Terrace Storage - Grassed Backslope
(Acre Feet per Storage Segment)
for 7-8 percent land slope

Average Terrace Channel Grade %	Length Terrace Segment (feet)	Storage Depth at Deep End of Storage Segment													
		0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
0.2	100	.008	.015	.022	.029	.037	.046	.057	.070	.083	.098	.114	.131	.149	.169
	200	.010	.023	.037	.051	.067	.083	.103	.127	.153	.180	.211	.244	.280	.318
	300	.010	.025	.045	.065	.087	.111	.140	.173	.210	.250	.294	.342	.394	.449
	400	.010	.025	.047	.073	.102	.133	.169	.210	.256	.308	.364	.425	.491	.562
	600	.010	.025	.047	.076	.112	.156	.205	.261	.321	.390	.467	.552	.644	.743
	800	.010	.025	.047	.076	.112	.158	.216	.284	.358	.441	.533	.635	.747	.870
	1000+	.010	.025	.047	.076	.112	.158	.216	.286	.368	.464	.569	.685	.813	.953
0.4	100	.006	.011	.018	.025	.033	.041	.053	.063	.077	.091	.106	.123	.140	.160
	200	.006	.013	.024	.037	.052	.067	.086	.104	.130	.154	.183	.213	.246	.282
	300	.006	.013	.024	.038	.057	.078	.104	.130	.163	.195	.235	.277	.323	.373
	400	.006	.013	.024	.038	.057	.079	.110	.141	.181	.220	.269	.318	.375	.436
	600+	.006	.013	.024	.038	.057	.079	.110	.142	.187	.233	.293	.355	.427	.503
0.6	100	.004	.009	.015	.022	.030	.038	.048	.059	.070	.085	.099	.115	.132	.150
	200	.004	.009	.016	.026	.039	.053	.070	.088	.108	.133	.157	.185	.217	.249
	300	.004	.009	.016	.026	.039	.054	.074	.098	.123	.155	.187	.223	.265	.308
	400+	.004	.009	.016	.026	.039	.054	.074	.098	.124	.159	.196	.238	.287	.337
0.8	100	.003	.007	.013	.018	.026	.034	.045	.054	.065	.078	.093	.109	.124	.142
	200	.003	.007	.013	.019	.029	.041	.057	.072	.092	.112	.138	.162	.189	.220
	300	.003	.007	.013	.019	.029	.041	.057	.073	.094	.119	.150	.180	.216	.255
	400+	.003	.007	.013	.019	.029	.041	.057	.073	.094	.119	.150	.181	.219	.262
1.0	100	.002	.006	.010	.016	.023	.031	.041	.051	.061	.073	.086	.102	.117	.134
	200	.002	.006	.010	.016	.023	.033	.047	.061	.077	.096	.117	.143	.168	.195
	300+	.002	.006	.010	.016	.023	.033	.047	.061	.077	.097	.119	.149	.178	.211
1.2	100	.002	.005	.008	.013	.021	.028	.038	.047	.057	.069	.081	.095	.111	.127
	200	.002	.005	.008	.013	.021	.028	.039	.052	.066	.082	.102	.123	.149	.174
	300+	.002	.005	.008	.013	.021	.028	.039	.052	.066	.082	.102	.123	.151	.179
1.6	100	.001	.003	.006	.010	.015	.022	.032	.040	.051	.062	.073	.086	.100	.115
	200+	.001	.003	.006	.010	.015	.022	.032	.040	.052	.065	.080	.096	.115	.137
2.0	100	.001	.003	.005	.008	.012	.018	.026	.034	.044	.055	.067	.079	.092	.106
	200+	.001	.003	.005	.008	.012	.018	.026	.034	.044	.055	.068	.082	.097	.114

Terrace Storage - Grassed Backslope
(Acre Feet per Storage Segment)
for 9-10 percent land slope

Average Terrace Channel Grade %	Length Terrace Segment (feet)	Storage Depth at Deep End of Storage Segment													
		0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
0.2	100	.008	.015	.022	.029	.036	.042	.052	.062	.073	.086	.099	.114	.129	.145
	200	.010	.023	.037	.051	.064	.078	.094	.114	.135	.160	.185	.212	.242	.273
	300	.010	.025	.045	.065	.086	.107	.130	.156	.187	.222	.258	.298	.341	.387
	400	.010	.025	.047	.073	.101	.129	.158	.192	.230	.273	.320	.372	.427	.486
	600	.010	.025	.047	.076	.111	.152	.195	.242	.294	.351	.414	.486	.526	.645
	800	.010	.025	.047	.076	.111	.154	.205	.265	.331	.402	.479	.564	.657	.759
	1000+	.010	.025	.047	.076	.111	.154	.205	.267	.364	.425	.515	.614	.721	.837
0.4	100	.006	.011	.018	.025	.032	.039	.048	.056	.069	.079	.093	.107	.121	.138
	200	.006	.013	.024	.037	.051	.064	.080	.095	.117	.135	.162	.186	.213	.244
	300	.006	.013	.024	.038	.056	.076	.099	.121	.149	.174	.210	.242	.282	.324
	400	.006	.013	.024	.038	.056	.077	.104	.132	.168	.200	.242	.281	.331	.380
	600+	.006	.013	.024	.038	.056	.077	.104	.133	.173	.212	.266	.318	.381	.444
0.6	100	.004	.009	.015	.022	.029	.036	.045	.053	.063	.075	.086	.101	.114	.130
	200	.004	.009	.016	.026	.038	.051	.067	.081	.099	.119	.139	.164	.188	.216
	300	.004	.009	.016	.026	.038	.051	.070	.091	.114	.141	.168	.200	.233	.269
	400+	.004	.009	.016	.026	.038	.051	.070	.091	.114	.145	.177	.214	.255	.297
0.8	100	.003	.007	.013	.018	.025	.032	.041	.049	.060	.069	.081	.094	.108	.123
	200	.003	.007	.013	.019	.028	.039	.054	.068	.085	.101	.123	.143	.168	.192
	300	.003	.007	.013	.019	.028	.039	.054	.068	.088	.108	.135	.162	.193	.224
	400+	.003	.007	.013	.019	.028	.039	.054	.068	.088	.108	.135	.162	.196	.231
1.0	100	.002	.006	.010	.016	.022	.029	.038	.046	.056	.065	.076	.090	.101	.117
	200	.002	.006	.010	.016	.022	.031	.043	.056	.072	.087	.104	.127	.147	.173
	300+	.002	.006	.010	.016	.022	.031	.043	.056	.072	.088	.107	.133	.157	.189
1.2	100	.002	.005	.008	.013	.020	.025	.034	.042	.053	.062	.072	.084	.096	.110
	200	.002	.005	.008	.013	.020	.026	.036	.047	.084	.075	.092	.109	.131	.153
	300+	.002	.005	.008	.013	.020	.026	.036	.047	.084	.075	.092	.109	.133	.157
1.6	100	.001	.003	.006	.010	.015	.020	.029	.036	.046	.055	.065	.077	.087	.100
	200+	.001	.003	.006	.010	.015	.020	.029	.036	.047	.059	.072	.087	.102	.120
2.0	100	.001	.003	.005	.008	.012	.016	.023	.030	.040	.048	.059	.070	.080	.093
	200+	.001	.003	.005	.008	.012	.016	.023	.030	.040	.048	.060	.073	.085	.101

