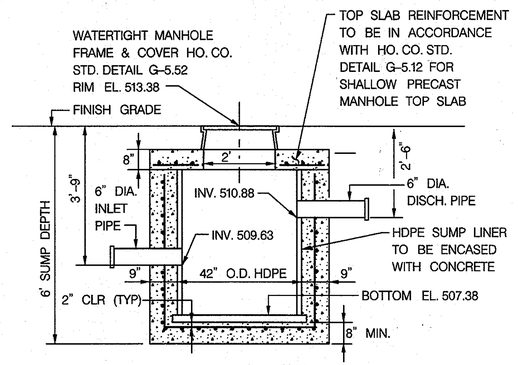
72" DIAMETER PRECAST MANHOLE FOR 42" & 48" PIPES

STANDARD NO. MD 384.05



PLAN VIEW

TOP SLAB REMOVED

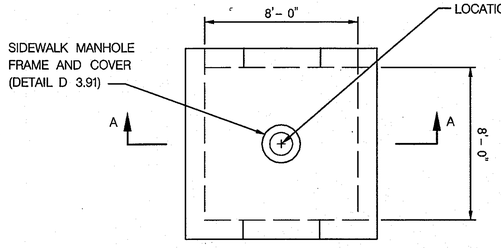


SECTION A-A

NOTES:
1. CONCRETE TO BE 3000 PSI MIX
2. ALL REINFORCEMENT IN BOTTOM SLAB AND WALLS SHALL BE #4@6" EACH WAY WITH 2" CLEAR COVER.

MH-3 MANHOLE DETAIL

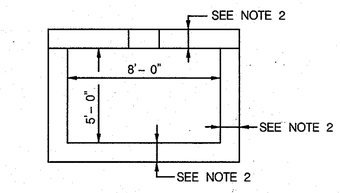
SCALE: 1/2" = 1'-0"



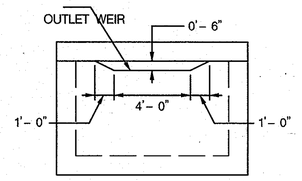
PLAN

NOTES:
1. CISTERN TO BE USED AS HOLDING TANK FOR STORMWATER RUNOFF TO BE USED FOR COMPOST FACILITY IRRIGATION PURPOSES.

2. WALL THICKNESS SHOWN AS 1'-0" FOR INFORMATIONAL PURPOSES. CISTERN TO BE PRE-CAST WITH THICKNESS AND REINFORCEMENT DETERMINED BY PRE-CAST MANUFACTURER.



SECTION A-A



ELEVATION

CISTERN DETAILS

SCALE 1/4" = 1'-0"

SUBDIVISION NAME	LOT /PARCEL	
ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	54, 253, 220, 11	
LIBER /FOLIO 10-9476/26 16-878/215 10-691/314	ZONE PEC	TAX /ZONE MAP 10 & 16
WATER CODE PRIVATE, EXISTING	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30

BIO–SWALE SPECIFICATIONS

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTING SOIL ORGANIC CONTENT	LOAMY SAND (60 – 65%) & COMPOST (35 – 40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%) MIN. 10% BY DRY WEIGHT (ASTM D 2974)		USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
MULCH	SHREDDED HARDWOOD	3" DEPTH	AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
GEOTEXTILE			PE TYPE 1 NONWOVEN
AGGREGATE	AASHTO M–43	NO. 57 OR NO. 7 AGGREGATE	
PEA GRAVEL	ASTM–D–448	NO. 6 OR 2" TO 5" STONE	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M–728	6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED OR PERFORATED PIPE; 3⁄8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 4" OF GRAVEL OVER PIPES AND UNDERNEATH PIPE. PERFORATED PIPE SHALL BE WRAPPED WITH 1⁄4"–INCH GALVANIZED HARDWARE CLOTH
TURFGRASS SOD ESTABLISHMENT	REFER TO SECTION 708 OF THE SPECIFICATIONS		

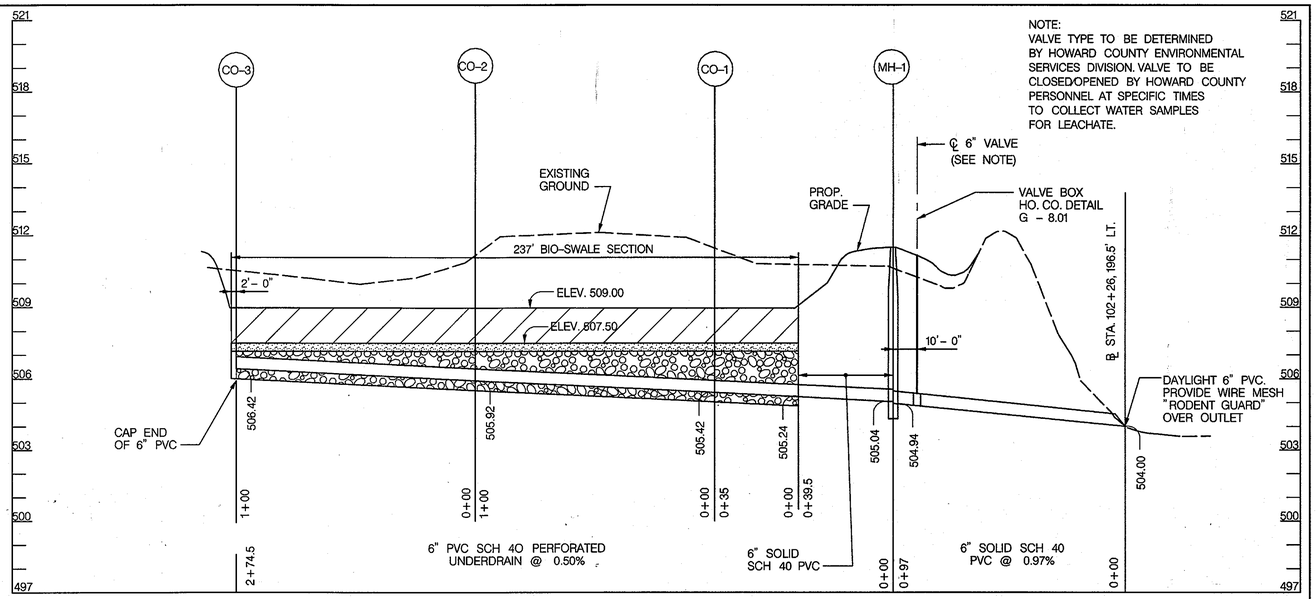
OPERATION AND MAINTENANCE SCHEDULE FOR BIORETENTION SWALE

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTION AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

B. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

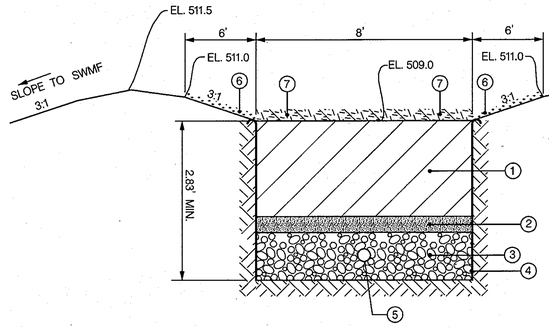
C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



PROFILE ALONG BIO–SWALE AND OUTLET PIPE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

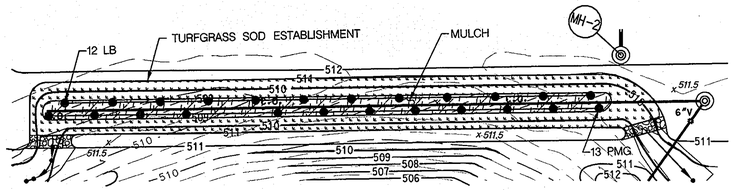


BIO–SWALE SECTION

NOT TO SCALE

LEGEND

1. 1'–6" BIORETENTION SOIL MIXTURE
2. 4–INCH PEA GRAVEL
3. 1–FOOT NO. 57 AGGREGATE (MIN.)
4. GEOTEXTILE, PE TYPE I NONWOVEN (ON SIDES AND BOTTOM)
5. 6" INCH PERF. UNDERDRAIN, WRAP WITH HARDWARE MESH
6. TURFGRASS SOD ESTABLISHMENT
7. MULCH, 3" DEPTH WITH BIO–SWALE PLANTINGS



BIO–SWALE PLANTING PLAN

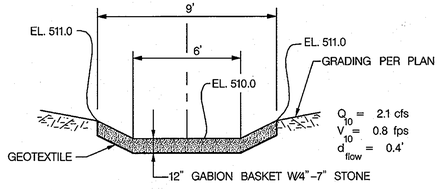
SCALE: 1" = 30'

BIO–SWALE PLANTING LIST

SYMBOL	SCIENTIFIC NAME	COMMON NAME	SIZE	NUMBER
LB	ANDROPOGON GLOMERATUS	LITTLE BLUESTEM	GALLON	12
PMG	MUHLENBERGIA GLOMERATA	PINK MUHLYGRASS	GALLON	13

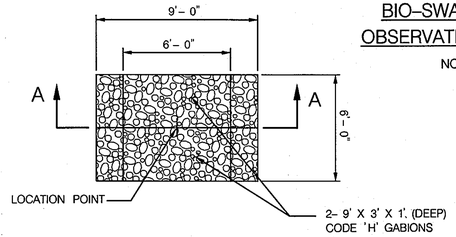
LEGEND

MULCH
TURFGRASS SOD
PLANTINGS



NOTE:
SEE SCS DETAIL 6 FOR ADDITIONAL INFORMATION

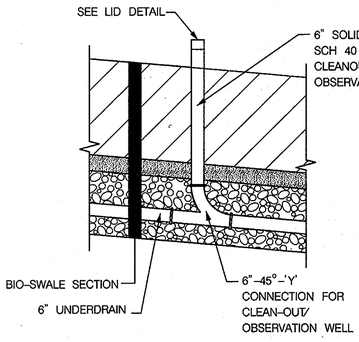
SECTION A–A



PLAN

BIO–SWALE FACILITY OUTLET WEIR DETAIL

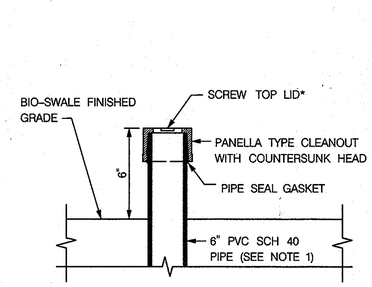
NOT TO SCALE



NOTE:
BIO–SWALE CLEAN–OUT/OBSERVATION WELL SHALL BE INCIDENTAL TO THE UNIT COST OF BIO–SWALE PAY ITEM.

BIO–SWALE CLEANOUT/ OBSERVATION WELL DETAIL

NOT TO SCALE



*ABOVE DETAIL PROVIDED AS SCHEMATIC SCREW TOP PVC WELL CAP ONLY. SEE NOTE 2

BIO–SWALE CLEANOUT/ OBSERVATION WELL LID DETAIL

NOT TO SCALE

NOTES:

1. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA–VIOLET RAYS.
2. FOR LOCATION, SEE DRAINAGE STRUCTURE SCHEDULE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3.29.12
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4-02-12
DIRECTOR	DATE 4/4/12

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 3/15/12

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3851 Fax: (410) 995-1363

STATE OF MARYLAND — JAMES R. WARD — No. 21612 — REGISTERED PROFESSIONAL ENGINEER — 3/15/12

DES: GWF	BY	NO.	REVISION	DATE
DRN: JRW				
CHK:				
DATE: MARCH 2012				

BIO–SWALE DETAILS

600' SCALE MAP NO. 16 BLOCK NO. 8

(FOR PROFESSIONAL CERTIFICATION, SEE SHEET CO–1)

SUBDIVISION NAME	LOT /PARCEL	
ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	54, 253, 220, 11	
LIBER /FOLIO	ZONE	TAX /ZONE MAP
10–847/606 16–878/215 10–691/314	PEC	10 & 16
WATER CODE	SEWER CODE	CENSUS TR.
PRIVATE, EXISTING	PRIVATE, EXISTING	60–30

