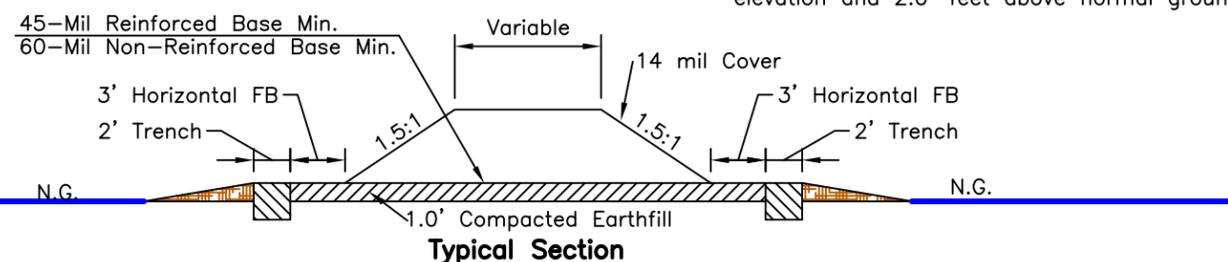
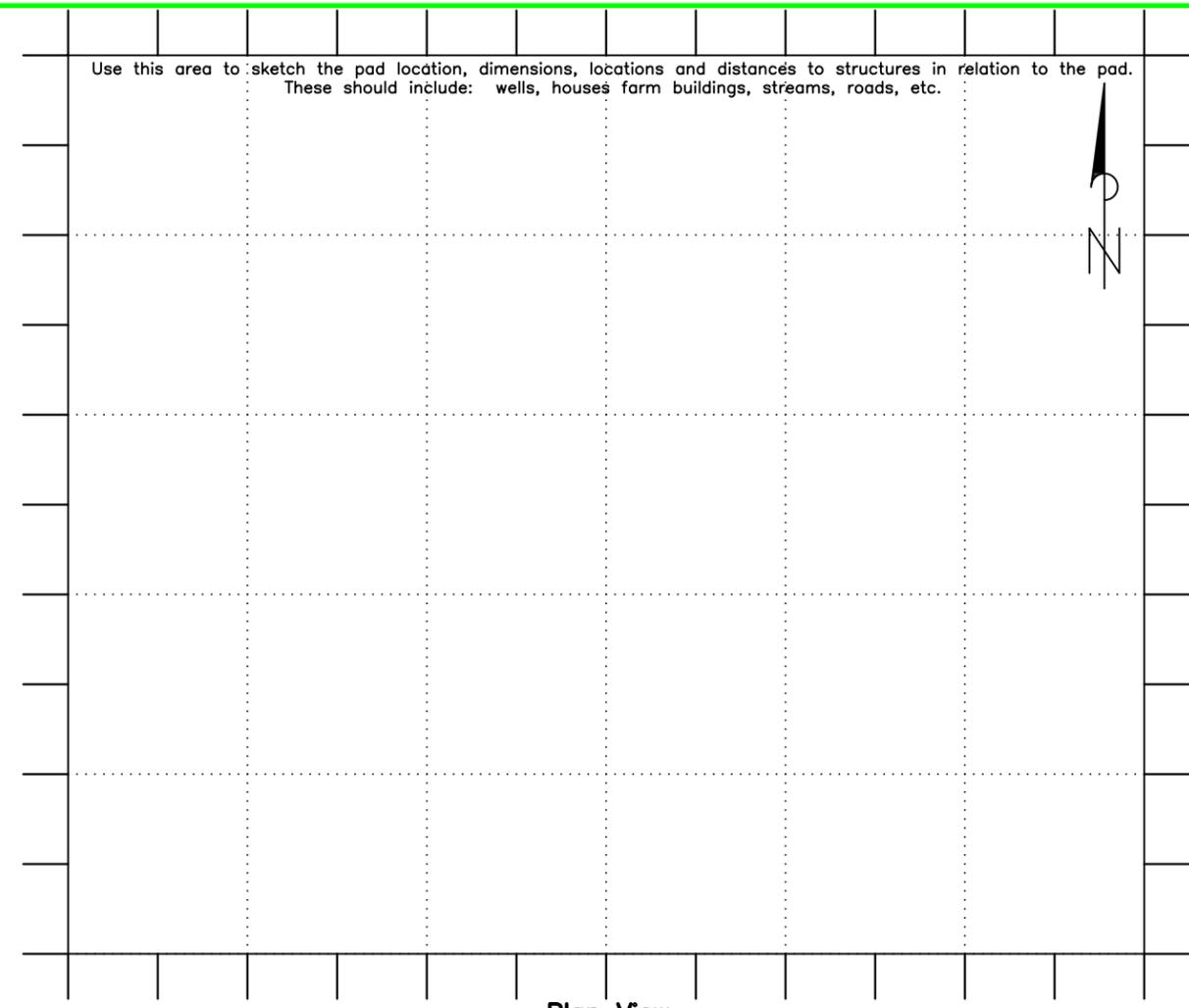