Terrace Storage - Grassed Backslope
(Acre Feet per Storage Segment)
for 11-14 percent land slope

Average Terrace Channel Grade %	Length Terrace Segment (feet)	Storage Depth at Deep End of Storage Segment													
		0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
0.2	100	.006	.009	.015	.022	.029	.036	.042	.051	.060	.070	.080	.091	.103	.116
	200	.008	.015	.024	.037	.051	.064	.078	.093	.110	.130	.150	.171	.194	.219
	300	.008	.017	.030	.046	.065	.086	.107	.129	.153	.180	.210	.241	.274	.310
	400	.008	.017	.032	.052	.075	.101	.129	.157	.188	.223	.261	.301	.344	.390
	600	.008	.017	.032	.054	.083	.116	.153	.194	.239	.287	.339	.394	.455	.520
	800	.008	.017	.032	.054	.083	.118	.161	.209	.263	.324	.389	.458	.533	.613
	1000+	.008	.017	.032	.054	.083	.118	.161	.211	.271	.339	.413	.495	.583	.677
0.4	100	.003	.008	.013	.018	.025	.032	.039	.047	.055	.065	.075	.086	.098	.109
	200	.003	.009	.016	.026	.038	.051	.064	.079	.094	.112	.130	.152	.172	.195
	300	.003	.009	.016	.028	.041	.059	.077	.098	.119	.145	.169	.199	.227	.261
	400	.003	.009	.016	.028	.041	.060	.080	.106	.132	.163	.194	.231	.266	.308
	600+	.003	.009	.016	.028	.041	.060	.080	.107	.135	.172	.210	.257	.304	.358
0.6	100	.002	.006	.011	.016	.022	.029	.036	.044	.052	.061	.070	.080	.093	.103
	200	.002	.006	.011	.018	.028	.040	.052	.065	.080	.096	.114	.132	.154	.173
	300	.002	.006	.011	.018	.028	.041	.053	.071	.092	.112	.135	.161	.189	.217
	400+	.002	.006	.011	.018	.028	.041	.053	.071	.093	.115	.141	.172	.205	.239
0.8	100	.002	.004	.009	.015	.020	.025	.032	.040	.048	.057	.065	.076	.087	.099
	200	.002	.004	.009	.015	.021	.030	.041	.055	.068	.083	.098	.116	.135	.156
	300	.002	.004	.009	.015	.021	.030	.041	.056	.069	.087	.107	.131	.155	.181
	400+	.002	.004	.009	.015	.021	.030	.041	.056	.069	.087	.107	.131	.157	.186
1.0	100	.001	.003	.007	.013	.018	.023	.029	.037	.045	.054	.062	.071	.083	.093
	200	.001	.003	.007	.013	.019	.024	.032	.044	.057	.072	.085	.100	.119	.138
	300+	.001	.003	.007	.013	.019	.024	.032	.044	.057	.073	.086	.103	.127	.150
1.2	100	.001	.003	.006	.010	.016	.022	.026	.033	.041	.051	.059	.068	.078	.088
	200	.001	.003	.006	.010	.016	.022	.028	.036	.047	.061	.075	.090	.104	.122
	300+	.001	.003	.006	.010	.016	.022	.028	.036	.047	.061	.075	.090	.106	.125
1.6	100	.001	.002	.005	.008	.012	.017	.023	.030	.036	.044	.052	.061	.071	.080
	200+	.001	.002	.005	.008	.012	.017	.023	.030	.036	.046	.056	.069	.083	.098
2.0	100	.001	.002	.004	.006	.010	.014	.018	.025	.032	.040	.046	.054	.064	.073
	200+	.001	.002	.004	.006	.010	.014	.018	.025	.032	.040	.047	.056	.068	.080

Terrace Storage - Grassed Backslope
(Acre Feet per Storage Segment)
for 15-18 percent land slope

Average Terrace Channel Grade %	Length Terrace Segment (feet)	Storage Depth at Deep End of Storage Segment													
		0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
0.2	100	.006	.009	.014	.020	.025	.031	.038	.046	.054	.062	.071	.080	.090	.100
	200	.008	.015	.023	.033	.045	.056	.069	.084	.100	.116	.133	.152	.170	.189
	300	.008	.017	.029	.042	.059	.076	.094	.115	.138	.162	.187	.213	.241	.270
	400	.008	.017	.031	.048	.068	.090	.114	.140	.169	.200	.233	.267	.303	.341
	600	.008	.017	.031	.051	.076	.104	.137	.173	.213	.256	.302	.351	.403	.457
	800	.008	.017	.031	.051	.076	.107	.145	.188	.236	.289	.347	.407	.472	.541
	1000+	.008	.017	.031	.051	.076	.107	.145	.191	.244	.304	.370	.441	.517	.597
0.4	100	.003	.008	.011	.017	.022	.029	.034	.042	.049	.059	.067	.076	.085	.095
	200	.003	.009	.015	.025	.033	.046	.056	.071	.084	.101	.116	.134	.152	.171
	300	.003	.009	.015	.026	.037	.053	.068	.088	.106	.130	.150	.176	.201	.230
	400	.003	.009	.015	.026	.037	.055	.071	.096	.117	.147	.172	.205	.235	.272
	600+	.003	.009	.015	.026	.037	.055	.071	.098	.121	.156	.187	.231	.269	.318
0.6	100	.002	.006	.010	.015	.020	.025	.032	.039	.046	.054	.063	.071	.081	.091
	200	.002	.006	.011	.017	.025	.036	.047	.059	.071	.086	.102	.117	.135	.153
	300	.002	.006	.011	.017	.025	.036	.049	.064	.081	.101	.122	.142	.168	.193
	400+	.002	.006	.011	.017	.025	.036	.049	.064	.082	.103	.127	.153	.183	.212
0.8	100	.002	.004	.008	.014	.017	.023	.029	.037	.042	.051	.059	.068	.076	.086
	200	.002	.004	.008	.014	.019	.027	.037	.051	.060	.073	.087	.104	.118	.137
	300	.002	.004	.008	.014	.019	.027	.037	.051	.061	.078	.095	.118	.135	.160
	400+	.002	.004	.008	.014	.019	.027	.037	.051	.061	.078	.095	.119	.137	.164
1.0	100	.001	.003	.006	.011	.014	.021	.026	.033	.040	.047	.055	.063	.072	.081
	200	.001	.003	.006	.011	.014	.022	.030	.040	.052	.061	.076	.090	.106	.122
	300+	.001	.003	.006	.011	.014	.022	.030	.040	.052	.061	.077	.093	.112	.133
1.2	100	.001	.003	.005	.010	.014	.020	.024	.031	.037	.045	.052	.060	.068	.078
	200	.001	.003	.005	.010	.014	.020	.025	.034	.042	.054	.065	.079	.092	.109
	300+	.001	.003	.005	.010	.014	.020	.025	.034	.042	.054	.065	.080	.093	.112
1.6	100	.001	.002	.004	.007	.010	.015	.021	.028	.032	.039	.046	.054	.061	.070
	200+	.001	.002	.004	.007	.010	.015	.021	.028	.033	.041	.050	.061	.071	.088
2.0	100	.001	.002	.003	.006	.008	.012	.017	.023	.029	.036	.041	.048	.055	.064
	200+	.001	.002	.003	.006	.008	.012	.017	.023	.029	.036	.042	.050	.058	.070