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY

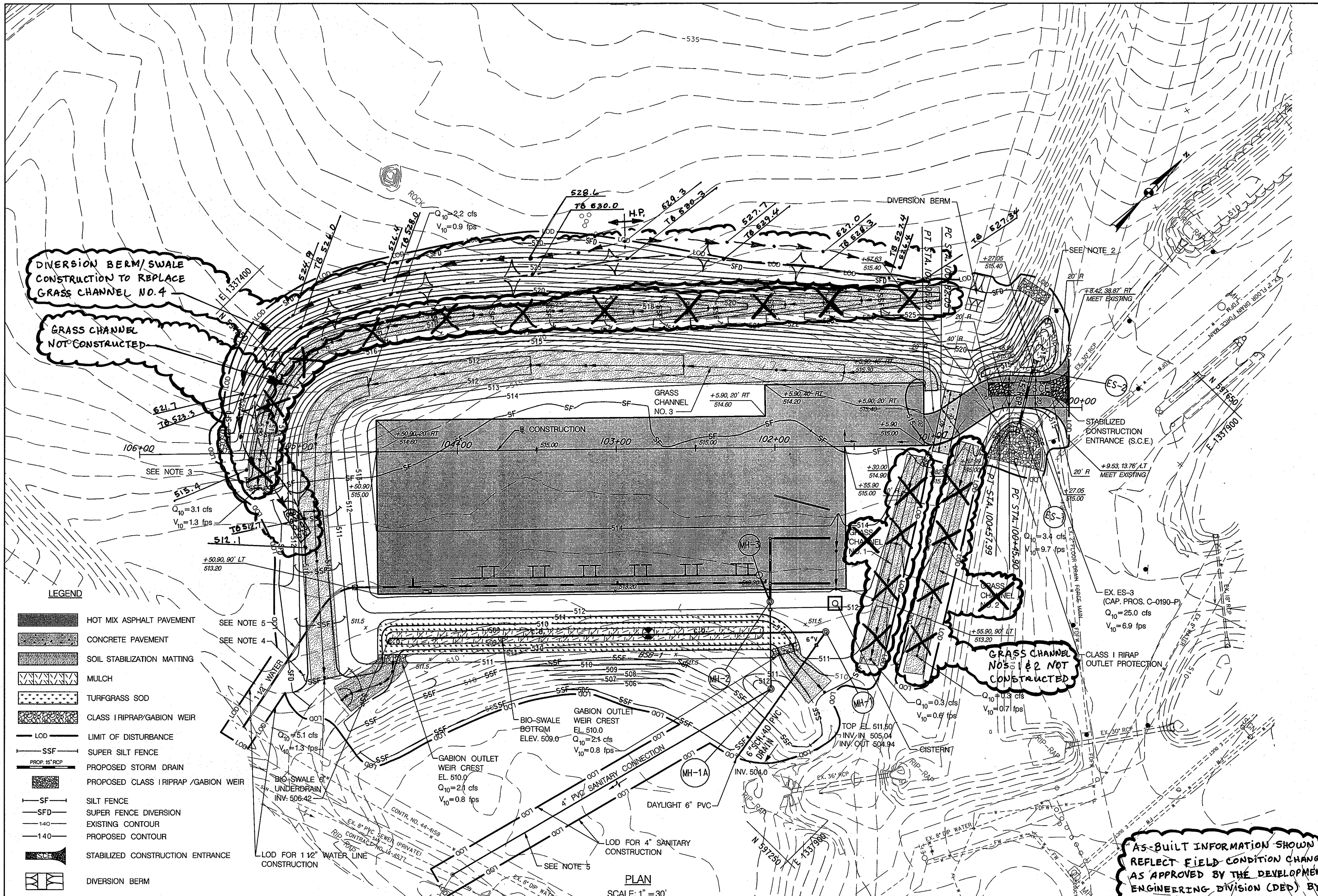
CAPITAL PROJECT NO. C–0299

TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET CO–4 OF 9 TOTAL OF 98

SDP-97-128



INSTALL SILT FENCE	
STA. 100+15 TO 100+76.5, LT.	75 L.F.
STA. 100+24 TO 100+78, LT.	75 L.F.
STA. 100+80 TO 101+10, LT.	155 L.F.
STA. 101+03 TO 105+22, LT.	460 L.F.

INSTALL SUPER FENCE DIVERSION	
STA. 100+42 TO 100+49, RT.	18 L.F.
STA. 100+51 TO 105+44, RT.	550 L.F.
STA. 104+94 TO 105+18, LT.	140 L.F.

INSTALL SUPER SILT FENCE	
STA. 101+45 TO 104+68, LT.	420 L.F.
STA. 102+27 TO 104+62, LT.	260 L.F.

INSTALL RIPRAP SLOPE (INFLOW) PROTECTION	
STA. 100+27 TO 100+42, RT.	18 S.Y.
STA. 105+44 TO 105+52, RT.	14 S.Y.

INSTALL STABILIZED CONSTRUCTION ENTRANCE	
STA. 100+09 TO 100+54, RT.	40 TON

CONSTRUCT DIVERSION BERM
STA. 100+49 TO 100+51, RT.
SEE DETAIL, SHEET CO-6

NOTES:

1. NO STOCKPILING OF MATERIAL WILL BE PERMITTED WITHIN THE LIMITS OF THIS PROJECT.
2. AREA TO BE STABILIZED WITH TURFGRASS SOD. REFER TO SITE DEVELOPMENT PLAN FOR LIMITS AND QUANTITY.
3. INSTALL SSF (25' LONG SECTIONS) AT INTERVALS OF 35' ALONG GRASS CHANNEL AS INDICATED (350 L.F. TOTAL).
4. INSTALL SSF (35' LONG SECTIONS) AT INTERVALS OF 35' ALONG GRASS CHANNEL AS INDICATED (140 L.F. TOTAL).
5. FOR CONSTRUCTION OF WATER LINE AND SANITARY SEWER CONNECTION CONTRACTOR SHALL LIMIT THE AMOUNT OF CONSTRUCTION THAT CAN BE BACKED FILLED AND STABILIZED WITHIN THE SAME WORK DAY. AREA TO BE STABILIZED WITH SEED AND MULCH.

By the Owner/Developer

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendence at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning project. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Evelyn E. Tomlin — 3/14/2012
Signature of Owner/Developer — Date
Print name below signature

By the Owner/Engineer

"I certify that this plan for erosion and sediment control represents a prctical and workable plan based on my personal knowledge of the site conditions. This Plan was prepared in accordance with the requirements of the Howard Soil Conservation District."

3/14/2012
Signature of Engineer — Date
Print name below signature
CHARLES S. NOLAN

These plans are approved for soil erosion and sediment control by the Howard Soil Conservation District.

3/27/12
Howard S.C.D. — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3.29.12
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4-02-12
DIRECTOR	DATE 4/2/12

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSES ONLY

(FOR PROFESSIONAL CERTIFICATION SEE SHEET CO-1)

SUBDIVISION NAME	LOT /PARCEL	
ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	54, 253, 220, 11	
LIBER /FOLIO	ZONE	TAX /ZONE MAP
10-847/606 16-878/215 10-691/314	PEC	10 & 16
WATER CODE	SEWER CODE	CENSUS TR.
PRIVATE, EXISTING	PRIVATE, EXISTING	60-30

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Evelyn E. Tomlin 3/15/12
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone (410) 995-3651 Fax (410) 995-1383

STATE OF MARYLAND — CHARLES S. NOLAN — REGISTERED PROFESSIONAL ENGINEER

DES: GWF
DRN: JRW
CHK:
DATE: MARCH 2012

BY	NO.	REVISION	DATE

GRADING, EROSION & SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 16 BLOCK NO. 8

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY
CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET CO-5 OF 9
TOTAL OF 98

As-Built - Aug. 14, 2013 SDP-97-128

SPECIFICATIONS FOR VEGETATION ESTABLISHMENT

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:—Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:—In lieu of soil test recommendations, use one of the following schedules:

1. Preferred—Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10–10–10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30–0–0 ureaform fertilizer (9 lbs/1000 sq. ft.)
2. Acceptable—Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs. per acre 10–10–10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding—For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) – 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) – Use sod. Option (3) – Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching—Apply 1–1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance—Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed preparation:—Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:—Apply 600 lbs per acre 10–10–10 fertilizer (14 lbs/1000 sq. ft.).