Geo-Fabric Pad Detail

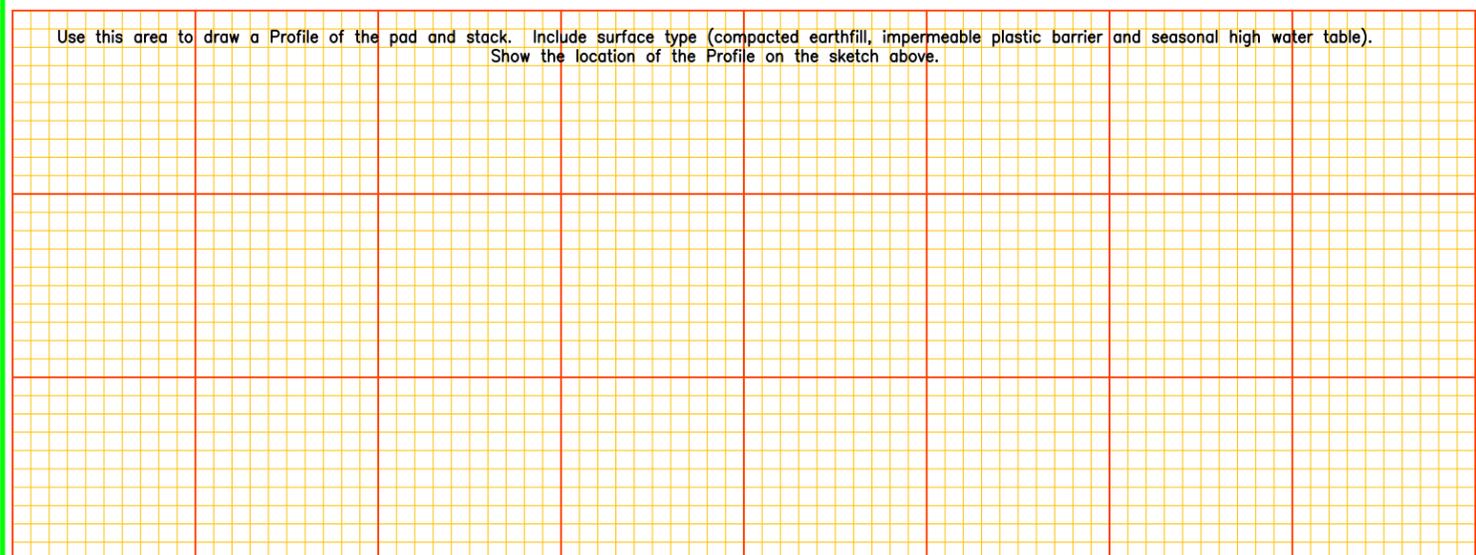
Geo-Fabric Waste Storage Facilities shall be constructed on 1.0 foot of compacted earthfill, structures located in floodplains must be built above the 25YR-24HR storm elevation and 2.0' feet above normal ground.