Terrace Drainage Area
(Acres)

Terrace Length	Terrace Spacing								
	90	100	120	160	200	250	300	350	400
50	0.10	0.11	0.14	0.18	0.23	0.29	0.34	0.40	0.46
100	0.21	0.23	0.28	0.37	0.46	0.57	0.69	0.80	0.92
150	0.31	0.34	0.41	0.55	0.69	0.86	1.03	1.21	1.38
200	0.41	0.46	0.55	0.73	0.92	1.15	1.38	1.61	1.84
300	0.62	0.69	0.83	1.10	1.38	1.72	2.07	2.41	2.75
400	0.83	0.92	1.10	1.47	1.84	2.30	2.75	3.21	3.67
500	1.03	1.15	1.38	1.84	2.30	2.87	3.44	4.02	4.69
600	1.24	1.38	1.65	2.20	2.76	3.44	4.13	4.82	5.51
700	1.45	1.61	1.93	2.57	3.22	4.02	4.82	5.62	6.43
800	1.65	1.84	2.20	2.94	3.68	4.59	5.51	6.42	7.35
900	1.86	2.07	2.48	3.31	4.14	5.16	6.20	7.23	8.26
1000	2.07	2.30	2.75	3.67	4.60	5.73	6.89	8.03	9.18
1100	2.27	2.53	3.03	4.04	5.06	6.31	7.58	8.84	10.10
1200	2.48	2.75	3.31	4.41	5.50	6.89	8.26	9.64	11.02

TABLE 3
TERRACE SPACINGS ADJUSTED FOR SPECIFIC WIDTHS OF EQUIPMENT 1/

4 Row 30 Inch or 6 Row 20 Inch (10 Feet)	4 Row 38 Inch (12-2/3 Feet)	4 Row 40 Inch or 8 Row 20 Inch (13-1/3 Feet)	6 Row 30 Inch (15 Feet)	6 Row 40 Inch or 8 Row 30 Inch (20 Feet)
400	405	400	405	400
390	393	387	390	380
380	380	373	375	360
370	367	360	360	340
360	355	347	345	320
350	342	333	330	300
340	329	320	315	280
330	317	307	300	260
320	304	293	285	240
310	291	280	270	220
300	279	267	255	200
290	266	254	240	180
280	253	240	225	160
270	241	227	210	140
260	228	213	195	120
250	215	200	180	100
240	203	187	165	
230	190	173	150	
220	177	160	135	
210	165	147	120	
200	152	133	105	
190	139	120	90	
180	127	107		
170	114	93		
160	101			
150				
140				
130				
120				
110				
100				
90				

1/ Spacing selected from this table shall be within the allowable adjustments.

Broad Base Terraces - Terrace interval (based on USLE) plus the terrace front slope length must be adjusted for the landuser's farm equipment by selecting a value shown in this table.

Steep Backslope Terraces - Terrace interval (based on USLE) plus the terrace front slope must be adjusted for the landuser's farm equipment by selecting a value shown in this table. Backslope length must be added for total terrace spacing. (See MO-8-20 thru 22 for layout guide dimensions.)

Narrow Base Terraces - Terrace interval (based on USLE) must be adjusted for the landuser's farm equipment by selecting a value shown in this table. Base width must be added for total terrace spacing. (See MO-8-23 for layout guide dimensions.)