Seeding—For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2–1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching—Apply 1–1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis

Total Area of Site	3.24 Acres
Area Disturbed	3.24 Acres
Area to be roofed or paved	0.86 Acres
Area to be vegetatively stabilized	2.27 Acres
Total Cut	5,550 Cu. Yds.
Total Fill	1,725 Cu. Yds.
Offsite Waste/Borrow Area Location To Be Determined By Contractor at a site with an active grading permit.	

* It is the responsibility of the contractor to identify the soil/borrow site and notify and gain the approval from the sediment control inspector of the site and its grading permit number at the time of construction.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

SPECIFICATIONS FOR TOPSOIL

Definition: Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose: To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:
   i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
   ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
   iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4–8 tons/acre (200–400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:
   i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:
   i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      b. Organic content of topsoil shall be not less than 1.5 percent by weight.
      c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
      d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

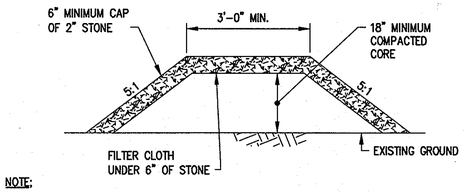
   Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by appropriate authority, may be used in lieu of natural topsoil.
   ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application
   i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
   ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4"–8" higher in elevation.
   iii. Topsoil shall be uniformly distributed in a 4"–8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
   iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
   i. Composted Sludge Material for use as soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
      a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of Environment under COMAR 26.04.06.
      b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
      c. Composted sludge shall be applied at the rate of 1 ton/1,000 square feet.
   ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1000 square feet, and 1/3 the normal lime application rate.

SEQUENCE OF CONSTRUCTION

	DURATION
1. OBTAIN GRADING PERMIT.	1 DAY
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410–313–1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.	1 DAY
3. INSTALL 15" RCP CULVERT, ES–1, ES–2, TURFGRASS SOD AND RIPRAP OUTLET PROTECTION	2 DAY
4. INSTALL SUPER FENCE DIVERSION, STA. 100+42 TO 100+49, RT. STA. 100+51 TO 105+44, RT., RIPRAP SLOPE PROTECTION, AND DIVERSION BERM. INSTALL SILT FENCE STA. 100+15 TO 100+76.5, LT. CONSTRUCT FILL OVER 15" RCP CULVERT AND INSTALL STABILIZED CONSTRUCTION ENTRANCE	3 DAY
5. INSTALL SILT FENCE STA. 101+03 TO 105+22, LT. GRADE GRASS CHANNEL NO. 4 AND STABILIZE CHANNEL AND UPGRADE SLOPE AREA. INSTALL SUPER SILT FENCE AT 35' INTERVALS ALONG CHANNEL, WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR REMOVE SILT FENCE.	4 DAY
6. INSTALL SUPER SILT FENCE STA. 100+45 TO 104+68, LT. SUPER FENCE DIVERSION STA. 104+94 TO 105+18, LT AND SILT FENCE STA. 100+80 TO 101+10, LT. GRADE GRASS CHANNEL NO'S 1, 2, 3, AND 5 AND STABILIZE. INSTALL SUPER SILT FENCE AT 35' INTERVALS ALONG CHANNEL NO.5.	10 DAY
7. GRADE AND INSTALL MH–2 AND MH–3. CONSTRUCT TRENCH DRAIN SYSTEM /PROCESS WATER DRAINAGE SYSTEM. INSTALL WATER SERVICE. AND 4" PVC SANITARY CONNECTION. CONSTRUCT PAVEMENT SECTION FOR ACCESS ROAD AND COMPOST FACILITY. FINISH GRADE AND STABILIZE OPEN SPACE AREA. REMOVE SUPER SILT FENCE STA. 100+45 TO 104+68 AND INSTALL SUPER SILT FENCE STA. 102+27 TO 104+62, LT.	30 DAY
8. ONCE CONTRIBUTING DRAINAGE AREA IS STABILIZED TO THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR CONSTRUCT BIO–SWALE/UNDER DRAIN SYSTEM AND MH–1. INSTALL CISTERN. STABILIZE ALL DISTURBED AREAS.	10 DAY
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS.	4 DAY
	TOTAL: 14 WEEKS ±



NOTE:
1. FILTER CLOTH SHALL BE GEOTEXTILE CLASS 'C' OR BETTER
2. COST OF BERM SHALL BE INCIDENTAL TO SUPER FENCE DIVERSION PAY ITEM

MOUNTABLE BERM DETAIL
SCALE: NOT TO SCALE

By the Owner/Developer

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendence at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning project. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Evelyn E Tomlin — 3/14/2012
Signature of Owner/Developer — Date
Print name below signature
Evelyn E. Tomlin

By the Owner/Engineer

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. this Plan was prepared in accordance with the requirements of the Howard Soil Conservation District."

Charles S. Nolan — 3/14/2012
Signature of Engineer — Date
Print name below signature
CHARLES S. NOLAN

These plans are approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R Robertson — 3/27/12
Howard S.C.D. — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — CHIEF, DEVELOPMENT ENGINEERING DIVISION	3.29.12 — DATE
Kent Sheubrooks — CHIEF, DIVISION OF LAND DEVELOPMENT	4-02-12 — DATE
Marsha McLaughlin — DIRECTOR	4/2/12 — DATE

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSE ONLY

(FOR PROFESSIONAL CERTIFICATION SEE SHEET CO–1)

SUBDIVISION NAME: ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT /PARCEL: 54, 253, 220, 11
LIBER /FOLIO: 10-847/606, 16-878/215, 10-691/314	ZONE: PEC; TAX /ZONE MAP: 10 & 16
WATER CODE: PRIVATE, EXISTING	SEWER CODE: PRIVATE, EXISTING; CENSUS TR.: 60–30

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Evelyn E Tomlin — 3/15/12
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3851 Fax: (410) 995-1363