Typical Section



Plan View



Profile

Design Width _____(ft) Length _____ (ft) Height _____(ft).
 As-Built Width _____(ft) Length _____(ft) Height _____(ft).
 Volume = _____(cuft)
 Weight = _____(tons)

The Following Specifications are incorporated by reference and may be located @ http://www.ar.nrcs.usda.gov/technical/engineering_construction_specs.html

1. AR-23C Earthfill - Class C.
2. AR-97 Flexible Membrane Liner.

This Practice does or does not Meet NRCS Standards & Specification

 NRCS Representative

COMMENTS: _____

DATE: _____

Date _____
 Designed _____
 Drawn _____
 Checked _____
 Approved _____

Geo-Fabric Waste Storage Facility (Geo Pad)
 Project Name _____
 Landowner _____
 Tract# _____
 Farm# _____
 County _____, Arkansas



File Name: AR-ENG-421
 WSF_Geo_Pad.dwg
 Drawing Name: Waste Storage Pad
 Geo Pad
 Sheet 1 of 2

ARKANSAS ENGINEERING STANDARD DRAWING
 Standard Drawings shall NOT be altered without State Conservation Engineer Approval
 /s/ Walt Delp, SCE
 STANDARD DWG NO. AR-ENG-421-Geo Pad
 DATE 1/11 SHEET 1 OF 2



Geo- Fabric Waste Storage Facility Construction Notes

- The waste storage pad liner shall be installed on 1.0 foot of compacted earthfill.
- Pads located in flood plains shall be built above 25 YR 24 HR storm elevation and 2.0' above Normal Ground.
- The waste storage pad shall be located 100' from water bodies or wells.
- The pad site must be free draining. Surface water shall be diverted away from the pad site. The distance from the bottom of the stored waste to the high water table shall not be less than 2.0'.
- The waste storage facility shall be anchored placing weights every 5 to 10 feet around the perimeter of pile or by other acceptable method.
- Non-Cropland areas disturbed during construction, including disposal areas, shall be seeded in accordance with Conservation Practice Standard 342 Critical Area Planting.
- Compacted earthfill shall be placed in accordance with Construction Specification Earthfill, AR-23C Earthfill - Class C compaction which includes routing the hauling and spreading equipment such that all points of the fill are traversed by at least one tread track of the loaded equipment traveling parallel to the centerline of the fill.
- Compacted earthfill shall be ML, CH, CL or any of the S or G Groups.
- 3.0' of horizontal freeboard shall be left on all sides of the pad.
- Pad shall be anchored by excavating a 2' X 2' trench and extending the pad liner along the sides and underneath the trench.
- All Geo-Fabric shall be overlapped by 1.0' and stitched for reinforcement and be installed in accordance with Construction Specification AR-97 Flexible Membrane Liner or other acceptable method.
- Cover shall have a minimum thickness of 14 mil (0.36mm) ASTM D5199.
- Pad shall have a minimum thickness of 45 mil reinforced, 60 mil non-reinforced and meet Conservation Practice Standard, 521A.

EXAMPLE

Geo-Fabric Pad Sizing Computations*

Volume = ((Ab + 4Am + At) X H)/6 ; Ab = Area of bottom in sq. ft., Am = Area of middle in sq. ft., At = Area of top in sq. ft, h = height in ft.
 Example: Width = 40', Length = 100', h = 8', and s:s = 1.5:1, weight 59 cu ft/ton
 Volume = ((40 X 100) + 4 X (28 x 88) + (16 X 76)) X 8.0/6
 Volume = (4000 + 9856 + 1216) X 8.0/6
 Volume = 20,096 cu ft, Weight = 341 tons
 Stack Width = 40 + 6 Ft = 46.0 Ft Pad Width
 Stack Length = 100 + 6 Ft 106.0 Ft Pad Length