MINIMUM TERRACE CROSS-SECTIONS

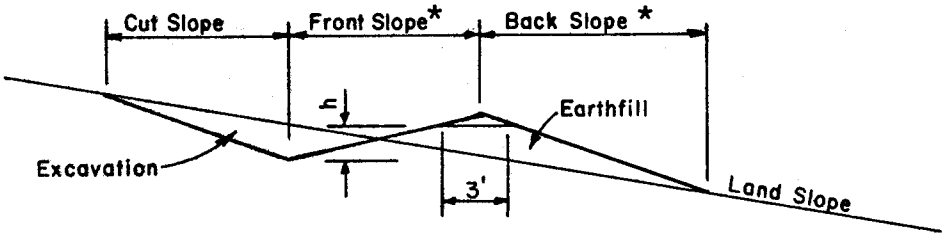


FIGURE 1. BROAD BASE TERRACE

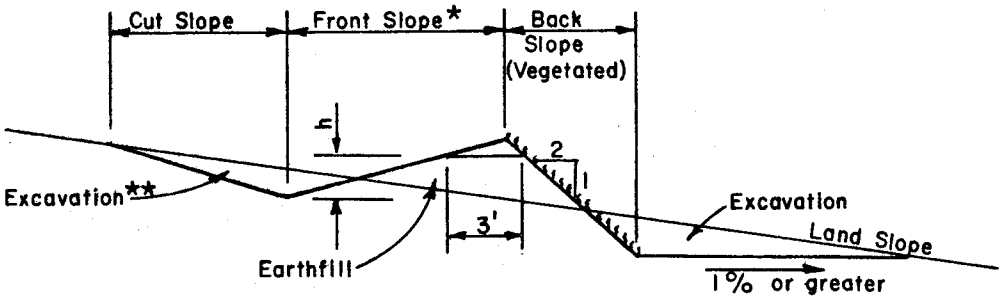


FIGURE 2. STEEP BACKSLOPE TERRACE

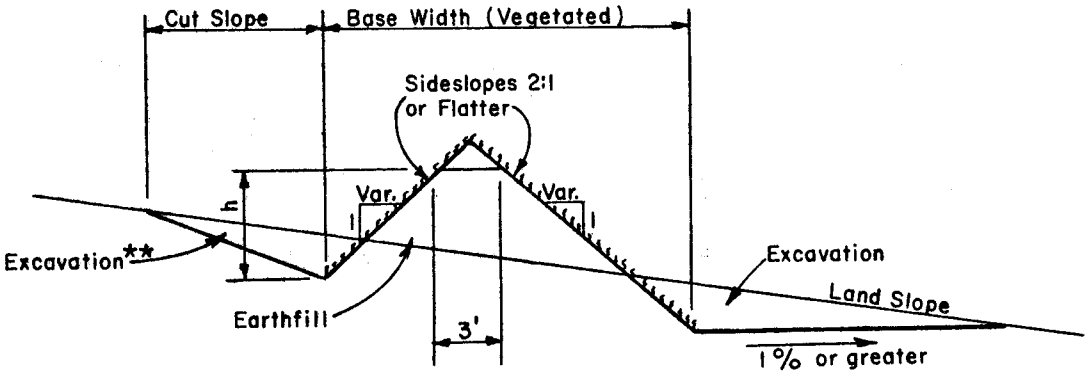


FIGURE 3. NARROW BASE TERRACE

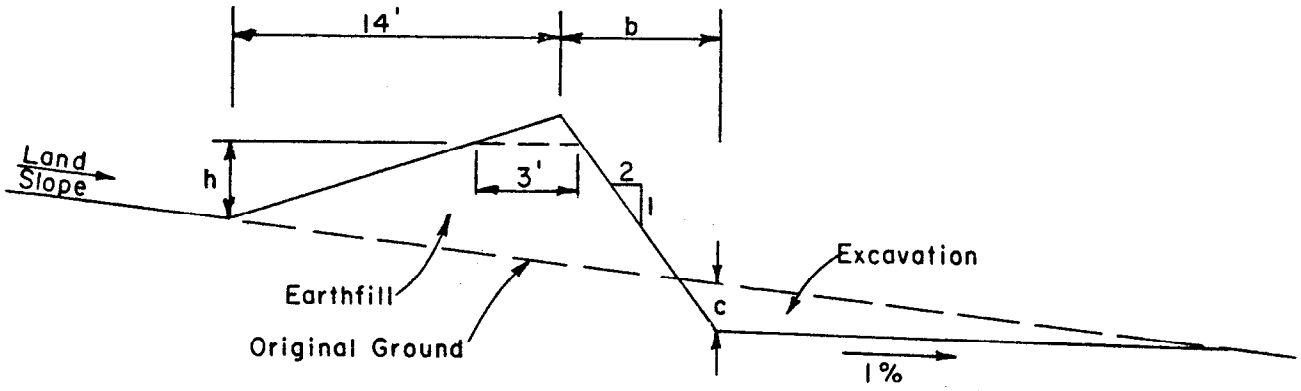
Notes: h = Design height of terrace measured from channel bottom to 3-foot top width of ridge.

* The length of the farmable front slopes and backslopes for broad base and steep backslope terraces should be in increments of machinery width but not shorter than 14 feet nor steeper than 5:1.

** Excavation for steep backslope and narrow base terraces should be made from the downhill side of the terrace ridge. Only excavate on the uphill side of the terrace ridge as needed for surface drainage toward outlet.

MO-8-20

GUIDE DIMENSIONS FOR STEEP BACKSLOPE TERRACE CROSS-SECTION WITH 14-FOOT FRONTSLOPE



Landslope (%)	h = 1.0 Ft.		h = 2.0 Ft.		h = 3.0 Ft.	
	c	b	c	b	c	b
2	0.5	4	0.6	6	0.8	8
4	0.9	5	1.2	8	1.5	11
6	1.3	7	1.7	10	2.1	13
8	1.6	9	2.1	12	2.6	16
10	2.0	11	2.5	15	3.0	19
12	2.4	13	3.0	17	3.6	21
14	2.8	16	3.4	20	4.0	24
16	3.2	18	3.8	23	4.4	27

h = Design height of terrace (in feet) measured from channel bottom to the 3-foot top width of ridge.

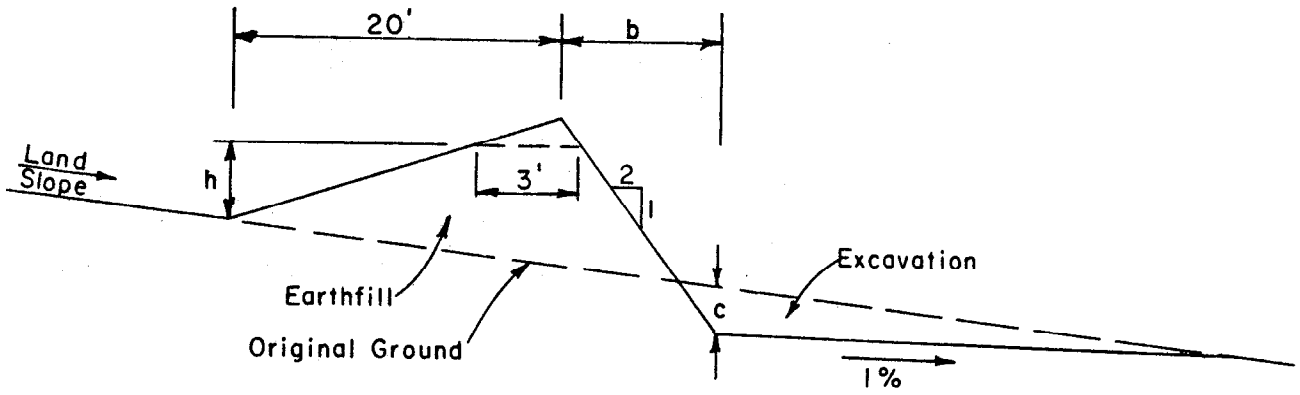
c = Depth of cut (in feet) measured from natural ground at the toe of the backslope.

b = Width of backslope (in feet).