DES: GWF	BY	NO.	REVISION	DATE
DRN: JRW				
CHK:				
DATE: MARCH 2012				

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 16 BLOCK NO. 8

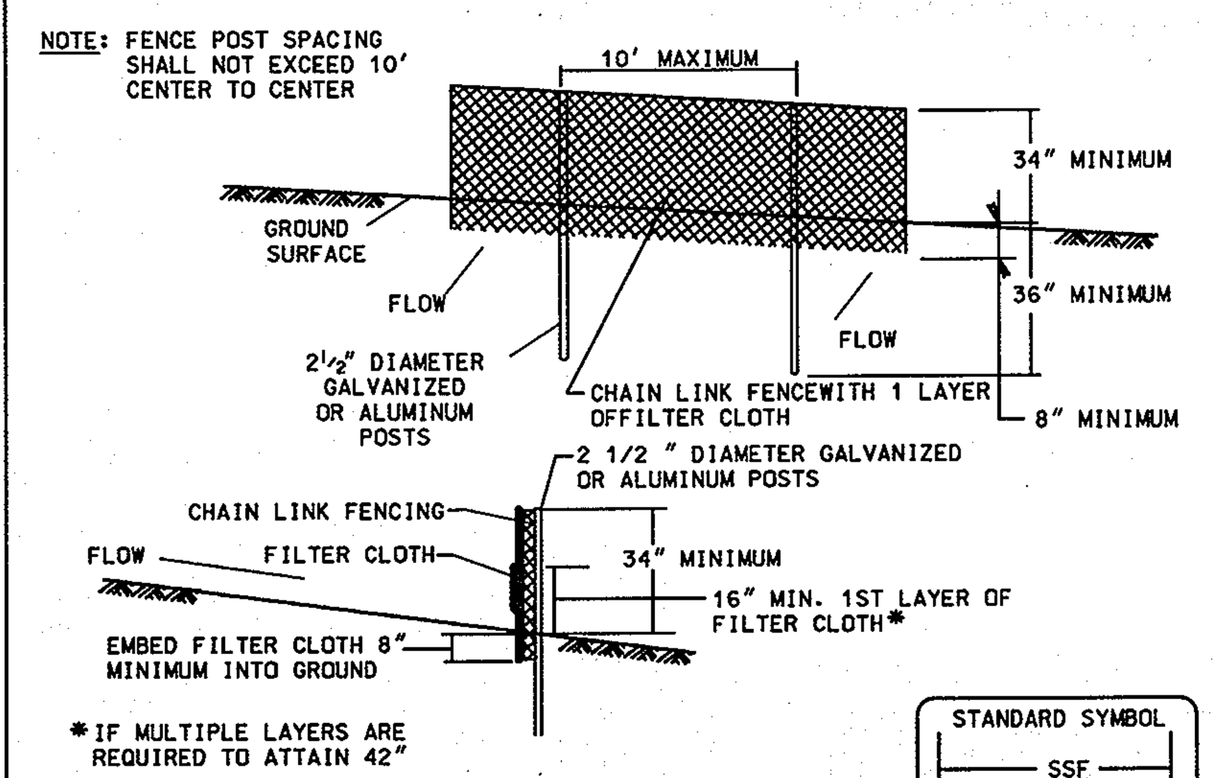
ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY
CAPITAL PROJECT NO. C–0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET CO–6 OF 9 TOTAL OF 98

SDP-97-128

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

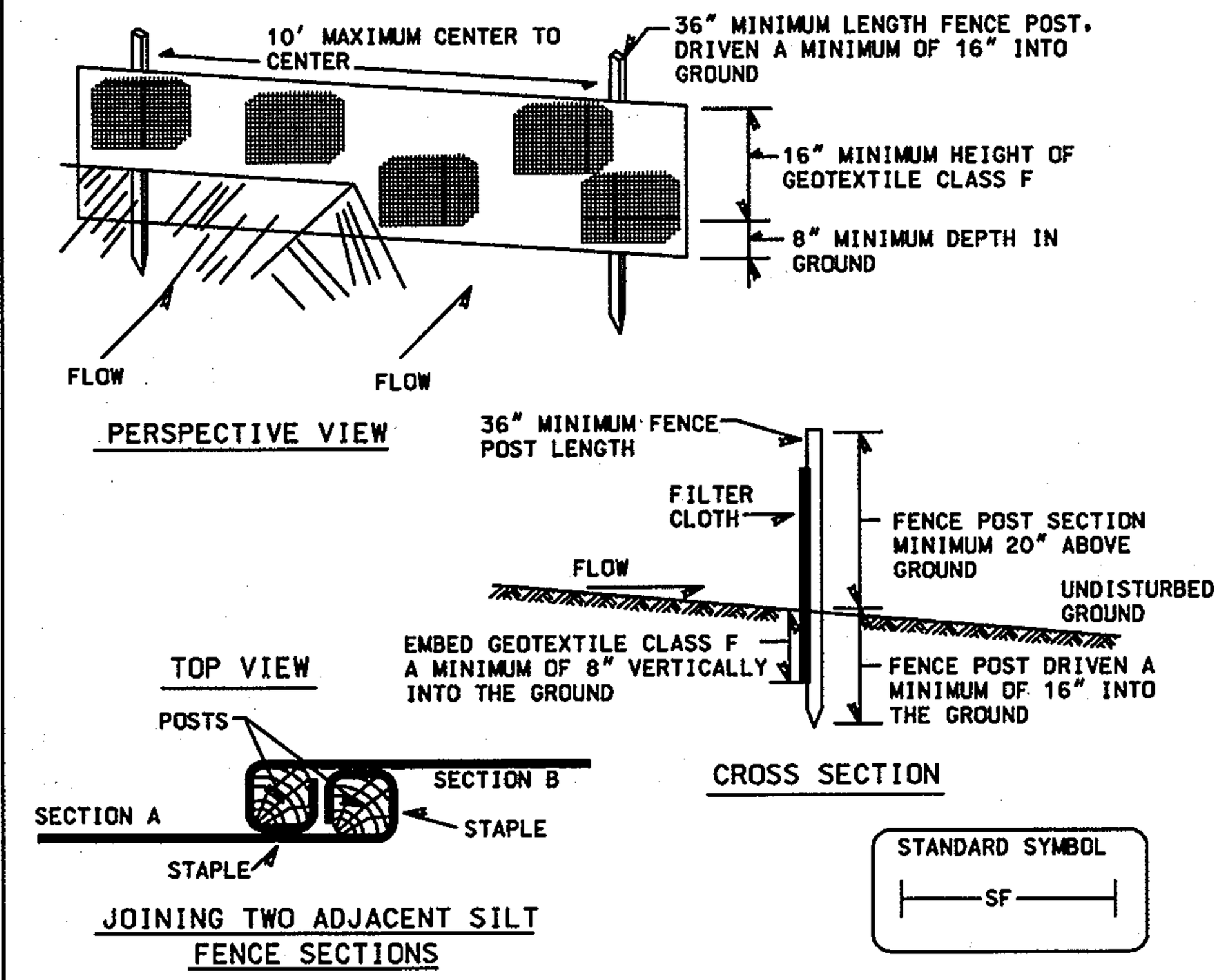
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth 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: ASTM D-4595
Tensile Modulus	20 lbs/in (min.)	Test: ASTM D-4595
Flow Rate	0.3 gal/ft²/minute (max.)	Test: ASTM D-5141
Filtering Efficiency	75% (min.)	Test: ASTM D-5141

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE H - 26 - 3 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" 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 pond 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: ASTM D-4595
Tensile Modulus	20 lbs/in (min.)	Test: ASTM D-4595
Flow Rate	0.3 gal ft²/ minute (max.)	Test: ASTM D-5141
Filtering Efficiency	75% (min.)	Test: ASTM D-5141

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.