* Computations made using the Prismoial Formula

TABLE 1 Geo-Fabric Waste Storage Facility							
Width (ft)	Length (ft)	Side Slope	Height (ft)	Horizontal FB (ft)	Key (ft)	Volume (Cuft)*	Weight (tons)**
40	100	1.5:1	8	3	6	20096	341
40	110	1.5:1	8	3	6	22336	379
40	120	1.5:1	8	3	6	24576	417
40	130	1.5:1	8	3	6	26816	455
40	140	1.5:1	8	3	6	29056	492
40	150	1.5:1	8	3	6	31296	530
40	160	1.5:1	8	3	6	33536	568
40	170	1.5:1	8	3	6	35776	606
40	180	1.5:1	8	3	6	38016	644
40	190	1.5:1	8	3	6	40256	682
40	200	1.5:1	8	3	6	42496	720
40	210	1.5:1	8	3	6	44736	758
40	220	1.5:1	8	3	6	46976	796
40	230	1.5:1	8	3	6	49216	834
40	240	1.5:1	8	3	6	51456	872
40	250	1.5:1	8	3	6	53696	910
40	260	1.5:1	8	3	6	55936	948
40	270	1.5:1	8	3	6	58176	986
40	280	1.5:1	8	3	6	60416	1024
40	290	1.5:1	8	3	6	62656	1062
40	300	1.5:1	8	3	6	64896	1100

*Computations made using the prismoial formula.
 **Weight computed using 59 cu ft/ton.

Cover Width Computations:

sh = stack height (ft); stw = stack top width (ft).
 Cover Width = 6 + sqrt ((sh)² + (1.5 X sh)²) X 2 + stw(ft).
 Cover Width = 6 + sqrt (()² + ()²) X 2 + .
 Cover Width = ft.

Cover Length Computations:

sh = stack height (ft); stl = stack top length (ft).
 Cover Length = 6 + sqrt ((sh)² + (1.5 X sh)²) X 2 + stl(ft).
 Cover Length = 6 + sqrt (()² + ()²) X 2 + .
 Cover Length = ft.

FINAL COMPUTATIONS

Geo-Fabric Pad Sizing Computations

Volume = ((Ab + 4Am + At) X H)/6 ; Ab = Area of bottom in sq. ft., Am = Area of middle in sq. ft., At = Area of top in sq. ft, h = height in ft.
 Width = W, Length = L, height = h, and s:s = 1.5:1, weight 59 cu ft/ton
 Volume = ((W X L) + 4 X (W-1.5h) X (L-1.5h) + (W-3h) X (L-3h)) X h/6
 Volume = (() + 4 X () X () + () X ()) X /6
 Volume = (sq. ft. + sq. ft. + sq. ft.) X ft./6
 Volume = cu ft, Weight = tons
 Stack Width = + 6 Ft = Ft Pad Width
 Stack Length = + 6 Ft = Ft Pad Length

TABLE 2 Pad Cover			
Width (ft)*	Length (ft)*	Width (ft)*	Length (ft)*
58	118	51	111
58	128	51	121
58	138	51	131
59	148	51	141
58	158	51	151
58	168	51	161
58	178	51	171
58	188	51	181
58	198	51	191
58	208	51	201
58	218	51	211
58	228	51	221
58	238	51	231
58	248	51	241
58	258	51	251
58	268	51	261
58	278	51	271
58	288	51	281
58	298	51	291
58	308	51	301
58	318	51	311

*All measurements are in place 3-5% may need to be added to widths and lengths for seams and overlaps.

Date _____
 Designed _____
 Drawn _____
 Checked _____
 Approved _____

Geo-Fabric Waste Storage Facility (Geo Pad)

Project Name _____
 Landowner _____
 County _____

Tract# _____
 Farm# _____
 , Arkansas

NRCS
 Natural Resources Conservation Service
 United States Department of Agriculture

File Name AR-ENG-421
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Sheet 2 of 2