Note: The above values are based on the dimensions and slopes shown on the sketch and a "balanced" cut and fill at each station. If the entire ridge is constructed with borrowed fill (no excavation at downstream toe), the backslope width is equal to b-2c using the values of "b" and "c" shown in the table above.

MO-8-21

GUIDE DIMENSIONS FOR STEEP BACKSLOPE TERRACE CROSS-SECTION WITH 20-FOOT FRONTSLOPE



Landslope (%)	h = 1.0 Ft.		h = 2.0 Ft.		h = 3.0 Ft.		h = 4.0 Ft.	
	c	b	c	b	c	b	c	b
2	0.6	4	0.7	7	0.9	9	1.1	12
4	1.1	6	1.4	9	1.7	12	2.1	15
6	1.6	9	2.0	12	2.4	15	2.8	18
8	2.1	11	2.6	15	3.1	18	3.5	22
10	2.6	14	3.1	18	3.6	22	4.2	26
12	3.1	17	3.7	21	4.3	25	4.8	29
14	3.7	20	4.3	24	4.9	28	5.4	33

h = Design height of terrace (in feet) measured from channel bottom to 3-foot top width of ridge.

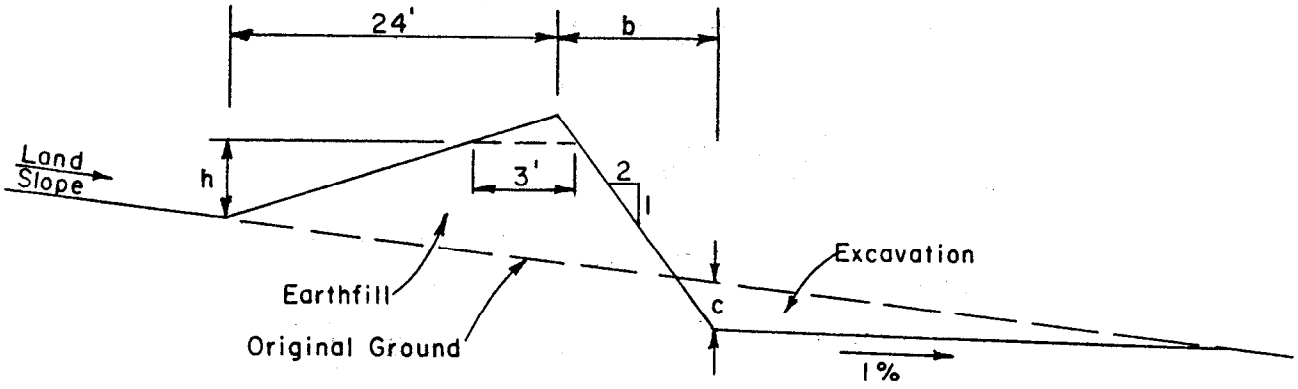
c = Depth of cut (in feet) measured from natural ground at the toe of the backslope.

b = Width of backslope (in feet).

Note: The above values are based on the dimensions and slopes shown on the sketch and a "balanced" cut and fill at each station. If the entire ridge is constructed with borrowed fill (no excavation at downstream toe), the backslope width is equal to b-2c using the values of "b" and "c" shown in the table above.

MO-8-22

GUIDE DIMENSIONS FOR STEEP BACKSLOPE TERRACE CROSS-SECTION WITH 24-FOOT FRONTSLOPE



Landslope (%)	h = 1.0 Ft.		h = 2.0 Ft.		h = 3.0 Ft.		h = 4.0 Ft.	
	c	b	c	b	c	b	c	b
2	0.6	4	0.8	7	1.0	9	1.2	12
4	1.3	7	1.6	10	1.9	13	2.2	16
6	1.7	10	2.2	12	2.7	15	3.1	18
8	2.3	13	2.8	16	3.3	20	3.8	23
10	2.9	16	3.5	20	4.1	24	4.6	27
12	3.5	19	4.2	23	4.8	27	5.3	32
14	4.2	23	4.8	27	5.4	31	6.1	36

h = Design height of terrace (feet) measured from channel bottom to 3-foot top width of ridge.

c = Depth of cut (feet) measured from natural ground at the toe of the backslope.

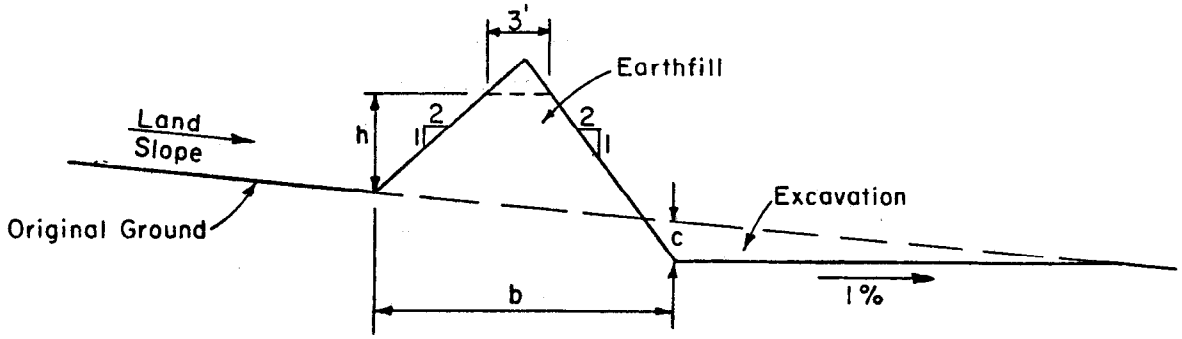
b = Width of backslope (feet).

Note: The above values are based on the dimensions and slopes shown on the sketch and a "balanced" cut and fill at each station. If the entire ridge is constructed with borrowed fill (no excavation at downstream toe), the backslope width is equal to b-2c using the values of "b" and "c" shown in the table above.

MO-8-23

GUIDE DIMENSIONS FOR

NARROW BASE TERRACE CROSS-SECTION



Landslope (%)	h = 1.0 Ft.		h = 2.0 Ft.		h = 3.0 Ft.		h = 4.0 Ft.	
	c	b	c	b	c	b	c	b
2	0.3	8	0.5	13	0.7	18	1.0	22
4	0.6	9	1.0	14	1.4	19	1.8	25
6	0.8	10	1.3	16	1.8	21	2.4	27
8	1.0	11	1.6	17	2.2	23	2.9	30
10	1.2	12	1.9	19	2.6	26	3.4	32
12	1.4	13	2.2	20	3.0	28	3.9	35
14	1.6	14	2.5	22	3.4	30	4.4	38
16	1.8	15	2.8	24	3.8	32	4.9	41

h = Design height of terrace (in feet) measured from natural ground at toe of front slope to 3-foot top width of ridge.

c = Depth of cut (in feet) measured from natural ground at the toe of back-slope.

b = Base width of ridge (in feet).