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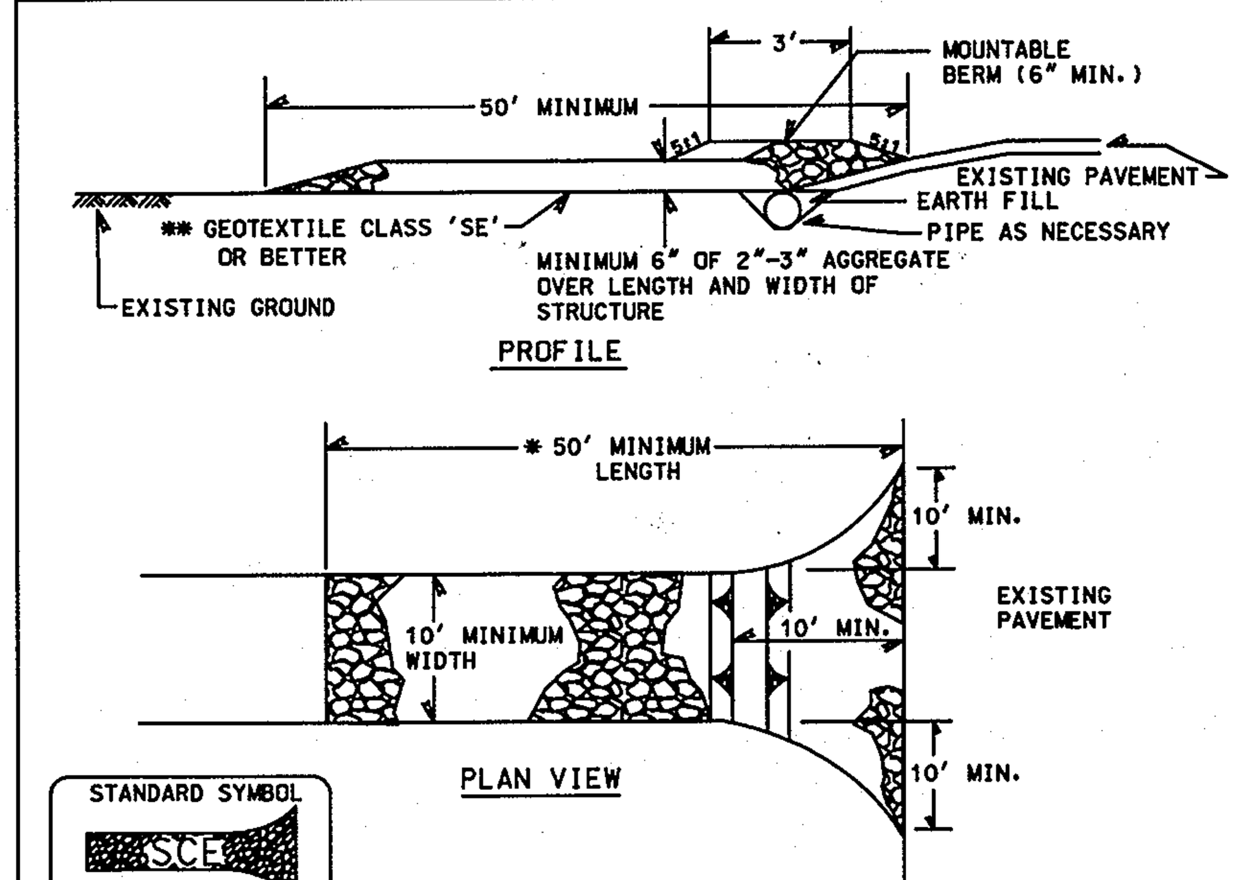
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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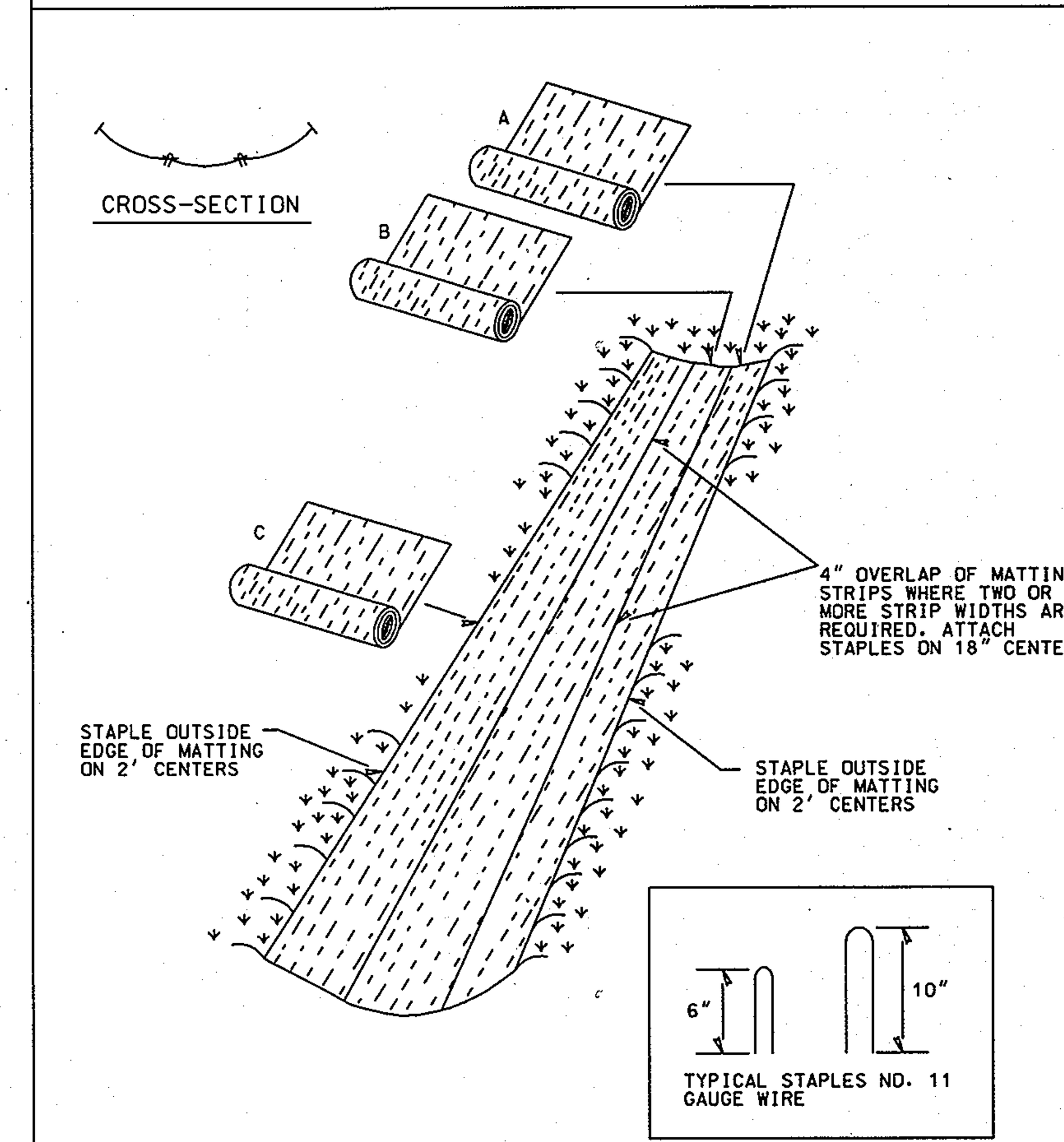
DETAIL 30 - EROSION CONTROL MATTING