Note: The above values are based on the dimensions and slopes shown on the sketch and a "balanced" cut and fill at each station. If the entire ridge is constructed with borrowed fill (no excavation at downstream toe) the base width of the ridge is equal to b-2c using the values of "b" and "c" shown in the table above.

TABLE 4

MAXIMUM TERRACE CHANNEL GRADE IN PERCENT
FOR
EASILY ERODIBLE SOILS[1/]

Terrace Spacing Ft.	Terrace Length From Upper End (Ft.)[2/]											
	50	100	150	200	300	400	500	600	700	800	1000	1200
90	2.7	1.8	1.5	1.2	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.4
100	2.7	1.7	1.4	1.2	0.9	0.7	0.6	0.6	0.5	0.5	0.4	0.4
120	2.5	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.4
160	2.2	1.3	1.0	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3
200	1.7	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3
240	1.5	1.0	0.8	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2
280	1.4	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	-
300	1.3	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	-
400	1.1	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	-	-

Notes:

1. The classification of the soil layer that will be exposed in the terrace channel bottom and sideslopes should be considered. Easily erodible soils generally have the following textures: silt, silt loams, sandy loam, loamy sand, sandy clay loam, and loam. Typical soil types include Ida, Knox, Memphis, Marshall, and Menfro.

2. Channel grade in the lower reaches of the storage basin for underground outlets may exceed the table values.

3. The above values are based on the following data:

   Maximum velocity = 1.5 fps
   10 yr-24 hr. rainfall = 5.4 inches
   Average landslope = 8%
   RCN = 75
   "n" value = 0.035
   V-shaped channel
   Front slope and cut slope width = 14 feet
   Minimum ridge height = 1.0 foot

TABLE 5

MAXIMUM TERRACE CHANNEL GRADE IN PERCENT
FOR
AVERAGE AND EROSION RESISTANT SOILS[1/]

Terrace Spacing (Ft.)	Terrace Length From Upper End (Ft.)[2/]											
	50	100	150	200	300	400	500	600	700	800	1000	1200
90	3.0	3.0	2.5	2.0	1.7	1.5	1.3	1.2	1.1	1.0	0.9	0.8
100	3.0	3.0	2.3	1.9	1.6	1.4	1.2	1.1	1.0	0.9	0.9	0.8
120	3.0	2.6	2.0	1.8	1.4	1.2	1.1	1.0	0.9	0.9	0.8	0.7
160	3.0	2.3	1.8	1.6	1.2	1.0	0.9	0.9	0.8	0.7	0.7	0.6
200	2.8	1.9	1.6	1.4	1.1	0.9	0.8	0.8	0.7	0.7	0.6	0.5
240	2.6	1.9	1.4	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.5	0.4
280	2.5	1.6	1.3	1.1	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4
300	2.3	1.6	1.3	1.1	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.3
400	1.9	1.4	1.1	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.3	-

NOTES:

1. The classification of the soil layer that will be exposed in the terrace channel bottom and sideslopes should be considered. Average and erosion resistance soils generally have the following textures: Clay, silty clay, silty clay loam, clay loam, and sandy clay.

2. Channel grade in the lower reaches of the storage basin for underground outlets may exceed the table values.

3. The above values are based on the following data:

   Maximum veolocity = 2.0 fps
   10 yr.-24 hr. rainfall = 5.4 inches
   Average landslope = 8%
   RCN = 80
   "n" value = 0.035
   V-shaped channel
   Front slope and cut slope width = 14 feet
   Minimum ridge height = 1.0 foot

TABLE 6

MINIMUM HEIGHT OF SETTLED RIDGE FOR TERRACES [1]

Distance From Upper End of Terrace Feet		Terrace Spacing					
		90 to 120 Ft.		121 to 240 Ft.		241 to 400 Ft.	
		Channel Grade		Channel Grade		Channel Grade	
From	To	Less Than 0.4%	0.4% and Greater	Less Than 0.4%	0.4% and Greater	Less Than 0.4%	0.4% and Greater
0	200	1.0	1.0	1.0	1.0	1.2	1.0
250	400	1.0	1.0	1.3	1.1	1.6	1.3[2]
450	600	1.1	1.0	1.5	1.3	1.9[2]	1.6[2]
650	800	1.3	1.1	1.7[2]	1.4[2]	2.2[2]	1.8[2]
850	1000	1.4	1.2	1.9[2]	1.6[2]	2.4[2]	2.0[2]
1050	1200	1.5	1.3[2]	2.1[2]	1.7[2]		
1250	1400	1.6	1.4[2]	2.3[2]	1.9[2]		
1450	1600	1.7	1.4[2]				

1/ Measured from the 3 foot bottom width of channel to the 3 foot top of ridge. Ridge height will not be reduced for channel grades greater than those in the table.

Channel grade used to select ridge height must not exceed the maximum allowable channel grade as shown in Tables 4 and 5.

Terraces with length and spacing that exceed those for which values are shown in this table should not be installed.

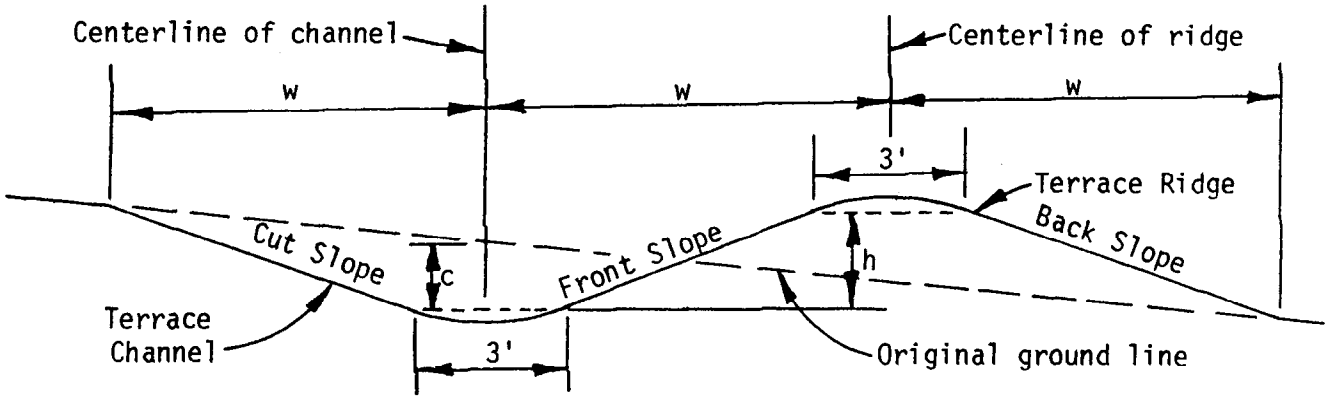
2/ Terraces with this combination of grade, spacing and length may be above maximum allowable grade if soils are easily erodible.

3/ The above values are based on the following data:

10 Yr-24 Hr. rainfall = 5.4 inches
Average landslope = 8%
RCN = 80
"n" value = 0.060
V-shaped channel
Front slope and cut slope width - 14 feet
Minimum ridge height = 1.0 foot

TABLES 7 AND 8

EARTHWORK QUANTITIES FOR CUT AND FILL TERRACES



c = depth of cut in feet measured at the centerline of the channel and to the 3-foot bottom width of the channel.

h = height of settled fill in feet measured from the 3-foot bottom width of the channel to the 3-foot top width of the ridge.

w = horizontal dimensions in feet of the cut slope of the channel and the front slope and back slope of the ridge.

Terrace Cross Section

The top line of the tabulation on Tables 7 and 8 indicates the depth of cut (c).

The left-hand column of the tabulation indicates the height of ridge (h). For each value of h there are two lines of figures. A figure in the top line indicates the amount of settled fill in the terrace ridge in cubic feet per foot. A figure in the bottom line indicates the difference between the cut and fill at that section in cubic feet per foot. A minus figure indicates a shortage of cut material and a plus figure (where no minus symbol is shown) indicates extra cut material. Where this figure in the bottom line is zero, the quantity of cut equals the quantity of fill.

Examples for 14-foot horizontal dimensions (w = 14 feet) and land slope equals 4 percent are as follows:

c ft.	h ft.	Fill cu.ft./ft.	Difference cu.ft./ft.	Cut cu.ft./ft.
0.3	1.1	19	-15 1/	4
0.8	1.1	11	0 2/	11
1.3	1.1	4	13 3/	17

1/ Shortage of cut of 15 cu.ft./ft.
2/ Balance in cut and fill
3/ Long on cut over fill by 13 cu.ft./ft.

A sum of the differences in cut and fill quantities for the entire terrace occurs when the sum of the plus and minus figures for all of the stations equals zero. (The stations must be spaced at uniform intervals.) Illustration of balanced cut and fill for complete terrace is as follows:

Station	c ft.	h ft.	Differences in Quantities cu.ft./ft.
0+00	0.8	0.8	3
+50	1.2	1.2	9
1+00	1.0	1.3	2
+50	0.4	1.5	-18
2+00	1.2	1.4	6
+50	0.7	1.0	-2
		Total =	0

The cut quantities and settled fill quantities balance in this example. Additional fill material must be provided if settlement is anticipated.

TABLE 7

EARTHWORK QUANTITIES FOR CUT AND FILL TERRACES IN CUBIC FEET PER FOOT

14-FOOT HORIZONTAL DIMENSIONS

1 PERCENT LAND SLOPE

h \ c	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
0.6	11	9	7	6	4	3	1	0	0	0	0	0	0	0	0	0
	-10	-7	-5	-2	0	3	6	9	12	14	16	18	20	22	24	26
0.7	12	10	9	7	5	4	3	1	0	0	0	0	0	0	0	0
	-12	-9	-6	-3	0	2	5	8	11	13	15	17	19	21	23	25
0.8	14	12	10	8	7	5	4	3	1	0	0	0	0	0	0	0
	-13	-10	-7	-5	-2	0	3	6	9	12	15	17	19	21	23	25
0.9	15	13	12	10	8	7	5	4	3	1	0	0	0	0	0	0
	-15	-12	-9	-6	-3	0	2	5	8	11	14	16	18	20	22	24
1.0	17	15	13	11	10	8	6	5	4	3	1	0	0	0	0	0
	-16	-13	-10	-7	-5	-2	0	3	6	9	12	15	18	20	22	24
1.1	18	16	14	13	11	9	8	6	5	4	3	1	0	0	0	0
	-18	-15	-12	-9	-6	-3	0	2	5	8	11	14	17	19	21	23
1.2	20	18	16	14	12	11	9	8	6	5	4	3	1	0	0	0
	-19	-16	-13	-10	-7	-5	-2	0	3	6	9	12	15	18	21	23
1.3	21	19	17	16	14	12	11	9	8	6	5	4	3	1	0	0
	-21	-18	-15	-12	-9	-6	-3	0	2	5	8	11	14	17	20	22
1.4	23	21	19	17	15	14	12	10	9	7	6	5	4	2	1	0
	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6	9	12	15	18	21
1.5	24	22	20	18	17	15	13	12	10	9	7	6	5	4	2	1
	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5	8	11	14	17	20
1.6	26	24	22	20	18	16	15	13	12	10	9	7	6	5	4	2
	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6	9	12	15	18
1.7	27	25	23	21	20	18	16	14	13	11	10	9	7	6	5	4
	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5	8	11	14	17
1.8	29	27	25	23	21	19	18	16	14	13	11	10	8	7	6	5
	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6	9	12	15
1.9	30	28	26	24	22	21	19	17	16	14	13	11	10	8	7	6
	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5	8	11	14
2.0	32	30	28	26	24	22	20	19	17	15	14	12	11	10	8	7
	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6	9	12
2.1	33	31	29	27	25	24	22	20	18	17	15	14	12	11	10	8
	-33	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5	8	11
2.2	35	33	31	29	27	25	23	22	20	18	17	15	14	12	11	9
	-34	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6	9
2.3	36	34	32	30	28	26	25	23	21	20	18	16	15	14	12	11
	-36	-33	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5	8
2.4	37	36	34	32	30	28	26	24	23	21	19	18	16	15	13	12
	-37	-34	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3	6
2.5	39	37	35	33	31	29	28	26	24	22	21	19	18	16	15	13
	-38	-35	-33	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2	5
2.6	40	38	37	35	33	31	29	27	26	24	22	21	19	18	16	15
	-40	-37	-34	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0	3
2.7	42	40	38	36	34	32	30	29	27	25	24	22	20	19	17	16
	-41	-38	-35	-33	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	2
2.8	43	41	39	38	36	34	32	30	28	27	25	23	22	20	19	17
	-43	-40	-37	-34	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2	0
2.9	45	43	41	39	37	35	33	32	30	28	26	25	23	22	20	19
	-44	-41	-38	-35	-33	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0
3.0	46	44	42	40	39	37	35	33	31	30	28	26	25	23	21	20
	-46	-43	-40	-37	-34	-31	-28	-25	-22	-19	-16	-13	-10	-7	-5	-2