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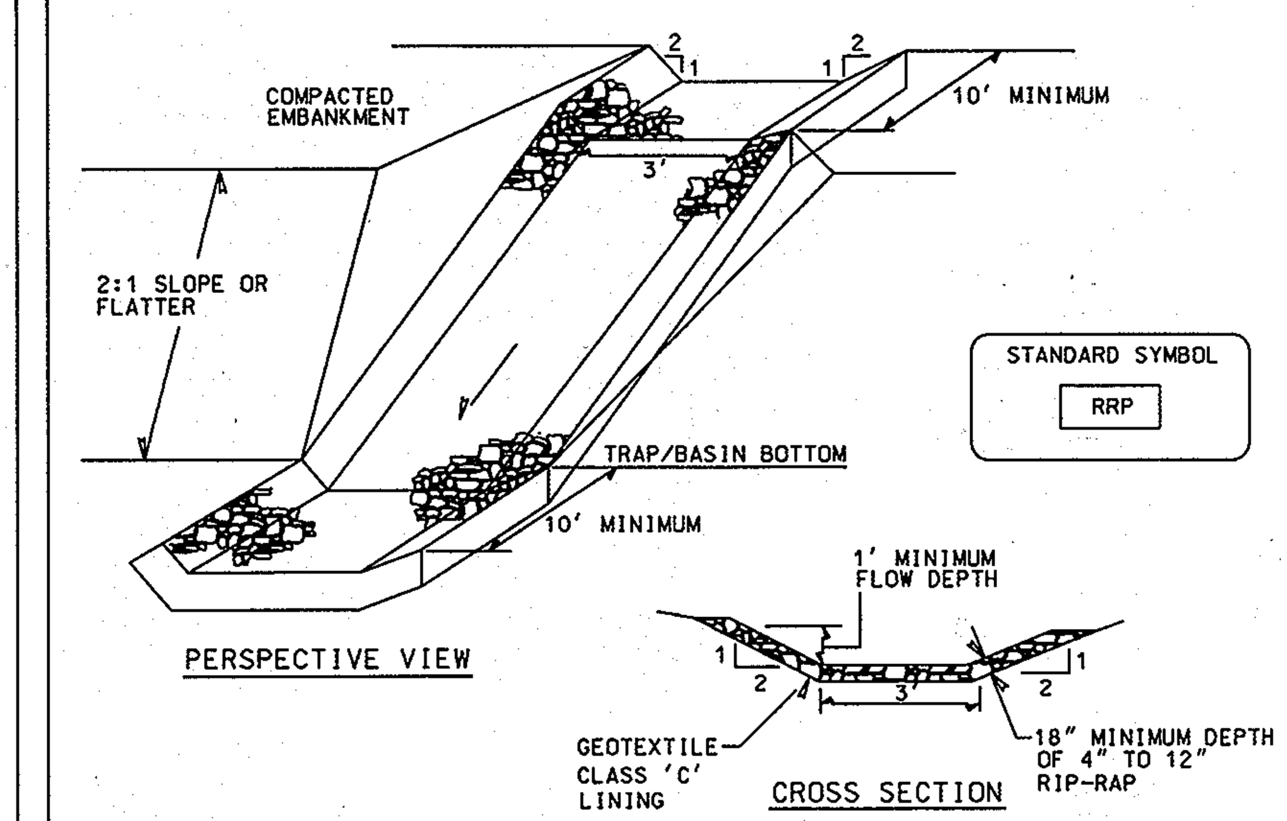
DETAIL 5 - RIP-RAP INFLOW PROTECTION



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.

5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

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SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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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	60 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.

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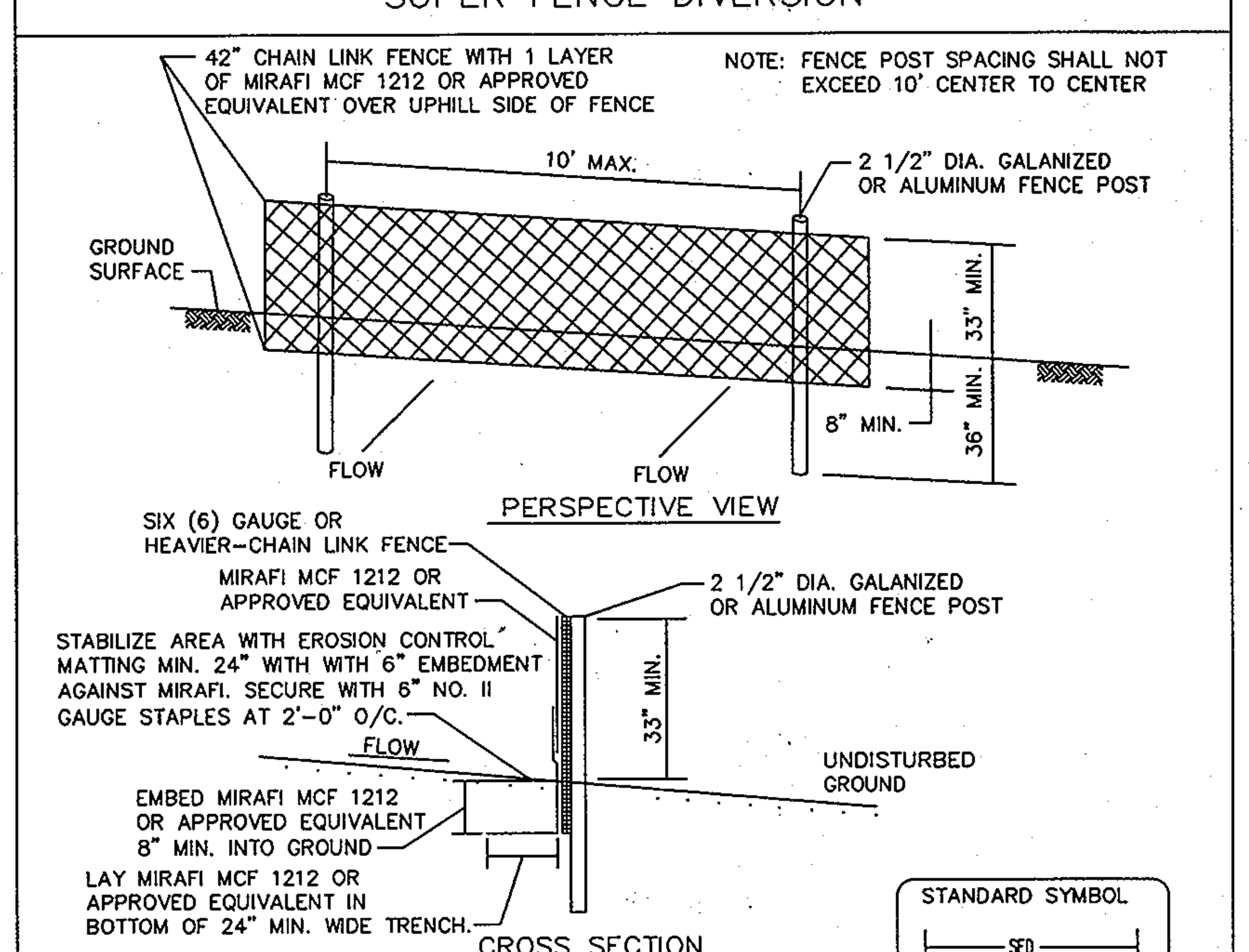
SUPER FENCE DIVERSION



CONSTRUCTION SPECIFICATION

1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION (SHA) DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.
2. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE. THE CHAIN LINK FENCING SHALL BE SIX (6) GAUGE OR HEAVIER.
4. MIRAFI MCF 1212 OR APPROVED EQUIVALENT SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. MIRAFI MCF 1212 OR APPROVED EQUIVALENT SHALL BE EMBEDDED MINIMUM OF 8" INTO THE GROUND.
6. WHEN THE TWO SECTIONS OF MIRAFI MCF 1212 OR APPROVED EQUIVALENT ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED.
8. MAXIMUM FLOW SLOPE 10.0%
9. MAXIMUM DRAINAGE AREA 5 Ac

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G - 22 - 2A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

By the Owner/Developer

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendence at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning project. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Evelyn E Tomlin — 3/14/2012
Signature of Owner/Developer — Date
Print name below signature
EVELYN E. TOMLIN

By the Owner/Engineer

"I cerrtify that this plan for erosion and sediment control represents a prctical and workable plan based on my personal knowledge of the site conditions. this Plan was prepared in accordance with the requirements of the Howard Soil Conservation District."

[signature] — 3/14/2012
Signature of Engineer — Date
Print name below signature
CHARLES S. NOLAN

These plans are approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R Robertson — 3/27/12
Howard S.C.D. — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — 3-29-12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Kent Sheubrooks — 4-02-12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

Marsha S. McLaughlin — 4/4/12
DIRECTOR — DATE

(FOR PROFESSIONAL CERTIFICATION SEE SHEET CO-1)

SUBDIVISION NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT /PARCEL 54, 253, 220, 11	
LIBER /FOLIO 10-847/606 16-878/215 10-691/314	ZONE PEC	TAX /ZONE MAP 10 & 16
WATER CODE PRIVATE, EXISTING	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Evelyn E Tomlin — 3/15/12
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone (410) 995-3651 Fax (410) 995-1363

DES: GWF
DRN: JRW
CHK:
DATE: MARCH 2012

BY | NO. | REVISION | DATE

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 16 BLOCK NO. 8

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY

CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET CO-7 OF 9
TOTAL OF 98

SDP-97-128

DRAINAGE AREA SUMMARY

DRAINAGE AREA DESIGNATION	CONTRIBUTING DRAINAGE AREA (AC)	"C"	Tc (MIN.)	I_{10} (in./hr.)	Q_{10} (c.f.s.)	V_{10} (f.p.s.)
GRASS CHANNEL NO. 1	0.13	0.24	5.0	8.5	0.27	0.6
GRASS CHANNEL NO. 2	0.08	0.35	5.0	8.5	0.25	0.7
GRASS CHANNEL NO. 3	0.65	0.40	5.0	8.5	2.21	0.9
GRASS CHANNEL NO. 4	2.34	0.22	11.94	6.05	3.12	1.3
GRASS CHANNEL NO. 5	3.34	0.26	12.61	5.90	5.12	1.3
BIO-SWALE	0.77	0.64	5.0	8.5	4.2	N/A
15 INCH CULVERT	1.64	0.33	10.8	6.36	3.44	9.7
CISTERN	0.05	0.82	5.0	8.5	0.35	N/A
T.D. NO. 1	0.02	0.86	5.0	8.5	0.14	N/A
T.D. NO. 2	0.023	0.85	5.0	8.5	0.17	N/A

NOTE:
"C" VALUE BASED ON HYDROLOGIC CLASS "C" SOIL.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature	Date
CHIEF, DEVELOPMENT ENGINEERING DIVISION	3-29-12
CHIEF, DIVISION OF LAND DEVELOPMENT	4-02-12
DIRECTOR	4/2/12

(FOR PROFESSIONAL CERTIFICATION, SEE SHEET CO-I)

SUBDIVISION NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT / PARCEL 54, 253, 220, 11	
LIBER / FOLIO 10-847/606 16-878/215 10-691/314	ZONE PEC	TAX / ZONE MAP 10 & 16
WATER CODE PRIVATE, EXISTING	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 3/15/12

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Phone: (410) 995-3651 Fax: (410) 995-1363

DES: GWF
DRN: JRW
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BY	NO.	REVISION	DATE

DRAINAGE AREA MAP

600' SCALE MAP NO. 16 BLOCK NO. 8

ALPHA RIDGE LANDFILL
AERATED STATIC PILE COMPOST FACILITY

CAPITAL PROJECT NO. C-0299
TAX MAP 10 & 16. PARCEL NUMBERS 54, 253, 220 & 11
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SHEET CO-8 OF 9
TOTAL OF 98

SDP-97-128