TABLE 7 (CONTINUED)

EARTHWORK QUANTITIES FOR CUT AND FILL TERRACES IN CUBIC FEET PER FOOT

14-FOOT HORIZONTAL DIMENSIONS

1 PERCENT LAND SLOPE

c h	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56
0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	27	29	31	33	35	37	40	42	44	46	48	50	52	54	56
0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55
0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	28	30	32	34	36	38	40	42	44	47	49	51	53	55
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	27	29	31	33	35	37	39	41	43	45	47	49	51	54
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53
1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51
1.6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21	24	26	28	31	33	35	37	39	41	43	45	47	49	51
1.7	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	23	25	28	30	32	34	36	38	40	42	44	46	48	50
1.8	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0
	18	21	24	27	29	31	33	35	38	40	42	44	46	48	50
1.9	5	4	2	1	0	0	0	0	0	0	0	0	0	0	0
	17	20	23	25	28	31	33	35	37	39	41	43	45	47	49
2.0	6	5	4	2	1	0	0	0	0	0	0	0	0	0	0
	15	18	21	24	27	30	32	34	36	38	40	42	45	47	49
2.1	7	6	5	3	2	1	0	0	0	0	0	0	0	0	0
	14	17	20	23	25	28	31	34	36	38	40	42	44	46	48
2.2	8	7	6	5	3	2	1	0	0	0	0	0	0	0	0
	12	15	18	21	24	27	30	33	35	37	39	41	43	45	47
2.3	9	8	7	6	5	3	2	1	0	0	0	0	0	0	0
	11	14	17	20	23	25	28	31	34	37	39	41	43	45	47
2.4	11	9	8	7	6	5	3	2	1	0	0	0	0	0	0
	9	12	15	18	21	24	27	30	33	36	38	40	42	44	46
2.5	12	11	9	8	7	6	5	3	2	1	0	0	0	0	0
	8	11	14	17	20	23	25	28	31	34	37	40	42	44	46
2.6	13	12	11	9	8	7	6	5	3	2	1	0	0	0	0
	6	9	12	15	18	21	24	27	30	33	36	39	41	43	45
2.7	14	13	12	10	9	8	7	6	5	3	2	1	0	0	0
	5	8	11	14	17	20	23	25	28	31	34	37	40	43	45
2.8	16	14	13	12	10	9	8	7	6	4	3	2	1	0	0
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	44
2.9	17	16	14	13	12	10	9	8	7	6	4	3	2	1	0
	2	5	8	11	14	17	20	23	25	28	31	34	37	40	43
3.0	18	17	16	14	13	12	10	9	8	7	6	4	3	2	1
	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42

TABLE 7 (CONTINUED)

EARTHWORK QUANTITIES FOR CUT AND FILL TERRACES IN CUBIC FEET PER FOOT

14-FOOT HORIZONTAL DIMENSIONS

2 PERCENT LAND SLOPE

c h	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
0.6	13	11	9	8	6	5	3	2	1	0	0	0	0	0	0	0
	-13	-10	-7	-4	-1	1	4	7	10	13	15	17	19	21	23	25
0.7	14	13	11	9	7	6	4	3	2	1	0	0	0	0	0	0
	-14	-11	-8	-5	-2	0	3	6	9	12	15	17	19	21	23	25
0.8	16	14	12	10	9	7	6	4	3	2	1	0	0	0	0	0
	-15	-12	-10	-7	-4	-1	1	4	7	10	13	16	18	20	22	24
0.9	17	16	14	12	10	9	7	6	4	3	2	1	0	0	0	0
	-17	-14	-11	-8	-5	-2	0	3	6	9	12	15	17	20	22	24
1.0	19	17	15	13	12	10	8	7	6	4	3	2	1	0	0	0
	-18	-15	-12	-10	-7	-4	-1	1	4	7	10	13	16	19	21	23
1.1	20	19	17	15	13	11	10	8	7	5	4	3	2	1	0	0
	-20	-17	-14	-11	-8	-5	-2	0	3	6	9	12	15	17	20	22
1.2	22	20	18	16	14	13	11	10	8	7	5	4	3	2	1	0
	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7	10	13	16	19	22
1.3	23	21	20	18	16	14	13	11	9	8	7	5	4	3	2	1
	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6	9	12	15	17	20
1.4	25	23	21	19	17	16	14	12	11	9	8	7	5	4	3	2
	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7	10	13	16	19
1.5	26	24	22	21	19	17	15	14	12	11	9	8	7	5	4	3
	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6	9	12	15	17
1.6	28	26	24	22	20	18	17	15	13	12	11	9	8	6	5	4
	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7	10	13	16
1.7	29	27	25	24	22	20	18	16	15	13	12	10	9	8	6	5
	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6	9	12	15
1.8	31	29	27	25	23	21	20	18	16	15	13	12	10	9	8	6
	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7	10	13
1.9	32	30	28	26	25	23	21	19	18	16	15	13	12	10	9	8
	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6	9	12
2.0	34	32	30	28	26	24	22	21	19	17	16	14	13	11	10	9
	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7	10
2.1	35	33	31	29	28	26	24	22	20	19	17	16	14	13	11	10
	-35	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6	9
2.2	37	35	33	31	29	27	25	24	22	20	19	17	16	14	13	11
	-36	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4	7
2.3	38	36	34	32	30	29	27	25	23	22	20	18	17	15	14	13
	-38	-35	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3	6
2.4	40	38	36	34	32	30	28	26	25	23	21	20	18	17	15	14
	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1	4
2.5	41	39	37	35	33	32	30	28	26	24	23	21	20	18	17	15
	-41	-38	-35	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0	3
2.6	42	41	39	37	35	33	31	29	28	26	24	23	21	19	18	16
	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1	1
2.7	44	42	40	38	36	34	33	31	29	27	26	24	22	21	19	18
	-43	-41	-38	-35	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2	0
2.8	45	44	42	40	38	36	34	32	30	29	27	25	24	22	21	19
	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4	-1
2.9	47	45	43	41	39	37	36	34	32	30	28	27	25	24	22	21
	-46	-43	-41	-38	-35	-32	-29	-26	-23	-20	-17	-14	-11	-8	-5	-2
3.0	48	47	45	43	41	39	37	35	33	32	30	28	27	25	23	22
	-48	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-10	-7	-4